The subconscious self and its relation to education and health / by Louis Waldstein, M.D.

Contributors

Waldstein, Louis, 1853-1915.
Waldstein, Charles, Sir, 1856-1927.

Publication/Creation

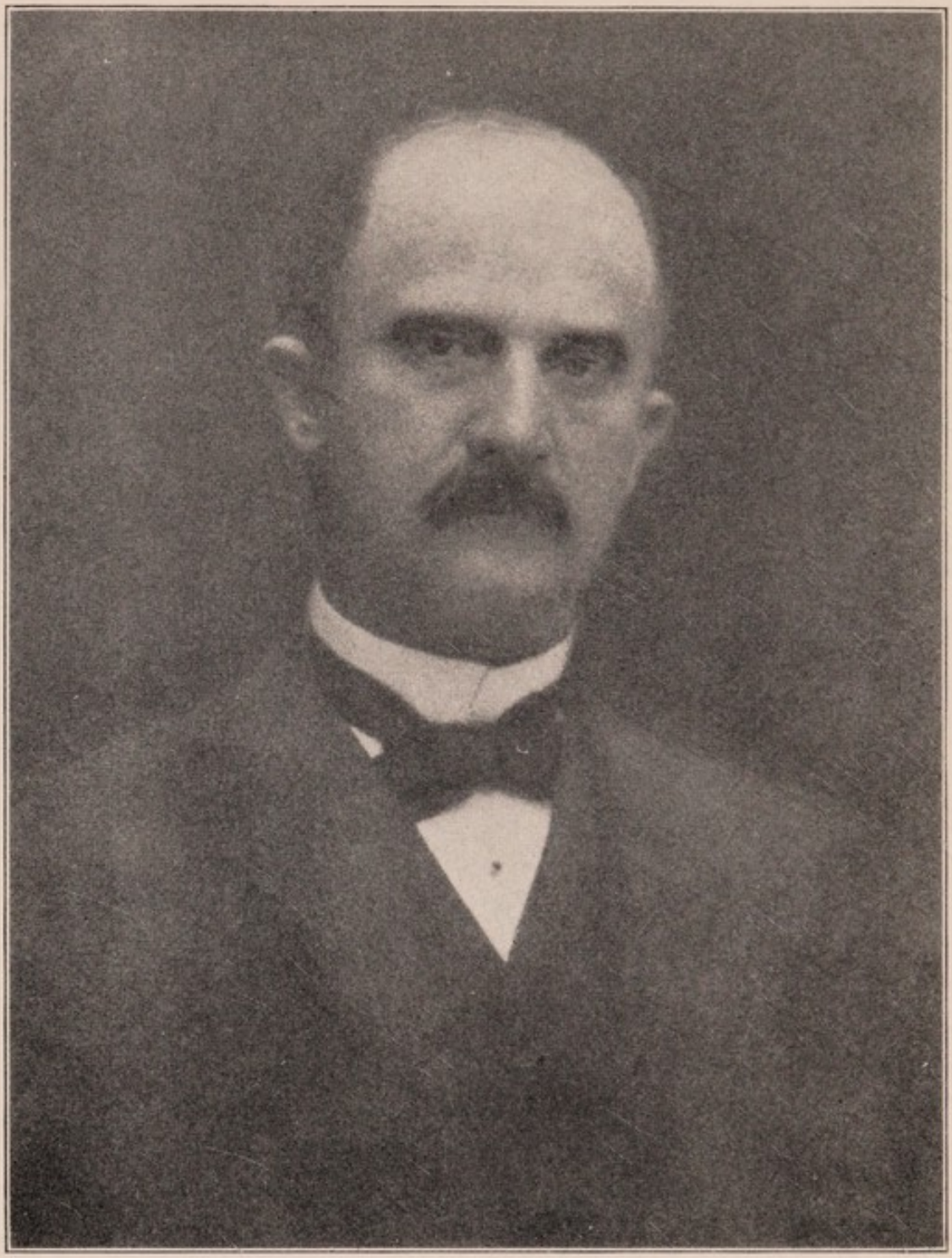
New York, London : C. Scribner's sons, [1926]

Persistent URL

https://wellcomecollection.org/works/zzhyqxcz

License and attribution

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org



From a photograph by Kurtz, New York.

LOUIS WALDSTEIN.

The Subconscious Self

and

Its Relation to Education and Health

By

Louis Waldstein, M.D.

New Edition

With the Preface to the German Edition by Dr. Otto Veraguth, a Biographical Sketch by Sir Charles Walston, etc.

With Portraits

"What 's done we partly may compute
But know not what 's resisted."

BURNS.

London
Charles Scribner's Sons
1926

Printed in the United States of America

To My Mother

PREFACE TO THE GERMAN EDITION*

BY DR. OTTO VERAGUTH

PROFESSOR OF PHYSICAL THERAPEUTICS,
UNIVERSITY OF ZÜRICH

THE lower phases of consciousness are beginning, in increasing degree, to attract the attention especially of neurologists and psychopathologists. That this — as far as the German-speaking countries are concerned — is a gratifying result of the researches of Freud, appears to me a fact which we ought to accept with gratitude. But it appears to me equally true that the well-known special direction which this school has taken with increasing exclusiveness in the study of the subconscious, has not been favorable, either to the sound increase of our knowledge concerning both our normal and pathological

*Translated by Frau Gertrud Veraguth (Wiesbaden, 1908).

spiritual existence, nor to the wider diffusion of a rational system of psychology, especially among medical men, but also among the mass of educated people.

This being the case, Waldstein's "Essay" will be welcomed, in the first place, by the researcher as an historical document. For it was first planned by the author, on the ground of personal observations, at a time when the German neurological and pathological publications had in no way occupied themselves with that subject.

The experienced reader will also note certain limitations of the subject in the present book. But these limitations are, so it appears to me, of desired use to the inquiry. For, in giving to his thoughts the form on which the present translation is based, the author had before him the aim to reach the understanding of all *educated laymen*. This was only to be attained by omitting more specialized medical discussion. I may be allowed to quote a passage from a letter (1908) of the

author on this point: ". . . that I had, in designedly limiting the subject, taken special care to avoid purely medical discussions. An essay addressed to the medical man on this subject would, even eleven years ago, have had to enter into questions for which the educationalist and the general public were not possessed of the necessary technical preparation. If this was the case eleven years ago, it is still more so, to a higher degree, to-day [in 1908]. Modern Humoral Pathology* (*Humoralpathologie*) has opened out vistas which must cause us to attack the problem of the origin of diseases of the nerves and neuroses and their treatment. Nay, we might maintain without exaggeration that, in this short lapse of time, a new department of science has established itself, namely, Pathological

* Sir Humphry Rolleston kindly informs me that "Humoral Pathology is rather an old term, but now means changes in the chemical constitution of the blood and other fluids in the body, and the results of this altered pabulum on the nervous tissues, organs, and the body generally."

Chemistry, the results of which may in a short time be applied to the conditions and their treatment, which I have ventured to describe. . . ."

By quoting these words of the author, I believe I can best prepare the medical reader, that he will be able to read much between the lines which he may not find given *expressis verbis* in the book.

Some medical men, whose studies have until now brought them in touch with such problems, will be stimulated by this book to deeper thought. Others might, perhaps, be won over to the renewed investigation of subconsciousness. And are not the following pages destined to intensify (*schärfen*) the feeling of personal responsibility among educated laymen, and to free some among the mass of the people from the degrading tyranny which the uncritical fear of heredity has cast upon us?

Should this German translation only attain such results, or one of them, it has fulfilled

its purpose: to spread among readers of the German language the understanding of an excellent scientific document.

DR. OTTO VERAGUTH.

ZÜRICH, Autumn of 1908.

INTRODUCTION AND BIOGRAPHICAL SKETCH

BY SIR CHARLES WALSTON (WALDSTEIN)

So many readers and, above all, specialists in medicine, psychology, and psychotherapy, have urged upon me that this book — for some time out of print — should be republished, that, with the encouragement of its American publishers, I have decided to reprint it in its original form. Indeed, for some years before his untimely death, others besides myself had urged upon Louis Waldstein the need for a new and enlarged edition of his original work, especially in consideration of the fact that the department of science, in which he was a pioneer, had since led to the publication of many new facts, marking a distinct advance and spread of the therapeutic aspect of psychical phenomena. Moreover, he himself had a huge mass of

notes, collected for many years up to the time of his death, bearing on the subject, so that I repeatedly urged upon him the necessity of speedily preparing a revised and enlarged edition of his book. This he promised to do as soon as some highly important work in other departments of pathology, on which he was engaged, had been completed. But he maintained, that he would then have to give all his time to such revised treatment of the problem of subconsciousness, as he also was especially anxious to carry out some practical tests in asylums and nerve-sanatoria, with new methods, on which subject he had important and original experiences and ideas.

But death intervened and, moreover, under conditions so pathetic, if not tragic, that I feel obliged to give a short biographical sketch of the life of this great thinker and man of science, which must be of more than personal interest to those who knew him well and valued him highly. I was also confirmed in my decision, when I remembered his own

intense enthusiasm, aroused by the publication (in 1896) of that remarkable book* by E. Duclaux, "Pasteur, Histoire d'un Esprit," which led him, in spite of all his pressing occupations, to propose to translate it. He had even conferred with a London publisher on the subject. He felt at the time that such a book would, beyond the scientific circles, be of great and direct moral, as well as intellectual, importance to a wider public. But, as usual, the publisher thought that, though interesting to the special scientists, most of whom could read French, there was not a sufficiently large public to whom it would appeal, and that therefore "it was not a sound business proposition."

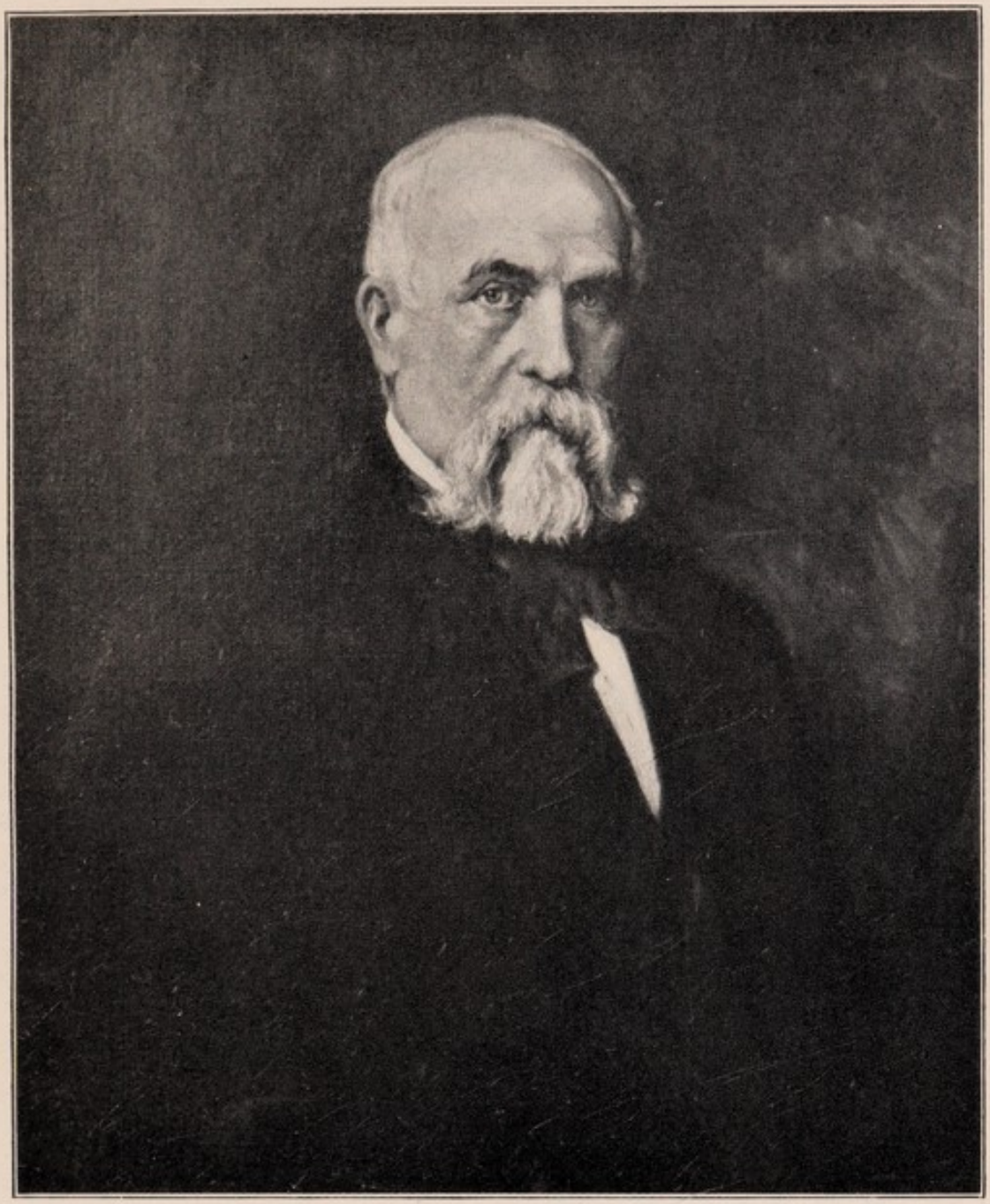
I shall therefore endeavor to give a short account of Louis Waldstein's life and work, and his singularly pathetic end, with as much self-detachment as I can command, free from the bias of unbounded affection.

* This is truly one of the books of at once most informative and delightful reading.

He was born in New York on April 15, 1853, the son of Henry and Sophie Waldstein. His father, a native of Bavaria, had passed his early youth in Austria, and emigrated to America in 1841. His mother, as a young girl, had accompanied her father, a native of Baden, to Albany, and later to New York, during the revolution of 1848, in which he had taken an active part.

About the beginning of the Civil War the family migrated to Hoboken, which, in those early days, before the advent of great steamships, with their docks, was an attractive village opposite New York, on the Hudson.

In 1865 the family moved to Murray Hill, New York City, where a new house was purchased in 35th Street, between Park and Madison Avenues, which was then becoming the fashionable residential quarter. It will, by the way, strike the younger readers of the present day in New York as almost unbelievable, that in those days, though there were already many beautiful houses built in



HENRY WALDSTEIN.

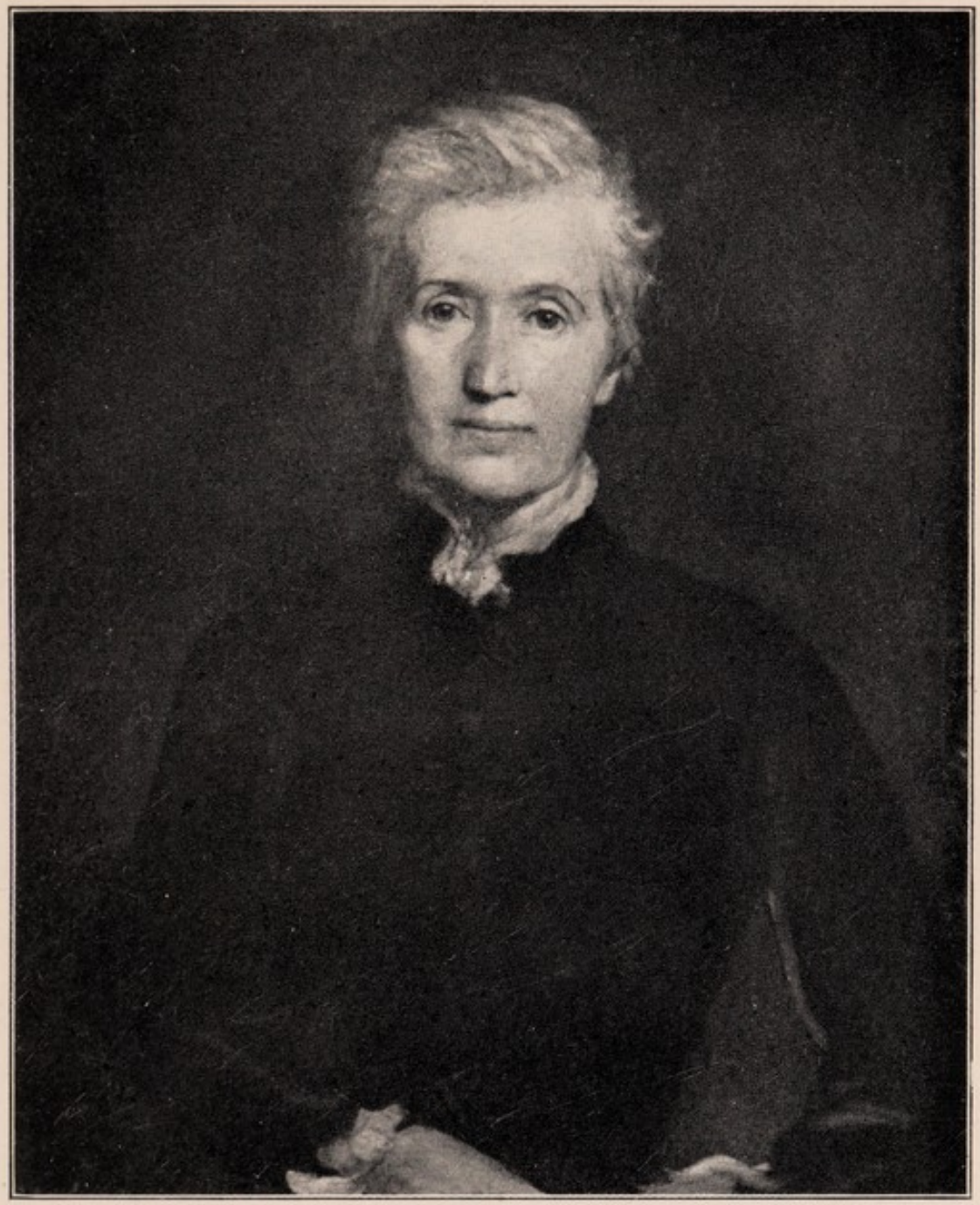
From a portrait by George Harcourt. A. R. A.

that district, Louis, with his brothers and friends, used to play baseball on some of the empty lots between Fifth and Park Avenues and 34th and 39th Streets.

The children's early education, beginning with private schools, was followed by more continuous attendance, from 1865 onward, at the public school in 13th Street presided over by that distinguished pedagogue, Dr. Hunter. But the subject of the education of her children was, from their earliest childhood, the chief concern of his mother's life. In later years friends of the family spoke of her as "the students' mother." While her three sons were at different German universities, she would go on visits from one to the other, and was so thoroughly imbued with their mode of life that she used to divide her year by "terms" or "semesters." But, from the beginning, lessons at school were supplemented by private teaching of governesses, followed by resident tutors, French or German, as well as by non-resident music-

masters. The boys thus grew up trilingually, learning English, French, and German together, from their childhood upward. No doubt the acquisition of these three languages was of great use and help in later life. But I remember that we brothers, in later years, discussing this system of education, also felt that there were some drawbacks connected with such premature familiarity with foreign languages.

In the spring of 1867 the family paid its first visit to Europe. There were then four boys, ranging from nine and a half to fourteen years, the youngest of whom died abroad in the late summer of that year. After travelling on the Continent, Louis and his second brother, Martin (now Dr. M. E. Walston), were sent to the excellent small private school of M. Olivier de Speyer, the son of the well-known Vaudois writer, Urbain Olivier, at Lausanne, where they remained for about a year, after which they, with their mother and brother, settled down in a home at Stuttgart,



SOPHIE WALDSTEIN.

From a painting in 1883 by Hubert Herkomer, R. A.

where they remained till 1870, their father paying them occasional visits whenever his business in America permitted. The school work was continued there, with the addition of a French tutor, Léon Bertrand, a student of some literary attainments, who also instructed in classics.

As his father desired that, when old enough, Louis should join him in his optical business in New York, he entered the well-known Polytechnic School at Stuttgart in 1869, in his seventeenth year, and attended various lectures, technical and general. I remember that he was especially attracted by the lectures on æsthetic subjects of the well-known critic and philosopher, K. T. Vischer. In the autumn of 1869 he returned to America and entered his father's business.

His father, naturally, strongly felt the desire for continuity in the family traditions. The optical business and the production of optical and scientific instruments required extensive knowledge of mathematics and

physics. It had been followed in the family for three or more generations. This business was founded at Munich by Louis' great-grandfather, the family probably having migrated to the south of Germany from Holland, where optical work had been practised in earlier times. There exists a tradition that his great-grandfather's family migrated to South Germany and Austria from Holland and that, in the seventeenth century, there was some association with Spinoza, who also earned his living by optical work. Both this great-grandfather and his son Arnold were connected with the important scientific work of the famous physicist Frauenhofer, at Munich. Towards the end of the eighteenth century the founder of the optical business took the name of Waldstein.* From those

* I recall my father's telling me, many years ago, when we stood before the statue of a distinguished representative of the Waldstein family, that that Count Waldstein and his own grandfather were great friends, and that it was he who urged him to take his name during the Napoleonic period.

early days the business expanded and flourished continuously, both at Munich and Vienna. It was chiefly through Arnold Waldstein of Munich and Vienna, Louis's great-uncle (to whom Henry Waldstein was apprenticed after the premature death of his father) that other branches were established at Buda-Pesth, Venice, and St. Petersburg. Henry Waldstein himself, who went to America in 1841, and died there in 1892, founded the business in New York. The early founders of the business were all men of scientific distinction.*

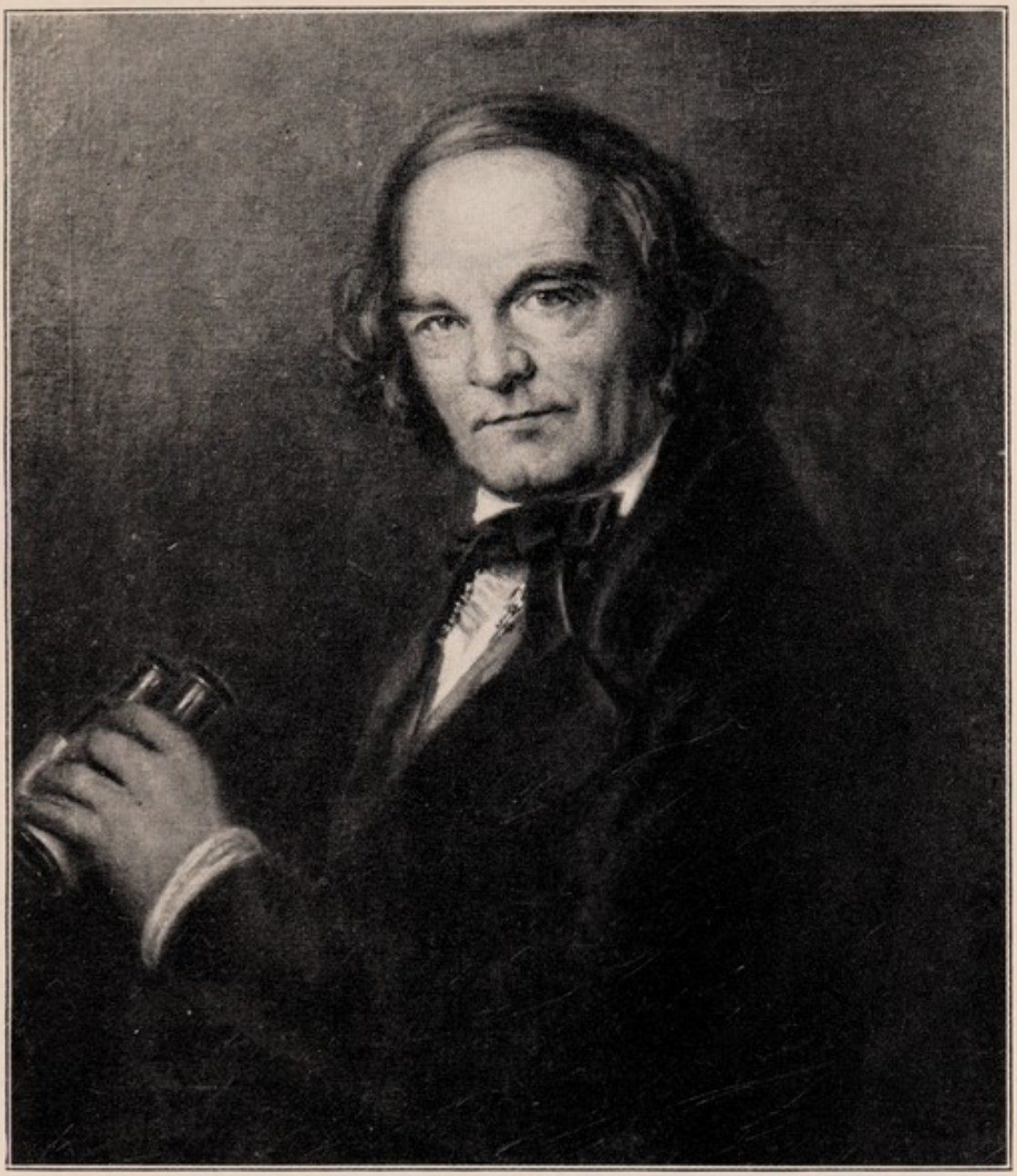
Arnold Waldstein had a wide circle of friends, scientific, literary, and artistic, in Vienna. No doubt he also came in contact

* Louis once told me how, at an interview with one of the heads of the legal firm of Freshfield, in London, whom he was consulting, he was greeted with the question: "Are you related to the great Dr. Waldstein?" "I don't know whom you mean," he answered. "You cannot mean me; perhaps my brother Charles at Cambridge?" "Oh, no," said Mr. Freshfield, "I know your brother Charles; but it was a greater man of an earlier generation. When in my youth I travelled during my

with Beethoven, whom in the type of countenance he resembled.

But, to the disappointment of his father and in spite of all desire to meet his wishes, Louis was not happy in the New York business, and did not see any prospect of enlarging its more scientific side. Though, during the Civil War, his father, who was a friend of Admiral Farragut and of the heads of the Coast Survey, did valuable scientific work, for which he was highly commended by them, there were then no scientific institutions or centres of research in New York or elsewhere for which he could work in developing the technical and scientific side of his optical business. Therefore, because of his dislike of his father's business, he was placed, first

Cambridge holidays, under the care of Dean Peacock, we met at Vienna a Dr. Waldstein whom Dean Peacock (himself a distinguished mathematician) proclaimed to be the greatest mathematician and physicist in Europe." No doubt this was exaggerated praise; but, coming from such an authority, it must have meant that either Arnold Waldstein or his father was a thoroughly scientific optician and physicist.



ARNOLD WALDSTEIN.

From a portrait at Vienna.

in a banking-house, and then with a firm of wholesale silk importers. But more and more his unhappiness grew, at not being able to follow the pursuit in which, from his earliest years onward, he was passionately interested. This was the science and practice of medicine.* Accordingly his parents (whose dominant desire was to further the education of their children), decided that Louis should follow his bent and enter as a medical student the College of Physicians and Surgeons in New York, toward the end of 1872. This decision at the time meant some sacrifice, as their other sons were then also students at Columbia University, the one in the academic department or college proper, the other (Martin) in the School of Mines, where he began his studies in chemistry, which

* I remember hearing that when Louis as a boy visited Paris with his mother, in 1869, and a great military review was to be held before the Emperor himself, the Czar, and the King of Prussia, though seats had been procured with great difficulty by kind friends, he insisted on going in search of a particular kind of case for medical and scientific instruments instead of attending the review.

he continued for some years at the Universities of Heidelberg (taking his degree of Ph.D. there in 1875), Berlin, and Munich. In 1874 Louis joined his two brothers at Heidelberg* as a medical student, and took his degree of Doctor of Medicine in 1879. After one year's special study at Zürich and Vienna, he returned to Heidelberg, where he was appointed assistant in the Pathological Institute, and began to publish scientific papers, especially in Virchow's "Archive." He relinquished this position and joined the laboratory of the Collège de France, in Paris, under Ranvier, early in the winter of 1881–2 where, in co-operation with Weber, he published some researches on pathological and bacteriological subjects. He then visited London, where he did some work with the late Professor Burdon-Sanderson, and also paid

* I recall that he there once read a remarkable paper on Alexander Hamilton to the Anglo-American Students' Club, at Heidelberg. Hamilton and Lincoln were his two earliest heroes. He always had a photograph of Lincoln on his writing-table.

a short visit to Edinburgh to acquaint himself with Scottish methods of research. At the end of 1882 he returned to New York and began to practise medicine there. Very soon he met with great success as a medical practitioner, and, in the course of time, established one of the most noted practices in that city.

As to the methods he pursued, and the conception he had of the duties of a medical adviser, these will be manifest from the account given by his former assistant and friend, Dr. Manges, of New York. I can only add that one of the leading traits of his character, namely, to regard seriously all his duties, and to put his whole heart and mind into whatever he did, predominated in all his professional work. I had occasion to realize, on my several visits to America, how he worried over his numerous patients, and how these patients, both in sickness and in health, became his personal friends, for whose welfare he felt himself responsible. I

also heard indirectly of many deeds of generosity to his poorer patients.

It was but natural that intensive work of this kind proved exhausting to him. But he enjoyed his short holidays and was especially sensitive to beauty in nature, as well as in art. On my visits to America in the summer he generally arranged a driving tour, one of which I particularly remember, when, accompanied by his parents and myself, in two separate light carriages, we started from New York along the Hudson, through the Berkshire Hills, up to the very north of Vermont and New Hampshire. He was fond of horses and loved driving and riding, and I recall, on one of his visits to England, how he kept well up with hounds in a stag-hunt in Devonshire.

Not only did his practice prove exhausting; but, above all, he regretted the lack of time and opportunity to pursue higher medical study and research. Therefore, in 1898, he attempted to reduce his practice and confine

it more to consultative work. Also there were some scientific problems he hoped to solve, so that he should be able to carry on scientific investigation. By taking a year off in Europe, he hoped to effect such a change in the nature of his practice. Thus in 1894–5 he settled at Berlin and began research work at the Pathological Institute there. He concentrated on one special subject, which was the application of pilocarpine in the cure of *lupus* and ultimately, perhaps, of cancer. I visited him during his residence at Berlin, where, on one occasion, we were invited to dine with the Empress Frederick, who was much impressed by his character and ability, as also, on his part, he considered her to be, of all women he had met, the one with the widest range of interest in science, literature, and art, and who had grasped the essential problems of the various departments of scientific research. He ventured to ask her how she found the opportunity and the time to enter into the details of these various

studies. She answered that, in spite of many onerous duties and limitations, her position in life had the great advantage that she could readily meet, and converse with, the most interesting and prominent men of her time. Thus, in her intercourse with these leaders of thought, literature, and art, she made a point of asking them their opinions on the important questions of the day, and for the best literature bearing on these. When she awoke at six o'clock in the morning, she always devoted an hour or two to quiet reading on these various interesting topics. Not only did she discuss with sympathy the problems on which Louis was then engaged, but she also discussed classical archæology. In both these subjects she proved herself more than a mere amateur and, if not a specialist, she at least evinced a trained mind working with scientific method and directing her supreme passion for knowledge.

But at Berlin there occurred an incident in his work which had decisive and unfortunate

consequences in preventing him from subsequently publishing at various stages his successful, though not ultimate, results. One of his methods of applying pilocarpine was adopted in one of the Berlin hospitals, and used in a case of *lupus*. The results were startlingly effective. Upon communicating this successful result to a personal American friend, who held an official position at Berlin, the announcement of the result in the cure of that disease, even perhaps foreshadowing some success in the treatment of cancer, was transmitted by that friend, without his knowledge or consent, to an American newspaper. The shock and annoyance of this premature publication so greatly disturbed Louis that it confirmed in him a determination which, unfortunately, he carried to excess in his subsequent work.

On returning to New York he soon found that he could not, as he had hoped, limit his practice. Overwork had affected his health and stood in the way of the higher pursuits

of his more theoretical scientific work to which he felt morally convinced he ought to devote his energies. This was all the more impressed upon him as, in that period, he had snatched from his routine work every moment to prepare for press the book here republished, which was written at Berlin (1894–5) and was published in New York in 1897. He then boldly determined (in spite of the fact that though in the United States there exists no means of acquiring pecuniary advantage from disposing of a well-established practice) to give up his career and, with a moderate income, to devote himself entirely to higher and free scientific work in England, where, after the death of his father in 1891, his mother had settled. He accordingly joined his mother in London, where he bought a house in Montpellier Square, and from that time on devoted himself entirely to scientific medical research. Though he had a small laboratory in his house, he chiefly carried on his work at various London

hospitals, as well as in the Wellcome Laboratory (at first under the direction of Dr. Dowson, followed by Dr. Dale), and, for certain tests of milk he worked at the laboratory of the Aylesbury Dairy Company, which was then under the scientific direction of Dr. Droop Richmond.

I regret that I am unable to enumerate the special and varied inquiries which occupied him during those years — from 1897 to his death in 1915. They include the subject of milk, especially in its relation to infant food; blood tests of the most varied kinds, for which he had invented new methods of testing and of coloring his slides; bacteriological work and also psychological and psychiatric research relating to and bearing upon the present book. He also visited the hospital and laboratory of Dr. Bernheim at Nancy, and remained there some time, examining the methods and the astonishing results attained by that disciple of Charcot's. I recall how, on one occasion, while dining

in Hall at King's College, Cambridge, the professor of surgery at the University (the late Sir George Humphry) told him of a puzzling case of skin trouble in a young woman patient which did not yield to medical treatment. Louis advised trying "suggestion," reminding the professor of the close connection between neurasthenia and hysteria and some of the stigmata considered to be "miraculous" in the past. Professor Humphry tried "suggestion" with his help, with favorable and startling results.

But the great subject of his work during these years, which absorbed all his time and energy, was the treatment of the blood in relation to infectious toxins and diseases. At an early period, arising out of his researches in blood, he had come to the conclusion that, in spite of the supreme importance and undoubted success of therapeutic treatment by vaccination, or the infusion of attenuated virus — the antitoxin treatment — it ought to be possible to secure immunity from in-

fectious diseases at the very fountainhead. He believed that means could be discovered to affect the blood and the relation between the red and white blood corpuscles so as to create resistance against toxic bacteria. Not as a discovery by accident, but with deliberation and fixed method did he set to work at his experiments on blood for several years. His extensive and thorough knowledge, not only of practical medicine and pathology, but of physics and chemistry, was supplemented by the advice of colleagues and friends in the several departments. For days and nights, excepting the time exacted by his devotion to his mother and his occasional meetings with friends, the pursuit of this one aim absorbed all his energy and his thought.

Others will be better able to indicate the nature of his experiments; though, unfortunately, he did not communicate to them, and still less publish, the various phases of his inquiries or their total and ultimate end.

Often I urged upon him, when some definite results had been obtained in his various experiments, to publish each as he proceeded, limiting and modifying his claims by impressing the fact that, though complete as far as they went, they were not ultimate in character. This he persistently refused to do. Not only had the premature publication of his successful experiments with pilocarpine at Berlin given him a shock, but, long before this, he had felt strongly that hasty and premature publications were "scientifically immoral." He quoted to me the publication of some experiments, I believe by Koch, to which exaggerated importance had at the time been attached, and which proved defective, and said: "I shall not publish my results until they are absolutely complete and fully established, beyond the mere laboratory stage, successfully applied to the patient in the sick-bed. My notes and the slides and experimental documents are all here, arranged in order, and, should

I die before completion of the work, they can be utilized by other inquirers."

It was true that he had devised and carried into effect a wonderfully systematic method of recording his results and keeping notes in a card catalogue, to which he, and prospectively others, could easily refer. In the same way he kept his numerous microscopic slides. "It is all there, if anything should happen to me," he would say, pointing to these.

And now came a great and tragic catastrophe. In literature tragic catastrophes are generally limited to the basic and elementary passions of life, individual and collective. "The pangs of dispriz'd love, the law's delay, the insolence of office." The ruin of happy households or of the just and well-founded ambitions in the various walks of life, are the motives in drama and fiction to life's tragedies. But the sudden crumbling to nothingness of a continuous supreme effort in pure or applied science, on which the wel-

fare of humanity may depend, on the very eve of its successful consummation, is a tragedy which makes the others pale into insignificance, though they may shake to its foundations the structure of individual or even collective life.

Such was the experience of Louis Waldstein in his life-work. I can only, in a few words, give an account of this as it became known to me. Having for years followed with intense, though uninformed, sympathy the various phases of his experiments to produce blood resistance and immunity against intoxication and infectious diseases, one day, in the summer of 1908, while on a holiday on the Lake of Como, I received a telegram from him from London with the words: "Eureka. Tests successful." A letter followed explaining that he had treated six guinea-pigs by injecting the highly complex chemical mixture which, step by step for years, he had been preparing. He then injected into these "thus immunized" guinea-

pigs, a *double* lethal dose of diphtheria toxin. At the same time he injected six other guinea-pigs not thus immunized with a *single* dose of the same toxin. The next morning the six not immunized by his remedy were all dead, whereas the six he had treated ran about well and free from the effects of the disease. It was then that he had telegraphed to me.

Now, this successful experiment could never be repeated! For days, weeks, months, and even years, he worked and struggled to discover the cause of this failure, tenaciously clinging to the fight and confident that at the end he must be victorious. The mixture consisted of various chemicals.* Was

* I learn from Dr. Droop Richmond that ". . . The substance on which he was working and which gave him those good results, and which he was never able to reproduce, was Sodium Metaphosphate. So far as I recollect, his original supply came from Merck, and as no further quantity was available we tried a very large number of experiments of preparing Sodium Metaphosphate from different materials at different temperatures and with different manipulation, but none of the products had quite the properties of the original. When I mentioned

anything wrong with one or the other of the ingredients, or in the proportions of each to the whole? Was it due to the degree of heating or other physical processes? He travelled to Darmstadt where most of the chemicals were manufactured, to discover whether there were impurities in the one or the other ingredient, or whether even some of

that one of his ideas was borne out by modern experience, I was referring to his constant expression of the idea that many diseases were due to a lack of a very small quantity of some constituent circulating in the blood. . . ." Dr. Henry J. Sudmersen has also written to me: . . . "He told me that his attempts were in the direction of influencing the constitution of the blood in order to confer a general immunity — bodily resistance — against all infective and toxic processes. At this time I understood that for this purpose he had long thought of the introduction of a labile phosphate, and latterly selected a metaphosphate; to which a certain proportion of a sugar was added, for what purpose, unless to influence absorption, or to maintain stability during the process of absorption, I do not know. He was latterly interested in the influence of intestinal bacteria, as the cause of chronic intoxication, thereby inducing various pathological conditions, and although he showed me on one or two occasions (when I had the delight of calling to see him at Tunbridge Wells) a bacillus under the microscope, I never received a culture of this for the purpose of identification. . . ."

the impurities might not have had some anti-toxic effect. It was all in vain.* Realizing that this continuous and intensive work was undermining his health, we urged him to take a longer holiday and travel to distant and interesting parts which, in the past, had offered such potent recreation to his life, and which led him to write such intensely interesting letters of travel to various members of his family, from Spain, Algiers, and the North Coast of Africa, from Egypt, Italy, the Balearic Islands and elsewhere. But the effects of this life disappointment remained. He returned with renewed devotion to the care of his mother, and, for the time being, was absorbed in rebuilding and laying out his beautiful country home, Posingford, near Hartfield, in Sussex, adjoining the Ashdown Forest.

* It has since been suggested to me that, perhaps, the syringes he used may not have been properly cleaned, and may have contained, from previous use, some immunizing matter; also that some of the guinea-pigs may already have been immunized in previous experiments. I do not think this likely.

For some years he had been seeking, in various English rural districts — to the beauties of which he was singularly sensitive — a site for a home of his own, in which his mother could spend her last years with him. For this purpose he studied the specific beauties of each district, as well as the nature of the soil and climate from the point of view of health. One of his close friends, a lady at whose hospitable house were always to be met many interesting people, the late Mrs. Hugh Hammersley (the subject of one of the most beautiful portraits by John Sargent), said of him: "I hope Dr. Louis will never find a site for his house, for, if he does, one of the chief sources of the recreative side of his life will have been lost." Posingford seemed to combine everything for which he had been looking, with its old Sussex cottage, which he retained for his bailiff, and its miniature park, glorious trees and a rippling brooklet running among them a short distance from the house. He added a new

house and stables, to carry out his own ideas, and especially arranged the upper passage-ways so that his mother, in case she could not leave the house, should have a sunny walk indoors. During the short period in which he resided there before his death, he loved to take distant walks through the fields and woods of Ashdown Forest, and even on his last sick-bed, would drink in the beauty of the view through his window, gaining for the time being peaceful respite from his suffering.

But his great desire was not to be fulfilled. His mother died at Tunbridge Wells in the house of his brother Martin, in 1913, in her eighty-second year, before the house which he had erected mainly for her use was ready for occupation.* The very next year, in August,

* It is characteristic of Louis Waldstein, as well as of his mother, that, in order to perpetuate her memory, he, by his will, left a comparatively large sum to the Domestic Servants' Benevolent Institution, for a fund to be called "The Sophie Waldstein Fund," the income of which was to be used for pensions to deserving domestic servants, who were to be called "The Sophie Waldstein Pensioners."

1914, he was content that his mother should have died when she did, before the outbreak of the Great War and the shock it would have meant for her. With all his intellectual passion for scientific and humanitarian achievement, with all his intense personal affection for his family and his numerous friends, there are but few to whom the affairs of the world, the fortunes and misfortunes of nations, were such a matter of immediate personal concern, and who felt the bearings of each national or international event directly as a personal experience, affecting his own life and his own happiness. The Great War meant for him, as for many of us, the crumbling of all his hopes for the progress of humanity. By nature, experience, and perhaps heredity, he was passionately opposed to the Prussian military spirit in Germany, and to all its leaders, the "men of blood and iron."

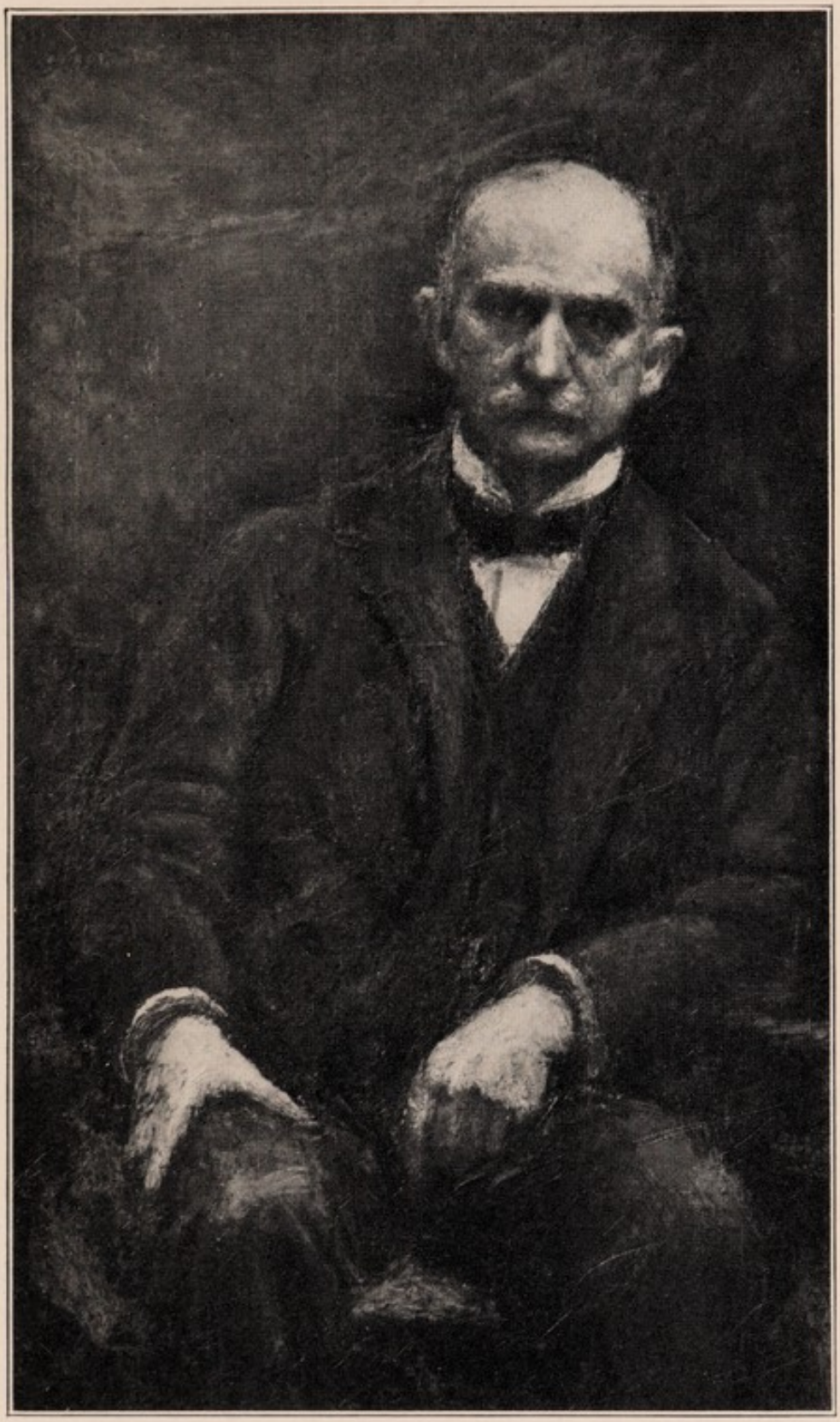
Thus the failure of his great life-work, the death of his mother, and the outbreak of the

Great War, banefully affected his physical and moral health. It was only after his death that we learned from one of his faithful servants that he occasionally had periods of deepest melancholy and despair, and that, just before his last illness, he had, in one of these moments of depression, collected all his papers, notes, and letters, and forced her to assist him in burning* this mass of documents — a holocaust of his life-work, expressive of his despair. No doubt at such moments he could not have been quite normal; though, on his frequent visits to me, he revived into his former high spirits, especially when in the company of his young nephew and niece, who were to him a source of intense joy. He died

* This fact will explain the remark by the late Sir Clifford Allbutt, in his letter published below, followed by his second and *last* letter, which I received on the morning of the same day on which the death of this great man and physician was announced in the newspaper. It will also explain why it was only possible to submit a few pages from L. W.'s diary to Prof. Nuttall, which were carefully studied by him in his appreciation published below.

on April 11, 1915, only a few days before his sixty-second birthday.

I said at the beginning that I would endeavor to write about my brother with complete self-detachment. It may not be easy, if it be not impossible, to form a just and sober estimate of one so closely related by blood and affection. But I think that I can, and that I ought to, give in a few words a summary of my brother Louis's personality. Though it has in my life been one of my fortunate privileges to have met, and known more or less intimately, men of nobility of character and mind, of eminence, and of great achievement in various walks of life, as well as of refinement of taste and manners, in almost every civilized country, in Europe and in America, I can say, with truthful and sober conviction, that I have met but few, if any, who were more complete types of what a human being ought to be than was Louis Waldstein. He was a gentleman in the truest, widest, and deepest significance of



LOUIS WALDSTEIN.

From a later portrait by Mancini at Rome.

that term. He was brave, kind-hearted, and generous. His moral conscientiousness may have been carried to excess. But I can say that I could never conceive of his having committed an act, or nurtured a thought, which was dishonest, dishonorable, mean or deceitful, ruthlessly selfish, or even in bad taste. Without in any way being a pedant or assertive of his moral or intellectual superiority, he more nearly lived up to what he considered the ideal of what a man ought to be than almost anybody I have known. At the same time, he was also one of the most cultured men. The languages, literature, and thought of the English, French, and German speaking nations were thoroughly familiar to him, and later in life he also made up for some of the deficiencies, due to his early scientific training, by studying the classical literature of Greece and Rome, at least in translations. He was a good Spanish scholar and was conversant with Spanish classical literature; while he also had a less perfect

acquaintance with Italian. His extensive knowledge of science is vouched for by all who knew him, and he could, at least sympathetically, enter into the humanistic studies to which other members of his family were devoted. This was felt, for instance, by all the members of my staff when he visited me at my excavations in Greece. I recall with some satisfaction his showing me the reproduction of the ring of Aristotle (discovered in his tomb near Eretria), which he carried on his watch-chain, and said to me that when worried over his work he used to take hold of this ring. It reminded him of two of the pithy sayings which spurred him on to renewed endeavors after disappointment, which I had adopted from my Greek excavating foreman, at Eretria: "Go down to virgin soil" and "The best archæologists are the spade and the pick." He was a good musician and delighted in playing four-hand piano scores of the symphonies and chamber-

music by the great composers. There was no domain of art to the full appreciation of which he was not alive. He formed a large collection of photographs of the old Italian masters during his extensive travels in that country, and was familiar with the paintings and sculptures of all the great museums. With all these intellectual and artistic qualities he was most human and humane. Not only did his patients become his personal friends — and I have met many of them, all of whom claimed to have been his "special friend" — men and women of every class — old men, society women, servants, boys and girls, especially children — dwelt on his attractiveness and charm of manner, bigness of heart and sympathy. Above all, there was no sign of his ever being conscious of these great mental and moral qualities, or his achievements. He was a noble man.

I here give the all too short list of his early published works, as far as I have been

able to trace them. For there is no record of years entirely devoted to research, from 1897 to his death.

I also add a few letters of appreciation kindly sent to me by men who either knew him well or were appreciative colleagues of his.

LIST OF PAPERS BY LOUIS WALDSTEIN PUBLISHED BEFORE 1899

1879. From Virchow's "Archiv," vol. 77 — "Beitrag zur Biologie der Bakterien."

1881. —— vol. 83 — "Ein Fall von multiloculärem Echinococcus der Leber."

1881. —— "Zur Kenntniss der tuberculosen Erkrankungen des Hodens."

1882. (In co-operation with Ed. Weber.) From "Archives de Physiologie Normale et Pathologique" — "Etudes histochimiques sur les tubes nerveux à Myéline."

? From "Quarterly Journal of Microscopical Science," vol. 20, New Ser. — "A Contribution to the Biology of Bacteria."

1893. From "Medical Record," New York — "A New Apparatus for the Sterilization of Milk for the Feeding of Infants and Invalids."

1894. ——, —— "A New Method of Preparing the Blood for Clinical Purposes."

1894. From "New York Medical Journal" — "A New and Perfected Enteric Pill."

1894–5. New York — Charles Scribner's Sons, 1898 — "The Subconscious Self."

1895. From "Berliner klin. Wochenschr.," 1895, no. 17 — "Beobachtungen an Leukocyten sowie über einige therapeutische Versuche mit Pilocarpin bei der (Diptherie ?)

Streptokokken-Angina, Lymphdrüsen-Erkrankungen, Tuberculose und Lupus."

1908. German translation of "Das unterbewusste Ich und sein Verhältnis zu Gesundheit und Erziehung," by Frau Gertrud Veraguth, with Preface by Professor Otto Veraguth.

APPRECIATIONS FROM SOME COLLEAGUES

FROM THE RT. HON. PROFESSOR SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., ETC.; REGIUS PROFESSOR OF PHYSIC, CAMBRIDGE; EDITOR OF "SYSTEM OF MEDICINE AND GYNÆCOLOGY," ETC.

St. Radegund's, Cambridge,
February 16, 1925.

I had the honor of intimate friendship with Dr. Louis Waldstein during the last few years — too few — of his life, after his retirement from practice in New York. He resigned a large and lucrative practice in order to devote himself to research, a devotion in his case of rare zeal and pertinacity; and, I should say, of remarkable ability. So far as I remember his researches were in part biochemical, in part on immunity. Of his psychological and metaphysical studies I knew little; they were not so much in my way. Dr. Waldstein was very critical of his own work, and carried his verifications and controls perhaps too far; so far as, time after

time, to delay the publication of his results. One of his chief researches never saw the light, as he could not satisfy himself of the impeccability of his methods. Unfortunately, the notes of his experiments had been either mislaid or not properly written up, and he shrank from undertaking the whole series of experiments anew. Thus, in a scientific sense, he did not do himself justice. In his independent circumstances, perhaps, he lacked the stimulus of rivalry and worldly ambition, and pursued research as a purely disinterested occupation. Louis Waldstein was not only a very intelligent, but also a gentle, kindly man; and a devoted son to his widowed mother. All his friends remember him with affectionate regard.

CLIFFORD ALLBUTT.

[When, in acknowledging the receipt of the above, I pointed out to Sir Clifford Allbutt that most careful and systematic notes of his experiments were kept by Louis Waldstein,

but that he had destroyed them all, I received from him the following lines on the same day that his death was announced. As this was probably the last letter he wrote, and as, at the same time, it so strikingly illustrates how he continued his arduous work to the last, I here print it in full:]

DEAR WALSTON:

It is indeed a tragic explanation you give me about L.'s notes. I never quite understood where, or how, the leak arose. Your invitation and my Lady's is most kind, but our — or at least *my* — visiting days are over, and I very rarely go up now to London. I have withdrawn from nearly all my Committees, Roy. Soc., &c., &c. I am well *when at home*, but I find my lectures and official duties are about all I can do. I am nearing my 90th year!

Yours as ever,

C. A.

I shall hardly get to your paper till term nearly ends.

FROM SIR WILLIAM OSLER, BART., M.D., F.R.S., PROFESSOR OF MEDICINE, UNIVERSITIES OF McGILL, JOHNS HOPKINS, AND OXFORD; AUTHOR OF "THE PRINCIPLES AND PRACTICE OF MEDICINE," ETC.

Feb. 13 (?) 1916.

Opening your new book a few minutes ago, I was so sorry to see that your brother Louis had died. I had not heard of it. What a fine mind he had! I always had a warm appreciation of his good work. . . .

WM. OSLER.

FROM PROFESSOR MORRIS MANGES, M.A., M.D., PROFESSOR OF CLINICAL MEDICINE AT THE NEW YORK UNIVERSITY, CONSULTING PHYSICIAN TO MOUNT SINAI HOSPITAL, ETC.

New York, Jan. 25, 1925.

A physician is, perhaps, best able to appreciate his colleague. No one knows better than he does how difficult it is to satisfy the demands which are made by patients to whom their own sufferings and their own complaints are the sole considerations. In

the course of almost forty years of active practice I have met no physician who excelled, or even equalled, Dr. Louis Waldstein as a practitioner; and, as I was closely associated with him as his assistant for ten years, I had unusual opportunities to observe how the relations between him and his patients were more beautiful and beneficial than any others which I have encountered during that long period of time.

Rich or poor, high or low in station, educated or ignorant, the same bond of affection existed between the doctor and his patients. His personal charm, his kindliness, and his sense of altruism were irresistible; and each patient thought that Dr. Waldstein was his own particular friend and that his case was the one which was uppermost in his mind. There was an indefinable something about him which justified this belief. Indeed, my first meeting him in 1884 may well serve as an example. I was then a medical student and I was deeply concerned

about a dear sister who had been hopelessly ill for a long time. After many months of fruitless efforts by other doctors Dr. Waldstein was consulted. In a short time the correct diagnosis was established and, although the prognosis was a fatal one, yet, as if by magic, an air of hope pervaded the sick-room, the patient and the family were buoyed up by the presence of one whose every act deepened the impression that he was the healer and the friend.

Outwardly he was always calm and well poised; but no one knows better than I how deep and real was his sympathy for his patients. He often told me how his nights' rest was broken by fears lest something unforeseen might have happened to his patients who were seriously ill. The daylight came none too soon so that he could hasten to their bedsides to assure himself that all was well. For those were the days when the sick-room had none of the modern comforts; trained nurses were few in number, telephones were

not installed in many homes, and the comforts of the automobile were not available.

His influence upon his patients was not limited to the sick, for he was the friend and guide to the family as well. It was inevitable that this should be so, for his deep insight into the psychology of human behavior so shaped his relations with his patients that they would instinctively consult him on all matters. And he never failed them.

As a scientist Dr. Waldstein was well trained by his general education and his medical studies at the German universities. As a pathologist he was especially skilled.

Indeed, in his scientific training and in his broad general knowledge he was far beyond most of his medical contemporaries in New York City, and it was always a matter of great regret to him that he never realized the fulfilment of his wish to have an active hospital service, where he could carry out some of his ideas on a broader scale than was possible in private practice. I am sure

that had he had these clinical opportunities his medical writings would have been more numerous. The few which he did publish were well conceived and carefully prepared.

He was especially interested in the blood and its relation to the cure of disease. He always believed that in the blood were to be found those substances by means of which disease processes could be arrested. In those days these were advanced views, for the cellular doctrines of Virchow still dominated the field of medical thought. Hæmatology, bacteriology, and serology had not yet revealed their marvellous curative possibilities. He eagerly followed the paths which the work of Metchnikof and Ehrlich had opened, and he devoted his energies to blood-stains and to the search for substances which would increase the leucocytic activities of the blood. His paper on the curative action of small doses of pilocarpine in acute and chronic infections aroused much discussion. It was his only publication on his blood work, most of

it, for reasons unknown to me, having remained unpublished.

Much as it is to be regretted that the lack of hospital opportunities has deprived us of what might have been important clinical contributions, yet we have been the gainer thereby, in that he was led to study in his practice a subject which was neglected in his day. I refer to the psychic aspects and relations of symptoms as presented by patients. The importance of this is now recognized by the vogue of Christian Science, and the intensive studies of psychoanalysis and its associated fields. From my earliest associations with Dr. Waldstein I can vividly recall how he always sought to discover the somatic relations of nervous or psychic causes. The interrogation of patients was always directed toward the discovery of psychic events whenever organic changes could not be found. The interpretation of dreams and the influence of odors and colors and kindred phenomena were made the subject of intensive

studies. So, too, he interested himself in heredity, early environment, and many other subjects which might shed light upon the subconscious life of the individual.

How fruitful these studies were may be learned from his book on "The Subconscious Self." As a pioneer work in this field it naturally failed to attract the attention which it deserved. The discerning few of his day recognized its importance. To-day the keenness of his observations and his perspicacity in recognizing the close relations of the subconscious self to bodily manifestations and the importance of the subconscious in medical practice have been tardily recognized.

I would consider myself remiss and most ungrateful to his memory if I failed to take this opportunity to express the deep sense of obligation and gratitude which I owe to Dr. Waldstein for the influence which he had upon my life and career. His example was a most stimulating one, and one could not fail to be uplifted by the association with one who was a real altruist.

MORRIS MANGES.

FROM PROFESSOR G. H. F. NUTTALL, M.A., M.D., PH.D., ScD., F.R.S., QUICK PROFESSOR OF BIOLOGY, UNIVERSITY OF CAMBRIDGE

Dec. 13, 1924.

Although some time has elapsed since I looked through the few pages of your brother's diaries, which have survived — of which I examined every page — I still feel regret that I was not accorded the privilege of knowing him personally. The impression left upon my mind by the perusal of his notes remains very vivid. Although the notes were frequently mere jottings, hastily pencilled on the page, they afford evidence that your brother possessed an exceptionally active mind and singular versatility. In the domain of medical science he sought to solve problems in pathology, bacteriology, immunity, physiology, therapy, and psychology, and, besides, he showed an extraordinarily broad interest in many fields of human knowledge, his reading covering a wide range

of subjects dealt with by authors who wrote in diverse tongues.

The records of his experiments in bacteriology are, unfortunately, of such a nature as to render it impossible for the reader to draw any conclusions without having a knowledge of what your brother had in his mind when carrying on his work.

GEO. H. F. NUTTALL.

FROM H. DROOP RICHMOND, M.A., CHIEF ANALYST TO BOOT'S PURE DRUG COMPANY, FORMERLY CHIEF CHEMIST TO THE AYLESBURY DAIRY CO.

Nottingham, May 21, 1925.

It was in 1899 that I first met your brother Louis. He wrote to me asking if I would examine some samples of milk, and as there were points in the analysis which led to discussion, I arranged to call on him. He gave me a short outline of the work he was doing and this led, after some little time, to our working together, and altogether he worked

in my laboratory, on and off, for twelve or thirteen years.

When I met him he was carrying out some investigations on milk as a food for infants as one of the by-paths of his blood investigation. I may mention that, in the course of this work he discovered the use of sodium citrate as a means of preventing the curdling of milk in heavy clots, a method of infant feeding which was published some years later by Poynton, and with his name it is usually associated, but, as Louis and I found on looking up the subject, had been originally used in 1892 by Arthus in a very tentative manner. It was partly this fact, but chiefly because he was not feeling satisfied that the use of sodium citrate, although it prevented curdling, led to any more assimilation of nourishment, that prevented Louis from publishing his work. This attitude of caution has, I think, been the reason why he has published so little of the enormous amount of work which he got through. He desired

finality and absolute proof before he committed anything to paper.

My most vivid recollection of him during our work was the wonderful way in which he, an enthusiastic amateur, taught me a great deal about the chemistry of milk. He was always asking questions which I could not answer, and led me to investigate points on which he desired information — not only leading me, but, by his shrewd suggestions, pointing out the way. I always look back to the years when we worked together as some of the most fruitful years of my scientific work. Another vivid recollection was the little disagreements we used to have. He used to be annoyed with me because I was not highly elated when he got results that pleased him, and equally so when I refused to share his depression at what he considered want of success. He would never quite agree with me when I pointed out to him that in science it was the failures which were often more valuable than the successes; but

his temperament was too much for him, and he was not able to avoid the alternate fits of elation, when he was too happy to do much work, and depression, when work did not seem worth doing.

The two sides of his character which struck me especially were — one — that, however deeply immersed in his work, he would put it absolutely on one side to take his mother out — he was a most devoted son — and the other was his absolute clearness in grasping a subject and being able to express himself.

I will illustrate this by saying that we spent one afternoon talking over your work on the investigation of Herculaneum, and in the course of an hour or so he gave me a most distinct and interesting account of what you had done, and what others had not done and would never do. When I talked to you and you sent me what you had published on the subject, I found that the account Louis had given me was complete.

His knowledge and culture could only be

appreciated by one who was constantly associated with him. No matter on what subject one talked he knew a great deal — music, poetry, literature (in English, French, German, Spanish, Italian), science, — in fact every branch of knowledge, except mathematics, were all his subjects, and one could metaphorically sit at his feet and learn all day long.

On his personality I need not dwell. There were few more generous, open-hearted, delightful men.

H. DROOP RICHMOND.

FROM DR. H. H. DALE, C.B.E., F.R.S., M.A., M.D., F.R.C.P., HEAD OF DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY UNDER MEDICAL RESEARCH COUNCIL [WHO SUCCEEDED THE LATE DR. DOWSON AS HEAD OF THE WELLCOME LABORATORY, WITH WHOM L. W. HAD WORKED FOR MANY YEARS]

Hampstead, Febr., 1925.

I knew Louis Waldstein for only a few years, during which he worked as an ever-welcome guest in the laboratories of which

I then had the direction. There, as everywhere, the charm of his personality, the overflowing generosity of his temperament, and the richness and philosophical quality of his mind, endeared him to all of us who came into contact with him. A few minutes' talk with him never failed to give fresh encouragement and new ideas. . . . The observations so charmingly and modestly put forward in his book on "The Subconscious Self," still remain his best contribution to science, and I rejoice to hear that republication is to give a wider public the privilege of knowing them.

H. H. DALE.

The Subconscious Self

I

ALL the knowledge which man has of his surroundings and of himself is derived from impressions received by the different organs of sense, and is conveyed to the brain by means of the connecting nerves. These impressions are modified by the permanent peculiarities of the apparatus of perception and transmission. The color of an object, for instance, affects the eye of one who is color-blind differently from that of another whose color-sense is normal; again, certain sounds and chords produce different effects upon the ear according to the constitution of that organ in different persons. The impressions, therefore, which arrive in the brain of one individual are originally as much unlike the impressions received by another, as the respective eyes or ears, or

any of the other organs of sense, are different in structure and functional power. The same original variations exist in the nerves which conduct, and in the brain which receives, the impressions. It follows therefore that the perception of impressions in the central organ is primarily governed by its organic, presumably structural, peculiarities.

Our impressions are thus modified by these permanent inherent qualities, and they are further subject to temporary variations affecting the organs that convey them to the brain, so that the same object may appear to be different according to the nervous condition obtaining for the moment, — modified, in other words, by changes in *functional energy*. It will not be necessary for the purpose of this inquiry to enter into an examination of these facts, for they refer to another part of the subject than the one here dealt with.

One fact it is necessary to insist upon: that, in whatever degree or manner these perceptions may have been received, they are registered

permanently; they are never absolutely lost. We cannot, it is true, recall at will every impression which has been received during the course of our existence, and so give direct proof of this assertion; but the countless instances of the reappearance of most feeble impressions, coming up again after many years, should make further proof unnecessary. Impressions that have been registered in early childhood, for instance, reappear involuntarily, thus showing their original tenacity at a period of life when no selective process, or reasons for remembering or forgetting, can possibly have been at work. This part of the subject, however, must be referred to at a later stage of this inquiry. It need only be admitted, for the present, that impressions once received have a quality of permanence, and, when taken together, constitute the elements of what we call *memory*. And this refers not alone to those which strike the so-called higher senses; it applies as well to impressions received in the brain from the other organs of our body,

as, for instance, those of assimilation or of secretion. Modern anatomical research has clearly demonstrated direct nerve connections between the centre of perception and these organs, by means of which all their modifications are directly conveyed to the brain. We are thus justified in assuming to-day that even the normal functioning of the vegetative organs excites corresponding and repeated impressions which are incorporated in our memory. We are not conscious of this, it is true, under ordinary circumstances; for these impressions are repeated in almost continuous monotony, and result in a tonic condition which remains unperceived owing to the more powerful impressions of the normal and active condition of our mind. It is only in cases of disease or functional disturbances that the absence of this tonic condition is perceived at once. As long as the stomach, for instance, contains food, it is continued, but when the stomach is empty, the change of innervation is perceived as indicated by the sensation of hunger. Or when

abnormal sensations, as Tissié and others have pointed out, disturb the unconscious conditions of sleep and create dreams, those *splanchnic* stimuli, which are too slight to lead to perceptions during the waking hours, induce corresponding mental activity. "We are not conscious of such sensations" means that our attention is not concentrated in that direction, — that we have not learnt to appreciate these slight constantly present and constantly recurring impressions, — and, moreover, the fact that attention is directed into other channels prevents their action upon the mind. There are, however, individuals who suffer acutely from the continued presence of these sensations, which need not be violent or pronounced. Every physician meets with such cases frequently among the large class of nervous patients.

And now, returning to the impressions that come from without, that are received by our sensory organs, properly so called, we can divide these into two classes, which sometimes, it is true, merge into each other.

The act of concentrating our attention upon certain objects necessitates the exclusion of all other impressions. In listening to a conversation, however, we receive impressions not only of the words uttered, but also of the sounds in the air and of its temperature, of odors, the forms, colors, lights and shades; to which are added all those subtle sensations due to our sense of touch and to the skin; — all associating themselves with the thoughts conveyed. The more we exclude these surrounding influences, the simpler are the impressions and the consequent perception and registration of the conversation addressed to us; the less, on the other hand, we are able to exclude the associating impressions from it, the less distinct, because more complicated, will be the memory of the impressions received: our attention will not have been complete.

We therefore make a distinction between the *conscious* impressions and those others associated with them though not within the narrowed circle of our attention, the *subconscious* impres-

sions. We are active and selective relative to the conscious, passive only in respect to the subconscious impressions. But the latter class of impressions is, however, permanently registered, and forms a constituent part of memory. Every one will at once appreciate the fact that impressions here called subconscious are by far more numerous than those designated as conscious; the totality of our memory, therefore, are made up to a far greater degree of subconscious than of conscious impressions. The accumulated contents of our memory govern our emotions, our thoughts and actions, and therefore that portion of our memory made up of subconscious impressions and their aggregate must necessarily play a great part in our individual life. As was indicated by a few words before, we cannot escape adding to these constituents of our intellectual and emotional individuality those constant and subtle impressions conveyed from our organs of vegetative and animal life.

By excluding all other impressions we con-

sciously receive one impression only, which is thereby made distinct; while those that are received more or less passively are vague and relative. When this mental act of exclusion has been imperfect, the conscious impression is associated with one or more subconscious impressions. But subconscious impressions are not necessarily associated, they are most frequently unassociated, when they are received through the lower senses or by the infant, who receives subconscious impressions only, and, moreover, it is comparatively late in child life that attention is exercised, — in other words, that associations crowding in with each impression are excluded. The distinctness of the impression depends upon the degree of attention attained by the sense through which it has been received, and it is owing to this development that we are able to receive impressions of the conscious order. Such isolated impressions when called up appear in their unassociated form and re-create the intellectual mood which they primarily produced, whereas an impression

with many associations is attended by them whenever it appears, creating the emotional condition, the *mood*, which they represent. When at some future time a conversation is recalled, all those coincident impressions, which were merely accidental when received, reappear and re-create the entire scene. It is a fact of every-day occurrence that, on the other hand, one or more of those subconscious impressions calls up the memory of a precise and clear thought or experience in the past; and this will happen the more readily the more associated impressions are connected with the event. Very often these accidental or subconscious impressions are exceedingly effective in recalling such a past experience in its vital entirety. Thus, the scent of a flower, a song, even the sensation of temperature or of the moving air, conjure up with vividness and completeness an entire scene or incident which in itself made no deep impression and seemed entirely lost for years. In reality it is not the impression that is repeated, it is the mood that

corresponds to the primary subconscious experience, and it is the mood also that might recall the conscious state into existence. Thus, a warm draught of air in midwinter, fanning the face suddenly and for an instant, charged with some exotic scent, may call up a person, incident, or locality connected with a period of one's life passed years ago in the South, or it may only create a mood corresponding to the sadness or joy of those days. We have all been swayed by such sudden mental conditions, and our opinions and actions may even be governed by them, and, ponder as we may, we generally find it impossible to account for them. If, however, some thought is devoted to the occurrence, we can in many instances trace the mood and its consequent association to some impression striking for the moment one of the senses. That the sense should be one of the lower, undeveloped ones is naturally accounted for if we admit that such images in their vagueness correspond to the subconscious impressions, and that they in

their turn originate the various moods. The less an organ of sense has been trained to perceive with attention, the nearer purely subconscious will the impressions be that it receives, be they associated or isolated. The eye in man, on the other hand, has been trained in concentration from early youth, that is, elimination of unessential associations, and has thus become his most important organ of precise sensation and information. Ocular images, therefore, are less likely to produce subconscious impressions, and objects seen do not generally create moods or emotions. The eye of a painter, moreover, will consciously take in scenes and colors that may be only subconsciously received by the ordinary individual.

The impressions conveyed to the brain by the sense of smell in man are mostly of the subconscious order; while in the canine race they constitute, as we may suppose, the chief part of its intelligence. The odors which we perceive subconsciously must be far beyond our estimation when we consider that, according

to Valentin, the human olfactory nerve can distinguish bromine even in a dilution of 1/30,000 of a milligram in one cubic centimeter of air, and that Fischer and Penzoldt have found that 1/9,200,000 milligram of mercaptan and 1/920,000 milligram of chlorphenol in the same quantity of air are still perceived by the human sense of smell. Is it not fair to suppose, therefore, that it is through this sense that our subconscious emotional self is principally affected, and is it not fair to assume that olfactory and tactile sensations are largely accountable for our moods? If our organ of smell is proved by such experiments to be so sharp as to detect such minute traces, when consciously tested, it must constantly convey innumerable impressions to the brain, and add thus to our subconscious memory a fund of immotive forces, though we remain unconscious of these undefined sensations. For, as Galton says, vague sensations have only immotive qualities. It is the same with the tactile sense. There is hardly a moment during the waking hours, nay, even

during sleep, so far as it is not absolutely a state of unconsciousness, when the nerve endings in the skin are not constantly assailed by sensations of pressure, of temperature, of the flux and reflux in the blood supply. While we are completely unconscious of all these impressions, yet they enter into and increase the material of the subconscious self.

While the slightest external stimulation may awaken a subconscious condition, it cannot be directly produced by an effort of the will. If, for instance, Italy be mentioned, or any incident of the sojourn in the South be spoken of, the attention will be aroused and the memory led to matters of detailed and conscious experience, and thus rather deflected from awakening the mood. Subconscious impressions therefore, entering and stimulating the subconscious region of memory, are most active in awakening early impressions, general moods, and so call up in turn their associations. Their persistence can be explained in some instances by the fact that they affect the subconscious

self without, or with but a small degree of inhibition from the conscious self, which may be weakened, in some cases even paralyzed by the suddenness of the impression. Such shocks need not necessarily come from some unpleasant experience. The sudden apparition of a beautiful face, the scent of some pleasant perfume, or a stirring melody indistinctly perceived, though each may come in upon a moment of most absorbing mental application, will outlast every conscious memory and be the predominating characteristic of some evening far back in the years of our life.

The greater the attentive perception of the special sense has become, the more closely, in other words, education has fixed the connection between its functional activity and the upper consciousness, the more readily can conscious impressions received by the senses be recalled by an effort of the will. That the eye has been so trained I have pointed out, and it will therefore be clear that visual associations are more readily remembered consciously, and the im-

pressions associated with them often reconstruct a contemporary impression consciously received. We have thus seen that the subconscious impressions are dependent upon the degree of attention developed in connection with the senses; that they are persistent, even when those consciously received may have become inactive; that they are most readily recalled by other subconscious and therefore involuntary impressions; and lastly, that they are not under the control of the will.

But there are conditions when it is in our power to reach the subconscious memory of another person with some degree of certainty; these arise when the controlling action of his mind is more or less excluded, when it is most nearly in a subconscious condition. I mean those moments directly preceding sleep, the delirium of dream itself and of fever, the semi-consciousness of senility, the fictitious existence of the deranged mind, and lastly the hypnotic state.

Now the education which is given in civilized

countries all the world over differs little in its essential parts; the conscious self is therefore substantially the same wherever schools and colleges exist. The subconscious self, however, which is built up out of that countless multitude of subconscious impressions and their recurrence coming from the surroundings, customs, language, national types, physical effects of climate, and so many other sources, is widely different. An "educated" Frenchman's opinions — whether he be a merchant, a professional man, or an artisan — may be in no wise different from those of an educated Englishman or of an educated German; he is, as we properly say, "a man of the world." But when, for any reason, — emotional, for instance, or through depression, or illness, — his conscious self is weakened or fails him, his subconscious self asserts itself and the national characteristics appear in spite of "intellectual" culture. In like manner do the more individual environments of his home create a subconscious self in every person, and make of him not merely

a representative of his times, but produce in him those qualities peculiar to his country, to his nativity, and to the class in society to which he belongs, — thus stamping him at once with all their limitations and idiosyncrasies.

The likeness which connects individuals of one family is not only one of features, it extends to peculiarities of structure of internal organs and their functional peculiarities. It is in this way that tendencies to disease can be explained. And if it is true that there is a continuous stream of nervous impulses flowing from these organs to the brain, and adding their impressions to those accumulating in the subconscious memory, it must follow that the tendency to mimicry in the assertion of the subconscious self must be as much a fact as is the tendency to the development of pathological conditions. Not only does the child subconsciously imitate the repeated actions of the parent, it also feels as he feels.

In our time much has been made of a law of heredity, which is called upon to explain

many peculiarities, physical as well as mental and moral, and the literature of the day teems with examples which are meant to illustrate this law. In so far as the most careful work in a rigidly scientific spirit has led the natural philosopher and the physician to establish certain indubitable facts, they can in the large majority of cases be referred to as mimicry in organic form, and hence in function, more assumed, however, than actually demonstrated. That the child should inherit the particular kind of liver or stomach of his parent, as well as the nose or eye, does not in itself appear very wonderful. But that the law so deduced should also condemn the offspring to the vices of the parent, and so lead to the assumption that all interference will be of no avail, that progressive degeneration is a fatal consequence of ancestral sins, are conclusions by no means sufficiently established; — they are indeed carelessly asserted in most cases where other explanations are wanting. The force of early impressions, their repetition and their result,

the correcting influence of early training both in a concentrating as well as in a deflecting direction, are unhappily quite overlooked, as explaining many facts now ascribed to heredity, and it is the object of the following inquiry, while showing the subconscious origin of most of the physical phenomena, to suggest certain means of prevention and of cure. These influences appear to me to be important in forming habits of mind and body, and they are in many cases much easier to detect than are the so-called hereditary peculiarities. Nay, more than this; what is often called heredity is simply the expression of a subconscious self, the beginnings of which can be traced to early childhood, when the actions of the parents and their example are subconsciously perceived, and, by their constant repetition, form fundamental impressions which make up a great part of the memory.

From conscious impressions and the accumulation of them, the intellectual, the calculating, the deliberate man is formed. Drawn from the

depths and the rich material of the subconscious impressions is evolved the emotional, the spontaneous, the passionate man. The conscious self governs the actions of man in his relations to his surroundings, it makes him aware of his responsibilities toward the animate and inanimate world, as well as toward himself. All desires, instinctive cravings, useless exertions, are kept in check by this part of his mental nature; it is the conscious self which is principally exclusive in its function because concentrating; suppressing, therefore inhibitory. Were it not for this, man would break through the limits placed for him by organized society; the family, the national peculiarities, would predominate, and concerted action, as well as social order, would be impossible. It is the conscious self which *regulates* man's work, and it is the exertion of its concentrating activity which fatigues the nervous system in its efforts to exclude all those impressions which come without call. Rest from this is either unconsciousness in sleep or the condition of passive

reception of impressions which come in upon us when the conscious self is allowed to rest, when we give ourselves over to contemplation without purpose and desire. In this condition the mind is in the artistic mood, so closely connected with our emotional life; for both have their origin in the subconscious self.

It would be wrong, however, to attribute to the conscious self active powers alone, and to the subconscious only passive receptive functions; for there are occasions when active and productive results of man's mental energy are directly derived from subconscious sources. The *creations* of genius, for instance, can only be explained by assuming that they result from the spontaneous action of that part of man's mind freed from the chains which the intellectual, the purposely "educated" part of the mind has wound round it. The artist will himself oft-times confess that he cannot explain how his best work has been done; he can but rarely attain the same degree of creative freedom at will. Every one of us has such *moods* when

it appears as if some other power than that over which we have control speaks or acts out of us. There are moments when the mind has, as it were, shaken off the oppression of the selecting will, when self-criticism is ignored and conceptions in thought or form spring into life without effort. Difficult problems, intricate situations, are treated with surprising facility; and when we relapse into our accustomed condition it is as if we had fallen from a height, or as if another, a more powerful individuality had existed in us for the time. We have a name for such moments, we call them *inspired;* and thus erroneously go outside of ourselves for an explanation, instead of finding it deep down in our subconscious self, the germs of which were sown perchance far back in our childhood, developed by our surroundings, added to by conditions beyond our control and not chosen by those who were preparing the material for our mental development. So far from being the cause of our mood of "inspired" productiveness, this care-

fully directed mental "education" was really efficient only in recalling us to our ordinary, sober, and "rational" state. It is through the subconscious self that Shakespeare must have perceived without effort great truths, which are hidden from the conscious mind of the student, that Phidias fashioned marble and bronze, that Raphael painted Madonnas and Beethoven composed symphonies. It is futile to attempt an explanation of these artistic phenomena from the purely conscious point of view, and it is for this reason that all efforts of analysis fail to make us understand the workings of genius, which we realize but cannot follow. It is precisely by reason of the ingenuousness, the *naiveté* of genius that perception does not approach the subject through the conscious channels; it is entirely without purpose, without analysis, without induction. What seems to us the result of most minute observation and subtle reasoning has been spontaneously, subconsciously apprehended by the artist; it is, I should say, an elemental process of *unreasoning*

impressionability, which with us is rare and fitful, whilst it is the normal, wellnigh constant mood of the poet and the productive artist. With ordinary people this mood depends much more upon the absence of conscious thought, while with the poet and artist it is a more constant and active condition of the mind. Such minds, as Dowden expresses it, are the descendants not so much of their direct progenitors as of the whole human race. Hence the universality of their works, and their unfailing wisdom, and the absolute beauty of form in which they are clothed. It has ever been a source of wonder how Shakespeare, whose "education," as we have narrowed the sense of the term, must have been of the simplest, came to discover truths that only the most learned in the various professions could understand. I venture to assert that it is only to be explained by the assumption that he perceived them with a naturalness of vision unobscured by all the detail of methodical research and analysis with which the man of science is fitted out.

The eyes of the poet are accustomed to strong light and vivid impressions, which come to him without search and are held fast and applied by him without effort. His impressionability is more acute than ours, for his subconscious self, nurtured from earliest youth by Nature herself, has developed free from the narrowing effect of purposely directed observation. Herein often also lie the causes of his failings; the expression of his thoughts may be vague and complicated to the conscious, critical mind. Shelley, for instance, frequently sees odors, feels light and shade, and is moved by things incorporate. This powerful development of the subconscious self accounts, moreover, for many of the artist's personal frailties; his predominant personal mood makes him oblivious of his relation to the world in which, after all, he is obliged to move, and hence his disregard of his responsibilities toward society and friends, family and state. "Il a les défauts de ses qualités."

From this and from what follows it will appear why insanity and genius have been

considered in some degree to be related to each other in their origin, a proposition which is, it seems to me, greatly over-generalized by Lombroso and his followers.

It is impossible to understand the poet and the artist and their works from the purely analytical examination of their fully developed individuality, or their education and surroundings as they present themselves consciously; on the other hand a thorough knowledge of those subconscious impressions out of which the subconscious part of their mind was built up, and which are especially numerous and powerful in early childhood, might lead to a clearer apprehension of their chief characteristics and to a more perfect understanding of their works. The commonly accepted statement, that the artist and the poet are products of their time, is only partially true; for it takes no account of the personal factors that are not so easily discovered. One illustration out of many may make my meaning clearer.

In the collection of modern paintings in the National Gallery of Berlin there is a large picture by Feuerbach, representing "The Symposium of Plato." The history of this, perhaps the most finished work of this prolific and remarkable artist, as it is told in a collection of his letters and biographical notes which appeared some time after his death ("Ein Vermächtniss"), is significant in many ways. He conceived the idea of painting this picture at the very outset of his career, and, though after beginning it the plan and the sketches were changed and modified innumerable times, there is one figure which remained unaltered from the first, and during the whole course of selection and of rejection of the other parts of the composition: it is the figure of Socrates and his position in the picture with regard to chiaroscuro and composition. Even were we ignorant of the account which Feuerbach himself gives of the difficulties he labored under during the creation of this masterpiece, our attention would needs

be drawn to the prominent light in which the figure of the philosopher is placed, a relief which isolates him, and therefore disturbs the otherwise perfect harmony of the composition. The critic, moreover, might rest satisfied with pointing out this peculiarity in composition, and might be tempted to deduce from it an elaborate theory of the manner of this particular artist and its effect upon his school, which would certainly have developed under him, judging from the enthusiasm of his pupils, if he had retained his position as Professor at the Academy in Vienna. It cannot be my purpose to analyze this peculiarity of inharmonious accentuation in the other larger paintings of the artist, though it would be curious and most instructive from our present point of view. For in Feuerbach's own words lies, it appears to me, the explanation of the singular treatment of Socrates in his Symposium, and they throw a strong light upon the workings of the artist's mind. In referring to the plan of the painting in one

of his letters, he expresses surprise at the persistence with which the head of Socrates, ever present, haunts him, unaltered from the beginning in expression and illumination, the light falling on the bald part of the head in such a manner as to bring out in sharp lines the profile. "My mind has been so long possessed of this image, its position, its precise illumination, that I have often tried to trace it back to its origin, and not succeeding, must assume," he half jestingly adds, "that I have been born with it." We, who are familiar with this refuge in antenatal regions, so satisfying to the pseudo scientific mind of to-day, need not wonder at finding the artist unable to suggest a far simpler explanation, — an explanation, moreover, that, if farther analyzed, might elucidate many stages in his development as an artist, and lead us to understand the forces that fashioned his style and prescribed the motive for his works. They were classical for the most part, and no wonder. His father was Professor of Philosophy

in the University of Freiburg, and an archæologist of high attainments. In his home the child was surrounded, we may be allowed to assume without forcing an argument, by all the paraphernalia of his father's profession; among them casts from ancient Greece and Rome. What is more likely than that among them, near the window in the study, there may have stood the head of the philosopher in a position that the light would fall obliquely upon the side and top, bringing out at once both the firmness of character in its lower parts and the thoughtfulness and profundity in the forehead and temples? It was not an object for study and conscious contemplation for the child, but it was one that impressed itself without choice indelibly upon his memory, there to lie dormant until called up by associated ideas many years after. So unconscious was he of this that every conscious effort to account for its persistent and well defined apparition was unsuccessful, though his imagination at that later period must have been

disporting itself in close proximity to similar mental images.

I have purposely given this detailed account in order to direct attention to the importance of biographical material of this kind, confident as I am that a close study of the early lives of poets and artists, and the subconscious impressions which they then receive, might lead to a better understanding of their style and schools.

As opposed to this instance I might relate many examples, which I have taken pains to collect, where the artist himself is made to realize the subconscious influence, not alone in the stage of conception, but also during the period of creation. A celebrated writer of fiction and verse once described vividly to me her experience when at work. The personages of her novels and plays suddenly and unaccountably appeared to her while she was working or attending to ordinary matters, vaguely at first, then in a more definite form, with distinct features and gestures. Sometimes they disappeared or were overshadowed by the real

persons connected with her every-day life. Again they reappeared, and gradually assumed all the characteristics of real beings, grouping themselves, speaking, acting, and even thinking quite independently of the author's will. "Thus," she said, "they became a part of my life, as if they had entered into it, and might finally exert their influence even upon my own existence, were I not conscious of my separateness from them." And in time these human beings, in the various phases of their existence and their surroundings, assumed such a degree of vividness, and obtruded themselves so forcibly upon her attention, that her own conscious life threatened to become involved, so that, if only to rid herself of their obsession, she was driven to relate what was being enacted in her mind and was wholly independent of her will. Writing down what thus presented itself with an almost feverish activity, (for her pen could not keep pace with the rapidity of the lifelike changes in the imaginary world of which she was only a spectator,) she was often herself

moved to tears or excited to mirth by the situations and scenes that were unrolling themselves before her. In this manner she would work on, driven by that other self in her, until she was obliged to stop from sheer physical exhaustion; and when, in pacing up and down in the room, she would chance to see her face in the mirror she hardly recognized herself, so changed was her expression. "It looked," she said, "like that of another person, and I would have to pull myself together in order to recompose my features into their ordinary expression." Such work, when subsequently re-read, was generally found to be good work; it was only when conscious moments, acts with will and purpose directed toward the outer world and pertaining to her position in it, disturbed the *artistic mood*, that the quality of her writing was marred by false expression or by imperfection in form. In such moments the thread of events, or the logical relation between the character and the action, was frequently for the time being interrupted.

When the conscious self has thus regained control, the artist finds it impossible to recall the mood of creation by an effort of the will: the Muses have retired into their native domain, into the subconscious self, and the lost mood will return only when reawakened either by some powerful association, or if the subconscious self is stirred by a subconscious impression of adequate force. Thus another eminent writer found in music the best means of reawakening the poetic power: after a concert the imaginary personages once again continued their existence and swayed his imagination as before.

To those who have given thought to this subject it will not be necessary, I am sure, to quote further examples, which I might easily multiply from the material I have collected; I desire merely to illustrate two points that in this connection are of the greatest interest. The one is that impressions received, be it in early childhood or in later years, must be received into the subconscious part of the mind in order

to constitute the creative phase of the æsthetic mood, and that, further, the awakening of this subconscious condition of mind is the sole condition for pure art conception and perfect art production. The artist himself awakens, as it were, to his dual mental nature when he suddenly contemplates the subconscious workings of his "imagination" with his critical, his conscious self. The artist, on the other hand, who proceeds from what he conceives to be the "real" object, minutely analyzed and consciously reconstructed, the modern "realist" or "impressionist," addresses himself to the critical faculty, and thereby calls into play precisely that mental force which prevents pure contemplation the more the interest in experience is exerted; and he thereby misses completely the true distinction of all pure art impression. For it is necessary that the mood proper for the pure and full enjoyment of the work of art must be analogous to that in which it has been conceived. The æsthetic mood is grounded also in the subconscious self, and is

therefore closely related to the elements of its composition. It is, in its essence, receptive, contemplative, distinctly personal, and therefore free from purpose and conscious selection. The power of enjoyment, furthermore, is dependent, in a negative sense, upon the absence of analysis and intellectual effort, which might tend to diminish its intensity and alter its quality. Instead of thus ascribing the disturbing effect to the conscious impressions upon the æsthetic mood, it is common to assume a weakness of the imagination. The author, the artist or musician, weakens for himself and for his audience the pure effect of the work of art when he applies to it the laws of construction that have been formulated in the course of time. In applying critical analysis and well grounded tests to it, he involuntarily destroys or decreases its value as a spontaneous creation. It is true that he thereby may evoke a new element of pleasure — though originally foreign to art — which appeals to another faculty, that of the intellectual mood; and this

might outweigh the purely æsthetic enjoyment to the intellectual esoteric, — nay, to the moralist the "purpose" may convey ideas of more value than the enjoyment of pure form and color and harmony of sound.

We have all had experiences of this kind, and have generally been content to repeat the trite saying that "reality never comes up to imagination." In describing his life in Venice, Rousseau tells of an incident in his "Confessions," how in the theatre he fell asleep during the opera, and, after sleeping for some time in spite of the "noisy and brilliant" music, he awoke during the strains of an air that affected him so profoundly that he could not find words strong enough to describe his emotions. "I must possess that piece," he continues. "I procured it, and kept it a long time; but it was not the same on paper as in my memory. It contained, to be sure, the same notes, but it was not the same thing. That divine melody can never be rendered as it was on the day it awakened me — soundless, in memory only."

The essential nature of æsthetic pleasure is therefore found in the appeal to the subconscious self, and its degree will depend upon the elements that make up this part of our memory. It is for this reason that some highly intellectual persons are quite insensible to music, a form of art that engages most directly the subconscious and thus awakens the artistic mood, and moves the one of us to tears, and consoles and enlivens the other. It depends only upon the complexion of our subconscious self in what manner and in what degree we are affected.

It would be of interest to follow out this part of the subject in its relation to works of art, and one might be led to formulate certain laws governing æsthetics as a science. Here, however, it may suffice to have insisted upon the fact that artistic creation as well as æsthetic pleasure in its purest form are a function of the subconscious self; and that the study of the artist's creative genius, and of the taste peculiar to the nation and the epoch, must be begun by

a thorough understanding of their subconscious peculiarities. This would be found, I repeat, in the early surroundings, in the natural conditions, and in the events which govern the times as they affect the artist in his subconscious self. Whenever a work of art is the vehicle for an idea or purpose outside of its essential form, it falls short of being a pure art creation, and fails in its appeal to the æsthetic mood, whilst, be it conceded, it may serve some other, but secondary purpose, which belongs to the province of the archæologist, the art historian, and the collector.

II

FROM the moment of birth — and, in so far as we have seen that organic or splanchnic sensations are communicated to the brain, even before birth — begin the deposit and retention of subconscious impressions in the mind of the child, and so the foundation is laid for the development of that part of man's mental nature which, in the foregoing pages, has been called the subconscious self. I have chosen this expression — first used, if I mistake not, by George Henry Lewes — because these impressions are not conscious, for that would assume a selection of impressions, or in other words the exclusion of associations; nor can they be considered unconscious, for they can be called up and actively applied in later years. The extent, force, or character of the subconscious self must depend, in the first instance and to a certain degree, upon the organs of

perception and upon the receptivity of the brain. These qualities are native, born with the individual, and are comparatively constant, because they are variable only in degree and subjected only to change in the physical conditions. I have excluded the examination of such inherent differences; for it is the nature of the impressions themselves, and their effect upon the individual, so important in man's life, for pleasure and for pain, that form the subject of these considerations.

When we speak of the *education* of the child, we mean generally the effort to provide a store of impressions which are consciously received and retained for future use. When the world's educators treat of *culture*, they apply this term to the use which is made of precepts inculcated and consciously added to that part of our mental personality which again is the conscious self. But while the parent and the teacher, the moral and political educators, are addressing but one small part of the individual, everything that surrounds youth, every sensation from his

own body, every instinct that comes from the functional activity of his organs, is adding an enormous number of impressions to his memory, which go to constitute his subconscious self. This part of his mind depends upon his impressionability, so that one individual differs greatly from another in the development of this integral part of his nature. The character, moreover, of his subconscious self depends wholly upon the quality of the impressions received, of instincts satisfied. When the suckling baby is hushed by being fed every time that it cries, it is certain that there is created an intimate connection in its mind between the cry and the physical sensation of taking food, tasting it, and receiving it in the stomach.

I may be allowed to forestall in this place the discussion of a point that might be raised in favor of "instinct" in its relation to the subject under consideration. Instinct, I hold, is not in its origin a psychological factor: it can be described as the necessity for functional activity inherent in the organ and dependent

upon its supply of nourishment; it is a physiological element. Only the satisfaction or the suppression of an instinct creates impressions that enter into the make up of the subconscious self, and these assume an integral importance in direct proportion to their repetition. The indulgence or the disregard of instinctive appetites, therefore, may thus become the connecting link between the physiological reflex and the higher mental complexion of the individual. If the child sleeps in the light, awakens in a sunless room, and receives physical impressions without number from nursemaids, its habits must necessarily depend upon such surroundings. It is well known to every observer of children how keen is their power of observation, how retentive their memory, how true their mimicry. There is little in their surroundings that escapes them, and still it is extremely difficult to fix their attention. Nothing is more difficult than to teach a child concentration; it is comparatively late in its life that it begins to take in what we call

conscious impressions. The first years of its life are devoted to the reception of subconscious impressions, and it is then that the permanent foundation of its subconscious self is laid. It is a very simple matter to demonstrate the inability of children to observe correctly, and to fix their attention in a conscious manner upon the most elementary objects. The observations of Preyer, Darwin, and other students of children, are most interesting evidence of this, and my own tests, that have been addressed to every sense of the child, have in many instances greatly surprised me. I should like to recommend only one simple experiment to the reader. Let him draw a circle on a piece of paper or on a slate, and, inviting the child's full attention, mark a cross therein, choosing a well defined position, either on the one side or the other, above or below the centre. After allowing the little one to note the relative position well, but only, of course, for a fraction of a minute, remove it and ask the child to reproduce the drawing on a blank piece of

paper or on the other side of the slate. I have found that among a large number of children (I may say several hundreds) ranging from five to nine years of age, barely one tenth have given the cross the correct place within the circle; nor, indeed, was it an easy matter to induce them to reproduce the figure, although they were pleased to see what I had drawn.

As those actions which emanate from our conscious self are intentional, that is, are designed for their effect upon the outside world and our position in it, so does the subconscious self act with impulse irrespective of effect, striving to satisfy directly our innermost, true elemental nature. How important is it, therefore, that the surroundings of the child which form the temperament should be chosen with care! It is not precept or admonition that is most important in this period; careful constant example, without apparent effort or purpose, is the beginning of true culture. For culture depends upon the *impulse*, not upon purpose.

And if the love for the beautiful, if the

æsthetic mood has its origin in the subconscious, how essential is it to create numberless impressions of beauty and harmony upon the child, and to exclude everything that is ugly and squalid! The poor and the rich are equally in the position to satisfy such demands. The objects surrounding the child, the persons habitually in its company, even the colors, should be chosen with care; sunlight and fresh air should have free access, not only for the sake of the body's health, but also to create and preserve a mood of natural joyfulness. Wherever possible the surroundings of the house, and especially the carriage and behavior of those with whom the child comes into contact, should be of true geniality and refinement. The satisfaction of instinct should not be allowed to create impressions of habit. Is it too bold to assert that the crying baby who makes a slave of its mother develops into the habitual malcontent of society? that the child surrounded by every outward sign of shiftlessness, cheerlessness, that lives in an atmosphere of egotism,

discord, and "white lies," may grow to the man who may some day surprise his friends by acts that seem out of harmony with the life he had been leading among them?

In those early impressions of which no one seems to be conscious, least of all the child, and which gather up power as the rolling avalanche, the elements are collected for future emotions, moods, acts, that make up a greater part of the history of the individual and of states, more effective and significant than those that are written down in *mémoires*, however *intimes*, or that can be discovered in archives, however "secret." The strange vagaries of affection and passion, which affect the whole existence, of men and women — the racial and religious prejudices that shake states and communities to their very foundations, that make and unmake reputations and set the wheel of progress back into the dark ages, — can be traced to such small beginnings and into those nooks of man's subconscious memory. In the intimacy of the family, where every conscious

effort is supposed to be made to develop the best social tendencies, numberless thoughtless remarks and insinuations directed against a class, a religion, a race, many acts of unrestrained cupidity, are reconstructing insidiously revivals of mediæval persecution! Whenever in the course of events periods of depression in the affairs of men set in, — and this corresponds to physical and mental debility in the life of the individual, — times when the passions and egotistical emotions of the individual free themselves from conscious restraint, — it is then that religious prejudice and hatred of class are revived, or rather only brought to light out of the depths of a subconscious fund of reiterated early memories. What Bagehot says of great communities is true also of the individual: they are "like great mountains, — they have in them the primary, secondary, and tertiary strata of human progress; the characteristics of the lower regions resemble the life of old times, rather than the present life of the higher regions." Whenever serious social revolutions occur, the

lowest elements of the human mind are brought to the surface, as the material of the mountain's formation is thrown up out of the depths through the crater during volcanic eruptions.

I can merely indicate the lines along which a system of education and culture might be carried out, if the importance of the development of the subconscious self be acknowledged, even if that part of instruction upon which most stress is laid in general be in a measure subordinated. The surroundings in which the child is taught are of more importance, in relation to the ultimate degree of culture to be attained, than the lesson; the manner of the teacher, than the substance of his teaching. The evil effects upon the health and moral tone of the young mind, the condition of its nerves, can be directly traced to such general causes by the attentive parent and the careful physician. The beginnings of nervous disturbances, so frequent in our times, can be traced even further back, into the period of infancy: many cases of sleeplessness, lack

of appetite, and general restlessness in the infant are caused by surroundings which are exciting, and awaken prematurely the impressionability of the infantile mind, when it is of the greatest importance that restfulness and regularity should prevail. Later in life, as has been said, the manner of instruction is of greater importance even than its matter; even the form of books, the print, the paper, and the bindings, should not be neglected. Of late years the kindergarten system and teaching by object lessons have brought improvements which are of the greatest value. But here also details of apparently minor importance might be treated more carefully. It cannot be without deleterious effect upon the development of the artistic sense of children if they are taught to interlace strips of paper in the most hideous combination of colors, or if they are made to recite ridiculous songs and sentimental rhymes. For though these teachings are addressed to the intellect, and are meant to form the conscious part of the

mind, they remain for the most part uncomprehended and enter therefore into the composition of the subconscious self.

It has often been deplored by those most interested in higher education, who have had ample opportunity for observation, that so many children, especially during adolescence, break down under the strain of the severe course of intellectual training. Since the establishment in recent years of colleges for girls, this has been said with greater emphasis of girls than of boys, — a fact which has been used by those who oppose higher education of women on the ground of their fundamental unfitness for such a strain. Whenever the ordinary arguments have failed, physical reasons and hereditary causes were looked for. It seems to me as if here also the understanding of the nature of the subconscious and its ulterior bearings will lead, not only to a proper realization of the true state of things, but even to much needed reforms in the early training of the future female student. As

the impressions upon the very young are subconscious and vague, and make up, especially by reason of their great persistence, the subconscious memory out of which is developed the subconscious self, the more this part of the juvenile mind is developed, the greater becomes the general impressionability and the consequent strength of "moods." With every mental effort there are created, in such children, moods corresponding to, and associating themselves with, the conscious impressions, whereby these latter become more or less indistinct, and their apprehension is consequently rendered more difficult. In this manner the subconscious and conscious self are continually in conflict with each other, and the impressionability is more and more increased. The position of girls and their life in the family is much more conducive to the growth of the impressionable part of the mind than is that of boys. Possibly certain physical peculiarities may contribute in a measure in this direction. It is therefore not surprising that the

college girl may suffer from nervous breakdowns more frequently than the boy.

I have for several years collected observations which could be used as proof of these general propositions, and it is surprising to note how intimate is the connection between certain idiosyncrasies, likes, dislikes, and prejudices, with early impressions of the subconscious order. I have found it less difficult than I had supposed, when first my attention was directed to these matters, to trace back to their origin, and so find a simple explanation for, certain unexpected acts and surprising peculiarities that were inexplicable to the parents or teachers of a child, and were therefore referred to the dark regions of *hereditary tendencies*. There would be small harm if this were merely an error of judgment; but it is much more. For the predicate "inherited" carries with it the admission of the unalterable, fatalistic, incorrigible: we are unable to eradicate or to change such tendencies; they are beyond our influence. But if, on the contrary, the

cause can be discovered in certain early shocking or powerful, because oft repeated impressions, that have been added to the subconscious memory, much can be done to prevent the formation of such "tendencies," — in fact, they can be pursued into their very stronghold.

A young boy of my acquaintance had an invincible dislike to music, and could not be prevailed upon to continue his piano lessons. I was impressed by the violence of his aversion, and, upon inquiry, was told that he was born and passed his infancy in a house next to a conservatory of music; no doubt, he had been constantly disturbed in his sleep by the discordance of sounds from a number of instruments played at the same time. Another showed a surprising and violent dislike to business; when I found that it was because of his inaptitude for the study of arithmetic, I learned that his first teacher was a person who looked upon his own profession as an unbearable drudgery, and was hence an object of the most

violent dislike because of his gruffness and unfairness to the young and impressionable boy. The manner here was the efficient cause in creating a far-reaching dislike for the object of teaching, and had nothing to do with a lack of talent or natural gift. The refined tastes and joyous dispositions of the elder children in a family with whom I often came into contact was a matter of some surprise to me, as I could not account for the common trait among them by the position or special characteristics of the parents: they were in the humblest position socially, and all but poor. My first visit to their modest home furnished me with the natural solution, and gave me much food for reflection. The children — there were six — occupied two rooms into which the sunlight was pouring as I entered; the remaining rooms of the apartment were sunless for the greater part of the day; the color and design of the cheap wall paper were cheerful and unobtrusive, bits of carpet, the table-cover, and the coverlets on the beds were all in harmony, and of quiet

design in nearly the elementary colors; everything in these poor rooms of poor people had been chosen with the truest judgment for æsthetic effect, and yet the mother seemed surprised that I could make so much of what seemed to her so simple a matter.

Among my notes I find an instance referring to an English lady, which is especially interesting as showing how readily "heredity" may be called into account for what is amply explained by subconscious experience and the development in early life of abnormal impressionability. Mrs. X. had lost her mother when barely three years of age, and her early life was spent in the house of her grandparents. Her mother was for many years an invalid, and saw little of her child. When four years old, she was seen one day, during her first attempts at sewing, threading a needle with her left hand. This attracted the attention of the family, as it was known to have been the habit of her mother. Though the lady is right-handed in all other matters, she has retained the habit to the present

day. "This surely," said she, "is an example of inheritance, for I could not have been taught to sew by my mother." And so, upon first sight, it appeared to me; but when I took pains to inquire more closely into the mental nature of my informant, I was soon convinced of the extraordinary development of her subconscious self: she was most impressionable, easily and unduly affected by her surroundings, depressed and exhilarated in turn, full of prejudices, and given to sudden likes and dislikes, — all without definable or logical reasons. On the other hand, her conscious self, her intellectual powers of observation, precision of memory or expression in relation to matters that she endeavored to grasp and to retain, were remarkably weak, and hardly under her control. When I questioned her about her early impressions, she could remember only those that were made upon her "feelings," or that were of a nature to affect only an impressionable child, while those that are held fast by well balanced youthful minds were totally obliterated. She could

remember her mother only in one connection, in a dress trimmed with cherry-colored ribbons, as she bent over her crib one evening to kiss her good-night before going out. It is a noteworthy fact, that this isolated image was made as the child was near sleep, a period, as we shall see, when the subconscious part of the mind is most receptive. Her grandmother died when she was ten years of age, and, although kind and affectionate to her, she could think of her only with a mixture of dislike, since she had once for some trifling fault — it was in her third year — angrily called her a "little minx," an expression that she could understand only in connection with the raised voice and the discontented look. The associative impressions were, of course, the principal factors in the recollection. "I loved her dearly, quite as I should a mother, but do what I may I cannot rid myself of that childish impression." And she added, "A certain bright cherry-colored ribbon will instantly call to my mind my mother; I always connect the smell of lavender with my grandmother; it

was her favorite plant, and everything belonging to her used to smell of it."

Here then is a child of most pronounced susceptibility for subconscious impressions, which have lasting and characteristic associations connected with them, the force of which cannot be overestimated. Is it not more natural to assume that the habit of the mother threading a needle with the left hand, witnessed daily during the first three years of childhood, left its effect upon the ductile memory of the child, so that she adopted it also in the absence of other teaching, than to assume a needle-threading centre on the right side of the brain of this individual? Countless peculiar tricks of the parents, taken up comparatively late in life by the children, — pursing of the mouth when reading, blinking with one eye when in deep thought, fretting one side of the beard or moustaches, etc., — might be cited, did they not at once suggest themselves to the reader.

The reader no doubt also remembers, from his own experience, many instances where the

depressing effect of associated impressions has left its stamp upon the mind, and has projected itself far into the life of the adult. I must add a typical instance illustrating the vaguely associative and subconscious action of early impressions, given me by one of the most talented actors of the German stage. At the age of three he was led into the room of a little friend whose body had been prepared for burial. The coffin was covered with wreaths and flowers that filled the room with their perfume; and, though he must have been deeply impressed by the awful presence of the child in its coffin, the sight of the dead, — which was repeated in after years on the battle-field and elsewhere, — never recalled this first encounter with death. But when he met with a mixture of scents which resembled that of the mortuary chamber of his little friend, the picture rose up at once before his inner eyes, vivid and clear in all its details, creating simultaneously a mood of sadness and of fear.

There is, of course, an element of error in

all such instances, which might make it doubtful whether such impressions are really those that have been received in early childhood, for it is possible that they may have been repeated in later years. If it were possible, therefore, to appeal successfully to the memory of a person who could not have received the same impressions later than in early childhood, their persistence and hence their effect would be conclusively demonstrated.

I have had the good fortune to become acquainted with Helen Keller, whose remarkable mental development, though blind, deaf, and dumb from her nineteenth month, has been the theme of several most interesting memoirs. I would refer the reader to a charming biographical notice by Mrs. Florence Howe Hall, in the "St. Nicholas Magazine" for September, 1889, and to a sympathetic account by Mr. Laurence Hutton, in "Harper's Bazar" of February 22, 1896. I am greatly indebted to Mrs. Keller for her kindness in sending me the details, without which I could not have carried out my ex-

periment, and to Miss Annie M. Sullivan, her teacher, to whose tuition is wholly due the awakening and development of the unique intelligence of the wonderful young woman, for the interest she evinced in the object and the help she extended so freely toward its accomplishment. Of course I cannot speak too highly of the gentleness and patience with which Miss Helen Keller herself met me.

The serious illness that threatened her life at the time left the child of nineteen months with only those organs of sense unimpaired which we are accustomed to regard as the lower senses in man, — those of touch, of taste, and of smell. Her high degree of intelligence to-day — which enables her to converse with rare thoughtfulness and understanding not only in English but also in German and French, and to form a judgment quite her own of her surroundings, of events, and of persons — must have been entirely formed by impressions received through them, and, we may assume, by those that date back into babyhood.

Among her many accomplishments that for appreciating music is one of the most astonishing. She perceives it by feeling the vibrations of the instruments with her fingers placed lightly upon them, and even through the floor, when, as in one instance, it was covered with a thick carpet. For she is not only conscious of it, but is without a doubt swayed by its rhythm, either depressed by a melancholy strain like "The Old Folks at Home," or "Home, Sweet Home," or elated and pleasantly excited by a waltz or a galop. I have seen her deeply affected by the female voice which reached her through her fingers touching the throat of the singer. On another occasion she likened a dance played on the piano from the manuscript to "running water." The simile appeared to all of us as very apt. Three months later she again made the same comparison upon hearing the same composition for the second time. She has therefore created a centre for musical impressions through the sensations of touch, just as we have one for the same order of

impressions, with the important difference that ours is connected with the ear, while Helen Keller's is connected with the nerve-endings in the skin and muscles. Were it possible to recall true aural impressions in her case through the medium of touch,— aural impressions that must have been received, of course, before her nineteenth month,—it not only would prove the force of subconscious impressions (being infantile), but would suggest the interesting question whether in such cases a connection is not established between the one centre, that of hearing, and the other, that of touch, and thus create a new kind of mental process, peculiar to such cases.

With this purpose in view I wrote to Mrs. Keller, who kindly sent me the titles of two plantation songs, which were commonly sung in her home in Alabama when Helen was a baby, but are not now generally sung, and which I could procure only in manuscript from the South. These tunes I had played upon the piano while she stood beside the instrument

with her fingers resting upon its wooden frame. Care was taken, of course, that she should know nothing of my intentions, and that she should be taken unawares. The effect was striking. The young woman, now just entering upon her sixteenth year, became greatly excited, laughed and clapped her hands after the first few bars of "Way down in the Meadow a'mowing of the Hay."

"Father carrying baby up and down, swinging her on his knee: Black crow! Black crow!" she exclaimed repeatedly, with manifest emotion. Miss Sullivan and several ladies present were greatly astonished at the result. On hearing the second song, "The Ten Foolish Virgins," the same effect was produced. It was evident to all those who were present that the young lady was carried back to her early surroundings, even into the time of life when she was carried about by her father; but we could not find a meaning for the words "black crow." I considered it prudent not to question her, but applied by letter to her mother, who was kind

enough to send an early reply. Mrs. Keller said: "What you wrote interested us very much. The 'Black Crow' is her father's standard song, which he sings to all his children as soon as they can sit on his knee. These are the words: 'Gwine long down the old turn row, something hollered, Hello Joe,' etc. It was a sovereign remedy for putting them (the children) in a good humor, and was sung to Helen hundreds of times. It is possible that she remembers it from its being sung to the two younger children as well as to herself. *The other two I am convinced she has no association with, unless she can remember them as she heard them before her illness.* Certainly before her illness her father used to trot her on his knee and sing the 'Ten Virgins,' and she would get down and shout as the negroes do in church. It was very amusing. *But after she lost her sight and hearing it was a very painful association, and was not sung to these two little ones*" (the younger children).

It was quite clear that the child, after she

was nineteen months old, might have received an impression of the "Old Crow" song when it was sung to the younger children, through the peculiar vibrations communicated to the floor of the room; but the other two songs could only be perceived through the ear when she was a baby younger than eighteen months, and could hear, and are therefore a part of her earliest memory. We are therefore justified in assuming that the vibrations of the piano from the two plantation songs, communicated to her by the touch, over fourteen years later, have travelled to the centre where her early aural impressions are stored up, and that they in their turn reawakened the memory of the Old Crow song, which she had heard before her illness, and possibly also had felt by vibration afterward when it was sung to the younger children.

It appears to me that this striking instance proves, beyond a doubt, and as nothing else could more, the persistence of early impressions, as well as the intimate connection that the centres of two different senses, though

physiologically related in many ways, may assume in certain cases. The mental quality of sound thus conveyed by vibration alone must, it is evident, be of a peculiar nature, different from such sensations of the normal person, for it is composed of elements of the immediate skin impression, associated with those of the earlier ones deposited in the normal sound memory.

Now if later physical habits, prejudices, and dislikes have their origin in the subconscious self, is it not equally consistent to look for the causes of deep affection and love in this part of the soul of man? Is it unreasonable to suppose that there are vague prototypes in the subconscious memory, gradually formed in earliest years, for the later images which suddenly fill the heart with a force and persistence that defy reasonable explanation, nay, frequently contradict the conscious predilections of the lovesick person? It may well be that some subconscious memory of early impressions, a resemblance utterly impossible to re-

memorize consciously, is the cause of "love at first sight."

Our religious beliefs are not originally developed by reason; the conscious self has nothing to do with their origin. The religion of our homes is our religion, however great may be the influence of our intellect upon our attitude toward it later in life. And when in later years we are wont to attach but small importance to the formal side of spiritual matters, ascribing to the details of cult merely a secondary importance and allegorical significance, we undervalue strangely the essential part which these exercises and observances have played in the earliest period of our mental development, intimately connected as they were with most trivial but constantly recurring events in our childhood, and thus forming an integral element of our subconscious self. "The church bell has rung God into our soul" are words of Jacobsen, which express well what is meant.

It would be interesting to study the history of the *church bell* in this connection. First in-

troduced as a part of the cult of the Catholic Church about the year 600, it must play a very important part in developing and sustaining the religious mood. Leaving aside the effect it must necessarily have upon the sleeper, when tolling at night, the matin and vesper bell must perforce create, at regular times, at least something like a religious subconscious impression, which is daily added to the store of our emotions. The sound of the bell at dawn insinuates itself into the mind, at a time when sleep is lightest, and is gradually merging into the waking state. We have seen that this is one of the periods of greatest impressionability, and the sound may therefore either create dreams of a distinctive nature, or may direct our thoughts into some particular course at the moment of awakening. The hush at sunset and the changed appearance of our surroundings is not the only cause for an increase of emotional impressionability, but the exhaustion of the muscular system has produced, as Dr. S. Bettmann has conclusively shown, a condition of the mind

in which its power for concentrated and analytical activity is very considerably weakened: two conditions most favorable to the influence of vague sensations and for the creation of emotional moods. At this moment there floats through the air the choir of vesper bells from far and near, and turns the mind towards religious things. The reader who has travelled in Italy or Spain will agree with me in thus recognizing a subtle power in the church bell, which cannot have failed to contribute to the forces that have given to the Catholic Church its predominance in those parts.

Primitive man invented the ceremonies which were meant by him to propitiate the Superior Powers. To his offspring the ceremonies themselves produce "subconsciously" a religious mood and habit of mind, and direct or modify ever after his religious feelings and thoughts. They were early impressions at first, bare of a higher meaning, and contributed, with the numberless other subconscious perceptions, to form an indissoluble union in his sub-

conscious memory. And so from generation to generation the child received similar ritual impressions intimately connected with all that filled his daily life, — strengthened, furthermore, by the æsthetic mood, as it is called out during religious observances of our times. During high mass in the cathedral all the senses are occupied, and the result is a blending of impressions, all the more vague because numerous. The temperature of the air is different from that outside, the color from the stained windows gives to the dim light an effect quite its own, while the odor of incense, the chant of the choir and music of the organ combine to create a mood to which all the senses are contributing in a vague but powerful manner. Is it not remarkable that those churches have lost the fewest of their followers whose manner of worship has always been most impressive? Leaving out of consideration all other sides of the question, I am inclined, as may have appeared, to ascribe a high and positive importance in man's inner history to the ritual side of all

forms of religion, on the ground chiefly that we can ill afford to miss any of the links that bind us to our innermost personal existence as it evolves itself in youth. For when either in old age or through disease the intellectual powers are weakened, when the will is broken by misfortune, when the things of this world are losing their proportion and their importance, the sound of the bell, the odor of incense, the repose under the dome, are recalled, and the sceptical man of action falls back into the memories of childhood and of youth. It may well be that this is the mood that has so often, in the history of man, brought back the schismatic and unbeliever "into the bosom of the church," when stricken down by disease or bent low by sorrow and the futility of the conscious struggle of the individual against his part of the "woe of the world." Is it not as if the light that is shed in resplendent harmony of colors upon the altar recalled those days when, as in early childhood, there is no travail, no duty, and no mental anguish, —

when the soul rests content in pure contemplation without desire or thought, — the "Nirvana" of this life?

The beginnings of the subconscious self can thus be traced to an early period in man's life. Its character depends, as might be more amply discussed than is here contemplated, upon the nature of the subconscious impressions and those that are intimately associated with them. It might be shown that peculiarities of temperament, certain thoughts and acts, which cannot be otherwise explained and are so frequently attributed to heredity, can be traced to early and oft repeated impressions, in their nature subconscious or received as such. But it is not only the character of the subconscious part of the mind that is thus formed; its extent, its power, its force as well, are subject to the same causes. Like everything organic this also is developed in proportion to its use. If the surroundings of the youthful mind are calculated to multiply vague and changing impressions, if the satis-

faction of instinctive cravings is added to the sum of those associations which create strong impulses, it is inevitable that the impressionability of the individual will grow in proportion. In such cases, as life progresses, the subconscious part of the mind will assume the preponderance in thought and action, work and play; the passions both good and bad will be governed by impulse alone. The conscious self, the intellectual part of the mind, will be suppressed; the effect of what is done or said or thought will be of minor importance as compared with the satisfaction of impulsive desire. Moreover, all outward stimulation will directly create emotions and reactions in the nervous system, which will in their turn produce abnormal conditions that may finally pass beyond control.

It would therefore seem no less important that the subconscious self and all that tends to its development should be held in due control and not suffered to assume abnormal influence. All appeals to the imagination of

the young, all violent emotions and abrupt changes of surroundings, should be kept within narrow limits. And, although it is quite as dangerous to the development of the plastic juvenile mind to teach concentration of attention or to appeal to the memory (which is of such slow growth, as it depends upon association) too early, it is well to enlarge gradually the field of exact observation. In nature, the contemplation of which is most refreshing to the subconscious self, we can find also the simplest materials for the growth of the intellectual, the conscious part of the youthful mind. To distinguish between essential and accidental peculiarities in natural objects should be the first and principal object lesson for the young; for in Nature all associations are most clearly related to normal functions, and the law of causation is best recognized in its greatest purity and in its fullest independence from the human will itself.

With the exception of pure art alone, all works of man bear the stamp in greater or

less degree of their purpose and utility; wherever the eye turns in the city it is met by objects showing the ulterior direct and interested aims for which they were designed; and the youthful mind is filled therefore with ideas which carry it away from the appearance of things to what lies behind and beyond them. The surroundings in the country, however, impress the child with their perfection in themselves; every work of Nature has its end within itself, and its contemplation carries with it that restful spirit and singleness of purpose which is as the soul of each crystal, plant, and insect. In the city the mind cannot be at rest, for the attraction of its life, full of plan and purpose, render concentration most difficult, while in the country the power for concentration is given by the freedom left for contemplation, which strengthens the conscious as well as the subconscious self. It is a remarkable fact that perhaps most of the greatest men in history have passed their youthful days in the country; and quite as interesting, on

the other hand, is the degenerative effect of city life, to which Fothergill has drawn attention in his statistical researches in respect to London and Paris.

The training of the youthful mind is, I take it, one of the most difficult problems that can well be imagined; for it presupposes, not only a high degree of knowledge and of what Sir Herbert Maxwell has recently described as "intellectual detachment," but of infinite tact and a thorough understanding of the child's innermost nature. Such qualities for dealing with children do not come of themselves; they require much thought and trouble.

It is needless, I trust, to recall what has been said of the influence of nurses, governesses and teachers for good and for evil in this connection; at best it is in every case a risk of the gravest nature to delegate the educational and directing powers of the mother to any stranger, especially during the earliest years.

The plan to be followed in the endeavor

to establish a balance between the subconscious and the conscious self of the child must differ in every individual case; in the one it is well to encourage the tendency to contemplation, while in the other it might be better to exclude the effect of the vaguer impressions by stimulating the selective method and a habit of close observation. The self-observation of Charles Darwin contains an implied warning. He says of himself that his power of enjoying music diminished gradually as he acquired more and more the faculty of exact research and analytical study. This experience is by no means uncommon, nor is it rare to observe quite the contrary state of things where the growing love for an art has gradually weakened the power for close observation.

But it is not only the development of the mind in the healthy condition that ought to occupy the attention of the parent from the outset, but he must also bear in mind that a great number of mental disturbances are directly caused by injudicious training. A knowledge

of certain family traits, if recognized in their importance and counteracted early enough by a stimulation of normal and inhibiting mental powers, would sensibly diminish the occurrence of functional nervous disorders, and even of insanity. Such peculiarities may be often found to depend upon certain abnormal organ sensations proper both to parent and child, and will then require intelligent medical attention.

III

THE fundamental and most lasting characteristics of both the conscious and subconscious self are formed in youth. But during the entire life of man additions to both parts of his mind are continually made by his experience. His own choice of surroundings can modify in a measure the nature as well as the force of those impressions which crowd in upon his mind, but they are themselves independent of his will. And so it is with their effect upon his life; their influence is more frequently felt than recognized, and if he wishes to examine them, to understand his subconscious self, he must convert them into conscious perceptions.

The sympathy or aversion with which persons affect us at first sight, the depressing or the exhilarating effect of certain scenes, erroneously considered instinctive, could be easily accounted

for if it were possible to raise certain associations from the depths of the subconscious self: to rememorize them. But as such impulses depend upon numberless, and often very early and vague impressions, it is generally impossible to recognize their true cause, especially as our senses are mostly consciously engaged by our present surroundings. When a peculiar scent, the characteristic appearance of a person or place, a bar of music, awaken in us a special mood, it is necessary first to recognize the inciting cause, excluding all sensations of the moment, before the mind is able to concentrate its attention upon the mood thus subconsciously produced. Thus, I feel myself suddenly and strangely elated while studying the titles of a collection of books in a shop window. "Surely, the sight of a new book on the 'British Nudibranchiate Mollusca' cannot be the cause of this powerful sense of joyfulness?" Nothing that I can see can explain this sudden mood. I close my eyes and listen. Among the noises of the street I can

distinguish the sounds from a hand-organ, and I presently recognize the tune it is playing as an air that long ago marked time to my steps in the first quadrille I had learned to dance. What if I had not been able to trace the first impression? It was certainly subconscious, for I was then a child and was completely engrossed by the difficulties of courtesying and swinging my partner in the proper fashion of the thing. The mood before the "Mollusca" would have remained unexplained, but it would have been none the less deep; and perhaps might have influenced me in my actions under other conditions. There can be no doubt that we are thus powerfully moved by subconscious impressions many times in the day, and that our actions are often governed by them, without recognition of their causes, rather than by what our judgment would lead us to do.

The experience of one person in a given moment might very well be identical to that of another, for we are to-day subject, even at great distances, to a multitude of similar impres-

sions, mostly induced by vague sensations. The direct effect of modern journalism and the telegraph must necessarily be to set in motion mental activity of precisely the same nature all over the globe, and call up much the same interests and emotions. The uniformity of daily habits, fashions, food, and the like, will serve to awaken numberless subconscious moods, which might suggest, in their turn, the same course of ideas. May we not explain in this way the origin of some of the phenomena which have been ascribed to *telepathic* influences?

In thus seeking out the subconscious connections between the present and the past, we convert a subconscious impression into a conscious one, and, if cultivated, such a habit would do much toward modifying the sum of emotions and moods, and consequently reduce our impressionability.

It has been said in the first part of this essay, that, although the conscious and subconscious impressions and their resultants can be separated, there are many which have elements of both.

All impressions cannot be classified as purely conscious or purely subconscious. We are sometimes receiving mixed impressions, and are then adding material to both constituents of our mind. There are moments, moreover, when we are more receptive for the one than for the other. Inasmuch as concentration, or (what is the same thing) attention, depends upon the elimination of all but a single impression, those from our own body as well, conscious impressions singly and purely can be received only during full wakefulness, in a state of perfect health, when we are in complete possession of our active mental powers. We are, on the other hand, most open to subconscious impressions when our will has been weakened by physical exertion, disease, old age, or mental languor.

During perfect sleep the organs of sense and the brain have ceased to react entirely; perfect sleep is therefore a period of entire rest. Sleep is, however, seldom perfect, interrupted as it is by dreams and by a con-

dition of partial wakefulness at its beginning and toward its end. During those periods we are especially open to subconscious impressions. When sleep approaches, concentration of the mind, attention, becomes more and more imperfect, so that all impressions are gradually vaguer and dimmer, and glide into the subconscious region, where they are recorded, until finally even this degree of impressionability is lost in the unconscious condition of perfect sleep. If, however, by their nature or by their intensity they call up associations lying dormant in the subconscious memory (be they recent or more remote), the subconscious self continues its activity and elaborates dreams. Such dreams are difficult to remember when they are followed by a certain period of profound sleep; but in spite of this their influence is felt in a subconscious manner for an indefinite time and with varying degrees of intensity; they may create after-moods that appear to the individual himself, as well as to others, utterly incomprehen-

sible. In a number of cases I have frequently succeeded in tracing a depressed condition or one of unwonted exhilaration to dreams that could be recollected with the aid of suggesting questions and of a continued mental effort. Of course such dreams may be led through certain associations into the conscious self, and thereby to a complete awakening. Mr. F. W. H. Myers has called attention in his studies on the "Subliminal Consciousness" to the fact that, in his attempts to recall the last impressions received from his surroundings at night before falling asleep, he was obliged to close his eyes and so to induce a condition of partial unconsciousness in the morning, before such images would reappear. It is well worth mentioning, in this connection, that he was unable to recall the consciously chosen impressions of the night before, but that only those appeared again which had thus appeared but vaguely. In other words, the subconscious impressions only were received into the subconscious self at a time when the conscious self was begin-

ning to lose its power of action, and they could not be remembered in a conscious manner, for it became necessary to induce a subconscious condition before they would reappear.

While thus the dreams in the first period of sleep are developed in the direction from the conscious to the subconscious condition, there are others, those at the end of sleep, which originate in the opposite direction. Here it is that impressions upon the organs of sense, such as noises, odors, general skin sensations, set going the subconscious region of the mind and create dreams in accordance with these sensations. The rhythmical sound of a carpenter's hammer in the early morning may suggest a tune of the same rhythm with which the sleeper awakens; the odor of flowers may call up country scenes visited long ago and wholly forgotten; the light of the sun starts the horrors of conflagration or of war; and so every outward irritation may become the starting point of dreams, without limit of time or space.

These two kinds of dreams may originate in a slightly different manner, but this is their usual development. To them we may add a third class of dreams, usually of a frightful, horror-producing nature, which occur generally between three to five hours after the beginning of sleep, and which are caused by sensations coming from abnormal conditions of internal organs: digestive disturbances, hunger, neuralgic pains, fever, and other conditions approaching disease.

Whatever be the kind of dream, whatever its origin, its seat is always in the subconscious self, and there adds to the development of this part of man's mind. The habitual dreamer, therefore, is much more liable to be swayed in his waking condition by impulses, emotions, and moods. Hence it is of great importance that both parent and physician should devote some attention to dream-life. From the time and nature as well as from the frequency of dreaming, many useful indications can be ascertained. It is evident, furthermore, that the

impressions which surround the sleeper and precede sleep ought to be of a nature conducive to a cheerful condition of the mind when it lapses into rest as well as when it awakens to full consciousness. Thus greater care should be exercised in the choice of situation and adornment of our sleeping apartments than is usual, even among the most thoughtful of us; for, as we have seen, it is fair to suppose that the last waking impressions and thoughts often create more lasting impressions than is commonly recognized.

Certain nervous disorders are accompanied by sleeplessness or restless nights, and a great part of the weakness of those so affected can be directly accounted for by the great waste of nervous energy that is the consequence of the activity of the brain during sleep. A simple examination of the renal secretions of the morning, and a comparison of the same with those of the day, give further evidence of this result.

Pure cases of insomnia are caused by an

over-exertion of the conscious part of the mind. The cares of the day are followed up into the night, and prevent the necessary condition of unconsciousness and absolute rest from setting in. Medicinal treatment is frequently without benefit, for the drug will in many cases only aggravate the condition by stimulating the subconscious part of the mind and thus creating dreams. In other cases, sleeplessness is the consequence of a habit consciously acquired.

Mr. N., a lawyer, had been a sufferer from insomnia during four years. That he went without sleep, as he alleged, is vouched for by the testimony of several nurses, who were with him for months at a time. Mr. N. had trained himself gradually into this degree of wakefulness. Beginning as a poor youth with but little schooling, he succeeded in reaching eminence in his profession chiefly by unremitting and systematic night work, the day being given up to wage-earning for the support of himself and a part of his family. On going to bed he in-

variably passed the events of the day in review, arranged and classified all new impressions, and laid out carefully his plan of action for the next day. At the same time he persistently avoided for years all pleasures, and was constantly kept by his duties to others (many of them self-imposed) from all purely contemplative relaxation. The hours of sleep were thus gradually reduced until he could not sleep at all, however tired he might be. He rested in a fashion only, sitting with his eyes closed during the day or night, but never so that he became wholly unaware of what was taking place around him. He became unable to divert his mind from conscious thought, and could never relax concentration sufficiently to take pleasure either in art or nature; the faculty for contemplation, for receiving subconscious impressions, had thus become weakened. All the efforts that were made to cure this case were unavailing, simply because they were directed only toward suppressing the exaggerated conscious self, while it must evidently be the first step, next to the removal

of all incitants to conscious thought, to restore the ability to receive subconscious impressions, to create and strengthen the emotional faculty.

This is an extreme case, which illustrates well, however, the effect of an overweening development of the conscious self.

I cannot refrain from alluding at this point to a condition which will doubtless be familiar to the reader out of his own experience. Instead of keeping the attention fixed upon a purposely chosen line of thought, many of us are pursued in the night by a worrying condition of the mind, which comes from a vague consciousness of the business of the day or the duties of the next; and when sleep at last possesses us, it is disturbed by dreams connected with or suggested by the last thoughts before sleep. I have often met this condition by directing that all open questions and contingencies be carefully written out, and that these notes be put away until the next morning. The subconscious mood was thus prevented, substituting for it a single conscious memory,

namely, of the bit of paper safely locked away for reference.

One is frequently assured, more especially by nervous persons, that they never dream. This is in many cases only because they cannot recall the fact. "I have never dreamed in my life, I am quite sure of that," I was informed by one of them the other day. But when I saw him again, a week later, he told me that he was utterly wrong, that, in fact, he dreams every night, and, now that I had called his attention to the matter, he might safely say that he must have dreamed every night of his life. He had evidently become aware of the truth of the matter only upon awakening in the morning after first seeing me.

This condition is of very great importance in every case, most of all in cases of nervous disorders, and must be accounted as a serious obstacle to a perfect re-establishment of mental health.

An eminent writer, who was suffering from a nervous breakdown of a serious nature, com-

plained principally of restless sleep and of constant dreaming; he could not close his eyes even for a short time during the day without dreaming immediately. In spite of the fact that he could rarely remember the contents of his dreams, he recognized, nevertheless, that they were frightful and sad, for he was depressed in the morning and was frequently under the same melancholy mood during the entire day. His condition was one of great mental weakness and depression, especially as work of any kind was impossible. He was told to attempt every morning to recall the entire dream of the previous night, and to send me an account carefully written out. In the first letter, accompanying a number of the most fantastic and grewsome fictions, he accused me of unnecessary cruelty in thus renewing the mental agonies of the night. But when I next saw him he assured me that he felt much freer in the morning, that he dreamed less frequently, and that the dreams were shorter and less disagreeable. He

now understood, he said, the object I had in mind in having him write them down. It is not my object to enter upon the medical side of the question, but I could not refrain from giving the rather incomplete account of this case, because it illustrates so well what was previously insisted upon, — the subconscious persistence in the mood of the following day of the dreams of the previous night, and how this effect can be prevented by converting the subconscious dream itself into a conscious object of thought and production.

It was quite clear in this case that the mood upon awakening was caused by the nature of the dreams of the night, but in most cases it is not so evident why one is either depressed or exhilarated in the morning, frequently even under the control of what seems to be some mysterious mental influence during the entire day. Amiel describes this state in his Journal, and is finally led to believe that it is some subtle condition of consciousness produced by the ghosts of the soul, reflections of past hap-

piness, the *manes* of our dead emotions. He says: "How shall I find a name for that subtle feeling which seized hold upon me this morning in the twilight of waking? It was a reminiscence, charming indeed, but nameless, vague, and featureless, like the figure of a woman seen for an instant by a sick man in the uncertainty of delirium, and across the shadows of his darkened room. I had a distinct sense of a form which I had seen somewhere, and which had moved and charmed me once, and then had fallen back with time into the catacombs of oblivion. But all the rest was confused: place, occasion, and the figure itself, for I saw neither the face nor its expression. The whole was like a fluttering veil under which the enigma — the secret of happiness — might have been hidden. And I was awake enough to be sure that it was not a dream." It was not a dream, but the subconscious reminiscence of a dream, which Amiel might have called into distinct recollection if he had not been so much a day-dreamer, a

man full of emotions, and under their sway, who like Hamlet is happy in contemplating his weakness of will and want of action: "I very soon discovered that it was simpler for me to give up a wish than to satisfy it. . . . I have been ashamed to desire." And in another place he asks: "What is it that has always come between real life and me? What glass screen has, as it were, interposed itself between me and the enjoyment, the possession, the contact of things, leaving me only the *rôle* of the looker on?" It is, I venture to say, that he was leading (at least the Amiel of the "Journal Intime") in great part a subconscious existence mentally, that of the *Weltschmerz* egoist.

Organ sensations, so vague and feeble that they are not consciously perceived, frequently create subconscious impressions during sleep, and give rise to dreams that have often appeared as precursors of disease. They may, therefore, prove to be valuable premonitory signs to the physician, for the same reason that made them

appear as prophetic omens to the people at all times. Such reactions of the mind in sleep upon physical disturbances generally of a constitutional nature are not uncommon in children, causing them to start up in bed, to cry out, and in some cases to rush about as if in great fright. It is evident how important it is to recognize this connection, especially as it is mostly found in impressionable subjects, whose entire mental condition is aggravated by such dreams.

An old lady, a constant dreamer, relates that one dream constantly reappears, in which she is pursued by some one or by some wild beast, until she finds herself hemmed in by tall houses at the end of a narrow street; seized with terror, she awakens trembling and exhausted. The scene is so distinct and familiar to her from its frequent reappearance that, were she an artist, she could paint it in all its details. And, nevertheless, she cannot remember ever having seen it in the waking state. Her description corresponds to no modern city in

America, where such houses and streets are unknown, and must refer to some place in Germany, which she cannot now identify. This dream has evidently carried her back into her earliest childhood, and reawakened recollections of her early subconscious life, the details of which are now entirely submerged in her conscious waking existence.

All that has just been said can be applied even with more force to the sick. Their sufferings are not alone caused by the abnormal conditions of the body and of the mind directly; there are others of a more subtle and vague nature that are indirectly produced by the necessary surroundings and their unavoidable accompaniments. Long after the illness itself is passed, it has left, deep down in the subconscious part of the mind, scars, as it were, of the wounds which less defined sensations of the unhappy state have inflicted: a condition of "nervous weakness," "irritability," which to the patient himself and to those around him seem inexplicable. No organic trouble or

functional disturbance can be found to account for this more or less continuous mental and moral depression, and all efforts of the will are unavailing to throw it off. It is only when we bear in mind that every detail in the sick-room, every word or act, even the expression of countenance of those around the bed, creates subconscious impressions, which in the abnormally receptive condition of the invalid contribute toward the formation of a subconscious memory, can we understand why it is so difficult to re-establish the former balance in the mind of the convalescent. It is therefore most important, to begin with, that the general aspect of the sick-room be as pleasant as possible, and that no detail in its arrangement be prominent enough to obtrude itself upon the notice of the patient, and thus associate itself with the general impression left by the period of suffering. It is advisable even to change all impressions occasionally by transferring the sufferer from one room to another. At all events, it will be found that a complete change of scene,

after recovery, will be the speediest manner of removing those subconscious scars, if not to prevent entirely the depressing stage of convalescence. The scene of an illness leaves quite as deep an impression upon the subconscious self as that of the disease itself upon the conscious memory.

From a misunderstanding of these causes, many unavailing attempts are constantly being made in the treatment of certain functional disorders of the nervous system which are so common in our day. The hysterical, neurasthenic, and hypochondriacal are all abnormally impressionable, and, though the beginning of the nervous derangement may be traced in certain cases to some definite cause, this condition of the mind after illness or any other shock must, in many cases, be considered as the true cause of the evil. It is for this reason that all advice and every effort addressed to the will of the patient can have no effect, however he may exert himself; and as such unavailing attempts to throw off the mental

weight demonstrate his weakness even more, they have the contrary effect, and are likely to aggravate the trouble. Dr. Weir Mitchell has pointed out the causes of failure in applying his beneficent "Rest Cure" in similar instances. Next to the cheerfulness of the room, sunlight, brightness of coloring on ceiling, walls, and furnishings, even to the pictures on the walls, are of importance. The ways of nurse and doctor contribute largely to the success in this mode of treatment, for such minor details impress themselves upon the patient precisely in that part of his mind, the subconscious, which is the seat of these nervous disorders.

In the great majority of cases, however, it is imperative to resort to a radical change of occupation, of surroundings and moral impressions, which may together act upon the subconsciousness of the individual, in order to effect a gradual change in its very composition, vitiated, as it may be, by influences that reach far back into earliest childhood.

The increase of *hysteria* and of *neurasthenia*

in our day is a subject of grave consideration for the physician. The general public also remarks upon these subjects, be it from personal experience or for the reason that their manifestations are treated of so persistently in a piquant and alluring class of imaginative literature. Thus these abnormalities of the human mind have become matters of engrossing interest. The novelist, the playwright, and certain painters and sculptors of the "realistic" and "naturalistic" schools have adopted the "neurotic" as a theme for treatment, professing to lend truthfulness to their subject by assuming so called scientific methods of observation and analysis. We are made to witness every detail of physical suffering, and are not spared the shrieks and the impotent struggles of the victim of professed hereditary dementia; every phase of the pathology of love is depicted with all the cunning of the modern art of fiction; and the assumed results of "degenerative" influences are published as undoubted facts for all who can read, without any regard to the

critical maturity of the general public. What wonder then that the arrogant assumption of half-knowledge, infected with the venom of polluted imagination, still further weakens the minds of those who are sufficiently impressionable as it is. The use thus made of art and popular science is directly opposed to their true nature, and must be deeply deplored by those who have their beneficent object at heart, and I cannot allow an opportunity like the present to pass without adding, in this place, a few words concerning the nature of the above mentioned "neuroses," convinced as I am that they are not hereditary diseases, but are caused rather, in the great majority of cases, by errors in the training of youth and the thoughtlessness of the individual himself. They would then be preventable, and would, in many cases, yield to proper treatment.

Hysteria as well as neurasthenia is the effect of a weakness in the conscious self, and a corresponding predominance of all the impulsive, emotional, and distinctly egotistical manifesta-

tions of what constitutes the subconscious self. The hopes and fears of the hysterical and of the neurasthenic individual, his thoughts and actions, are in accurate relation to the characteristics of the subconscious part of his mind. But here ceases the likeness of these two nervous diseases; their symptoms have a common origin, but they differ in development.

The neurasthenic, the nervously exhausted person, has over-estimated the limits of his strength for intellectual work, and has thus gradually lost the use of the inhibiting power of his conscious self. Consequently his imagination has assumed complete control over his thoughts and acts, and as he feels the inefficiency of his attempts to re-establish this control, he becomes discouraged and depressed. In such cases it is utterly useless, nay, harmful, to appeal to reason, or to attract the patient's attention to other things and thoughts; his unfortunate condition can be improved best by mental rest, rest as absolute as can be. Were it possible to produce a condition resembling

dreamless sleep it would be, I venture to say, the ideal method of treatment.

The *hysterical* condition, on the other hand, need not necessarily include any feebleness of the faculties for observation or judgment; they are indeed in many cases uncommonly strong, but here the subconscious memory has been unduly developed. Such subjects are highly impressionable, and are governed by their vague and powerful emotional moods, so that the mental reflexes are set going upon the slightest stimulation, while the inhibiting power of the will, however much it may be exerted, remains ineffectual. It is clear, therefore, that the first causes of hysteria must be looked for in the habits which the mind was allowed to form in early youth, and will therefore be found in the subconscious self, which has been left to develop itself without judgment and care, and to which the satisfaction of the instinctive desires has added its emotive effect. Hence it is that this functional disturbance is so difficult to cure, and that nothing will answer short

of a complete change of habits and surroundings, chosen with a view to modify the complexion and force of the subconscious self, as well as to cultivate the practice of concentration of attention upon questions and occupations drawing the mind away from the consideration of self toward altruistic and impersonal interests.

In order to reach the seat of the hysterical disturbance certain drugs have been employed, and in recent years treatment by means of hypnosis has led to very gratifying results in many cases. If, however, the patient could be taught the systematic exercise of the conscious self upon the subconscious, much benefit of a cumulative and permanent nature might be derived. Let him learn to search for himself with regularity and insistence the depths, as it were, of his subconscious self, and attempt to discover the hidden causes for his peculiar sensations and emotions, and thus by raising and converting them into conscious impressions destroy their baneful influence. Much as in the case of

the dreaming writer, related above, he will gradually reduce the preponderance of emotional impressionability and strengthen the conscious part of his mind; and will through such self-confessions exert a more powerful and a more lasting effect than he can hope for from confidential communications to physician or to friends, or could find in the *confessional* of the Church.

Certain mixed cases of these two disorders, and other mental conditions which might be mentioned here were this the place for such discussions, are often considered of hereditary origin and therefore incurable; they are, however, quite as much results of subconscious impressions, since they have their origin in the abnormally developed subconscious self, whose character must be determined in each individual case.

To the subconscious impressions derived from sensations upon the special organs of sense from external sources must be added, as we have seen, a great number of impressions that

come from internal organs. Their importance will stand in direct relation with the impressionability of the person; they will naturally play a greater part in the mind of the neurasthenic and hysterical than in that of the normal individual, and create hypochondriacal ideas and delusions. In neurasthenia and in hysteria slight degrees of functional disturbances add their depressing influences to these conditions, and keep persons suffering from them in constant fear of physical illness and death.

Since the phenomena of *hypnotism* have become the subject of legitimate scientific investigation, chiefly through the efforts of Charcot and his school, a great number of theories have been put forward to explain them. There are still current notions of occult forces which the operator is said to employ in order to affect the subject, ideas that are diligently and profitably encouraged by the professional *hypnotiseur*. Those who have earnestly applied themselves to the study of this very ancient condition of the human mind have been, fortunately, suc-

cessful in counteracting such errors; and we know to-day that the hypnotic state is one that has its origin only in certain peculiarities of the "subject," entirely independent of any influence attaching to the person who may be instrumental in producing it. Much has been done in this direction toward our understanding of this branch of psychological research; and since the publication of the work of Liébault and of Bernheim, the whole matter has been materially simplified by the proof that all hypnotic demonstrations are really nothing more than effects of *suggestions*, — suggestions that are, moreover, to such a degree free from any personal power in the operator that they can even be produced by the subject upon himself, — *Auto-Suggestion*.

While every opportunity should be made use of to distinguish between well grounded experience and the sensational accounts from the pen of auto-suggested enthusiasts, it is well to counteract the influence of popular exhibitions and the misconceptions to which they lead by pass-

ing laws governing the practice of hypnotism, just as the practice of every branch of medicine is controlled in civilized countries. Its unlawful practice ought to be made a penal offence, as the unlawful administration or sale of drugs now is. The knowledge we at present have of hypnotism and its ulterior effects urges us to apply the same caution to its use as is now done with morphine, belladonna, and other powerful agents. I do not mean by this to imply that it has had, so far as I know, a directly fatal effect, or even lasting evil results, any more than the use of the drugs mentioned, if applied by those who have acquired the requisite knowledge; and I say this, being possessed of all the facts of the case. Shall we lose the inestimable benefit of anæsthesia, because in a few deplorable cases death has been attributed to the use of chloroform or ether, when diseases of the heart or kidneys, or other constitutional failings were present and beyond recognition? It is not my purpose to dilate further upon the uses of hypnotism in medicine, for I propose merely to

refer to some popular superstitions which surround it. I may repeat, what has been often said before, that they are intimately connected with the indifference of the legislator to deal with the matter. A recent sensational lawsuit in Bavaria against a charlatan and common swindler caused the adoption of laws in that country regulating hypnotic experimentation. This *cause célèbre* acquires further importance in a medico-legal sense, in that it is the first in which the facts of suggestion were officially recognized in any European court of law.

I have said that various theories for the explanation of hypnotic phenomena have been advanced. As Wundt has shown in his critical essay on hypnotism, some of these are unsatisfactory because they are meant to cover both the physiological and psychological aspect of the question; and they failed because it became necessary to assume certain equally unproven functional and physical hypotheses. But I believe that their chief weakness lies in the fact that they premised and were applied

to a specific condition of the brain during hypnosis, which is held to be functionally different and quite apart from the normal and habitual mental state. The analogy which Liébault established as existing between the hypnotic and the sleeping state first promised to be productive of definite results. Bernheim has, until lately, represented with rare powers of close observation and analysis this point of view of the Nancy School. He has, however, become convinced that suggestion creates a psycho-dynamic condition of the central nervous system which makes it specially receptive to, and controllable by, outward influences.

After having carefully considered the value of the various attempts toward solving the problem, and having given no little time and pains to the study of the subject experimentally, I cannot declare myself satisfied with any one view in its entirety. I should be, however, inclined to combine the hypothesis of Liébault with that of Bernheim. As regards Liébault's view, we must admit similarity of hypnosis

with *imperfect* sleep, while we must relegate the definition of Bernheim to the physiological side of the question, preferring for the moment to confine ourselves to its psychological aspect.

The great advance made by the Nancy School was the recognition of the fact that all the phenomena of so called hypnotism could be referred to *suggestion*. The hypnotic condition, as well as what happens during its continuance, is *suggested*. With this step the inquiry ceased to be confined to abnormal and ultra-critical regions, and thereby entered into the domain of the ordinary processes of mental activity, and so brought the subject within a more easily attainable reach. The hypnotic condition hence is a phase of the mind differing only in degree from the normal.

Every idea that is suggested to us awakens other thoughts and associations, and stimulates our conscious mind to action, but at the same time it also penetrates into our subconscious self, and thus creates a mood, or general mental condition. In the highly developed intellectual

individual the functions called into play are directed toward analytical processes; concentration and the interest in impersonal thoughts are awakened. Exceptionally, however, when the intellectual faculties are enfeebled through physical exhaustion, as sleep approaches, in disease or old age, and also in childhood, when these powers are yet undeveloped, the mood predominates, and is apt to influence the entire mind, and then the subconscious self becomes its only active part. Suggestions of fear, of pain, of joy, of self-confidence, are followed by all the effects of these conditions as if they were actual. We exert our senses forcibly, and direct them towards the persons and scenes surrounding us in order to escape from the unreal situation into which we have been forced by inner emotive powers, just as, starting up in the night, we should rub our eyes or pinch the skin to awaken out of the trance of a dream. The impressionable "subject," however, whose subconscious self has been powerfully developed, frequently at the expense of

his conscious self, and who is but feebly provided with elements of defence against the attacks upon his subjective mental nature, is more readily and more surely impressed in this manner. His grasp upon reality, his self-directing power, is not always under his control, and he thinks and acts according to the suggestion which he has received; the *emotive* mood prompts the *motive* impulse. The impressionable therefore are the best subjects for the hypnotizer; while the trained mind that habitually selects and rejects, and habitually counteracts the exclusive sway of moods and emotional impulses, can be affected only under special and exceptional conditions, which, moreover, originate in every case in himself alone. It has been already pointed out that the subconscious self is especially active in the composition of dreams, and it is in a dream differing only in degree that the hypnotized person follows the train of thought or action which is suggested to him. The fact that hypnosis is induced most readily by the vivid

representation of the idea of sleep makes the analogy even closer; the "subject" who refuses to receive the idea of sleep into his mind in a passive and complete manner at the outset of the experiment cannot be hypnotized. And though I have seen many instances in which suggestions have been obeyed when the word "sleep" had not been mentioned, I am still convinced that the condition of such patients was dream-like in that they were for the moment only in a sub-conscious state, — a state which, as we have seen, can be a powerful motor of action. In the degree of resistance to be overcome in order to hypnotize the "subject" we are enabled to recognize the composition of the mind, — whether the subconscious or the conscious part of it is more or less developed, — and we are thus enabled to determine in which direction his training needs improvement. And, as we know that what happens during hypnosis applies directly to the subconscious self, we may then hope to modify its development by creating impressions that

can be compared to those received in early childhood.

This has been recognized by the Nancy School, and its professors have repeatedly called attention to the disciplinary and correctional value of this method in the education of the young.

I have had repeatedly to resist the temptation of enlarging that part of my subject which is especially familiar to the physician, and at this point I must also desist from entering into a discussion of the use of hypnotism in its medical aspect; but I cannot refrain from touching in a few words upon two considerations that are more nearly related to the subconscious self. I mean the relation of the free will and of the memory to hypnosis and its psychical effects.

While our emotions, and with them everything that directly actuates our inner personal life, are moved by forces which have assumed independence from our will, it is alone from the positive and distinguishing qualities of our conscious self that we draw the ability to

"will," and these can and do inhibit the unfettered sway of our emotions and passions.

The hypnotic state presupposes the relinquishment of our power to will; we are thus rendered susceptible to outward influences upon our subconscious self. In those cases where the suggestion "to sleep" is promptly obeyed, we must assume that the will is habitually weak, or that the impressionability is highly developed. In either case the suggestion is first converted into an auto-suggestion, more or less promptly, according to the degree of development of the conscious or of the subconscious self. We cannot admit, therefore, that the hypnotic condition can be produced by force. This is a fact, it seems to me, of the greatest forensic importance. Society must protect itself against people who come within the pale of the law, either by abnormally weak conscious development, or through actions dependent upon the preponderance of unrestrainable impressionability. Criminal acts committed as post-hypnotic suggestions will doubtless occupy the attention

of the legislator and the jurist very considerably in the near future; the investigations of Liégeois give abundant evidence of the importance of the subject. It will be necessary to determine in how far the hypnotized individual can be held legally responsible before the law. I need not refer to the different theories of legal punishment, and to the end which it is meant to serve, whether as a deterrent, a reprisal, or a protection to society. We need here only consider protection to society. I have never been able to make any of my subjects perform acts resembling crimes of violence by post-hypnotic suggestion, while I have been successful in most cases where harmless acts had been suggested. The "subject" either remembered the giving of the command, or could be made to remember the facts by the method of throwing out hints to assist memory. In the case, for instance, of a highly educated gentleman, the injunction that a harmless thing should be done by him five minutes after awakening out of an incomplete hypnosis was resisted

consciously for a time, but was finally carried out, much to his disgust. "I know quite well what I am to do, and remember fully that you told me I was to do it; but I shall not give way." Give way he did, in the end, and explained his evident weakness of resistance by the statement that the idea of what he was to do was so persistent and uncomfortable, that he preferred to be done with it in order to get rid of the uncomfortable obsession. We need not have been hypnotized to have the same experience, when we are rendered mentally uncomfortable by some resolve that has slipped back into our mind (subconscious memory), where for the moment we cannot find it. Had I suggested to the gentleman in question any criminal act, he would have resisted effectually, especially for the reason that a suggestion of such a nature could have found no place in his subconscious self. For the character of the subconscious self, we have seen, depends upon the subconscious memory, and this is made up of the sum total of subconscious impressions.

The individual who carries out a criminal post-hypnotic suggestion has, I hold, a criminal subconscious self, and society must find some means of protection against a potential malefactor.

It has been asserted by some writers that the "subject" cannot recall what has been said or done while in a deep hypnotic condition. This is only true in a limited number of cases; just as we cannot recall every dream of the night before. But I have repeatedly been able to awaken a complete remembrance of the entire scene by certain words, which might help in awakening the subconscious memory. For instance, the "subject" is asked to take a hat from the table five minutes after awakening. This was acted upon, but could not be remembered as a command made during hypnosis. If, however, the "subject" was earnestly and insistently requested to think hard and to try to remember, with the additional indication of the questions, "Were you told to take anything? Was it a cap?" the subject ex-

claimed with evident relief that he was told to "take a hat from the table after five minutes." In cases of dreams similar suggestive questions asked of others or put to ourselves may recall an entire dream which seemed quite impossible under ordinary circumstances. It is, however, much easier to attain the same result, if the subject be questioned in a subsequent experiment in the case of hypnotism, or during sleep in the case of dreams. It is a well known experience, for instance, that one who is moaning in sleep and showing other evidences of dreaming, can frequently be made to give an account of the dream if gently questioned while stroking the forehead or hand in a soothing, quiet manner.

If we are thus made to recognize the similarity in many respects between the dreaming and the hypnotic state, we are forcibly led to assume that suggestions with a curative object might reach the subconscious self more easily at the time when sleep is near. In cases of functional nervous diseases we might achieve the

happiest and most surprising results if we would suggest to the patient, or cause him, just as he was about to close his eyes in sleep, to suggest to himself happy thoughts, a painless condition, or the return of lost powers; thus substituting artificial hypnosis by the spontaneous one of dreams. Such dreams, in which the suggestions of happiness are further elaborated and which might give rise to post-hypnotic suggestions reaching far into the following day, and so with each night and morning, may intensify and increase the happy result. This method of treatment is based upon what has been said above concerning the nature and effect of dreams, and upon the permanence of subconscious impressions.

Let us now consider another aspect of the relation between the active and passive parts of the mind, after the period of development is long passed, and when it no longer is in our power to modify them in any way.

It is common to hear those who are advancing in years complain of an increasing weakness of memory. It is not, however, so much due to

the gradual loss of power to recall impressions recently received, as it is to the fact that the faculty for concentrating the attention upon them is lessening by degrees as old age advances. And as the influence of the present is thus perceptibly diminished, and with it the affairs of active life lose their interest, the past with its more personal and intimate features again assumes greater distinctness and importance, until, be it earlier or be it later, the mind of the aged relapses completely into the subconscious condition resembling that of childhood.

During this period of advancing feebleness in the conscious part of self and the corresponding gradual preponderance of the subconscious, it becomes especially evident how powerful and lasting are the subconscious impressions. For the images and ideas that come up to the surface are not of those that played an important part in the history of the individual as it revealed itself in his actions, words, or in his relations with his fellow men and with the world in general; they are rather the recollections of

the vaguer and associated impressions which were received into and which impressed themselves upon his memory, without choice and without the wish to remember them. Only those who have been his contemporaries from early youth, who may have been able to follow his early mental development, and who are thereby initiated into the secret workings of his innermost personality, can hope to understand the thoughts he dwells upon and the cravings that move him in these phases of senile degeneration. The aged are themselves astonished when questioned and recalled to the present at the reappearance of such trivial images or unimportant details, while the occupations of their early manhood and their most important and absorbing interests are entirely lost to the memory.

Goethe tells his friend Riemer an interesting instance of this kind (Goethe's Conversations with Eckermann): "I know of a case where an old man of the lower classes, on his deathbed, was heard suddenly to recite several Greek

passages in the most elegant Greek. As it was generally known that he understood not a word of Greek, this occurrence was considered miraculous, and was at once exploited by shrewd wags at the expense of the more credulous. Unfortunately for them, however, it was presently discovered that in his boyhood he was compelled to memorize and to declaim Greek sentences, serving in this way as an inspiring influence to a high-born dullard. He had thus, it would appear, acquired a smattering of Greek phraseology in a purely mechanical manner, without ever understanding a word of it. Not until he lay at the point of death, some fifty years later, did these meaningless words come up again out of his memory and force themselves into utterance."

If at any time during the life of man the importance of the subconscious impressions be particularly apparent, it is then, when from physical causes he has become unable to select what should occupy his thoughts, when the subconscious self has wellnigh become pre-

dominant. Hence it is that the pleasures as well as the pains of old age depend above all upon the character and force of the subconscious self.

It is by no means rare to find extreme old age unaccompanied by any signs of "second childhood"; mental vigor, on the contrary, has preserved itself until the end. The senile changes have not, in these cases, prevented a constant though fitting exercise of the active mental faculties; the gradual increase of physical weakness has not been allowed to serve as an excuse for day-dreaming and a passive predominance of subconscious impressions. These worthy old people practise the advice of Cicero: continuing their interest in the arts and sciences and the active observation of Nature; and are thus demonstrating that even towards the end of life we have still some control left over the balance between the conscious and the subconscious part of self.

In old age the conscious self is only partially enfeebled, but when the conscious self has be-

come entirely unable to act, be it for the time or permanently, when its inhibitory power is reduced completely, and when therefore illusions that cannot be corrected are treated as if they were real, temporary or incurable insanity takes the place of logical thought. In this state, the subconscious, with all that it may contain, directs every demonstration of mental life, constructs conditions and interprets impressions solely in accordance with its contents. In how far some rudiments of the conscious self can be called up and be made to control the purely subconscious reasoning of the insane is different in individual cases, and has been frequently observed by those who have had the opportunity to study them closely. The account which Kandinsky has given of observations made upon several former patients, after complete cure or between the attacks, is most valuable evidence in this connection. In these cases hallucinations could be completely corrected and destroyed by an effort to exert the "higher" intellectual faculties in directing them intently upon the outer

and actual objects, or by following up a selected train of logical reasoning induced by himself.

Among the patients who were found especially good subjects for the studies of what Kandinsky terms Pseudo-hallucinations—a nice distinction upon which it is unnecessary to enter in this place—was an artillery officer, thirty-eight years of age, who, after having regained complete mental health, could be made to hallucinate almost at will or when under the effect of certain drugs. Without attempting to give a detailed description of these most interesting experiments, I consider it important enough in connection with the subject under consideration to quote several conclusions which would be deduced from them. Dolinin (this is the pseudonym which Kandinsky gives his patient) could never, for instance, hallucinate an impression which he had previously, and therefore consciously, determined upon, nor was it in any case possible to continue the hallucination after any addition or alteration had been made which was consciously received,

unless such impressions were vague in themselves. In other words, the conscious self could not create subconscious impressions; on the contrary, it counteracted the hallucinating activity of the subconscious self. One instance must be especially mentioned here as an illustration of what has been said about the relation of the subconscious self and insanity. Dolinin imagined himself (hallucinated, i. e. imagined with all the qualifications of reality) driving in a sledge through the winter night, and saw plainly the yellowish light of the lamps in places upon the snow-piles thrown up on either side of the street. When he attempted to convert the yellow glare into the white light of electric lamps, the entire picture disappeared at once. Here we have an instance of a scene resembling those imagined by the insane, constructed out of all such elements that could have accumulated in the subconscious memory of the man, and had he chosen to convert the yellow light into red or green light he might have succeeded, as he did before, in similar

cases. But he failed in the case of electric light, because this, a more recent experience, belonged wholly to his conscious memory. The impressions of electric street lights could not, at his age, have been so common, and their introduction was too recent, that they should form impressions of childhood which are received in a subconscious manner. This experiment was made in 1883, when he was thirty-nine years of age, and, as electric street lighting was introduced no earlier than 1876, he could not have been more than thirty-two years old when he saw it for the first time. The hallucinations of the insane to-day contain nothing alluding to the telephone, the phonograph, and other recent inventions, but those of twenty years hence may be full of wire messages from paradise or flash lights from hell.

In the insane the hidden impulses show themselves in their predominating importance, thus revealing the innermost nature of the individual, and recalling the elements out of

which the subconscious self has been developed even far back into the beginnings of its existence. The contents and character of the illusions and hallucinations will be found to coincide with the subconscious impressions in all those cases in which they can be discovered, and thus demonstrate most conclusively their permanence and overweening influence under certain conditions. It is not generally the intensity of the first impressions which makes them thus permanent and of such influence in later life, but it is their repetition in the early life of an impressionable person. From this point of view alone is it possible to understand such cases of recurrence of early and involuntary impressions, of which mention is made by several authors ; as, for instance, the case of the illiterate servant who recited several passages of the Talmud during an attack of mania. Upon inquiry it was found that she had served for some time in the early part of her youth in the family of a theologian, who was in the habit of walking to and fro in his study while

at work, repeating such passages aloud, thus creating in the subconscious part of the illiterate maid, while she was devoting her full attention apparently to the usual menial duties of her position, impressions that for years lay dormant in the subconscious part of her mind, which, when it assumed abnormal activity in insanity, brought up to the surface, as it were, the unintentionally memorized passages from a work she could never hope to understand, and in a language she had never known. Many curious incidents in the life of the insane can be accounted for in the history of their subconscious self; and if we were sufficiently informed of the personal history of patients, we might in every case and in like manner refer the cause of the different forms of insanity to their true origin. It is not wonderful, therefore, that words, gestures, actions, which strike us frequently in madhouses, should be reflections from images out of the childhood of the inmates. An artist illustrator, for instance, who was thoroughly familiar with the

features of Napoleon, having drawn them accurately for many years, now in his insanity struts about as the Emperor of France, decked out with the attributes of royalty, which he has thoughtlessly seen in his first picture-book when he nestled in the lap of his mother; a well known actor, in his ravings, declaims childish alliterations from morning till night; a third, well known for his fine musical compositions, is busy hushing the imaginary baby in his arms to sleep with nursery lullabies that may have been his first experience in his art.

But it is not only from the impressions of early childhood that the subconscious self is fed, and that the degree and nature of impressionability is determined, it is also by such impressions in the later periods of life that this part of the mind is influenced. There are some, moreover, that are self-imposed, and that add perhaps more to the misery of human existence than physical suffering. Among them "worry" is one of the most general and the most to be feared. It is not mental work

that kills, it is worry. Worry is expectation of some evil event. In expectation we are going over the mental processes that would be called for in case the event should happen to which we are looking forward. We have therefore expended uselessly, in many cases even vainly, a great amount of nervous energy. Hence worry is one of the commonest causes of nervous exhaustion. But it is more. Nervous exhaustion is a weakening, as we have seen, of the upper consciousness, of the powers for analytical thought and of judgment; but worry creates at the same time an incalculable number of subconscious emotive impressions, so that, while the conscious self is being weakened, the subconscious self is being more powerfully stimulated. The period at which this condition may lead to insanity is dependent, in a great degree, upon the previous condition and character of the subconscious memory, but the danger must be recognized.

While this course of mental aberration may be well known to the reader, I am not quite

sure that he has realized the part that superstitions play as factors in the development of diseases of the mind. I am not referring to the common superstitions that have come over to us from folk-lore and folk-medicine, nor to those that are developed out of religious fanaticism; but to superstitions of a distinctly personal nature, created by the fancy of the individual and possible only to a mind whose faculty for reasoning has been gradually weakened and whose indulgence in emotions and moods have resulted in an utterly selfish mental existence. I have already alluded in few words to the origin of such superstitions, together with the prejudices peculiar to the individual. *Worry* is a condition of incidental expectation of evil events; *superstition* is its permanent equivalent.

When my attention was first attracted to this subject, I was greatly surprised to find so many persons of acknowledged intelligence governed in many acts by numerous and singular superstitions. It seems to me as if the

first cause of this condition of mind is to be found in the impressionable nature of such persons, which, gratified by the importance they ascribe to their personal experience, develops gradually into a degree of emotional perversity in which they submit to what was aptly described as "the tyranny of coincidences." The great danger to the good health of the mind is apparent. I have in mind the sad case of a young woman, who died in a madhouse, and from whose family I obtained a long list of superstitions, representing but a small number of the evil omens which she herself had connected with the commonest acts and occurrences of every-day life, and which therefore must have occupied her mind constantly, and have insidiously destroyed all power for logical thought.

I cannot say, of course, that they were sufficient by themselves, but they certainly acted as a contributing cause, for they sufficiently explained a number of her delusions. So much is certain, that from a knowledge of these

superstitions many of her peculiarities in health and words and acts when insane have become perfectly clear, and seen from her point of view entirely logical.

The modern treatment of the insane has been largely influenced by such observations, which have been applied in methods whereby the patient is to be insensibly led into the condition of his normal existence. At Gheel, in Belgium, especially, this system has been most thoroughly and successfully applied. The patients who are not a menace to the surroundings live there in perfect freedom among the other inhabitants of the village, in a condition as nearly like their previous existence as possible, and engaged in work which may tend to rekindle the spirit of emulation and ambition in their enfeebled "conscious" selves. But, unfortunately, this part of the mind is broken, its associations with the individual impulse of the disused mind loosened, so that it fails to answer to the stimuli that are offered everywhere by the trained physician and the ad-

mirable accoutrements of most asylums in our time; and I have often wondered whether a systematic appeal to the subconscious self of the insane might not hold out more promise of curative results. It is true that music and the other arts have been and are employed, often with most beneficent effect; but I have in mind a more extended and especially a more individualized application of those impressions most likely to produce sympathetic resonance upon the deepest chords of the mental apparatus. To begin with, I should follow the usual mode of inquiry in every case, exhausting every means of information in order to penetrate into the character of the subconscious self of the patient, and, having possessed myself of this knowledge, apply the means most apt to reach and modify it. The impressionability of the insane patient is manifest, else there could be no insanity. But it must be borne in mind that this impressionability resides in such individuals in the subconscious self. This must therefore be reached,

and reached, moreover, by subconscious impressions apt to create moods and emotions, and hence impulses and actions: colors, music, scents, gustatory and other sensations, might be chosen, albeit with the greatest care, and with a due regard to the individuality of the patient and the nature of his subconscious self. And, as we have found the admission and retention of such impressions to be most readily attained in the period before sleep under normal conditions, so this time may prove to be the most propitious for the alterative effect of these measures, aided by a possible dream-like continuation; especially as it is known that insane persons are subject to dreams. Calmeil has devoted much attention to the subject of the dreams of the insane; and from his careful observation it follows that there exists a continuous connection between their hallucinations in the waking state and their dreams. Dolinin found, when he induced hallucinations (Pseudo-hallucinations of Kandinsky) shortly before falling asleep, that they

then assumed a more logical sequence and were converted into continuous dreams. Can one help being reminded here of Shakespeare's wonderful intuition in awakening the mad old king by the soft strains of lovely music, and thus freeing him from madness?

But enough has been said to justify the assertion that in the education of the child the possibilities of the development of insanity in later years may either be favored or in a great measure prevented. When the disease of the parent shows itself in the mind of the offspring, it may well be (and I maintain that it so happens in a large number of cases) that the *habits* of the father or mother in the form of uncontrolled nervous vagaries are the pabulum which feeds the subconscious self of the child, rather than that *hereditary* and therefore structural peculiarities should be made accountable for such cases.

IV

THE object which I have had before me in presenting this hypothesis of the dual nature of our mind has been twofold. I have endeavored to show how it may be possible to account for certain peculiarities and failings of our nervous organization by causes more readily understood than by the assumption of hereditary influences, and, furthermore, how it may be in our power to modify as well as to prevent, and to deal with certain nervous conditions.

As regards the educational possibilities it must be said that both the conscious and subconscious self can be influenced directly by *the training of the attention in the use of the senses.* For, as Kraeppelin has found in his studies of the mechanism of some simpler psychical phenomena, everything depends upon the method of acquiring knowledge ("die Lern Methoden"). He found that the reaction of either the lower

or the higher mental centres depended ultimately upon their more or less intimate connection with one or the other sense.

"One who repeats slowly (what he hears), reads quickly (what he sees), and conversely." In the one case the connection between hearing and speech is closer by habit and training, and in the other the path from the eye to expression has become more direct. As a general rule, it will be found that those who can read music well "at sight" are poor players from memory; many, however, who play "by ear," and who have extraordinary facility in repeating music heard only once before, are slow in learning from the book.

Impressions received from an organ of sense that has been developed in the direction of concentration in a different degree exert an influence upon mental images derived from another sense. And as such interferences multiply they will gradually intensify certain peculiarities to all impressions of a like origin and fix mental differences between individuals. Thus in a normal

child the mental image of a lemon will be composed of the impressions derived from four senses, but in every individual case the impression from one of these senses will be the most distinct; the taste in one, in another the form and color, and in a third perhaps the odor of the lemon. One will be the most conscious, while the other three will be more or less subconscious; and these will tend to react one upon the other in creating the mental image of the fruit. What the ultimate results of such complex impressions will be has been sufficiently discussed.

It is fair to assume that in the case of the blind and deaf mute these relations of the impressions one upon another might be most clearly discovered. The experience of Mr. William B. Wait, Superintendent of the New York Institution for the Blind, in teaching harmony to a number of his pupils, which he has had the kindness to relate to me, seems to illustrate this point most aptly.

Harmony is considered as a scientific, purely theoretical branch of learning, that might be

acquired by a person without any previous training in music, and it is usual to take it up only at a late stage of musical instruction, as a higher step in musical education. No instructor would think of combining it with the first years of tuition.

It would be fair to suppose that blind children who have been instructed in the elements of piano music, might easily be taught harmony also, supposing that their sense of hearing were much more receptive. After attempts had been made with such instruction in the above mentioned institution, adopting the manner based on the usual graphic illustrations, but without adequate or satisfactory results, a trial was made with a class by introducing a substitute for usual staff symbols in the form of raised type to record examples and solutions, and, by relieving the memory, to promote spontaneity of musical thought. While the raised type afforded ample means of expression, it was found at the end of the year that the pupils had made no progress in the study of harmony and counterpoint.

Finally a course was adopted as if the pupil had hardly received any previous instruction at all: it began by teaching scales, keys, intervals, and chords, and relying wholly upon aural impressions and oral nomenclature, with key-board work. In this way the object was completely attained.

This experience teaches that harmony can be best taught the young blind coincidently with the early lessons in music, and that it is therefore unnecessary and a waste of time to wait for a late stage in musical education, as is the rule with normal pupils. We can further conclude from it that the addition or association of touch impressions with those of hearing retard or hinder rather than facilitate the understanding of the materials and construction of harmony. Therefore, in teaching harmony to the blind, the appeal should be made to the aural sense, with no objective recourse other than the key-board.

It appears to me that this most interesting experience of the complicating influence of one

class of impressions upon the other might be applied with advantage in the case of normal children as well. We have seen that the æsthetic pleasure derived from an art is distinctly diminished by associating with it the more conscious thoughts of technique and purpose, and, in my opinion, the failures in teaching the blind by the usual methods are a conclusive proof of this assertion. It may be admitted, as indeed has been pointed out already, that the perception of technical perfection may add to the amount of pleasure derived from contemplation of the work of art, but that will and must alter the original and beneficent effect in that the conscious self is called into play to exert its critical functions.

More striking still are those instances where impressions upon one sense instantly suggest subconscious images of another sense impression. Such people, for instance, are never able to disassociate a gustatory impression from that of a certain scent, while others habitually connect the mental sensation of certain colors with

certain other impressions of sound. Galton, Flournoy, Gruber, Myers, and others, have called attention to this peculiarity in a number of persons under the designation of *audition colorée*. I myself have studied three cases, in two of which certain colors attached themselves to proper names, as, for instance, the name Rufus appeared in dark red, Isaac in green, Paul grayish blue, etc.; and in the third, the color connected itself with the sound of definite vowels.

This subject is important enough to be studied from the point of view upon which I have here laid stress, since I have found that such subjects are highly impressionable, and have a highly developed subconscious self. Thus I have ascertained this to be the case in the four pupils and one teacher, who were found to be "visualizers" out of thirty-five in a school for girls who were examined at my request. It is curious to note that several of the girls, who had first answered that they never associated colors with sounds, returned

the next day, admitting that upon closer self-questioning they had found that they also "visualized," but may not have realized the fact because it seemed so "self-evident" to them.

All those secondary and associated impressions must be viewed in the light of pseudo-hallucinations, and are expressions of a peculiar development of the subconscious self. Being vague and unreal, they call into play at once the subconscious memory and self, and create distinct moods, which in such cases are apt to dominate the higher conscious sphere, or to add on each recurrence to the impressionability of the individual. Were it possible to break this abnormal connection and so to isolate single conscious impressions, the subconscious self would receive less material and be prevented from undue development.

The effect of a powerful conscious impression upon the color association is strikingly shown in one of my cases, where the definiteness of the color appearing with a certain

proper name was lost after the death of a dear friend of that name: the name now brought up the image of the dead friend and took the place of the color formerly associated with it. I succeeded in the same case in rendering all colors dimmer by giving certain drugs, found by Kraeppelin to be stimulants of the higher mental faculties.

The single and sharply defined impression is a conscious one, and helps to develop the conscious self. As clearness and freedom of perception and thought depend upon the habit of using the special sense properly, it becomes necessary to devote the greatest attention to the training of every organ of sense, insisting upon its full and individual use, and with undivided attention.

The test that a child is possessed of such proper and full use of its senses can only be made in demanding that he should *recognize* the first impression and *reproduce* it also if possible. If, for example, pieces of colored yarn be shown, the pupil must not alone be held to

select certain shades from them, but must be taught to sort them and to reproduce the various colors with colored pencil or with the brush; such tests would then be the unfailing proof that the impression has been recognized and therefore stored up consciously. I am well aware that in following out the teachings of Froebel this and similar methods are employed in the kindergarten of to-day; I mention it now because I should like to have the same training extended to all the senses as well as to the eye; for the power and usefulness of the conscious self is increased by every clear and full impression, if it comes even from the so called lower senses. I have said that the impression upon a sense is the more certain to be a conscious one the higher the sense is developed, from which we may infer that all impressions might be of that order if it were possible to develop every sense to perfection.

The sense of smell in man is hardly so developed, and the impressions that take root in his memory are therefore for the most part

subconscious. If we consider, however, how it can be made to perceive the faintest traces of odors when consciously applied, as in the physiological experiment, we must realize how much material might be kept from entering into the subconscious sphere and from these creating moods and emotions.

I have often observed that those who are fondest of strong scents (women for the most part) belong to the highly impressionable class, while those with a well developed conscious self, careful observers, and those of analytical habits cannot abide perfumes. This sense, which usually creates merely subconscious impressions to man because it is not trained in him, is in some animals the principal stimulant to intelligent action. Biffi and Schiff found that dogs, deprived directly after birth of the use of this organ by the destruction of certain parts of the mucous membrane in the nose, could not even find the tit of the mother animal, and would surely have perished if they had not been guided at each suckling; on growing

up such dogs showed no trace of the usual recognition of their master or of fidelity to him. I have been able to observe another peculiarity in dogs in relation to odors; they exhibit the most marked repugnance to perfumes and odoriferous flowers, turn away at once from the object, draw in the tail between the legs, tremble if one insists, and make off with all the signs of great fright: a man who should see a ghost could not be in greater terror. The scents that awaken pleasurable emotions and moods in some human beings seem almost to remind the dog of some consciously experienced danger.

I have studied the effect of odors of a number of substances upon a large number of persons, and have found that they create upon some the most marked results. In every case, I am led to believe that it is only the impressionable subject, or one who is in that condition for the time being, who is affected at all, while those whose conscious self seems to be well developed or normal show no reaction. There appeared

to be no constant relation between the character of the odor and its effect. Musk, for instance, would greatly depress one person who seemed invigorated by assafœtida, while another, indifferent to these two, was deeply affected by camphor. Of course, I need not say that these experiments were made with the usual precautions in order to exclude error. The subject was first made to believe that nothing startling would happen, thus excluding the influence of expectant attention. He was told to breathe in the usual regular and quiet manner, and the experiment was repeated and varied in every instance. In one case the effect was emotional, and corresponded to a mood, and could be moreover discovered by the changed action of the pulse; it was therefore subconscious in its action, and showed itself physically in a change in the circulation. I was further able to note a distinct interference from the conscious sphere, for the effect both upon the mind and upon the blood pressure was influenced by mental concentration. An impressionable lad, for instance, be-

came almost completely passive and dazed from musk, an odor which he could not recognize; but when he finally discovered what it was the effect disappeared and the pulse became stronger and fuller. I have before me the tracing of the pulse of an hysterical patient, which shows a marked change during the inhalation of assa-fœtida, and another from the same subject showing the neutralizing action upon the assa-fœtida-tracing produced by the mental and conscious effort of doing a simple sum of arithmetic while inhaling the odor. I must add, that both ammonia and camphor had no effect whatever upon the pulse of this same subject, showing distinctly that the result was due entirely to an olfactory impression. In this connection it is interesting to recall the influence of music upon the hypnotized subject, observed by Dr. Warthin: the pulse was notably affected in quality and frequency, while contractions of various groups of muscles showed clearly that different emotions were produced, according to the nature of the music.

This subject surely deserves closer study, which would, however, pass beyond the scope of an essay which is addressed to the general reader. I shall therefore content myself with having given only a few of the interesting facts that I have collected. The little that has been said, however, contributes to the opinion that the lower senses furnish us mostly with subconscious impressions, that these can be directly suppressed by calling into action the conscious mental functions, and lastly that certain changes in the circulation of the blood are physical accompaniments of subconscious stimulation. How far this stimulation may depend in degree and quality upon the peculiarity of the individual, or upon associations beyond the reach of the conscious memory, must be determined in each individual case.

Man has at all times employed unwittingly either the stimulating or sedative action of sensations of his lower organs of sense, evidence of which is plentiful in folk-medicine. The negress in the Southern States derives the same

soothing pleasure from the odor of assafœtida, contained in the bag fastened round the neck of her piccaninny to protect him from evil and from illness, that the impressionable "grande dame" finds in the strong scents with which she surrounds herself.

The reader has learned to realize sufficiently both the sedative and the stimulating action of vague sensations upon the skin, to make it superfluous to enter into a discussion, however imperfect, of this part of the subject. Many of the principal results of irritation and counter irritation, of hydrotherapy and of manipulation, must depend in the first instance upon their mental effects. The eye of the hawk, the ear of the horse, even the antennæ of insects, must carry definite conscious impressions to the animal, while man receives for the most part but subconscious impressions from the corresponding organs.

In how far a method of education tending toward further development of the conscious part of the mind should be applied to children

depends upon each individual case, and must be left to the insight of the parents and tutors. I would suggest only that, when the nervous constitution of the offspring makes it probable that reflexes and emotions might multiply and predispose to hysteria or other neurotic disturbances, when the imagination of the child shows premature activity, the persistent training of the powers of attentive observation and the resulting development of the conscious memory might well be of fundamental importance and produce the most far-reaching results. In other cases of sluggish imagination and weak emotional vitality we should discourage "conscious" training and stimulate the subconscious part of the mind by vaguer and artistic impressions.

In the education of the normal child the subconscious memory should be made up of material such as can be found in its purity only in art and in nature. Let the child's fund for emotions, its source for moods, spring from works of art and objects in nature that show no

other purpose but to be the most perfect embodiment of the union of their original elements, — form, color, and rhythm. Let the youthful eye rest rather upon the armless Venus of Milo than upon the Venus of Medici; make it always possible and habitual for the child to contemplate with contentment the scenes in the woods, the ocean, and the glories of the firmament, so that his innermost nature may in future years find solace and rest in pure contemplation.

In adult life, as we have seen, vague impressions by themselves and in the form of associations with conscious impressions are continually acting upon the subconscious self and adding to its development. The emotions as consequences of vague impressions upon the senses can be reduced by concentrating the attention; thus adding to the power of the conscious self. Methodical training of the senses in accurate observation is surely within the power of every one of us, and there can be nothing more conducive to a healthful activity of the mind than the persistent search for the true causes of the

phenomena that surround us. He, however, who nourishes an interest only in so far as he is pleasurably or painfully affected by events and physical sensations, will finally care for nothing but the emotions and moods they may produce. The subconscious self will regulate his actions, and predominate in his thoughts, and produce that habit of mind that is made up of prejudices, superstitions, fears, and selfish impressionability. Those who see in our times only the signs of withering "degeneration" have strangely overlooked the invigorating effects of scientific work and the stimulating elements that come from men's growing love for nature and for physical exercise; their statistics take no account of that large and multiplying class of quiet workers for whom the craving for new and strong emotions simply does not exist.

We have, I trust, recognized how certain morbid conditions of the intellect, diseases of the mind, can be accounted for by an undue development of the subconscious self, or by a

disturbed relation between it and the conscious part of the mind in the child and in the adult, and I have tried to prove how much might be done in such cases if the subconscious self could be impressed. The conscious self can be acted upon only during complete wakefulness; the subconscious self however can be reached best when it is most impressionable; this is in early childhood, shortly before and after sleep, and lastly in those conditions of subconscious existence that correspond to the dreaming state, and during the hypnotic trance.

To-day, when we have been taught principally by the studies of the Nancy School that hypnotism is a condition of the mind in its subconscious state, in which the subject is especially receptive for suggestions, and have seen that there are other phases in which suggestions can be made to act upon the subconscious self, we can readily realize that it is not necessary in many cases to induce hypnotism in order to influence subconscious conditions. Incidentally it appears perfectly plain to us that

mental factors are at work in the case of "faith cures," and the miraculous results of a pilgrimage to Lourdes.

Patients appeal to them as a last resort, considering themselves incurable after receiving no benefit from ordinary medical treatment, and approach the novel method in a state of subconscious expectation, a mood sufficient in itself, in many cases, to remove the greater part of their symptoms. The excavations of Cavvadias have furnished us with much interesting material, showing that the miraculous cures of Epidaurus were effected at this ancient Greek shrine five hundred years before our era in precisely the same manner and by suggestion as in our times at Lourdes.

It appears certain from inscriptions found upon "stelæ" that were dug up there, and published in 1891, that the cult of Æsculapius at Epidaurus was based upon miracle working of the demigod, and not upon the medical art. It was only five hundred years later, when the belief in the effect of miracles began to decrease

that the priests began to study and to apply medical and surgical means, in order to sustain the reputation of the place and to keep up its enormous revenues. The incurables (for such usually came there) first cleansed themselves with the water from the holy well, brought sacrifices, and thereupon fell into sleep after certain ceremonial acts had been performed by the priests. The son of Apollo then appeared to them in dream, attending to the sufferer according to his ailments (cutting open his body, removing worms, and the like, cleansing him, etc.), and imposing specific sacrifices or acts that would bring him back to health. In most cases the sick woke up suddenly restored to health. Large sums of money were asked (sometimes specified during the dream) for those cures; we learn from an inscription that a sum corresponding to sixty thousand francs was paid for one cure. In order to illustrate the refinement of method of the ancient faith doctors, I must mention the fact that those in labor as well as the dying were considered unclean, and

were therefore removed from the precincts of the temple.

The preventive treatment falls naturally to the parent first, and later to the individual himself, while in cases of nervous and mental diseases the physician is called upon to make use of "mental therapeutics," such as shall be required by the individual case. In many of them, I am sure that suggestions methodically made before sleep would act quite as well as if made during hypnosis, and much good would result from a careful elaboration of such a method of treatment. Further work along these lines, laid down by Kraeppelin on the action of some stimulating and sedative drugs upon the mental functions, may lead to most important discoveries, enabling us to modify or produce certain psychical conditions, thus facilitating the desired effect of surroundings and "mental therapeutics." I have for some time past devoted much time to the study of this subject, but cannot here enter further upon the results that I have obtained. It may,

however, be of interest to the reader to learn that Kraeppelin has found, while employing most exact scientific methods, that alcohol, in all its forms, and taken in the usual quantities, acts in a decidedly weakening and paralyzing manner upon the upper mental centres (the conscious self), while it stimulates the lower ones. It will thus reduce the power of observation, analysis, and judgment, and stimulate the instincts, emotions, and the imagination. It is clear, therefore, that its use is very detrimental to the healthfulness of precisely those mental powers that we have found it desirable to cultivate, and that it will coincidently increase the impressionability, and tend to produce those nervous and mental disorders which are so common among us. Coffee and tea and analogous chemical bodies act very much in the opposite direction with regard to the conscious mental centres; it is equally clear, therefore, that their abuse is as detrimental to the nervous functions through the danger from over-stimulation. The actor and the public speaker finds, by experience,

what has been thus proven by careful and painstaking experiment, that wine will loosen the tongue and remove the disturbing effect of self-analysis, commonly called stage fright. And we can now fully realize the wisdom of the epicures following up the wine at dinner with the "demi-tasse," were it not for the final "bottle of fine old fruity port."

In the treatment of neurasthenia, as well as of hysteria and of analogous functional disorders of the nervous system, the effects of drugs are largely determined by their effect upon one or the other part of the mind, and we can best appreciate them by the coincident reaction of the circulatory system. The conscious self, weakened by neurasthenia, is beneficially stimulated by certain drugs administered internally and raising the arterial tension, while even the odor of some of our simplest remedies shows their quieting effect in hysterical seizures in their action upon the over developed and unsubdued subconscious mental sphere. Thus, a lady who gave evidence of the

effect of assafœtida upon the first trial affirmed that she could not have lived through recent and deep family afflictions without her smelling-bottle, containing the solid extract of assafœtida which she held continually in her hand. I may add, that ammonia was without effect in her case. Another quieted attacks of nervous palpitation of the heart, and the coincident anxious sensations, with a few whiffs of musk. But this part of the subject, as I have said before, must be treated at greater length in another place.

I have endeavored to show in this short sketch that our mental personality is represented by the sum of all the impressions which have been deposited in our memory during our lifetime, impressions which depend primarily, as has been indicated at the outset, upon peculiarities of organic structure preformed in us. The nature of all these impressions, however, differs, as has been seen, in two well defined manners. The conscious impressions, toward which we learn gradually to direct our

attention, form in their aggregate a conscious self, which directs in its turn our attention and our acts as they affect principally our relation to the outer world. Through the conscious self we also control that other part of ourself from which emanate impulses and moods, the consuming desire to live our own life, to realize our ideals, irrespective of the relations which surround us. Hence it comes that a dualism exists in the life of every one of us, more or less accentuated according to the difference between our conscious and our subconscious self. The higher pleasures and the deeper pains depend upon this relation, and he alone can be happy who has established a true balance between his innermost desires, arising out of his subconscious self, and the duties that impose themselves upon him from his consciousness of all the responsibilities which his understanding has taught him to recognize. It must be the constant aim of him who aspires to the highest degree of culture to educate both parts of himself in

such a manner that the one may act in due degree upon the other. For the real tragedy in every man's inner life is the conflict between these two inherent parts of his inner self, and when we have learned to understand the workings of these two mental powers in ourselves we shall be slow in passing judgment upon our fellow men: —

> "What 's done we partly may compute,
> But know not what 's resisted."