FOUNDATIONS OF MENTAL HEALTH

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BY

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Authorized Translation from the First Edition of "Eugenica, Igiene Mentale, e Profilassi delle Malattie Nervose e Mentali" by

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WITH AN INTRODUCTION BY

FRANCIS X. DERCUM, M.D.

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GRATEFULLY DEDICATED

TO MY CHILDREN

VINCENZO, OLIMPIA AND IDA

AND TO MY SONS-IN-LAW

CAPRIATI AND ZARONE

WHO WITH THE FRAGRANT WARMTH OF THEIR AFFECTIONS ARE EVERY DAY REVIVING THE FLAME OF MY ALREADY LONG AND ARDUOUS LIFE

TRANSLATOR'S PREFACE

SOCIAL welfare and human progress are the high ideals which every right-thinking and public-spirited mind most ardently desires. Mankind, individuals as well as races, has been led astray, especially in recent times, by the commercial and political overgrowth which periodically becomes a menace. In their chase for wealth and pleasure men have neglected the virtue and the education which improve our physical and moral conditions.

To lead humanity along the upward path of social welfare and progress, no achievement of science, no spiritual impulse, no political or financial power is as efficient as the education that can be acquired through a thorough understanding and assimilation of the subjects covered in this book.

Bianchi's intellectual activity is a luminous and integral part of modern scientific advancement. His *Psychiatry* and *Mechanism of the Brain* alone, not to mention his numerous other works, entitle him to the reverence of every scientific man and elect spirit of the world.

This translation of his last published work has been undertaken mostly for the pleasure of associating myself with the noble aim of the author and for the sake of contributing, in a modest way, to the broadcasting of this modern *verbum* of physical and moral regeneration of mankind.

The English reader will miss in the translation the beauty of Bianchi's charming style, especially in his long sentences where the lengthy succession of phrases is compensated by a masterly euphonic linking of the parts. But this is not a literary work. In order to express the author's meaning in readable English I had to resort, as anybody else in a similar modest capacity would do, to the rhetorical convenience of paraphrase.

The quotations have only in a few instances been verified with the original texts because Professor Bianchi himself translated the author's thought into Italian; the reader will, therefore, be so kind as to pardon a possible different rendering than that to which he is accustomed.

The illustrations, interesting chiefly to Italians, lead me to bespeak the kind indulgence of the reader, who assuredly will be largely rewarded by the extreme importance of the conclusions. Moreover, the problems upon which Bianchi lingers concern every country. Every individual should lay to heart, in this post-war period especially, the duty of coöperating with the leading intellects of the world for the improvement of the mental and physical health of mankind.

The eight chapters of the book, dense of data and profound of thought, set forth social conditions in their relation to nervous inheritance, alcoholism and crime, and so treat the different units as to integrate them, intimately interdependent, into the essential whole of eugenics.

The eminent author had already enjoyed the reading of this translation before he passed away. He died on the morning of the 14th of February, 1927, at seventy-nine years of age, while he was addressing an assembly of the Royal Academy of Medicine and Surgery in Naples. Stalwart, faithful sentinel of scientific and social progress and real benefactor of humanity that he was, he died in action, in his steady duty, while the world was still reading his views on "eugenics in its relation to hyperpopulation," the subject of one of his latest conferences. A presentiment of his approaching end was told in his last letter to me, dated February 7, in the words, "I feel Time, with its cold wings, pushing me on toward the Unknown."

G. A. BARRICELLI

AUTHOR'S PREFACE

THE text of the book now presented to the light was outlined in the introduction to the 1921-22 official course, under the title, "Prophylaxis of Nervous and Mental Diseases" (*Riforma Medica.* Year XXXVIII). The end of my service in the University was approaching, and I desired to transmit to the fertile intellects of our brave students the prophylactic seed to combat race degeneration, in the thought and hope that some one might give it life.

When, in my last lecture, June 14, 1923, I took final leave of the deeply touched young men, I promised I would, in some way, still devote to them such energies as still remained in me; so, after the release of the third edition of my *Textbook of Psychiatry* to the Casa Editrice Idelson, I am writing these pages. I write them to dislodge indifference to the momentous subject of eugenics, to lay open to the public conscience the dangers of bad habits and of certain defects of our present school system, to call attention to the responsibility of the Government, to fan the fires of the inexhaustible energies of our race which now lie sleeping under the ashes of inertness, of ignorance, and of old customs. I write for the invigoration of our spirits and for the discipline of our lives in health, in strength, in new religion, in beneficent liberty; I write for the Italian youth who must begin anew another cycle of culture, of civilization, and of fortune.

LEONARDO BIANCHI

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INTRODUCTION

The within book makes a special appeal to American readers. It is in a sense the final word of one of the outstanding psychiatrists of our day. Leonardo Bianchi belonged not only to Italy; he belonged, it must be conceded, to the world. It is refreshing to note the lucidity and sanity of his presentations and his freedom from isms and fads. Throughout we are impressed by the wholesome character of the conclusions which he has reached and to which he gives expression as the summation of a life of long observation and experience. Further, not only psychiatrists, but biologists, sociologists and lay persons may find profit in reading the book. Throughout he has been animated by the idea of bringing about a better and a happier life for the future generations of mankind.

Many interesting facts are pointed out—such, for instance, that Parisian and London families rarely live beyond five generations, and that urbanism diminishes the vitality of a race. The disastrous effects of war are also dwelt upon; the fact that the flower of mankind, upon which the future depends, is ruthlessly destroyed. Further, for biologists his attitude regarding the transmission of acquired characters is of great interest and merits, I believe, sincere and profound attention. He answers this problem emphatically in the affirmative. He also dwells upon the plasticity of the human race and points out that modern man presents spontaneous variations in greater degree than is ordinarily conceded.

Although this book is naturally written from an experience based upon the Italian people, the problems considered are those which are presented by all other races and nations. Thus, the chapter on alcoholism is one of especial interest. Professor Bianchi points out in great detail the evils of alcoholic abuse, and yet he states very frankly that in his opinion, after full consideration of the subject, "North American legislative measures against liquor have no scientific basis. They draw their clues neither from experience nor from human history." A foreword is, of course, not the place to discuss Professor Bianchi's views, but they should be considered most carefully. Finally, Dr. Barricelli is to be congratulated upon having presented the translation of Dr. Bianchi's book in a very acceptable form.

FRANCIS X. DERCUM

FOUNDATIONS OF MENTAL HEALTH

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CHAPTER I

EUGENICS

A GREAT movement is operating in the whole civilized world toward the preservation of health and toward the conservation of nations and races; for a profound concern possesses us as we observe the indubitable phenomena of decline among a too great number of civilized peoples. In many lands, particularly in North America, England, Germany, the Scandinavian countries, and France, sociologists, biologists, and political men have unfurled a flag of crusade for race betterment and for mental hygiene. In Italy the Institute of Social Hygiene (*Instituto d'Igiene Sociale*) has been founded in Rome by Professor Ettore Levi, who because of his loving intelligence and apostolic faith is a powerful instrument in a very effective organization for propagandism and culture. A Eugenic Society has also been formed in Italy, and here in Naples an autonomous section promoted by the Honorable Professor Capasso has been established; over this section I have the honor to preside. An important Eugenic Congress was held in Milan in September, 1924. An International Eugenics and Mental Hygiene Commission has been formed. Shortly, in all probability, an International Congress will assemble in New York for the consideration of mental hygiene, one of the most important phases of eugenics, and our Italian section, purposefully formed by certain professors, among whom is Professor Ferrari, is studying how best we may participate.

After more than eighteen centuries, the Lucretian spirit, foreshadowed in Greek and Roman society, is reawakening among us; humanity is evidently much more preoccupied with the strength, joys, and victories of the life of this world than with the purer, eternal happiness of the next.

In his *City of the Sun* the great philosopher Campanella places Love as the third Triumvir, "whose first duty has to do with generation. His main purpose, then, is to see that amorous unions take place between individuals organized in such a way as to be able to reproduce excellent children; and they [the inhabitants of that city] ridicule us because in striving to improve the breeds of dogs and horses, we totally neglect man."

To-day, when the light of science is penetrating the universal mind and fortifying all human labor, when prejudice and ignorance are vanishing like fog at the rise of the great Aster *"che mena dritto altrui per ogni calle"* ("who leads all wanderers safe through every way"), this problem of eugenics is set on a sound scientific basis. I have traced this upward movement, foreseen its great importance for the future of our country, and frequently have presented it before the Chamber of Deputies and the Senate of the Kingdom.

Health is the greatest good to which man can aspire —the real source of the joy in living and in production. It is a duty, therefore, for biologists and sociologists to teach the methods necessary for securing a stronger and happier life for our future generations. In this conception the task of eugenics is essentially epitomized.

What weak children are demanding, remarked a notable observer, no longer for themselves because it is too late, but for their fellow creatures of future generations, is improvement in the conditions of parents. Certainly ought we to listen to their voices, for most fortunate is the country that produces a decreasing number of feeble, incapable people, and fewer disturbers of the orderly industry of the nation. To reach such an end it is necessary to comprehend the vastness of the problem and to promote a legislation that can more promptly assume and utilize the results of experience and knowledge, which by a strict logic delineate the final consequences. On the basis of these results, arrived at through investigation, the spirit of the scientist and the spirit of the legislator dare not for any reason shrink and inhibit each other, whether they reflect the political relations between the different social groups of the nation or whether they fear to run counter to popular prejudice and customs—the very things a well-meaning science and politics are obliged to correct.

The phenomenon observed in all countries is that while on the one hand the average duration of life is now longer than it was sixty or eighty years ago and mortality is noticeably diminished, on the other hand the percentage of tubercular patients, luetics, criminals, imbeciles, insane, feeble-minded and worthless ones—of those, in other words, who harbor chronic disease, feebleness and human degeneration—has relatively increased. It is a solemn duty, then, to intensify our investigations that we may trace out some causes of this phenomenon and present them for popular knowledge, for ignorance is the source of many social evils.

The abuse of alcoholic beverages and nervines, syphilis, tuberculosis, irrational methods and programs in the schools which wear out rather than invigorate the mind, the anxiety that is pervading us in the struggle for existence, the flurry of chasing with increasing energy the universal desire for the greatest material welfare, the haste to arrive, the race for pleasure in all its forms, the exaltation of the hedonistic sense of life—these are among the causes of chronic nervous fatigue whence the decline of families begins.

Furthermore, machinery has been so substituted for manual labor that even the agriculturist has lost the sober and austere character that used to preserve unaltered and true the primitive germinative cells of the race whose energies glittered, from time to time, with men of talent who were like luminous lights along the rugged and perilous walk of a great civilization, to which we, as well as other great races, have largely contributed. This phenomenon exists, under different forms, everywhere.

A human being breathlessly pursuing life alike in youth and in mature years wears out his parts as the motors and boilers of a transatlantic liner wear themselves out when, under high pressure, they are driven to prolonged, intense work. It is not without foundation—the supposition that the great and ever increasing number of defectives produced in all civilized countries results from the evolutional tardiness of the human brain as compared with the evolutional development of the other organs, and from the rapid, hot pursuit of social life with all its insidious exigencies, fatigues, and flatteries. Indeed, I am under the impression that, under equal conditions of development, a normal youth of one hundred years ago, would to-day be considered defective or, at least, backward.

* * *

It has been proved that in congested centers the number of people living over sixty years gradually decreases, while in rural districts the number remains higher, and that immigrant families living in large urban communities become extinguished more quickly. Further, it has been noted that it is comparatively rare for Parisian and London families to live beyond the fifth generation, although statistical investigations seem to show that the belief that families dwelling in great metropolises do not outlive their third generation, is an exaggeration. There is no doubt, however, that urbanism diminishes the vitality of the race.

According to some statistics, stature and physical fitness for military service are decreasing in all civilized countries save the Scandinavian. In France, before the World War, 37 per cent of the conscripts were declared unfit for service, but among those coming from rural populations this percentage was much lower.

The investigations of Champouillon and of others give evidence that the migration of rural people to the northern sections of the country and their transfer from farm labor, in the open, to factory work, causes a shortening of stature and a lowering of vitality such that 65 out of every hundred conscripted from great mining centers were unfit for service. The same observation was made in Sicily among the sulphur miners.

It also seems to have been proved that the average height of the infantry is shorter now in all nations, except, as before stated, in the Scandinavian countries. In the large centers of Italy the percentage of those below average height and of those unfit for military service is about 38 per cent, and it would be higher if those were counted who had been previously rejected and reëxamined.

The war department holds valuable material for study, but statistics have not yet been compiled from it.

In the Province of Naples, for instance, where I was able to obtain data from the 1923 levy, 11,287 conscripts were examined of whom about 6,659 (59 per cent) were declared fit and 3,194 were rejected to be reëxamined a year later, when 1,534 were found still unfit. As stated above, the influence of overcrowding in large cities is worthy of special note. In fact, while in Naples 3,701 out of 6,844 (54.11 per cent) were judged fit and 933 (14.51 per cent) unfit, in Casoria, an entirely agricultural district, out of every 2,368 examined, 1,583 (66.90 per cent) were found fit and only 197 (8.32 per cent) unfit.

Nowadays, thoracic expansion, which is the measure and index of a good constitution irrespective of stature, is diminished, especially among students. A narrow thorax is a sign of predisposition to disease, and the highest percentage of such thoracic shape is found among students. According to Finklenburg's statistics a high percentage of Berlin students who presented themselves to serve as one-year volunteers proved to be unfit for service. From observation of 18,000 students and 140,000 conscripts, Livi concluded that among students expansion of the thorax, and therefore of the lungs, as well as vitality, is below the average. Similar observations have been made by Marina, in Turin. We understand what an amount of responsibility a Director of Education assumes when eleven- to eighteen-year-old students are compelled to sit from three to five hours, as they do in some countries, without recreation or any compensatory activity.

The number of stillbirths is too high among us. Its percentage in Italy was 2.23 in 1865, 3.67 in 1891, and 3.90 in 1900; annually now we have more than 50,000 stillbirths. Child mortality is also alarming. Since the treatment of children's diseases is to-day more efficacious than in the past, the increased percentage of deaths over births must be attributed, in all probability, to diminished vital power of the race.

The latest statistics show infant mortality during the first year of life to average 130 per thousand; 250,000 children, from one to five years of age, die annually among us. The number of stillbirths and the number of children dying during the first five years of life would not especially concern me, were they not an index of deficient vitality in a very great number of families. I say these facts would not concern me, for another problem is before the civilized world—one that since a year or so ago has been interesting North America, and is already making itself alarmingly felt in Italy—the problem of hyperpopulation.

War has aggravated the cause for alarm over the increased birth rate, for the evident reason that it blotted out of our country more than 600,000 sturdy young men, and reduced the health and working capacity of as many more. Worse than this, war emotions have raised to a very high pitch the neurotic and criminal diapason of the nation whose vibrations will inevitably repercuss themselves upon future generations. It is not necessary to dwell long upon this eventuality for the disastrous results caused in all times by prolonged and great wars are well known.

Rome became anæmic by war; the strong fell in battle, while the weak remained at home and reproduced themselves. Other strong citizens emigrated to colonies and provinces. Then, after the conquest of Macedonia and of the East, Rome was invaded by Syrians, Greeks, and Egyptians who, certainly, did not concur to reinvigorate the ancient and strong Latin race. During the reigns of Augustus and Marcus Aurelius women procreated less and the scarcity of men, previously noticed by Julius Cæsar, became alarming. "Where the weak and the pusillanimous survived," wrote the historian of this enlightened Emperor and philosopher, "human harvest could not but be bad."

Even in this early time it was known that the weak generate the weak. In 200 A.D., according to Hartmann and Kromayer,[1] the population decreased.

The same phenomenon repeated itself in Spain after the wars of conquest, in France after the Napoleonic wars and in England after the achievement of her great Empire. The "Committee of Physical Deterioration" brought to light in its report, a steady increase in all

[1] "The flight from the farms . . . caused a decrease in the general production that reacted even on the number of inhabitants. The population of the Roman Empire diminished in an impressive way. While great cities were engorged with people flocking from every part . . . , the country was emptying itself and the population did not have sufficient strength to make up, with an increased nativity, for the catastrophes caused by pestilence and war that were raging, especially after the first half of the second century and into the third. Under the first emperors

English cities of the social refuse, of the worthless, those incapable of steady and efficient work.

War is, no doubt, a school of virtue; it releases from the obscure depths of the race's soul gleams of unforeseen energies which reflect themselves on the collective conscience, fortifying it with a new dignity. Courage in the sacrifice of one's own life for the ideal and honor of his country is a sublime virtue of the strong only, who are always generous. I was one of the first to pronounce myself in favor of the Great War because I grievously felt the humiliations of 1866 and of 1896. Although these were commanders' mistakes, indeed, not the outcome of race feebleness, they were, nevertheless, always thrown at us as indications of cowardice and of race decline. But after our great victory, who would not feel a higher sense of Italian dignity if he were not disheartened by the extraordinary growth of criminality which has infiltrated even into the higher social circles? War would, indeed, badly influence the future of our nation if we did not adopt those measures that the progress of science has demonstrated to be favorable to the prevention of race decadence.

* * *

I foresee an objection such as this: "Is it really true that civilized humanity is degenerating and declining?"

300,000 men were sufficient to guard the frontiers. This was the permanent army.

"When in the third century the population beyond the frontiers began to show signs of unrest, the permanent army was increased by Diocletian to the number of 1,200,000, besides a mobile army to be rushed wherever a threat of aggression became evident at the boundaries.

"The scarcity of men must have been remarkable, because the State did not have sufficient of them to supply such a great number of soldiers besides enough men for agriculture."

No! By all means, no! In science, in industry, and in business, as in fact, in all manifestations of life, the progress is amazing. In the last few decades man has snatched from Nature secrets of many of her hidden energies and has utilized them for the enrichment of life; he has communicated through the air with inhabitants of the earth thousands of kilometers away; chemical and physical discoveries have hurled him into a new world; he has marvelously learned the structure of his own body; he has discovered many laws of life and solved many problems on the genesis of the diseases threatening him; he has reconstructed much of the history of the earth and of life formation; he has faced and partially solved the problems of the mind, of its evolution and of its anomalies; he has erected pyramids of new knowledge unforeseen a century and a half ago. Labor has now everywhere increased, on the earth as well as in its bowels, on the seas as well as in the air; production has been prodigiously augmented; traffic has multiplied vertiginously; seemingly all of civilization is climbing on the differentiated branches of the great tree of labor which almost entirely covers her with its foliage, concealing moral and material treasures and pains, exalting and deluding, emanating the fragrance of hope, exciting the fervors and joys of victory and wealth, illuminating the creative genius, but withal disseminating the venoms that arise within her. Courage is developed and trained by progress of these same sciences that may furnish very dangerous and frightfully destructive instruments against life. All this tends to refute the premise that civilization accompanies and fecundates the ill seed of decadence.

I wish to state, before proceeding, that it is necessary to bear in mind the conception of relativity as a working basis in sociological and biological questions. It cannot be denied that civilization is advancing and is being forced onward by a comparatively small number of men; neither can it be denied that its advancement is aided by a great majority of people who understand its dignity and who collaborate in all the functions of to-day's complicated social organism. But its advance is likewise hindered by a multitude of sick people, of feeble ones who only simulate it, of weak ones who obstruct its march, lessen the working capacity of the strong, absorb enormous wealth and, at times, impress their character upon a whole section of society, even upon a whole country or a whole historical period. Labor, in spite of its nobility, its differentiations, and perfections, leaves behind it an extraordinary number of men who do not understand it, and do not adapt themselves to it, or who become victims of it. Proofs of this affirmation are, indeed, abounding.

Tuberculosis is making havoc; it is estimated that in Italy 450,000, or perhaps twice this number, are its victims, with a yearly death rate averaging from 60,000 to 70,000. The Anti-Tuberculosis Dispensaries, which a few friends and I have had the honor to found in Naples, are tirelessly working. In the Vasto Dispensary 21,000 examinations were made in three years, and now 950 patients found to be tubercular are, with their families, receiving treatment and assistance; more than 233 of these latter were affected with surgical tuberculosis. The other dispensary in Via L. Armanni is even more crowded; every month about 750 patients are received, 40 per cent of whom are tubercular. Had we constructed two or three more dispensaries the number of patients treated would have been trebled.

* * *

In Central Italy, for one or two months every year, malaria paralyzes the energy of at least one million men, not to mention those who die and those who remain weak and anæmic from it. This is the result of habitual insufficiency of funds, which, nevertheless, are always abounding for political purposes. Government administrations adhere to a faith in quinine, while a bonification of the land is also needed.[2] The insurmountable difficulties of improvement, believed by some to exist, are a fallacy.

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Alcoholism is one of the evils from which human degeneration is most assuredly being augmented. One of the most careful English students of this problem has found that a very impressive number of degenerates (imbeciles, epileptics, and criminals) are produced by alcohol which appears like a veritable Mephistopheles working with flatteries against all human virtues.

I am speaking of excesses, for I, with some others like

[2] In justice to the straightforward spirit of new Italy it must be said that the Government is already intensely engaged in solving, within the limits of possibility and as far as the country is concerned, the problems pointed out by the author, who wrote at a time when the Fascist reform had just commenced. The educational system, the civil and criminal codes, compulsory children's education, sanitation, sanitary assistance, public, school, and personal hygiene, drainage and cultivation of extensive malarial swamps, tuberculosis and cancer, pellagra and social diseases, wheat deficiency and grape superabundance are all receiving the most enlightened attention. Furthermore, criminality has been effectively restrained, blasphemy, drunkenness, and sensational crime-news in the daily press forbidden.—(Translator's note.)

Albertoni, am opposed to a too lively crusade against alcohol, maintaining that 50 grams of ethylic alcohol contained in half a liter of pure wine are, especially for the workingman, an economic food as well as a cordial. I am able to affirm that the degenerative phenomena appear in the individual and in his offspring only in consequence of habitual indulgences. North America's political attitude against Italian pure wines has no scientific basis; it is rather a cavil. The attitude may be justified against whisky which is more poisonous than the ethylic alcohol of our wines.

* * *

Who can say how many are those enfeebled by syphilis or venereal diseases? Government statistics are able to record much less than one-third of the total number—only those patients treated in public dispensaries. Let me recite a few figures to give an idea of the situation. In the Milan dispensaries 31,474 venereal and syphilitic patients were treated during the decade 1913-1922. In the newly opened dispensary of Via Montebello, alone, the number of new patients received during the decade 1913-1922 was 31,674 (*Il Pensiero Medico,* April, 1924). In the dispensary of the much lamented Professor De Amicis from November 1, 1912, to October 31, 1913, 7,734 patients of both sexes were treated, 5,393 of whom were luetic. From January 1, 1920, to October 31, 1921, that is in ten months, in the same clinical dispensary, directed by Professor Stanziale, 6,197 venereal patients were attended, 3,389 of whom were syphilitic.

* * *

Another and more serious form of feebleness and degeneration is criminality. A few figures will give a slight notion of the discouraging truth. In 1909 the offenders sentenced to punishment in Italy numbered 154,288; in 1917 the number was greater, even excluding the 85,000 or more persons held for war reasons. In 1917, 500 were sent to the penitentiary (*domicilio coatto*); 90,000 prisoners were received in the district prisons (*carceri mandamentali*) and 197,000 in the judiciary prisons (*carceri giudiziarie*). The number of inmates of the penal houses (*case penali*) fluctuates yearly between 13,000 and 20,000. In 1917, the expenses for the administrative personnel alone of penal institutions amounted to 11,651,000 lire.

But to the above figures we must add the number of the unsentenced criminals because our codes and procedure are (why should we hide it?) too generous.[3] The emotion caused by crime vanishes in the long flowing of time into a peaceable consuetude wherein duty, conscience and social morality fade away. Who is not concerned to-day with the rapid lusty growth of political criminals who are working against the flourishing of our civilization?

Moral life is regulated either by religious or by state codes, in conjunction with the school and the family. Now, no one can ignore the fact that religious codes have, in our country, no sufficient regulating power over intrinsic defects and outward circumstances; State codes are too old to be any longer adequate to the standards and complications of modern life. The codes and the schools, if severe, create the moral habit; but, where is now the educational power of the school?

Moreover, there is, in all countries—in some more, in

[3] See footnote 2, page 12.

others less—a large zone of civilized humanity wherein are swarming no one knows how many people who are governed by no other law than low passions, whence they draw their selfish intolerance of restraint; people zealously employing fraudulent methods in business, in industry, in professional and public offices, and so forth. This is the civilized criminality that plays with the codes without falling into their meshes; the criminality that tears the honest workingmen's clothes and flesh, moves forward by elbowing in order to arrive farther, becomes sometimes wealthy, we know not how; wrenches from the valiant man his just due; snatches from the honest combatant the banner of victory without having fought and without having risked life, or even so much as a penny! It is like the endorsement of a note asked of an artless friend who goes thereby to ruin, bankruptcy cleverly prepared and perpetrated, injustice in public affairs, which disheartens faith; wealth of an obscure origin impudently boasted; organized dishonesty of élite gambling houses; fraud perpetrated by foreign banks with a marvelous astuteness to rob millions. It is the criminality of those who played the lion's part upon the war spoils, the political criminality that opposes justice by bragging about state ethics, which ever remains a philosophical conception, a very noble ideality to which we all would burn incense if only we could propitiate its unsubstantiated goddess.

* * *

In our social structure there are, besides, 28,000 blind, 27,000 deaf and dumb, 500,000 chronic invalids, 500,000 indigent persons enfeebled by various conditions, with whom this is not the place to occupy ourselves. The latter two figures should be doubled, in fact, because almost everywhere the precise statistical data are wanting.

* * *

Let us now come to the great problem of insanity. In 1875, about 15,000 insane persons were housed in our asylums; to-day their number is more than trebled. To this figure should be added the unwarded ones of whom we have no statistics: many idiots, an army of imbeciles, epileptics (I calculate these to be about 100,000), the feeble-minded, the frivolous and insignificant who display the spirit of evil in their families and in their social environment (that is, are negatives to progress, opposed to good, worse than useless because they hinder the positive work of others), the morphine and cocaine fiends, and the suicides.

The suicides have reached in Italy a somewhat high figure. Indeed, in 1915 we had 3,092 suicides, in 1916, 2,531, and in 1917, 2,439; this apparent decrease was due to war. There is, moreover, the juvenile suicide and criminal. From Manheimer's statistics we learn that there were in France, in one year, one suicide at seven years of age, three at eight, two at nine, eight at ten, nine at eleven, twenty at twelve, thirty-nine at thirteen, sixty-four at fourteen, and seventy-four at fifteen.

I shall not attempt to reduce to figures the expense that working humanity, ascending the ladder of evolution, has to bear for the other part of mankind that is descending toward dissolution or degeneration. It is sufficient to remember that the Province of Milan is spending about 17,000,000 lire yearly for the insane, Genoa 12,000,000, and Naples much less, but too much compared to its economic power. In North America nearly 90,000 insane are committed to asylums every year; one disease alone, most frequently affecting the young—so-called dementia præcox—is burdening the State budget with $40,000,000 annually, without mentioning the disastrous consequences caused yearly in 20,000 families upset by the premature dementia of one of the members.

* * *

Can prophylaxis, the principal aim of eugenics, erect a barrier against this rising level of feebleness and human degeneration? I have great faith in the future of this offspring of biology. In countries of more recent civilization, less bound to medieval traditions, some of the estimates of feebleness are much lower. In New Zealand 56 infants in a thousand die during the first year of life, in Australia 68, in Switzerland 74, in France 111, in Italy 130. In other words, infant mortality is at present, 42 per thousand in New Zealand, 78 per thousand in Sweden, and 130 per thousand among us.

A decline of tuberculosis has been announced by some. Luis Y. Dublin reports that, in the District of Columbia, tuberculosis has decreased from 152.2 per hundred thousand inhabitants in 1900, to 94.2 in 1921. Among the 15,000,000 policy holders of the Metropolitan Life Insurance Company the percentage of tubercular patients was reduced from 164.7 per hundred thousand in 1910, to 112 in 1920. This reduction, according to Dublin's calculation, means a yearly saving of 100,000 lives in the United States of America. To such a significant result improved methods of fighting the disease have contributed. Early diagnosis, early treatment, and prophylaxis have aided. Sanatoria, hospitals, and, above all, dispensaries which are providential institutions for diagnosis and prophylaxis have furnished relief. In North America the sanatoria beds for tubercular patients increased from 10,000 in 1904 to 20,000 in 1910, to 70,000 in 1922. The efficiency of the sanatoria is shown by the relation of the death rate among those treated in them and those treated outside; the mortality among the latter is fourteen or fifteen times greater than among the former.

But civilization is only in the first skirmishes of the great war it is setting up against feebleness and degeneration.

* * *

As we see, the field of hygiene and prophylaxis is widening. General hygiene has already accomplished wonderful results through painstaking investigations of causes of infection and of the weapons and defense methods effective against infectious diseases, especially the rapidly spreading contagious ones. Humanity ought to be very grateful to this branch of science and its devotees. The national and international organizations for hygienic and prophylactic services against acute infectious and contagious diseases have saved millions of human lives and greatly elevated the average duration of life.

But pathologists and especially neurologists have disclosed to prophylaxis another much vaster and more fertile field. Within a few decades, perhaps in less than half a century, much advance has been made toward the discovery of the causes of human degeneration and of physical and spiritual feebleness. These causes must be combated by an organized plan of preparedness.

* * *

The plan is contained in the conception of eugenics. More important than all else is to be well born. To be well born depends mostly upon being well engendered and well developed in favorable conditions and circumstances. This practical and eminently social side of biology is not limited to the hygiene of matrimony alone. That is but a corner of the immense dominion of eugenics which encompasses a vast plan of provisions all directed toward the end of rendering each individual stronger, increasing his working and productive capacity, and in a special way, ameliorating the conditions of future generations in their physical, intellectual and moral capacities, which means improvement and reinvigoration of the race.

I would emphasize mental capacities, because mental feebleness is either personal, and therefore often progressive in the successive generations, or it is due to insufficient cerebral evolution already begun in parents by whom it is transmitted in an aggravated form. I insist, I say, upon emphasizing mental conditions for the reason that mental vigor is indispensable to doing well and to realization of the joys of individual and collective existence, which are the most genuine and immanent expressions of functional and structural harmony of all the organs of the individual economy, especially of a well-evolved brain. There are, it is true, weak and poor organisms enclosing great and good souls and, vice versa, robust ones enclosing small and wicked souls. In the former there is surely either a lack of harmony, or some organic or blood disease; in the latter, an insufficient brain evolution, the beginning of dissolution or degeneration, starting from the last organ to evolve, the brain, even though the rest of the body may be well developed and strong, and tending to spread throughout the organism. It is certain that organic and spiritual harmony is the highest expression of perfection, and for this reason, eugenics ought to aim at reinvigoration of the intellect and the ennoblement of the sentiments of the race.

Mental vigor furnishes the most precise and suitable weapon for overcoming the difficulties of life, and finds its counterpart in a well-known psychological law founded upon the suffering produced by an obstacle when it cannot be surpassed or when it appears insuperable to the feeble. An obstacle is not always one that is set against the individual by the outer contingencies of life, such as the men with whom we live, or things and circumstances, but it may be an inner one also, for example doubt—so wonderfully depicted by Shakespeare in Hamlet—which is mostly an enemy of the weak who are tormented by it even in very clear situations. It may be illogical fear; or it may be slow conation and volition—that is, the incapacity to utilize in due time one's own experiences or those of others so that as a result good chances are lost. Normal man, on the other hand, aspires through innate intuition to realize his plans and desires in proportion to his capacity. He is not vain, does not dream; but he perceives his objective and the proper means for obtaining it. His desires, like his actions, are in perfect harmony with his organism, from the depths of which they spring.

Eugenics, then, aims at the conquest of very vast fields of improvement in man's physical and moral conditions, so intimately connected with each other in a marvelous interdependence. Some imply that eugenics emphasizes principally physical education, others that it emphasizes sex education and questions regarding matrimony. These are but simple chapters of a great book that would be very educative and that should be substituted for many petty, low-bosomed novels which are enticing the minds of our youth, to whom they are furnished at great profit by corrupt Italian and foreign booksellers.

We are not flattering ourselves with a vision of complete victory. Let us dot the *i*'s that are not the columns of Hercules. Degeneration is an inalienable twin sister of evolution; it is a condition of existence, as death is an inseparable companion of life, and forgetfulness of memory. But degeneration can be reduced to more tolerable proportions; the number of the feeble and of the sick can be decreased so as to become a lighter burden upon the workers; the servants of civilization may become more numerous and better trained in an environment ennobled by strong minds. We are not following academic ideals but are operating in the practical field of life, as it is unfolding in every civilized country. Our spirit abhors inapplicable scientific abstractions as well as all absolute affirmations. If we succeed in delineating the causes of feebleness in an already too great number of men and in surprising the deficiencies of a social organism, or the chief of them at least, and if with the means that State powers and free citizens can dispose, we eliminate or attenuate these deficiencies, we shall fulfill one of the indispensable duties modern civilization imposes upon biologists, sociologists, and all citizens.

We intend to examine then:

1. The conditions in which human beings are generated, including the laws regulating heredity;

2. The conditions in which infancy is developed, with special regard to weak constitutions and anomalies of character;

3. The school period, analyzing especially the structure and methods of our schools, to see whether they, perchance, may be exercising a depressing power upon the talent and character of the nation;

4. The value of physical, moral and sex education;

5. Criminality and its causes;

6. The general unfavorable conditions in which national groups are living; houses, and lands; with special consideration to malaria;

7. Habits threatening health, as alcoholism;

8. The conditions favoring diffusion of diseases disastrous to individuals and to family life, as syphilis;

9. The causes of the enormous increase of mental diseases and their remedial measures.

These fields of investigation and work belong to eugenics, but in this volume we shall make particular study of only a few of them, for general hygiene has already given full consideration to the subjects of habitations, malaria, and syphilis. Let us determine upon a general measure for securing physical, intellectual and moral soundness, and above all, strive to distinguish from a social standpoint, that is, from the standpoint of production and adaptation, between the noblest intellectual and moral traits and the ignoble ones, and view what may be called the chiseling work of education.

* * *

The conditions in which human beings are generated are summed up in the laws of heredity. We may affirm that eugenics is essentially based upon genetics. Whatever the origin of the word genetics may be, it designates that part of the science of biology which deals with an individual's similarities and dissimilarities in relation to his ancestors.

All sexually produced multicellular organisms contain the germinative cells whereby the new organism develops. The somatic and germinal cells reproduce the types of the species. These types may undergo variations or deviations in each individual owing to conditions and circumstances independent of the germinal substance. This, in its turn, suffers modification by physical and chemical agents and by the mixture of the different kinds of germinal substances (Weismann's amphimixis). The germinal substance tends to reproduce in the descendants the parents' and progenitors' types, but the mixture of the germinal substances and the physical and chemical agents produce variations or mutations, even creating new characters that existed neither in the parents, nor in the ancestors.

Besides the variations depending upon the above causes, it is necessary to mention the very obscure fact that some characteristics do not manifest themselves at the beginning of life, but at various later periods and in various evolutional phases, that is to say, they may remain latent for decades. This leads to the belief that the germinative substance is diffused in all organs, especially in those of slow evolution upon which it impresses the particular characters of the evolutive cycles. We may, in other words, legitimately suppose that during different biological phases the chemical environment changes, and the same organic and histochemical conditions are reconstructed as those in which, at corresponding periods, the parents' or progenitors' morbid states manifested themselves. Nor is it out of place, I believe, to refer to the *mnemic theory* of life and its phases. This theory is proffered in explanation of the well-known fact that certain diseases develop at certain periods of life; under the same circumstances in which they developed in the parent or in the grandparent. It seems to have been conclusively demonstrated that the germinal substance is transmitted with all its fundamental characteristics from one generation to another, and that permanence of type is thus explained.

The indisputable facts of type conservation and variations, substantiated by observation and experimentation, have furnished the knowledge whereby, by mixing the germinal substances and by modifying the circumstances of existence, improvements in plants and domestic animals may be brought about. Agricultural and zoötechnic industries have profited extraordinarily through this knowledge, and a new field of investigation has been disclosed for the betterment of the human organism. But, strangely enough, while man has succeeded, through study and trial, in improving breeds of domestic animals, he has not tried at all to improve his own race.

* * *

How can we explain the fact that children and children's children resemble their parents or their grandparents? We cannot fully explain it, but we can formulate some hypotheses. Richard Semon, who stated the mnemic theory, affirms that the wonderful properties of the hereditary substance correspond to the no less wonderful properties of the brain.

The mnemic theory is based upon one function—memory. Every excitation, whatever it may be, produced by a stimulus leaves in the excited tissue a modification of an undoubtedly physicochemical nature. This modification, which remains latent, is called an "engram." The capacity of organic substance for recording stimulation constitutes its "mnemic" principle. The organic substance that experiences a prime excitation is thereafter particularly disposed to those excitation states induced in it by the original stimulus. When stimulation is complex and simultaneous or successive, a "complex engram" results. This engrammatic condition, which is energetic, corresponds somewhat to what was long known as "summation of stimuli," controllable in both the psychic and the somatic fields. The response of an organism to a determined stimulus depends on its history, writes Bertrand Russell in his *Analysis of Mind*.

The formation of the engrams corresponds to the greatest permeability of the neuronic routes (Lloyd Morgan). This permeability is greater for the instinctive reflexes, in which the three fundamental instincts are summed up: individual conservation, preservation, and sociability of the species. The painful "mnema" are more ancient and, therefore, their mechanisms are more easily reproduced than the pleasant "mnema." That is to say, the mnemic routes of pain are much more frequented and older. Painful "mnema" are also more protective, though they may create the same condition as recessive characteristics when circumstances favor the repetition of pleasant emotions (engrams), which drive painful experiences temporarily away.

We have no authority for considering the engrams of the species mutable; but the engrams of the respective races change slightly, or considerably, as the case may be, the engrams of the individuals of each race. As senses and intellects become more and more refined under the influence of nature's energies and the stimuli of environment, and especially under the ever increasing interhuman relationships of each man, such as the increasing exigencies of labor, the engrams are enormously multiplied and exercise a powerful influence upon conduct, which is the adaptative reflex of the elevated nature of each man in his own environment, the manifestation of his development and differentiation. The new adaptations useful to the individual and to the species are the physiopsychological basis of progress. Due consideration must also be given to the law governing the evolutive cycles of families and to the stage of evolution reached by the germinal substances of both parents, since we cannot deny that one may be in an evolutive and the other in a regressive phasis, as when either intoxications, grave mental diseases, great difference in age, or marked mental unbalance (very frequent in strong-willed men) intervene. It is a fact which demonstrates the evolutive potentiality of the germinal cells of the race, that a great many men belonging to the élite of society have come from healthy and balanced families of working classes, especially country people and farmers.

For me and many others, the question as to whether or not a new acquisition is inheritable is answered in the affirmative in spite of Weismann's contrary declaration. The new engrams are transmissible; that is, the permeability of certain systems of neuronic routes, and therefore the individual perception of the ego in his relations to the world, his particular relations to the world, his particular attitudes and interhuman relationships, and also his particular ways of conceiving, perceiving, associating, concluding, with their respective reflexes, are transmissible, or I might better say are transmitted, within, of course, the realm of Mendel's laws.

The researches of Kammerer, of Vienna, notwithstanding the scepticism of many, have succeeded in demonstrating that organic modifications induced by recurring habits in an organism are inherited. This means, as Semon concluded, that a stimulus which produces a reaction, whatever its nature, may in individual cases modify the substance of the germinative cells and leave inheritable engrams. This conclusion assumes the character of a law when the modifications producing the new attitudes and habits are induced in the mental dominion. Of this we shall see more later on.

To this theory we may add another accepted by many —that of kinetogenesis, which asserts that form is produced by movement. Movement takes place in the direction of least resistance. It is of little use to speculate as to whether the movement assumes a spiral form, which would be in the direction of the least resistance; but whatever may be the shape that the movement assumes in following the line of least resistance, the hypothesis lends itself to the explanation of variations of adaptation to environment—the corner stone of evolution. From this law is derived that other law of adaptation to environment, which applies to all organisms, whether simple or complex.

The mechanical principle adapts itself to all life phenomena, including heredity. From Haeckel to J. M. Taylor's and to Henry Winsor's recent works, we are persuaded to admit that it is not alone the chemical substance that is transmitted, but the particular form of molecular movement associated with physicochemical nature of the ovule and of the spermatozoön.

Chemical variations produce movement variations, by which anomalies of development and form are explained. The recent progress in physics, summed up by Professor Cantoni at the last Congress of Sciences, is attributed to the kinetogenic theory of heredity.

However we may explain it, the fact of heredity exists. For example, we cannot accept the negative conclusions of Frederick II's experiment, because we must discount the circumstances of the experiment. Nor can we accept the example of Australia and of New Zealand, for the character of their respective populations is not due to criminals who were deported to these colonies, but rather (1) to the immigration of sound people, (2) to the crossing of criminals with sound women, (3) to the moral evolution of some criminals in new surroundings and in unforeseen circumstances.

It may be profitable to review some instances among the very many that have enriched our literature. The Ancon rams, with outwardly curved legs, raised in Massachusetts, were descendants of an earlier ancestor born with the lesions accidentally acquired in utero. The specific quality of the descent, that afterward constituted a breed, consisted in inability to jump over a barrier.

The fact that this type has been reaching perfection confirms the theory of the transmissibility of acquired pathological characteristics. Another illustration is found in the stallion Ioniam, so dangerous that he had to be led by armed hostlers, some of whom he wounded and seriously ill-treated. He had a son of perfect character who used to cover at the stallions' station of Barbezieux in Charente. Three sons of this son showed characteristics that demonstrate the truth of Mendel's law. One, crossed with a very tame mare, produced a descendant whose education was so difficult that he had to be sold to a veterinarian, and later to a driver, who put him to hard service. The difficulty of leading and handling him was always great. Another, also crossed with a very tame mare, produced a descendant perfect in shape, but so restive and dangerously ungovernable that he had to be sold unbroken. A filly by this sire was also very high-strung and restive and had to be sold to a racehorse owner for reproduction, but she remained sterile for five years. She was always intractable, difficult to deal with, impossible to shoe, and finally, passing from one hand to another, she succumbed to ill treatment.

Such illustrations could be multiplied, to prove with great surety the transmission of acquired bad characteristics of parents, above all of bad mental characteristics, contributed to by vicissitudes of descent.

* * *

Such delinquency is not found alone in domestic animals, for man is also subject to these laws of heredity. Indeed, these laws, formulated by the genial Friar (afterward Abbot) Mendel, are just as applicable to the peas which were the objects of a series of investigations, as were the animals. The results of his experiments on plants, on chickens, guinea-pigs, and figs, thanks to Simpson and Polnar's studies in Illinois (referred to in their publication by Rumker and Tschermack) are of very great interest.

I wish to mention particularly the experiments on cows taken from the "Herd Books,"[4] to determine the importance of heredity on the milk-producing capacity of cows, paying attention to the daily quantity of milk and to its butter content. Thanks to these researches, it was ascertained that, both upon the quantity of milk and the amount of fat, heredity exercises a very important, if not essential, influence; for the cows that produced from 30 to 40 pounds of milk daily[5] were offspring of bulls of a superior breed; while when the same cows were crossed with bulls of inferior breeds the milk production of the daughters did not exceed 30 pounds a day, and the offspring of still more inferior bulls produced no more than 20.

These results are confirmed by observations made in Count Ahlefeldt's yards on the island of Langeland in Denmark. His conclusion is that a perfect bull of a superior breed never produces a cow of an inferior grade; and that a bull of inferior breed never produces one of superior grade. The general characteristics of a race are not alone transmitted through the germinal cells, but also those characteristics acquired by each individual, the deviations from type and the deficiencies of parents. I

[4] Genealogical Records.

[5] A cow, whose picture was given by Babcock and Clausen, produced in one year 30,451.4 pounds of milk containing 951.2 pounds of butter.

shall speak further, briefly, of Mendel's laws, pointing out only a few of the experiments of this great abbot, to whom science and mankind are indebted.

* * *

The pea (*Pisus Sativus*) was the plant preferred by Mendel for his classical experiments. There are two varieties of this plant; a tall one that measures from 90 to 180 and in some cases 240 centimeters, and a dwarf one that attains a height of 30 to 60 centimeters. When the cultivation is carried on without the intervention of foreign elements, the seeds of the dwarf variety always produce dwarf plants, and those of the tall variety tall plants similar to the mother plants from which they derive. In pea plants, the male and female organs are present in the same flower and consequently exhibit the phenomenon of autofecundation, the pollen of the male organs fertilizing the ovules of the female organs. Mendel, however, crossed the tall with the dwarf variety by carrying the pollen from the flowers of the dwarf plant to the flowers of the tall plant. The peas of the first generation produced in this manner constantly reproduced the tall type. But the seeds of this first generation, fertilized without intervention produced both tall and dwarf plants. And the seeds from this second generation gave very surprising results: those from the dwarf plants produced only the dwarf variety, but those from the tall plants produced one-third exclusively tall and the other two-thirds divided so that three-fourths of them were tall and one-fourth dwarf. (Figure 1.)

The meaning of these researches, repeated upon different plants and upon animals, to discover various characteristics, is that the seeds of the first crossing, namely, the hybrid, though they produced plants exclusively tall, contained also the germ of the dwarf variety, which remained latent (recessive) only to reappear in the second generation.

As in the first pea generation, one characteristic of one of the parents predominates, as the tall over the

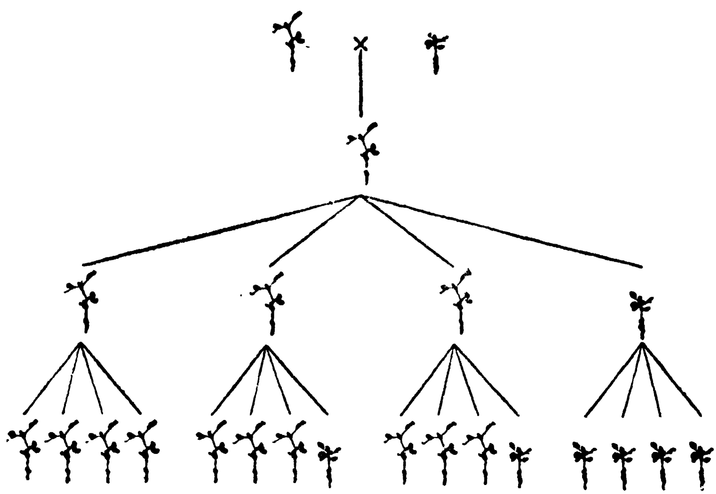

FIG. 1.
After Maiorco

dwarf, so in some animals the dark color of a parent may predominate over the white. Babcock and Clausen report a fine experiment conducted with the crossing of a black smooth guinea-pig with a white hirsute-haired one. The first generation produced black hirsute-haired cavies. The second generation of black hirsute-haired guinea-pigs produced black hirsute-haired, black smooth-haired, white hirsute-haired and white smooth-haired cavies. The black hirsute-haired predominated over the white and smooth haired. These two characteristics remained recessive in the first hybrid generation and reappeared in a definite proportion in the second. By such a mixture of germinal substance new varieties are created, as black hirsute-haired and white smooth-haired cavies.

The characteristics reproduced in the first generation are called *dominant;* the characteristics of the other parent remaining latent in the hybrid are called *recessive.*

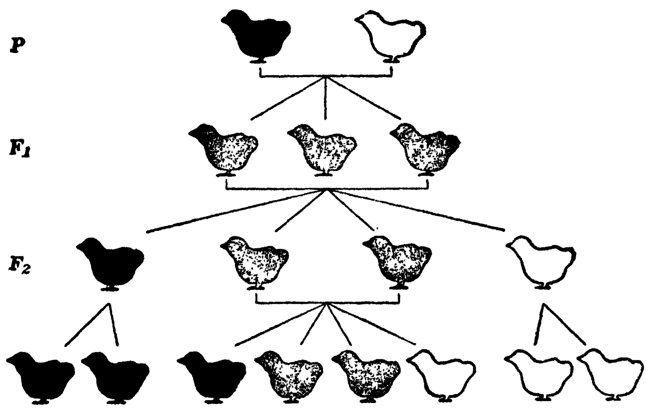

FIG. 2.
After Kellicott

Parallel to this law is that formulated by De Vries, who affirms that the specific characteristics of the crossing are fused among themselves. The most classical example is the Andalusian chickens. These have slate-gray colored plumage, a color produced by crossing white with black chickens. The two characteristics are thereby fused and produce an intermediate hue. But the successive generations reproduce the colors of their progenitors, as shown in Figure 2, confirming Mendel's law. Indeed, if the slate-gray colored chickens produced by the crossing of the white with the black fecundate among themselves, only 50 per cent will have gray plumage, while the other 50 per cent will reproduce in a determined proportion the plumage of their white and black progenitors.

This law is also embodied in Correns' conception arrived at from observation of the facts that he characterized as *disjunction of characteristics,* which, after all, corresponds to the first of Mendel's laws. According to his observation it was clearly established that if the bastards or the hybrids of the first generation fecundate and reproduce among themselves, their offspring will present again, in determined proportions, the two original characteristics that counterdistinguished the two first parents. Thus, for example, among the many experiments of De Vries, Correns, Tschermak, Bateson and others, I wish to report the results of Wood's researches on the black-faced Suffolk sheep and on the white-faced Dorset sheep. The crossing between these two varieties produced, in the first generation, hybrids with spotted faces; in the second generation of these hybrids, white, black and spotted faces appeared. Later on, I shall give other examples.

* * *

Man, as I have previously stated, is not exempt from the law of heredity, but, it is less constantly observed in man, because numerous circumstances enter into play which tend to invalidate and alter it. But where life is simpler, the law is more obvious. For instance, Townsend, reported by Majocchi, informs us that in a small Pacific island the crossing between Englishmen and the black Tahiti women produce in the first hybrid generation, men with dark hair, dark eyes and olive skin. In the second generation both types reappeared, some dark like the Tahitians, others white like Europeans.

The differences between individuals of the same family and descent depend upon many causes; the mixture of the germinative substances, the circumstances of the surroundings and the impulse of the inner forces mentioned by Naegeli, Eimer and others. The latter synthesizes a number of factors, some of which are known, some probable, others hypothetical.

Among these factors I must particularly mention the conditions of parents before fecundation, or during gestation, the intoxications, the infections, the state of nutrition, the quality and quantity of food and, above all, their emotional state: the preoccupation, fear, sympathy or antipathy, the nuptial enthusiasm or its simple convenience, jealousy or repugnance, sometimes hatred, fatigue, unwillingness, the state of convalescence, and so forth. It would be very difficult to describe the whole gamut of the parents' state of mind during copulation and gestation. But we understand these facts more easily to-day with our extended knowledge of the relation between emotions and the endocrine glands, and therefore we know that emotions exercise an influence on the quality of glandular secretions. Most of these emotions belong exclusively to man, and to this fact is due the greater variety of his offspring in comparison with other living beings, including the superior mammals.

Moreover, any one may convince himself of this law by examining the hybrids of his own family in which some of the children reproduce promiscuously the characteristics of both parents, others resemble one of them, or a grandfather. Sometimes an individual is found who presents some entirely new characteristic or one belonging to a great-grandparent.

It is necessary to remember, therefore, that circumstances of life in civilized countries vary and that different forms of labor modify in such a way, not only the germinal substances, but also the various emotions and the changeable intellectual, moral, and physical attitudes, that the laws of heredity, through two or three generations, cannot always be rigorously followed. In their general significance, however, they correspond to the laws regulating the descent of living beings in the vegetable and animal kingdoms.

* * *

Mendel's laws, founded on phenomenology, are also based on histology. Heredity is dependent upon the genetic continuity of the germinal cell; the germinal cell is the vehicle by which characteristics are transmitted from one generation to another. These cells contain a determined number of chromosomes, which possess individuality and are found in the same number in any given species.

Even though we find them in an equal number in two diverse species, as in man and in tobacco plants, they are different in quality. And in the same species, also, they present marked differences in volume and in form.

Chromosomes are definite aggregations of chromatic material. All the chromatin contained in the nucleus is composed of a determined number of individual chromatinic elements called *chromomeres*. Each chromosome is contained in a definite aggregation of these elements (chromomeres) and is regularly organized in relation to the position occupied by each chromomere. In a certain stage of development the chromosomes appear as chromomere-chains resembling rosaries, each bead of

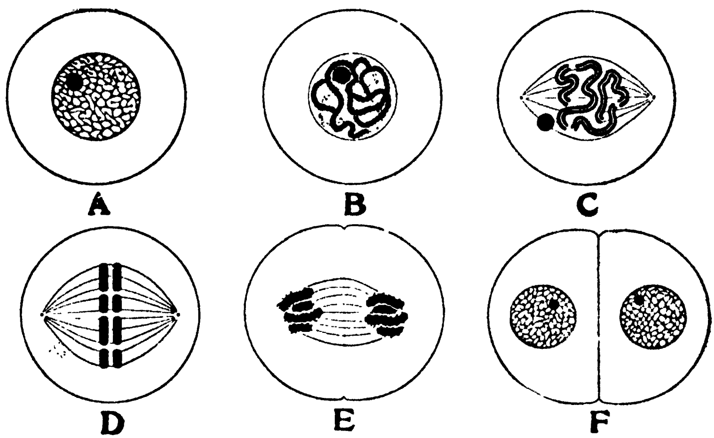

FIG. 3.

After Babcock and Clausen, *Genetics in Relation to Agriculture*, McGraw-Hill, 1918.

which is a chromomere. It seems probable that the chromomeres of each chromosome differ from those of other chromosomes and always keep their place in the chromosome to which they belong. Many believe that the chromomeres correspond to the factors of Mendelian heredity.

To make this point clearer let us follow the mitotic stages of a germinal cell. In this cell the chromatin is distributed within the nucleus in zones which form an irregular reticulum (Figure 3 A). During the mitotic process the chromatin assumes a more definite form, as can be noted in Figure 3 B. The spiral threads observed in this figure constitute four chromosomes arranged in a twisted linear series, which appears more clearly defined in Figure 3 C, and represents the four chromosomes and the nucleolus. The chromosomes successively contract, assume characteristic form and volume and arrange themselves at the nucleus equatorial line (Figure 3 D). At this stage the nucleolus is found to be dissolved. The daughter chromosomes of each pair separate and arrange themselves at the polar extremities of the nucleus (Figure 3 E), at the same time beginning to lose their precise outline—their individuality. The cellular body division begins now to make its appearance. The last stage is the formation of two daughter cells, with the chromatin distributed in each nucleus, as in the original cell, and the reappearance of the nucleolus in each nucleus (Figure 3 F). Each daughter cell contains, so far as the chromomeres are concerned, the same quantity of chromatin as the mother cell. Successive generations may undergo changes or variations not only because of modifications in their physical surrounding, but also because of the aberrations in the number of chromosomes determined for each species.

We know but little of the causes of this numerical error, but its existence has been established, at least, in plants.

Concerning these purely scientific data I cannot, owing to the nature of this book, go into more detail.

* * *

At this point, I must call the reader's attention to the fact that some psychic qualities are dominant in man and are transmitted more frequently than others. There are families, for instance, in whom musical tendencies predominate; one or more children or nephews of a parent, who is a devotee of music or a skillful musician, present very early a great appreciation of music and surprising ability in performance.

The story of Petito, a Spaniard, whose mother was an amateur in music, is one that is well known because it was presented some years ago at the Paris Psychological Congress. At four years of age this boy played the piano well. The great Mozart was the son of a modest musician, the germ of whose musical genius grew and developed in his son. The musical inclination of a parent, or of a progenitor, may be transmitted reënforced in some of the descendants. The æsthetic sentiment for music is transmitted more than the executive ability. I am able to contribute a very interesting observation of my own. Professor Tari, the celebrated professor of æsthetics in our university, played the piano well, but above all, he felt the charm of music from enthusiasm to ecstasy. One of his sisters could play the piano at five years of age. His daughter Anna, Mrs. Fisconi, a well-educated woman, loves music, but is not a musician. Anna's daughter, Maria, Mrs. Capua, appreciates music but does not possess for it an extraordinary transport, but her daughter, Dolores Capua, of the third generation, has considerable original musical talent. At two, Dolores strummed the piano; at seven she gave a concert at Maddaloni's Hall; now she executes from memory very difficult compositions of great authors, remains for hours together at the instrument and shows an exceptional ability for her age; what is most surprising, she composes.

What I have been able to set forth about the transmission of dominant musical characteristics from parents to children, or to the hybrids of the second generation, is just as true in the realm of drawing and painting.

I am impelled to reaffirm that man—the expression of the highest degree of evolution especially in his brain and his whole nervous system—having developed an extraordinary sensitiveness to the physical and chemical agents which operate on him, presents a much greater number of variations than any other branch of the tree of life. The use of intoxicating substances, or of those that may become such in sufficient quantity, as alcohol, morphine, and cocaine, may exercise a decided influence upon children's inclinations. These substances introduce new elements into the organism, alter the chemistry of the germinal cells and the function of the great organ which regulates life. They are, therefore, causes of evolutional and functional deviation and of deformation of family and of ethnical types, and they bring about anomalies and degeneration.

That chemical and physical agents may modify the original form of living organisms is demonstrated by many experiments, among which I wish to mention that of Klebs upon buds taken from a single plant. (*Sedum Spectabile*, Figure 4.) Three buds were taken from the same specimen, planted in small pots and placed in different greenhouses, the first one under blue light, the second under white light, the third under red light. The illustration shows the three plants, each of which appears to belong to a different family.

From an analysis of ascertained facts concerning a certain family, I am able to affirm that some psychological characteristics of parents form dominant characteristics in the first or the second generation of hybrids. For

FIG. 4.

After Babcock and Clausen, *Genetics in Relation to Agriculture*, McGraw-Hill, 1918.

instance, one of the parents is timid, but has sufficient moral strength to dominate situations; in some of the children and some of the nephews, the timidity of the father or of the uncle is excessively developed to the point of assuming a decidedly morbid aspect. Another parent presents an exaggerated emotivity and an excessive impressionability with a tendency to stop an impression longer than necessary at the focal point of consciousness or at its threshold. This psychological situation is manifested to a higher degree in some of the children and nephews, until the phenomenon assumes a character frankly pathological—namely, psychasthenia.

An excessively irascible man produces progeny some of whom manifest, in exaggerated degree, the characteristic of the father or grandfather to the point of epileptic manifestations. A morbid vanity or an unbridled ambition is a degenerative sign leading to decadence of progeny. If the head of a family is addicted to alcohol, some of his children may present a tendency to drunkenness, others may manifest signs of feeble-mindedness, lacking in intelligence, unyielding, irascible, or epileptic. Should one of the children, disobedient, timid, marry a common woman, not mentally strong, he will produce very neuropathic progeny. If he marries a very intelligent woman some of his children will be good, but some of them are likely to manifest, after twenty years of age, very accentuated morbid signs.

If an intelligent man, active, constructive, of quick business perception, sincere, moderate in his profits, marries a healthy and intelligent woman, he will have a family with the same characteristics; if he marries a woman who is a defrauder and without scruples, he will have a family that will soon decline and degenerate. A fanciful father with a tendency to abstract himself from realities of life by rising to the spheres of philosophical speculations will have some idealistic children, unable to adapt themselves to the realities of life and unable to save themselves, by useful employment, in the struggle for existence. The predominance of doubt in one of the parents, of suspicion, of unyieldingness, of excessive jealousy, in fact, of all the signs of feeble-mindedness, is transmitted to a part of the progeny.

Rollander, in a witty article on Mendelian heredity of good and bad qualities, relates that a diplomat of high rank consulted him about his incorrigible and lying boy. Upon investigating the family history he discovered that the father was known for his ability artfully to disguise the truth. His son had inherited the disposition to lie in a brazen-faced and reprehensible manner!

The strength of the characteristic and the number of children reproducing it, will depend upon the quality of the consort. The choice of the partner, when in either of them there exists an abnormal characteristic, such as those illustrated above, is of very great importance for the future of the family. Whoever possesses knowledge of these personal defects should abstain from marrying a partner who presents the same or analogous characteristics, or in other words, one who, because of mental deficiency, is unable to correct his or her partner's defect.

I do not deem it opportune to continue with illustrations. As for me, I am firmly convinced that the morbid facts of mental life, especially the emotive attributes of mind, even if embryonal, may be developed, according to certain laws, in children, to the degree of clinically recognizable disease, if they are not corrected by the mental vigor of the other partner or by particular educational methods.

Physicians should ever keep in mind this most important consideration, namely, spiritual weakness, for it represents decline from the average degree of intelligence of the race.

Some painstaking inquirers have already observed that mental weakness is more certainly transmitted than physical, often considerably aggravated, to future generations. Two parents, even though they be cousins, with well-evolved minds will generate strong-minded children. If, on the other hand, two individuals belonging to families having traits of mental deficiency marry, especially if they are cousins, the effects of such a marriage may be disastrous for the progeny.

If two individuals marry, one of whom is deficient and the other of good intellectual moral quality, the children will be partly normal and partly defective.

Generally speaking, grave mental diseases are transmitted in a definite proportion to children and nephews. While the latter do not reproduce the disease just as it was in one of the progenitors, but rather the predisposition to disease of the central nervous system, the matrimonial and surrounding circumstances in which life is evolved may take shape in some clinical form, often aggravated and sometimes tardily. Even when the predisposition is unfavorable—provided there is no marked decline of mental powers—favorable circumstances, well-regulated life, advice given to parents, the quality and quantity of work, and some educational methods have succeeded in developing the mental power of children to such an extent that the good characteristics have become dominant, and the morbid ones that would have tended to a disease have remained latent or recessive.

Personal experience has convinced me that inherited dispositions may be greatly attenuated in the children and in the nephews through educational methods. Many wise people having mental patients in their families and realizing themselves to be neuropathic have consulted me about the government of their nervously disposed children, and by following the rational educational and other methods I advised, obtained unhoped-for results: thus improving in a very surprising manner their progeny, who otherwise would have been destined to fall into the whirls of Mendel's laws.

Everybody knows the wonderful results obtained in Naples by the educational methods adopted in Ravaschieri's Home; in the school-ship in which Mrs. Civita is dispensing the treasures of her very noble soul and in Don Bartolo Longo's institute in "Nuova Pompeii." In these institutions many are the hereditarily defective, the abnormal, and the predisposed; but many of them have succeeded in adapting themselves to the exigencies of life as normal individuals. These facts demonstrate what well-regulated physical and mental education, especially well-directed labor, can do to modify a psychophysical organism originally unfavorably altered and predisposed by heredity.

This very same thing I observed in 400 adolescents, children of the worst Sicilian criminals, gathered in St. Martino near Palermo; Professor Tropeano's work at Marechiaro is eminently meritorious and I wish to commend it highly.

This happy outcome may not be anticipated, however, in accentuated degrees of mental weakness. Clinically recognizable imbecility, even when the patient is capable of fecundation, is destined to progressive exaggeration in the progeny down to extinction of the family.

Old age induces a (chemical?) change in the spermatozoa or in the ovule, even when sexual function seems unimpaired, and old people's children often manifest some psychosomatic characteristics of old age, not rarely impotence, or, in the males, weak sexual enthusiasm.

* * *

It is well to determine clearly the terms of the eugenic action in reference to inheritance of diseases, especially diseases of the nervous system, with which decadence often begins. This reminds me of the cycle of descent of Zola's "Rougon-Macquarts."

As I have already stated, degeneration is the opposite aspect of evolution and is inseparable from the life of human communities. It may be attenuated and reduced, but it cannot be entirely suppressed.

I am not trying to affirm as Lundberg, director of Sweden's Biological Institute, did, that "a people who learn to appreciate in time the importance of atavistic hygiene, and abide by its rules, may quietly look at their future." But heredity does, indeed, possess the key to the greatest eugenic problems:

Molte fiate già pianser li figli
per la colpa del padre

. . . Many a time ere now
The sons have for their father's errors wept.—DANTE

Education is one of the most potent transformers of mind and body. It moderates predisposition, creates new attitudes, orients the spirit in civility and makes man more adaptable to his surroundings. Hence, it is to education that we must needs direct our most assiduous care with wisdom and scientific judgment.

* * *

Here I will set forth some rules to guide in the choice of the consort. Their intent will be possible of realization only when the culture and education of the people are more advanced, when eugenic rules have worn out and battered down the high barriers within which life misoneistically flows, and when the State, that we desire to be strong, animated by the great ideals of justice and love, resolves to develop great impulses, the latent moral, intellectual, and physical energies of her people.

The content of eugenics is eminently ethical and ethics must always constitute the real and irresistible force of to-day's civil State, the safest garrison for both present and future of the nation and of the race.

* * *

Matrimony should not be allowed to any one who has active tuberculosis, but an absolute criterion cannot be established to prohibit every tubercular patient from building up a family, for the very simple reason that tuberculosis is very much more diffused than we think it is, and furthermore, that the conditions in which it develops may be changed so as to render it harmless. How many tubercular, rachitic, and anæmic subjects are contributing and have contributed to the progress of civilization, the history of art and science testifies!

The same may be said of syphilitics. Although these must be forbidden to marry during the efflorescence of the disease, syphilis is curable, and it would be a social peril to forbid marriage to all people who have suffered the misfortune of a syphilitic infection.

A diseased man, whatever the nature of his disease, even though he is simply weak, has no right to generate until he is well.

Matrimony should be forbidden to those addicted to alcohol and to those chronically affected by it. These people have no right to procreate miserables and present society with imbeciles, criminals, and epileptics.

Diseases of the nervous system are so numerous and so varied that it would be neither possible, humane, nor socially profitable to forbid marriage to them all, however inexorable may be the laws of heredity.

Heredity is responsible for a very great number of mental diseases. The estimate of 20 per cent is certainly very low. The percentage coming under my observation surpasses Rutherford's 50 per cent, excluding the 10 and 20 per cent of doubtful cases. When it is possible to carry the investigation back into the family history of mental patients, very seldom do we find healthy and good-charactered families in the two preceding generations. But the fact is that thorough investigation often presents insuperable difficulties, and specialists are not following a common method of research. Many decline to recognize the aggravation of the damages transmitted by progenitors to the progeny. It is very difficult to say whether heredity affects the brain directly through histochemical defects of the neurons, their number, and the evolution of their imperfections transmitted by the germinal cell, or whether the evolutive and functional defect of the brain depends also upon the defects of the endocrine glands, as the hypothyroidism found by some, or upon the regressive atrophy of the sexual glands and diminished spermatogenesis (Mott), or upon degenerative alterations, such as those found by Laura Forster in the ovaries. Though the mechanism of the relation is not yet well known, the fact is unquestionable that strong correlation exists between the development of the brain and its nutrition, and the development and nutrition of the sexual glands, as experimentally demonstrated by our colleague, Professor Ceni, and his students.

In neuropathic families we find evidence of grave mental diseases along with great talent and frequently even genius. The history of some reigning families, whose genealogy is easily constructed, demonstrates that whenever the head of the family or one of the consorts was affected by neurosis or psychosis, the successive generations showed mental disease, men of talent, epileptics, well-balanced men of sound morals, criminals, and imbeciles, in these last of whom the family finally faded into extinction.

Much depends, I repeat, upon the quality of the consort and the nature of the disease. Since many neurasthenic states, as hysteria and all the toxic varieties of psychoses, are cured when the patients are placed in favorable conditions of life and properly treated, marriage cannot be forbidden to all who, at some time, have been afflicted with a form of psychoneurosis.

Hysteria may produce a criminal like Sybilla Shaw or a heroine like Joan of Arc. It may produce a degenerate prostitute or an adorable saint. The history of religion is full of such examples. I have known and treated many hysterical young ladies, some of whom were affected by the major, classical form of hysteria, who after marriage bore healthy and happy children, and became, under favorable conditions, model wives and mothers in all respects.

Psychoneurotic patients cannot be forbidden uniformly the right of marriage, though we must admit that they do give rise to a particular predisposition of the brain to sickness, because simple psychoneuroses are often the result of toxic or infective crises. What we may recommend is that two neurotic individuals shall not marry because of the probability of marked neuropathic predispositions in their children.

From the standpoint of eugenics, imbecility, some varieties of epilepsy, chronic alcoholism, habitual or constitutional criminality, chronic insanity, manic-depressive psychosis, Huntington's disease and a few more, should form the subject of serious consideration for social defense. Generally speaking, marriage should be prevented in these cases.

* * *

Lately much has been said about the application of the Mendelian laws to the hereditability of mental diseases (P. C. Knapp, Rosanoff and Orr, Myerson, Meyer, Klark and Atwood, George T. Mills). If any of these authors is inclined to lay greater emphasis upon occasional causes than upon heredity, and to consider some mental diseases as recessive in reference to heredity, he must have drawn his conclusion from a too-limited number of observations and from insufficient data.

I have already stated that Mendel's laws of heredity are not always observable and that the dominance of a morbid characteristic of one of the parents is positive, manifesting itself more prominently in one or more descendants, if it is not corrected by the strong constitution of the other partner and by favorable circumstances in the different stages of development of the children or grandchildren. I wish to emphasize the statement that only in a minority of cases are morbid conditions, especially the well-defined mental diseases, recessive in the progeny of the first generation of hybrids. These few cases belong to the simple neuropsychoses and very seldom to the grave forms such as dementia præcox, manic-depressive psychosis, and so forth. Never all the hybrids of the first and second generations, but only a part of them are taken with the same disease.

But, even when the malady is recessive in the children, heredity has done its work and is conspiring against the profound workmanship of the intellect and the emotions. Hereditary transmission depends upon an alteration of the substance of the germinal cells, resulting in partial evolutive defects in the descent or in a simple susceptibility under the action of external stimuli with a more or less strong instability of the neuronic function. This gives rise to an anomalous self-consciousness, or to a misconception of the relations between the ego and the outer world, or perhaps to a decided feeble-mindedness; and in all cases, unless protection is interposed, a potential disposition to disease is transmitted with relative disharmonies of conduct and an imperfect capacity for adaptation to the environment. How many deficiencies escape the physician recording the anamnesis! And how apt we are to delude ourselves by thinking we are in the presence of a sound person!

A rather high percentage of epileptics and psychopathics has been found in sound families. Thomann-Koller found 59 per cent of neuropathic heredity in 370 sound individuals; Diem, 66.9 per cent in 1,193 healthy persons. But these and other figures demonstrate little or nothing. Irascibility, alcoholism—even though casual—and syphilis in the parents—though reputed sound—may generate epilepsy in the children; and even though we find in perfect health more than half of the subjects destined to bring forth neuropathic offspring, the fact does not contradict Mendel's laws. Statistics, especially the old ones, give little information. Family data regarding heredity must be gathered with more rigid care and guided by the study of the characteristics and contingencies of parents' lives whose morbid conditions have impressed on their descendants what, I believe, may well be called *neuropsychotic morbidity.*

* * *

I recognize the individual and social difficulties in the way of matrimonial prohibition; it is well to consider them. Man does not tolerate prophylactic restrictions; his emotions, sympathies, and passions lead him to infringe the bonds of prophylaxis designed for protection of his descendants. Loving sympathy sometimes pervades the soul in such a way that no obstacle is able to stop its determination to reach the goal. All laws, all forces of the universe, do not extinguish it, especially in the neurotic and passionate subjects, if its source is not extinguished by itself. And since this is true, general terms and fundamental principles must be determined upon. Since laws are neither useful nor efficacious the people must be educated. A social conscience must be created, that is also essentially moral, civil, or religious, for it does not matter to the purposes we have set before us. The particular adaptations and regulations will be arrived at after the moral conscience has been developed.

* * *

So far, I have not spoken of sterilization of individuals well advanced toward degeneration. This has long been proposed. In Italy, Lugaro and Zuccarelli sustained the thesis for hopeless criminals. My experience has been limited to violent married epileptics with families, received in the asylum and discharged when the psychosis subsided; likewise to some patients, also with children, afflicted with dementia præcox, discharged during a stage of remission, and to cases of paranoia, manic-depressive psychosis, progressive paralysis, and alcoholism. No doubt their respective families contributed a large contingent to insanity and criminality. I am very reluctant, however, to advise sterilization. Our country is too sentimental and I share the repugnance of the majority to surgical, or other, intervention. On the other hand, Malthusian practice is peacefully diffusing itself among us, because of our instinct for preservation. Many women, even of the common people, do not like to have many children. The difficulties of life, especially the very high price of bread and macaroni, the main foods of our people, are exercising a powerful inhibitory action, and the thoughtlessness with which our common women used to abandon themselves to prolification has been replaced by a conscious determination. The heart of our people is wide open to sane advice, to moral suggestion, even when the sacrifice of continence is asked. Sexuality is very much less vibrant among us than is generally believed. This situation favors wise propaganda and medical advice. Every physician may dispense what knowledge he has in the interest of the future of the family, if not to the sick partner, to the other, and in more than half of the cases he will be obeyed. The greatest difficulty is with criminals who are violent and insensible to any warning, as well as chronic alcoholics, most of whom, however, have already become sexually weak.

We can and should keep before our minds the possibility of legislation permitting sterilization, but it is possible that we shall never be able to find a practical way to apply it, save in the most serious cases in prisons and asylums. Many states in America are favorably inclined toward sterilization, while Havelock Ellis of England wrote in 1923 in the *British Medical Journal* that the common sense of the English people was against the proposed sexual sterilization, which they considered somewhat cruel and ill-digested.

Neo-Malthusianism will be discussed later in the chapter on sex education.

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To know the causes of pain and feebleness and to combat them in order to conduct life in harmony with nature; to utilize knowledge with its power to sublimate the soul; to set free from the inmost organic forges the glowing sparks of the greatest energies the race can produce—these are the problems eugenics intends to solve. Health is a joy, a harmony, a hymn to nature. Everybody aspires to it. Eugenics is a luminous ideal from which every one should absorb some ray. Ideals are great propelling forces, veritable dynamos of human conduct. Whether high or low, conduct draws from thought and from the way of feeling, character, aspect, and effectiveness.

An egotism insensible to social emotions is a sign of dissolution. Eugenics outlines a plan for obtaining the means whereby the greatest number of men may free themselves from the exclusive tyranny of their own interests, feel themselves integral parts of the social soul, understand the dignity of labor, and coöperate to achieve fortune and dignity for their country and for humanity. The unproductive feeble ones must diminish, for they encumber the earth and represent a great social, moral, and economic passivity. Those men must decrease who defame human and divine laws and who simulate an imaginary morality. The adjustments between individual and social instincts, sincerity, love for truth, perseverance, civil courage, reverence for ideals in science, letters, arts, industries, commerce, in the labor of the field, and especially, in the administration of public offices, are the attributes of the strongest and best servants of civilization. Criminals who are infesting with putridity the life of the country must diminish.

Physical and chemical laws regulating motion in the universe are applicable, likewise, to physical and mental life. It is necessary to be strong to overcome the difficulties which life encounters, and to neutralize the poisons infusing it. Resisting power and propulsive force are factors of maximum value. The rapidity and efficacy of our actions are in direct ratio to our propulsive force and in inverse ratio to our capacity for resistance.

Spiritual force is proportionate to physical and mental health.

The greatest Latin poet of nature in his verses to Epicurus wrote, in praise of moral strength: "Neither the voice of the Gods, nor thunder, nor heaven's threatening echo deterred him; but only inflamed the more his soul's ardent vigor, so that he longed to be first to break Nature's close-barred portals. And so the indomitable vigor of his spirit surmounted every obstacle, and traversing far outside, beyond the flaming walls of the world, he journeyed with bold intellect through the boundless universe!"

CHAPTER II

MENTAL HYGIENE

THE family and the school constitute the mental hygienic environment of children and adolescents. The child, that tender sprout destined to take his place in the social organism, and to give the inherent fruits of his life and of his progress to the nation, should be the subject of intelligent and earnest assistance and of assiduous care. In many countries the family has not reached that degree of culture and of consciousness of responsibility to infancy which are daily becoming more indispensable to the protection of childhood's social future. Many, indeed too many, families are living a disorderly life; many, in fact too many, women are only mistresses, ignorant of even the most elementary duties of a civilized mother. This is not the least reason for the high infant mortality and for the deficient education of our people.

A good, rational ministration to infancy assures a better physical and moral future to the family. In Italy we need several institutions like St. Gregorio's in Rome, conceived and created by Donna Enrichetta Ghiaraviglio Giolitti, a lady of superior nobility of intellect and of constructive will that ignores all obstacles in the way of advancing social endeavors. St. Gregorio's Institute is like a large magnificent clinic, situated on one of the most beautiful Roman hills back of the Archeological Promenade, at a short distance from the Colosseum. Children from every walk of life are received here, and besides being objects of the most intelligent and cordial attention, they represent the most eloquent proof of the value of care and assistance prodigally expended with sensitive heart and strictly scientific spirit. It is like a clinic because refined young ladies practice upon these children the knowledge they acquire in the Institute in theoretical and practical biology in relation to infant welfare, and receive instruction, both theoretical and practical, in home management and in gardening. The beneficent fruits of this Institute, the presidency of which has been entrusted to me since four years ago, are surprising. I should like to see more of them founded, especially in southern Italy.

The problem of infancy is a very thorny one, both from the viewpoint of prevention of the enormous infant mortality and of promotion of the physical and mental welfare of the infant, the child and the adolescent who, in mature life, are to society what solid foundations are to an edifice. From both these angles examinations of the child's physique and character are of fundamental importance.

Character is the expression of all the organic and psychic factors which determine the particular trend of man's psychical inclinations and conduct. It is, moreover, not only the direct emanation of the brain structure and function, but also the resultant of the structure and function of all the parts of the organic economy. The disharmonies of form and function in the digestive and vascular systems, in the sexual or the glandular systems (especially the endocrine glands), reflect themselves upon the cerebral function, upon humor, and upon the manner in which an individual responds to the outer, physical, and social stimuli of the world. There is no doubt that the better constructed brains are much less susceptible to the variations occurring in the organic world and are less shaken by the rough vicissitudes of environment.

The interaction that all organs exchange with the brain, is dynamic and chemical, and should not be taken in an absolute sense, for some poor organisms present a strong mentality; and, vice versa, mentally diseased patients, especially epileptics and criminals, are sometimes robust.

In the former cases, the brain has received a greater evolutive impulse than the other organs; in the latter, alterations or organic anomalies probably existed in the brain and in the endocrine glands, but more often resulted from incomplete evolution. Since the brain is the last organ to evolve and since it is still in continuous evolution, it is not surprising that for determined causes its whole development or the development of some of its parts, is arrested or diverted even when the remainder of the organism is perfect.

But these lesions or evolutive anomalies elude, partially at least, clinical control. What is certain and very clear is the relation between mental evolution and cerebral evolution, the number and development of the neurons corresponding to what some authors define as intellectual volume and depth of sentiment. Many circumstances may tend to give an anomalous direction to a person's conduct, which, considered as the resultant of the thought and of the way of feeling in one's proper environment under the action of an infinity of stimuli, depends upon the organic structure, especially the cerebral, of each individual or race.

I shall dwell briefly upon anomalous characters for whatever abnormal corrigible signs they may present, asking, first of all, what do we mean by a sound child?

I will say it in a few words, warning at the same time that the perfect type, perhaps, does not exist, but if it did, would include: normal developments of physique, both the thorax and other parts of the body, symmetry of figure, good nutrition, color corresponding to the ethnic type; good appetite, digestion and sleep; ability to walk before the fifteenth month and to pronounce dissyllables well between the twelfth and the eighteenth; the psychic influences delineating themselves after the third or fourth year; security in walking and in the movements of the hands; precision in the pronunciation of words; facility in understanding and comprehending what is taught; facility in remembering and in utilizing knowledge; curiosity to know shown through interrogation; necessity for motion; inventiveness of fancy; tendency to assert the ego; respect for parents and for teachers and adaptation to the equitable discipline of the home; good humor, pity for animals, wit and tricks with mates; strength contests in which the sense of superiority prevails; good behavior, order, petty lies (no importance should be given to petty thefts, sly transgressions and minor falsehoods, for they are part of the normal psychology of that age); promptitude in answering; cleverness, vivacity, joy, self-confidence, courage, and so forth. All these are signs of physical health and of good character.

When I speak of the anomalies of character, do not assume that I refer to the serious anomalies of the intellect and of sentiment, lighter shades of which throng every school, and are thought by many teachers to be variations of normal character, though they are not. How much more numerous the anomalies and deficiencies are than they are believed to be may be demonstrated by the fact that some keen American observers, as Fischer, found that 70 per cent of the American soldiers (1,700,000 men) only had the intelligence of a fourteen-year-old boy.

We are accustomed to concern ourselves only with anæmia, nutritional deterioration, adenoids and rachitism, but we should be concerned in like manner with those other anomalies, especially if accentuated, which are almost always associated with organic disorders and with some morbid condition in the family or in the environment.

It is a duty to guarantee, in so far as possible, the future of the child and of the adolescent, and to use all prophylactic means to reach this aim. It is not my intention to convey the idea that it is always easy to succeed in modifying an anomalous character when it is very much accentuated and when it is an exponent of degraded psychophysical environment. But, to be sure, no physician's effort will be spent in vain if it proceeds from an expert knowledge and from that sense of social duty which should be the soul of professional practice. A physician cannot fulfill his duty by simply curing his patient, in which task he is not always fortunate.

It is well to remember that evolution of character is tardy in many children. Mildly anomalous children, that is, those undisciplined, reactive, cruel to animals, inadaptable to the order of the family, may become by their own virtue normal between fifteen and eighteen years of age. Criminaloids or even true criminals between fifteen and twenty years of age become adapted to the social environment by twenty-five. It is a duty, therefore, to assist them.

* * *

I shall divide anomalous characters into two groups, the hypokinetic and the hyperkinetic.

I. The hypokinetic group includes:

1. *The timid.* Timidity, as well as fear, is a sign of anomaly and of incomplete spiritual evolution. We find this characteristic very much marked in neurasthenics, in melancholiacs, in many feeble-minded, in a large class of imbeciles. It is, in general, the expression of a defective ability to perceive the outer world, of a strong emotivity, and of an insufficient and anomalous evolution of consciousness. Those children who have great fear of domestic animals—of a dog, for instance—who do not dare to enter alone into a dark room in their home, who for fear do not want to sleep alone, who fear to approach innocuous objects, as a doll or even smiling persons, are not normal and need correction.

2. *The suspicious.* These present in their interhuman relationships the characteristics of their own egoistic hyperæsthesia. Often they are neurotic subjects and less adapted to prepare the necessary means for overcoming the difficulties of the struggle for existence, because they distrust everybody, surround themselves with precautions, and later, when adolescent, blame their environment for negative effects of their own deficiency. The weak texture of their psychic personality painfully feels the vigor, joy, and expansiveness of their stronger mates, and un-

consciously exercises its bad influence upon the inclinations of others. These children show an egocentric tendency and suspect their mates of malice against them. When character begins to appear suspicious in childhood, it is already on the threshold of persecutory paranoia. And as we distinguish two varieties of persecutory paranoia, namely, that of the timid who bear the presumed persecution of others and assume an attitude of victims, and that of the persecuted ambitious and persecutors, who react against presumed persecutors, we distinguish also two varieties of suspicious adolescents, namely, the timid who are rather pitiful, and the violent who are often accusers.

3. *The indifferent.* These take no interest in the objects moving about them; they lack that curiosity which characterizes childhood, and very early show an unusual preoccupation about their health; inner recollections prevail over those of the outer world; they are sometimes timid, at other times they are, or appear to be, simply obtuse; they are often irresolute, or annoyed, at times they are importunate with their doubts; they are meticulous, very much attached to details and frequently repeat the same thing over and over.

Some in this group of excessively indifferent, are very defective in regard to the exigencies of civilization and of everyday life. When we see children torpid and slightly curious, attracted, at the most, by the flatteries of an immediate evanescent pleasure, not interested in anything outside of the boundaries of their own person and of their own tendencies, or at the most, of the school work assigned to them, they should have prompt study and attention.

Upon reaching youth and maturity these children are moved neither by private nor public calamities; and in adult life, they are often inclined to speculate in human misfortune. Some of them are mean-spirited, and though wealthy and revelling in luxury, they never sacrifice a penny for social purposes. They are also absentees from political service, even when they are called to fulfill the elementary electoral duty. No social sentiment moves in them. Some, fortunately very few, are cynics.

4. *The obstinate.* These are they who, once fixed in a desire, will not listen to any reason; who seize upon a desired object so that it is impossible to separate them from it; who are given to repetition; who weep again and again for the same motive which is really only the contraction of a poor consciousness around an unimportant desire—a spiritual catalepsy allowing no displacement of, or substitution for, the mental contents in order to discover a peril, a damage, or another pleasure. In such conditions there is no movement either in thought, or in emotions; and later on, these children, if not corrected, will become passionate and psychasthenic.

5. *The hypochondriacs.* These unfortunate ones are often timid, frequently complaining, tormenting parents with their lamentations, painfully conscious of their organism, pouring discontent into their mother's hearts and comforting themselves in the interest servants show in their ailments. Sometimes they dread darkness (nyctophobia), are victims of nervous movements, as the spasmodic shutting of the eyelids, the rhythmical jerking of the head backward, and so forth. At times they are excessively good, obedient, measured in all their activities, and meticulous, but are possessed of an evanescent will;

their desires are weak and not in tune with reality, and they are very suggestible.

6. *The solitary.* This last group of hypokinetics is composed of children who tend to isolate themselves, to live apart, never joining in the joyful expansiveness characteristic of children's play, such as a wrestle wherein every one wants to show his superiority of strength. A sharpness, a witticism, often offends them, and they react against it painfully. They are unyielding, torpid, never able to find the double meaning of a word and taking offense at one who uses it, thus demonstrating poverty of thought and sluggishness of association. Often they are irritable, reticent, and jealous. The children of sluggish and phlegmatic character described by Perez and Ribery may be included in this group.

II. The hyperkinetic group includes:

1. *The vain.* These are affected with vanity in an accentuated degree, often with weak-spiritedness. They pay more attention than necessary to stylish dressing, assume the air of a gentleman, very seldom go with their mates before whom they boast of superiority in birth, in wealth, and so forth. When adults, they attribute great value to their poor intellectual achievements, or to their aristocratic origin. They pretend to be men of authority. Some are admirers of their own physique, of their own handsomeness, which they privately exalt. They are sometimes contemptuous, sometimes proud.

We must here not confound vanity with ambition. The latter is a stimulating force in human progress. It is always an effect of aspiration; it is the exaltation of the personality of one who is sure to succeed. It assumes two aspects. In one the soul is exalted in consequence of an accomplished work. This is a very complex sentiment with which is associated the æsthetic pleasure (in the case of an artist), the cultural pleasure, the pleasure of a successful research, of a good administration for increasing personal wealth, the pleasure of the perfection of one's own product, in whatever line his vocation may be. It is a conspicuous relational sentiment, because the artistic work is admired, and culture is distributed through speaking or writing; by speaking, the sympathy of the masses and assemblies is gained, trade's products made to win the markets, and so forth. In all life's manifestations the healthy, ambitious man tends to emerge, to ascend to a higher level.

The other aspect is the vanity of the weak who, when young, presume to be the first in school by studying more than their capability permits. They are intolerant of alternatives in scholastic standing, and in the meantime their intellectual strength decreases year by year in proportion to their continued mental efforts. They dream from adolescence of superiority and wealth, and very seldom associate with their mates. Their obscure and unfounded sense of superiority is uncontrollable. Sometimes this sentiment changes into well-defined conceptions and rosy aspirations; but the adolescents belonging to this group do not possess the necessary strength to overcome difficulty and reach their aim. They are obstinate aspirants. Often the ambition of the weak resolves itself into criminality.

2. *The unstable.* Sometimes changeableness of mind is found in educated and very intelligent men; they easily change their opinions, accommodate and adapt themselves

according to circumstances. Their ideas, sometimes, supported with great ardor, disappear as soap bubbles to be substituted for others and still others, often contrasting. What they say or promise cannot be depended upon. Such a syndrome is derived from a particular brain structure, when it is not determined by a cynical egotism that in some overrules thought and action. The great mobility of the mind, the rapid passage from one thought to another directly in opposition, the most different emotive states that succeed, press, substitute, alternate each other without plausible reason, are met with great frequency in normal childhood and in hysteria, which in its graver forms is infantilism. But in a more marked degree, it is a notable anomaly in children who often are very cruel and suggestible. There are children belonging to this group who are very vivacious, have mobile attention, are fanciful and story-tellers; they invent and repeat as a reality what they have invented, and by repeating it they themselves finally believe it to be true; they are often mythomaniacs, suggestible, much too changeable. They lie more than normal children. Their dreams are vivid, often fearful, playing a notable part in their attitudes, for they sometimes accept as true what they have dreamed. These erethistic children are restless, sleep poorly and badly, are hypersensitive and hyperkinetic. For insignificant motives they laugh and weep, caress, scratch, and yell; they become uneasy over trifles; at times they show themselves confident and daring, a little later suspicious and discouraged.

Some in this group are very intelligent but hypersensitive, emotional, querulous, and persistently discontented. If not corrected in time they will be like those skilled or unskilled workers who are never satisfied with their situations even when remunerative, and leave good positions to look for others. They are unadaptable.

In another type such restlessness, or apparent exuberance, is accompanied by facility of speed with precocious exaltation of the ego, sometimes provoking, intolerant of restraint. These children are at times reactive but not aggressive. They often become modified by development, and temper their boldness when they realize difficulties in the environment; but the interposition of hypokinetic phases sometimes accompanied by discouragement, should be duly considered in their discipline. In this type of the unstable we may perceive the embryo of manic-depressive psychosis.

3. *The irascible.* The irascible character corresponds to the bilious character of the ancients. Irascibility is vulgar emotion. Ire indicates an excessive irritability of one's ego, an anomalous intolerance to the obstacles in environment associated with a morbid reaction against things and individuals symbolizing these obstacles; it is a useless waste of energy. An ireful explosion reaches no finality; it dissipates, instead, a good deal of energy and is apt to break or cut off one or more threads of the interhuman relationships. The greatest spiritual strength consists in serenity before the obstacles imposed by situations, objects, or men; it is the serenity that considers the importance of obstacles and the ways and means to overcome them.

We know that irascibility is a characteristic of the epileptic and of the weak; it is frequent in alcoholics, and by itself is, therefore, already on the threshold of the gravest maladies of the nervous system. Moreover, irascibility is an effect or a concomitant of insufficiency of the associative power of the brain. The associative routes in some cases are either few or obstructed. For these reasons we must, in dealing with irascibility, take account of two anatomophysiological conditions; the neuronic physicochemical instability, whence comes the promptest emotive discharge, and the difficulty of the nervous waves in circulating, inasmuch as the associative routes are either scarce or obstructed.

4. *The criminals.* Those possessing a criminal character, such as the violent, the overbearing, the selfish, the intolerant, the tyrannical, the impulsive, and boys and men who are often cruel and revengeful, are in this group. The development of the sense of pity and, in general, of the moral sense, is wanting. They do not heed their parents' exhortations, are insensible to the torments and anguish their dissolute conduct causes them. They are exacting and impose with violence the hardest sacrifices on their afflicted mothers. They neglect school to seek pleasure with the worst companions. They assume with relatives, companions, and even teachers, a threatening and sometimes aggressive attitude. Often they are sexually precocious, vagabonds, impudent. The words obedience, discipline, friendship, goodness, affection, pity and the like, have no meaning for these souls. They are egocentric and a veritable problem for the family and for the school. They are excessive liars, ever ready to excuse themselves in order to accuse others of their offenses. If they belong to families of high rank, they find adaptation in the substratum of society's criminal life.

All these characters present some defect or disharmony of intelligence. If the defect is accentuated, children in the limited sphere of their relations, in the family or in the school, do not succeed in orienting themselves safely, do not grasp the nature of a situation and are sluggish; they are usually inflexible and therefore the situations requiring flexibility elude them. It is more difficult for them to adapt themselves to environment than for normal people.

Such inadaptibility, if uncorrected, will increase with the progress of the school, until it is found to a very marked degree in social life where the structure of relations is much more complex and requires more intelligence, more highly evolved sentiment, and more volitional and coördinated energy.

Night terrors, stammerings, illogical frights, caprices, and fancies are not adequately estimated by physicians, but they should be considered in their real significance, for they are of great importance. The same may be said of nocturnal enuresis, a condition which after the third year is always a sign of a neuropathic constitution and which from the sixth year to adolescence is almost always associated with nocturnal epilepsy, or is its equivalent.

The signs of abnormalities in character are so interrelated that it is not always easy to recognize the types so distinctly as I have here stated them. But to the general practitioner this guide is sufficient to direct him and to enable him to perceive the abnormalities, often already noted by the mother and by the teachers, and to suggest those scholastic or family measures, in addition to medical treatment, which will tend to modify the abnormal spiritual orientation of these children.

Dementia præcox is associated with these abnormalities in puberty, and reaps its harvests among this class of neurotics.

Watch should be kept over prodigy children for they are sometimes abnormal and frequently a delusion to their parents' enthusiasm. It is very difficult to draw a line of demarcation between them and normal children. The perfectly normal, especially in childhood and adolescence, is rare.

* * *

The most marked abnormalities of character are not seldom found in conjunction with physical abnormality and with degenerative anthropological signs, with organic disease, or with nutritional and functional disturbances. We should examine the pupil in his "habitude," his nutrition, color, skeleton, muscles, craniofacial shape, and then scrutinize his progress in scholarship. The intelligence examination has little value apart from consideration of the whole organism.

The majority of those who have treated this topic have neglected the anthropological examination of the children, in spite of the fact that in a considerable percentage there exist conspicuously degenerative signs; large head (resembling hydrocephalus), low and narrow forehead, a marked degree of microcephalus, plagioprosopy, very hollow palate, large inferior maxilla, very protruding zygomata, overdeveloped mastication muscles, the insertion line of temporoparietal muscles too near to the cephalic median line, deviated nose, ears at different levels, absence of the two incisors, manual anomalies (syndactylia, polydactylism, fused fingers), flat-foot, thoracic asymmetries, pelvic anomalies, polysarcia, nanism, gigantism, sexual organ anomalies—all these assume an unforeseen importance for adequate judgment. Lombroso's doctrine from this viewpoint is built on the solid foundation of reality. To these classical morphological abnormalities correspond the functional abnormalities of the nerve centers. They have no absolute semeiotic value, but they concur, when numerous and when related to other abnormalities, to construct a diagnostic ensemble founded not only on the abnormalities of character, but also on the somatic deformations which are the most tangible expressions of an original deformation of the germinal cell. Their meaning is more profound, the more numerous and the more marked the abnormalities.

Sexual development, precocious or tardy, is important. The precocity is sometimes impressive. I remember, among others, a three and a half year old child who every now and again used to get a strong hold of his young aunt's leg, and remain in such a position for almost a minute as if he were experiencing a venereal orgasm. He could not be detached. At the age of eight years he suffered his first epileptic convulsion.

At the opposite extreme of this group are the indications of infantilism: small genital organs. Later, in the male adolescent, the sexual organs remain infantile; pubic hair has female arrangement; the hair of the chest, the linea alba and sometimes of the face, is wanting; the pelvis is large, feminine; and the breasts are markedly developed. In adults of this group whenever microscopical examination of the sperma was possible, I found absence or degeneration of the spermatozoa, or other abnormalities of the semen.

Investigations concerning the most probable causes of such physical and mental abnormalities show that proof is almost never wanting that associated abnormalities existed in the physical and moral environment, or in the child's intra- and extra-uterine evolutive history. This knowledge imposes research responsibility upon physicians and upon those who are in charge of children and their education. For if there is any possibility of modifying the abnormal character of a child, since it is too late to improve the conditions of his parents and of his environment either because of an absolute lack of means, or of such moral degeneration that they are deaf to all exhortations, we may at least assemble for rigorous investigation all data concerning the physicopsychic abnormalities. Indeed, only as this is done and causes analyzed can eugenics hope for victory over human ills.

The relation between mental abnormalities and endocrinous physical defects, especially the sexual ones, is being more and more strongly confirmed. Blanchard and Paynter found the frequency of these abnormalities to be three times greater in the abnormal than in the control children. The same authors, on examining the mental standard of 500 children with abnormalities (problem children) and 337 healthy control children, found between the intelligence quotient of the former, and of the latter an average difference of ten points.

Considering the school-age group from this point of view, the backward among the pupils with abnormal characteristics are in the proportion of 17.8 per cent as against the 5.2 per cent among the group of control pupils.

It is held that arthritis exercises a pathogenic influence upon children's character and mental development, but I am inclined to believe that Lesage exaggerated this a good deal, except when the condition is very marked. Alcoholism, syphilis, congenital tuberculosis and various ear diseases, and especially, nervosism and the advanced age of parents (Marro), possess a far greater etiological value in discovering the genesis of the abnormalities of character.

The neuropathology of to-day furnishes elements of great value for the clarification of the problem that is before us. These elements derive their origin from various infantile diseases, especially those of the nervous system which in their turn are effects of nervous or mental maladies, of infectious diseases, or of intoxications like syphilis, alcohol, or tuberculosis, in the parents. Infections and intoxications alter the chemistry of the spermatozoön and of the ovule. Physicians are not accustomed to look upon infantile convulsions, whether tonic or clonic, with sufficient concern, and often delude themselves by attributing them to intestinal intoxication. The seriousness of convulsions, however, is well known, even when they are not due to true infantile cerebropathy. The nurse should be most carefully watched, for Montaigne's sentence is true: *"Nos plus grands vices prennent leur pli de notre plus tendre enfance,"* ("our worst vices begin in early infancy").

Home environment created by parents and relatives exercises a supreme influence upon children's dispositions. not only in regard to general hygiene, but also in regard to moral character. Because of an influence only barely secondary, the companions of childhood should be vigilantly guarded. We often succeed in adapting an abnormal child to the school or family environment and in correcting him, by introducing new elements into his spirit, by creating new habits, by moderating abnormal impulses and emotions, which later on will themselves be sufficient to adapt him to the social environment, and to the different conditions of his work, whatever it may be. But a good result cannot be obtained without removing the child—as is done with the children of tuberculous patients—from the bad environment, or without modifying the environment. The difficulties in the way of putting this ideal into practice are enormous; but we should not lose sight of it.

Education creates new habits, offers conscience new sources of satisfaction and consequently more outlets for social tendencies and impulses; but suitable conditions are essential. For this splendid prophylactic work we need a great deal of time and specific conditions which may not often be had: appropriate social surroundings in the family, home, and school, where teachers, expert in this subject, better trained physicians, and a more conscientious and willing State power coöperate. In some countries these conditions are being realized.

The solution of the problem depends upon the ability of teachers in the primary and middle schools, and upon the conscientiousness and culture of well-trained school physicians.

It is essential that an individual's capacity for learning a trade or for filling certain offices be carefully examined. Sometimes the subject himself has an intuition of an inherent capacity or incapacity to perform a certain kind of work or to follow a vocation suitable to his nature.

I stated before that a healthy man desires that for which his mental energies prepare him. The exalted desire and ambition that force fancy, and sometimes attempt to reach goals beyond the threshold of the mental capacity, may be modified before they pass over into paranoidism or the dominion of criminality. On the other hand, the man who isolates himself has a confused consciousness of his incapacity to support the stress and strain of social intercourse, which he painfully or hostilely perceives. If a youth with an intuition, perhaps not yet clear, of his intellectual or social inferiority, could adapt himself to farm work, or retire to a convent, the germ of disease, often hereditary, would probably remain unfruitful. Education based on psychology should aim to expand mental activities by exercises designed to develop latent energies, by reconciling the child and the adolescent to reality. One group of insanities is the result of lack of coördination between thought, feeling, and action on the one hand, and reality, or the possibility of their realization, on the other.

We may succeed in adapting a child or an adolescent to his environment by developing just the necessary sense of responsibility and of moral values, by creating new habits in him. We may develop his reflective powers, his knowledge of the world in which he lives and of the laws regulating social life. His sense of social obligation may, in other words, be developed. But to attain this purpose within a wide variety of limitations, we must persevere in a difficult planning work directed to smooth down deforming morbid or antisocial projections in these abnormal characters. An influence must be exercised over the domestic environment, upon which the light of duty must be caused to shine.

One of the conclusions that has made and more and more is making me an ardent supporter of divorce is that infants, children and adolescents very often witness disgusting scenes between parents who cordially reciprocate hatred and, every restraint being cast aside, throw insults and invectives at each other, exchange obscene accusations and sometimes resort to violence. Each partner, then, exposes before the children the faults of the other, believing that thus he or she will secure their affections and esteem against the other one. Ordinarily, one of the parents is either psychopathic, paranoic, alcoholic, a gambler, or an adulterer. Sometimes both have mental or moral defects. And the domestic environment is turbid, oppressive, sad, saturated with electricity, and fearful for the poor children.

These children lose respect for parenthood. A venom poisoning the purest source of affections, the family, that ought to be joyful, orderly, protective, is daily poured into the child's soul, and he becomes distrustful of the social environment, a pessimist, timid, because not encouraged and developed by his parents' affection, or bad, irritable, reactive, even though he may not be congenitally neurotic.

Each child, especially if weak and anomalous, should be individually examined. He is a problem for the family, for the school and later, for society—a problem whose more or less satisfactory solution is entrusted to the physician and to the teacher, but particularly to the former, who must recognize the abnormality, if there is any, and upon finding sound basis for his judgment, must adopt rational prophylactic methods.

Good nutrition, methodical and short muscular exercises, order in social relationships, mental exercises suitable to his individual power, keen suggestion practiced with authority and love by the respective preceptors, will usually profoundly modify the anomalies.[1]

After nearly forty years of careful practice, I have concluded that when a neurotic child can be entrusted to a favorable environment, or when intelligent parents, good observers and not too nervous, take care of him, or when he can be placed in a school in charge of a diligent, cultured, wise, patient, and good pedagogue, he will have his unfavorable characteristics radically changed into good. Children who give little promise may be led to pay their tribute to the ardent endeavors of modern times in behalf of their welfare and that of their families.

All parents, especially those who are neuropathic and have given birth to neurotic children, should realize their obligation to consult a physician who can point out to them the nature of their children's abnormalities, their intellectual capacity, their attitude toward their environment and their greater or less adaptability to it, their tendencies, the kind and degree of prevalence of their instincts, and to what extent the instinct of preservation and defense manifest themselves.

Those children, and they are many, who do not find themselves in favorable conditions, or have been abandoned to themselves, or sent to schools where teachers use the same method for every pupil (and not all can succeed in adapting themselves to a uniform system) have their anomalies of character accentuated, and conse-

[1] I refer to those anomalies that permit of education in common school environments, and not to the defective children for whom particular methods and environments are necessary.

quently some of them pay their toll to neurasthenia, to dementia præcox and to criminality.

Let us not forget the strong suggestibility of childhood, with its particular disposition to imitate. History records classical examples of this. I am reminded of the fact that after Schiller's first performances of *The Robbers* in Leipzig, many boys took to the fields and met in the forests where they formed themselves into a band of knaves and repeated the scenes of his drama.

So far as the school is concerned, the essential consideration in the training of children and adolescents is that the director should have intellect and heart, be an apostle and a psychologist in the widest sense of the words, and be supported by the physician in these delicate functions.

Organic diseases of every nature exercise a marked influence upon the manifestations of the soul and upon character. Particularly in children such an influence is very frequent and determinative. There is no intelligent mother who does not know that her children's capriciousness, bad humor, and unusual reactions are usually effects of organic disorder, especially intestinal. They become capricious and naughty when in need of sleep and nourishment.

Emotionalism is a fundamental consideration which sometimes characterizes an entire family and which is contagious in the sense that it is imitated by others in the group. Mothers especially, when they are extravagantly moved by insignificant incidents occurring to their children, finally induce their own emotional reactions in them in response to external events or those that have to do with health. And there is nothing worse than to drown or limit the joy of life with the study of one's self, with the fear of becoming sick, or with preoccupation about health.

With all children, but boys especially, it is necessary to be just in correction. Nothing spoils their character and makes them liars, simulators and distrustful, more than injustice in reprimanding and correcting them. Justice becomes an indispensable duty for parents, especially for mothers, and for teachers of children who are very impressionable, emotional, and suggestible. Presuming that all, or almost all, of us carry with us some hereditary drawback, our methods of living, especially those pertaining to family and to school, exercise a powerful influence in aggravating or in correcting it. Neurasthenic parents have two great responsibilities. The first is assumed in the very creation of neuropathic children. The second is in evaluating the nervous tendencies of their children, for, as a rule, because of their own nervousness they do not tolerate their children's nervosism which manifests itself under the most diverse forms, from simple emotivity and uneasiness to juvenile crime; and they spoil them all the more with the injustice of their corrections and their violence in inflicting them.

Those mothers who are inclined to preoccupy themselves too much with their children and load them with affection, are surely not providing for their future happiness. We must be stoics, or at least make an effort to be such, and infuse stoicism in our children. The greatest moral strength, that is also the greatest virtue, is tranquillity and self-control in the divergent and often severe inner or outer crises of life. I recommend that mothers make less outward demonstration with their children, and exercise the virtue of repression upon their affections. Eight, at least, out of ten only sons become neurotics or bad through the tender condescension and the exaggerated demonstration of affection on the part of their parents. Selfish tendencies, like bones, are developed more or less hypertrophically, where they encounter no obstacles. These Benjamins, whose caprices have always been satisfied by their families, often fall by the wayside because they have not been trained to meet hard opposition in the struggle for existence.

Educational methods, to-day more than ever, should occupy a position of honor in the conscience of parents and educators because modern life tends to produce nervousness, and this, in time, leads to desire for speed and variation and is the cause of a restless longing for pleasure.

What we should desire in mankind is personality with clear and ready intelligence, upright conscience and strong will, and these are products of education in family and in school.

I have spoken particularly of the principal anomalies of character, but character examination must be given every child and pupil, because, as I previously pointed out, the perfect child does not exist, and the great complexity of varying shades of abnormal character becomes blended in those usually considered perfect.

The possibility of tempering with determined objectives, the hypo- or hyperactivity of some more or less neuropathic children, in and out of school, by the use of methodical gymnastic exercises, especially out of doors, with persuasive command opportunely given with grace and authority, is demonstrated by the experience of many.

Restorative treatments and endocrine therapy before and during puberty often aid in inducing equilibrium in the mental activity and a satisfactory degree of social capacity.

Family and school ought to concur in diminishing the enormous number of neurasthenics now saturating civil societies. The school should carefully see to it that the number is not increased; otherwise it will betray its function.

From the time of Bouchut and Beards to the present, the neurasthenic or nervosistic syndrome has been recognized; its causes have been gradually revealed. During the last decades it has been unexpectedly and greatly emphasized; asthenia, irritability, emotionalism, tendency to convulsions, abulia, criminality, and so forth, are faces of the same prism, and school influence is not extraneous to its etiology.

* * *

Let us examine more closely the conditions in the schools. The school is the field where the seed of mental hygiene is sowed. Experimental sciences, especially biology, warn us that nations, like individuals, grow tired and sick. It is a duty, then, to recognize in time the causes of feebleness in the ethnic groups and to intercept, with proper preventive measures, their development and progress. By neutralizing causes of weakness we may hope that a race which has given and still is giving proofs of great moral strength and genius may resume its onward march.

The pedagogic problem, consequently, is to-day one of the most important that State powers and society, in all civilized countries, are entrusting to the schools. They should aim at perfecting the physiological apparatus wherefrom is developed the mental energy that trains, shapes, and sublimates the soul, by directing the younger generations, perennially succeeding each other, toward the study and the solution of the great and varied problems of modern life and history. We should not lose sight of the physiological standpoint, over which no discussion can be raised, namely, that the *methods* of instructing and educating during the period of mental development—childhood, adolescence, and youth—are the pivotal points of mental hygiene. After youth, the mature man utilizes his mental powers and his dormant energy by obeying the law of conservation in the infinite phases of mental endeavor. The duty of the State ceases when it no longer exercises its governing function over State schools.

A second point of view is that mental activities do not subtract themselves from the laws of life. No one can dare to-day to oppose this conception with the old and superstitious one that the soul uses the brain like an instrument. This idea, derived from the mystic period of our spiritual evolution, has now lost its value in the light of positive science (McDougall).

Sherrington, of Oxford, in a presidential address before the British Association, affirmed that "the mind has its origin in the nervous system and has developed gradually with the progressive development of this system. . . . The mental attributes of the nervous system are the touchstone of the construction of the individual. These attributes do not remain in the individual, but permeate the community. In a multi-individual organism, that is, a social community, the fusion of individual and group interests is due to the higher attributes of the nervous system."

It is a matter of legitimate satisfaction to me that the great English physiologist expressed in September, 1922, essentially the same thought to which I gave expression in the inaugural address which I had the honor to deliver in the University of Naples in November, 1891, under the title "Brain and Society."

In the society of to-day the individual is like the atom in the chemical structure of the cell which gives it its form and function. The capacity and dignity of a country are derived from the adaptation of the greatest possible number of men living in it to the supreme moral principles which coincide with a well-nourished intellect.

It is a great mistake to organize schools and to formulate mastodontic programs which can only be compassed by the stronger intellects. It is also a great mistake to make entrance into universities difficult for those of limited means, among whom powerful minds are frequently found. A small number of men of high merit cannot force upon a country a course of conduct consonant with the interests of the community and of civilization, in their international relations, if they are not supported and encouraged in tacit understanding by the interests, intelligence, culture, will, industry, and perseverance of the great number of men living in it. The hostile resentment of those against whom the school door is shut brings about an obscure demolishing activity; many of them become critics, dishearten the strong, repress their own energy, undervalue their work, or pass into the lines of the communists.

Our attitudes are in part hereditary, but mostly determined by the molding influences of the family and the school during childhood and adolescence. Hygiene and prophylaxis profoundly modify the organism to the point of subtracting from it the fatality of hereditary and organic diseases, like tuberculosis; likewise, mental hygiene strictly applied in the school may concur in furnishing the country with a much greater number of strong individuals well adapted to the exigencies of modern civilization.

Adaptation is the constructive equivalent of the sentiment of sociability; it is like a reflex of it. For its development, the sentiment of sociability absorbs vital sap from that other sentiment, more fundamental to life, the hedonistic. The school should not be a mechanism of torture, but a field of blooming hopes and inherent satisfactions.

Maladjustment grows either from organic weakness or from the difficulty encountered by many in the school in the course of the regular development of their intellectual energies. Let us suppose, for instance, that in the first year lyceum professors should assign to students, of the average age of fifteen, the memorization in two days of the whole first canto of the *Divine Comedy;* these professors, undoubtedly ignorant of the most elementary rules of teaching (for to teach means to educate), would be responsible for a great damage, because such a task is not a memory exercise, nor in harmony with the rational mnemotechnic rules, but is sheer abuse of the mind. A memory strain is dangerous to the mind and to all other mental processes. It is dangerous because, memorized in such a way, the canto cannot be remembered and cannot become a utilizable part of the mental store; because that canto is so full of history and philosophy that only a few stanzas a day can be committed to memory with understanding; and, finally, because the fulfillment of such a school order, together with other lessons, would cause a great discomfort to nine-tenths of the students, some of whom, if asked, would declare they had learned the entire canto, whether they had or not. Here then, we would have mnemophilous professors ignorant of the most elementary rules of psychology and pedagogy, succeeding in lowering the mnemo-intellective level of a few or of many students and of directing others toward the vestibule of simulation and falsehood.

It is important that a teacher be somewhat of a psychologist, know the students, individualize their capacity and inclinations, and hold himself to a rational average in assignment of lessons. The stronger pupils learn of their own accord what they enjoy in addition to the assigned lessons; and what they learn with this greater interest will be most useful to them. To maintain a high power of application and attention is the indispensable duty of the school.

It is true that some great men cannot long keep their attention concentrated on one subject, and are obliged after a certain time to turn it to another with equal potency. Darwin was a typical example of this. But the involuntary disengagement of attention from the subject in hand is usually the effect of fatigue.

We may argue that the success of a diligent student or of any workingman can be measured by his capacity for keeping his attention steadily and with pleasure upon a subject independent of new stimuli. For mental hygiene, however, change within certain limits is of a marked utility. I owe my mental freshness, at my age, notwithstanding the intensity of my scientific work, to the fact that for the last thirty-two years, during the sessions of Parliament, I have spent the last two days of the week in Rome occupying myself with politics. But, the excessive number of subjects presumed to be taught in our middle schools is very harmful. Our lyceum students have lectures for five hours three or four times a week with only half an hour for rest. It would not be so bad if in these five hours two or three subjects were taught. But they are not. During the first year in the lyceum the student receives lectures in history, Latin, Greek, mathematics, and philosophy three times a week. And, in addition, he has to do a quantity of work at home. Now, there is no one who does not know that after the second hour attention begins to slacken; after the third it decreases still more, and so on. The lessons the professors assign, in accordance with the State school programs, are very heavy. Consequently, as a veritable *surmenage,* cerebral fatigue sets in and all mental powers become depressed.

The student who rests on Sunday will not be sorry for the interruption, because he will find a greater satisfaction in resuming his study on Monday (Stiles). At the Harvard Medical School, experiments were performed on a great number of students by measuring the threshold of sensibility with the minimum electrical stimulus. It was found that toward the end of the week sensibility diminished more and more; this meant that it was necessary, in order to arouse attention, to increase the intensity of the stimulus. On Monday, after the Sunday rest, the threshold of sensibility was normal again. This experience demonstrates that too-prolonged work induces a progressive diminution of intellectual efficiency.

The preceding illustration from the school curriculum, not overlooking the fact that the subjects are too numerous, denounces, as very disastrous to the national intellect, the preference of the mnemonic method. The following example illustrates the incapacity of some directors of education. Last year it was ordered that *Macbeth* be studied in the fourth gymnasium class. What obscure reason could there have been for such an order? It is difficult to find a single one. It was neither for the language, because the edition was a modest translation from the English, nor for the history because there is no more complicated historical period than that referred to by Shakespeare, and moreover it holds no interest for Italians; nor was it for its educational value, because this drama is a whole conclave of ambitions, insidious influences, plots, and murders. But worse than all these are the hallucinations Macbeth had of his victim and of blood. Now, then, the most elementary knowledge of the psychology of adolescence should have sufficed to prevent any man of learning from distributing among Italian youth such an emotional drama—a typical example of the criminality of those times and of court life. This tragedy is on a par with a volume of poetical compositions upon the origin of the Italian language and literature (a text recommended by the superior authorities) and from which I will quote Cino da Pistoia:

E piacemi veder colpo di spada
Altrui sul volto, e navi andare a fondo
E piacerebbemi un Neron secondo.

. . . . .

E tutti quelli ammazzar ch'io ammazzo
Nel fier pensier là dove io trovo morte.[2]

It is not easy to measure the extent of pedagogic error in presenting to fifteen-year-old boys such savage, slaughterhouse scenes. But what is of greater import is the irrational method by which youths are compelled to learn the intricate linguistic forms of the origin of the Italian language, before acquainting themselves with the language and literature of mature years. It is not possible to ignore the fact that with such material and such methods a real intellectual indigestion and a perversion of the moral sense is excited in the younger generations.

It is well to keep in mind also that one of the causes of the damage produced by the methods in use, especially in the secondary schools, is the fact that they cram the brains of the younger generations during the most delicate and turbulent period of their evolution, from the tenth to the seventeenth year, when bodily development is most intensive and when a new function, the sexual, is making its appearance upon life's stage, with its profound organic and spiritual transformation through the presence of particular hormones in blood and tissue, developing new energies and giving to life new impulses and to thought and emotions different direction, usually in conflict with life's circumstances.

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[2] And it pleases me to see sword thrusts on others' faces,
Ships sinking,
And it would please me to see a second Nero;

. . . . .

And to see all those killed whom I kill there in my cruel thought
Where I find death.

Now, when we realize that intellectual vigor, lucidity, and reliability of ideas are related to character, the whole value of mental hygiene is understood. We see to-day, too many hindering the progress of the Ship of State, who present a very poor spectacle of character which vacillates frivolously between aspiration and fear. Not many have the courage to express their clear, high thoughts. Opportunism, without ideals and courage, prevails. Doubts, fears, and "Hamletic" visions are too frequent. Indifference to ideals and increased criminality measure the effects of education in all social classes.

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Synthesis is an important mental power (Kant). Intelligence consists of capacity to combine (Ebbinghaus, Ziehen, and Meuman, *Combinationsgabe*), and of capacity for adaptation to new situations (Binet, Stern). I think these are faces of the same prism, but viewed from different angles. The various hierarchies of mental function must be considered; namely, capacity to apperceive, to analyze, to compare, to discriminate, to act. A true intelligence must possess a reliable capacity for analysis and synthesis; but the intermediate faculties needed for analysis and synthesis are attention, memory, and selective power of consciousness.[3]

Dercum, one of the most accredited American psychoneurologists, says that the "incapacity to hold attention, on equal conditions, means that the dynamic level is lowered." In this condition undesired ideas, of which patients complain, pass through the focal point of conscious-

[3] Bianchi, *Mechanism of the Brain.*

ness. What I call "the selective power of consciousness" is depressed; young and mature men feel their minds encumbered with undesired ideas and strive in vain to ward them off.

Children, young people, and adults show individual differences in the synthetic power, at successive ages and circumstances of life and in different mental stages. A man may be first in one quality and last in another. "In a group of one hundred individuals," states Kohs, "person A may be classified as first in intelligence, tenth in motor coördination, eighty-fifth in reaction time, etc." [4] Many other psychologists believe this, also.

According to psychological investigations the two sexes behave differently. Girls prevail over their mates of the other sex from the sixth year to the eighth year; boys prevail over girls from the ninth year to the thirteenth; girls are again superior from the fourteenth year to the eighteenth.

Each teacher should find out for himself the way to individualize the mental capacity of each pupil.

* * *

It is necessary to animate, even though it be through sacrifice, the hedonistic sense of life, which is enrooted in the strong psychosomatic individuality.

In the baby, for instance, the first elements of sociability spring from his experiences with the family that comforts and protects him. Even when the child meets with obstacles painful to his impulses, and sometimes with constraints in the family and in the school, the hedonistic sense enlivened by the environment to which the child

[4] *Intelligence Measurement,* 1923.

gradually adapts himself always prevails in healthy constitutions. Contrast and conflict persist in inferior natures, or else arise either from violent educative methods unfit to temper with reality the rising tide of hedonism in the child, or from the tortures of a too exigent school, or from poverty that washes the surroundings of every smile. Under normal conditions of modern civilization a flux of intermingling currents is emanating from the environment toward children and, on the other hand, a reflux of constructive actions of the sprouting personality is returning from the child or adolescent, like an unconscious homage, to social conscience. Only feeble and sick natures do not adapt themselves, but feel painfully the flow of the human senses because they are incapable of hedonistic assimilation of the social spirit, and of leveling their ego in harmony with their environment. The active adaptation of each individual to his surroundings requires, then, an exponent of spiritual energy that should be developed and oriented in the school.

Such adaptation, through a strong and stern mental and physical education, prepares the *sine qua non* for human happiness. The question of right and wrong, of optimism and pessimism—that imperative problem—has profound roots in man's physical and mental structure. This world that at other times and in different places was, under the influx and sway of religious currents, defined as a Vale of Tears, has become, instead, a practicing field upon which the numerous and varied human legions prepare themselves for life's perennial struggle against pain.

Voltaire thought that "the question of right and wrong remains undecipherable chaos for those who investigate it in good faith, and a spiritual play for those who dispute it; they are convicts playing with their own fetters." We biologists, instead, have established proofs that a rational mental discipline portrays life more serenely to us, and arms the spirit with more suitable means to overcome difficulties and to mitigate pain, drawing from them, by a fortunate spiritual exchange, new elements of struggle and new energies directed to overcome difficulties in which the joy of existence essentially consists.

Cerebral fatigue causes us to perceive obstacles as painful and insuperable, and is, thus, the real cause of pessimism, in the greater number of cases. The pessimistic shade of the soul paralyzing Bergson's "vital dash," makes Hamlet say: ". . . the earth, seems to me a sterile promontory, this most excellent canopy, the air, look you, this brave o'erhanging firmament, this majestical roof fretted with golden fire, why it appears no other thing to me than a foul and pestilent congregation of vapours." We all know by individual experience that after intense work or a sleepless night, merry or agitated, we suffer. As if our fancy were enwrapped by fog, thoughts follow each other slowly and monotonously, imagination is niggardly, conceptions are poor, the vocabulary reduced, recollections difficult, enthusiasm pallid, and the will bent.

The country needs men of will with clear ideas and lofty sentiments, for such men are the true makers of the nation's prosperity, and only a school unencumbered with politics, may mold and model them according to the exigencies of the civilization of to-day.

A productive will requires:

1. A certain and clear perception of environment and of situations.

2. Precise ideas supported and nourished by rapid and wide associative movement.

3. A strong selective power of consciousness.

4. A sane and balanced estimate of one's self and of one's aspirations.

From these spring the certainty and rapidity of action which are the antithesis of pessimism. To will, to act, to face, to pursue and overcome difficulties is a joy, not ephemeral like that arising from satisfaction of the instincts, but permeating consciousness, accumulating new energies, and inciting honest desires, strong impulses, high enterprises, and successive victories in sane and balanced natures which do not become inebriated with vanity, intoxicated with the gases spurting from victory's foam, nor lured by pleasure's flashing spires. As it is for the individual, so it is for the nation. To attain so high an end it is evidently necessary to respect duly the very delicately structured reservoir of latent energies to the use or disuse of which we owe what we are and what we are to be, all our fortune, our victories, our pains, our decadence.

* * *

The mnemo-mechanical method preferred in our schools militates against the students' future, wears out the spirit's building activity, and creates a consuetude for superficial knowledge. These methods and the schools which use them are very harmful. Professors who strain the children's memory commit a veritable crime. A great many men are self-taught; they have not been subjected, for their good fortune, to the planing of the schools and have not received their education in sane institutions. They show surprising volitional power and very great aptitude in overcoming difficulties which, even looking backward, appear to have been overcome by a miracle of mental lucidity, perceptive acumen, steadfast will, and active and immediate concentrating of all their powers toward their aim. Men so molded formed the soul and the strength of the Italian *Risorgimento*.

Will, the last expression of adaptation, is a *mezzo-termine;* a middle term, between impulse and inhibition; it is the more or less susceptible instant of our deliberations; it is the spark escaping from the conflict between emotions and emotions, sentiments and sentiments, ideas and ideas, often in contrast, whose resultant maneuvers the rudder and directs the course of life toward civil aims which can only be perceived by a strong intellect and a sublime soul. The will, in which the values of life are summed up, is the stronger the more illuminated are the representations or the knowledge, and the more vibrant are the sentiments, the aspirations and the desires that force the inner resistances that are in the soul—doubts and fears—also, the outer resistances opposed by things and by the cosmic and social environment, which we all have found at every step, in the difficult course of life, and which often, if not always, we have been able to overcome.

If we convince ourselves that psychic activities represent the product of a work performed by a very delicate organ; if we free ourselves of the ideological systems by which many intuitively perceive in their own way the spiritual world; if we abandon to idealists the satisfaçtion of belief in the triumph of ideas over facts, we, by observing, experimenting, acting, will find ourselves, without any effort, out of the sphere of intellectualism and dogmatism from whose charms some directors of public instruction have not been able to extricate themselves.

For many generations, too much energy was consumed in mnemonic efforts at scholastic intricacy and these weakened the original energies of many children, who finally became neurasthenic. A woman wrote: "I consider the human mind a motor whose function can be increased or diminished, the pieces of which can be perfected or injured, a motor acting through numberless systems. And therefore I often say to myself: This is a poor five-horse-power; that other one is a forty. And when, during the course of life, I am able to meet a one-hundred-horse-power (and these are very rare), I study it with an admiration that does me good."

The mnemonic method preferred in our schools has been severely criticized by such eminent men in France as Bourgeois, Hanautaux, and Lippmann. Le Bon affirms that, if learning lessons and manuals by heart is the essential emphasis of teaching, the mind cannot come out of the school trained to compete in the intellectual vicissitudes in which it must meet the scientific, industrial, and legislative life of the country.[5]

What remains of all that enters the mind by the mnemonic route and how much of it is retained and utilized? My observation, repeated for many years in the University, coincides with the results of the great

[5] See footnote 2, page 12.

investigation completed by the French government in the French schools, especially in the secondary schools and in the universities. The reports from the most accredited professors have been unanimous in the conclusion that a few months after examination the students did not know anything of what they had learned. The situation in Italy has been aggravated by the last reform, which might have been beneficial had it advanced other methods, less jumbled programs, and had it provided, also, for a selection of teachers, each entrusted with the teaching of his own subject.

It is well to remember that if memory is a fundamental faculty in the intellectual processes, it must not be strained. To strain it means to weaken it; and the weakening of the memory does not allow construction of a solid mental edifice. Later on I will speak of some researches that were carried on for a long time in order that the threshold of memory fatigue, attention, and associative power might be determined. The State examination which I demanded for entrance into the practice of all professions, for the protection of the State, is a damage in the secondary schools, the more so if it is contrived with a political intention. In the secondary schools the State examination means, among other things, distrust of the teachers, most of whom are of the very best. To remedy the deficiency of a large number of them, something else might have been done.

On the other hand, it is well known that what is learned for a determined purpose, somewhat in haste, as when students prepare themselves for examination, is most easily forgotten; if instead, youths were to give account of their knowledge during the year, often without warning, they would study day by day to assimilate and to be able always to utilize their knowledge.

Thus, we could succeed in constructing a more robust and better organized scholastic or technical mentality. And it is not necessary for me to add how much this method could develop and keep awake and active the sense of duty, which is the highest expression of the moral sense.

A sound education is not built up and the national character is not developed simply by presenting to the children's minds a splendid library. With such methods we succeed, at the most, in making the editors wealthy—and this is not an aim of the program. State encyclopedism does not benefit national life. Encyclopedic men have minds of a particular structure; they know how to become encyclopedic when it is useful and pleasing to them. But it is not only knowing what is useful and necessary in life, but knowing how to accomplish it, that is the test of education. It is a well-established fact that what a man learns when he wishes to know something that interests him, becomes, in fact, a component part of his intellect, a part of his very self; while that which is learned under compulsion and with effort is like a mosaic stuck against a ceiling which falls to pieces if not restored with discretion.

During "this phase of evolution," a French writer affirms, "into which science and industry have brought the world, the qualities of character assume a preponderant importance. Initiative, perseverance, precision, judgment, energy, will, self-control, the sense of duty, are the faculties without which all gifts of intelligence remain useless; only education may create them when heredity did not give them." We must set ourselves to secure, for our coming generations, a future of honor, of strength, of intellect; and of will.

Too many things remove us from this objective, and too great is the number of feeble ones left behind by the school, with energies lost to the life of the country!

When we say the schools should form character, we must know what kind of character we mean. We have already said that there are many abnormal types of character, but every country should aim to impress on its race the essence of real civilization, which is dependent on lucid intelligence, high sentimentality, and strong will. Middle schools could give us this, at least. We cannot hope to realize the ideal. According to this ideal, in all ages, character will never be perfect, but it is not too much to desire that the majority of men in a nation be units acting and reacting consistently with themselves in the moral order. Men are not formed by the teaching of morality, but by sound knowledge and good example in the family, in the school, and in the State. J. S. Mill in his "Essay on Liberty" writes: "That person has character whose desires and impulses are his own, are in other words the expression of his nature as developed by education. Those other persons whose desires and impulses are not their own, have the character of a locomotive." This thought coincides with the established fact that suggestibility and the tendency to imitate are in their highest degrees observed in the feeble-minded and imbeciles.

Psychic development should be directed along two lines: that of education and that of character, especially moral character. The school must develop, train and educate the mind. If it overloads and tires the mind, it cannot educate and coördinate it for the welfare of the nation.

Many middle school teachers should follow the idea of Le Bon, according to whom the traits of a good national character are: "A great will power, that only a few, save, perhaps, the ancient Romans, have possessed; indomitable energy, strong initiative, absolute self-control, an independent spirit, a very active religious sentiment, a steadfast morality, a precise idea of duty."

We should arm ourselves by developing character and intellect to withstand the suggestions of an exhausting life full of exigencies and flatteries. We are seized by easy enthusiasms and by as many rapid relaxations. We forget and shortly after we elevate again upon the altars the same men and methods against which we have just finished chanting the "Dies Irae."

America possesses a splendid literature on the measurements of mental activity and of the results of teaching. Americans are facing with bold, youthful confidence the practical problems of education by applying every method of measurement hitherto devised, and consequently are advancing; we, on the other hand, are amusing ourselves with the phantasm of a more extensive education that lowers our national intellect.[6]

America is slowly and surely gaining world control by training and developing according to a strict scientific standard the practical talent of its race, while we, who have talent to sell, are satisfied simply with showing on the banderoles of modern civilization the blazon of our ancient nobility, which ought to be all strength, culture,

[6] See footnote 2, page 12.

and fortune, and we suffer the domination of the dollar and the sterling.

The excessive number of subjects for study produces confusion in the adolescents and accustoms them to a superficiality of knowledge which influences their character and life. As for me, I endorse, as I stated in a speech delivered before the Chamber of Deputies, Samuel Smiles' thought, "that a well educated mind should combine a minute knowledge of one or of a few things with a general knowledge of many things. This is also in the interest of mental health. The capacity to extend the dominion of our knowledge beyond the boundaries of the cultivated field should be left to the spontaneous tendency possessed by sane minds."

It is necessary to throw into the sea the old rags of certain old methods and to return either to the pure and simple humanistic school, as it was sixty years ago, or to reconcile by means of more suitable methods the historical demand of our culture and the ineluctable exigencies of modern life. Our hybrid mixture and our megalomaniac conception of a vast education threaten to ruin the national mentality.

* * *

I think we may, without the risk of exceeding the boundaries of verisimilitude, compare the functional weakening of the nervous element with that of an electric accumulator when it has undergone a process of deterioration. When we use charging and discharging currents more intense than normal capacity allows, the chemical activity separates the plates and puts them out of service more or less rapidly. The fact is that the accumulator once put in such a shape will never again work with the same efficiency, unless the pieces are replaced.

But the pieces of the cerebral structure, the neurons, are not easily renewed, and if ever nature by intrinsic force renews them, it is only when the histochemical alteration has not progressed too far.

Pathology, on the other hand, which is a rich and inexhaustible source of knowledge, offers us many other examples. Who knows how many are the sexually impotent! When not originally so, they have become weak because they have exercised their sexual function beyond the limits assigned to each man according to heredity and the concomitant organic contingencies, especially in the evolutional stage of adolescence. Well, some of them are cured, many improve, many delude themselves, many have forever exhausted one of the sources of joy in life. Their character undergoes a profound change; some of them become perverted in their sexual instinct.

How many alcove dramas originate from this situation! And we search for the cause in the morality of the consorts, in the incompatibility of character, in the adultery of the woman not scrupulously virtuous and not easily adaptable to the annoying environment to which she is condemned.

Here is another example of inadequacy. In some men who are predisposed to write, fatigue of the central nervous apparatus (cellular pleiades) follows their attempt with the result that writing is an impossibility. After an attempt to write a few words with a profoundly altered handwriting, the wretched patient is forced to leave the pen, if it does not fall from his hand through mogigraphia. Many times has a similar derangement been observed in violinists, telegraph operators, pianists, and so forth. Generally, the tired organ does not resume its primitive vigor. The condition improves, but a marked abridgement of the original efficiency remains.

The same thing happens in cases of cerebral *surmenage.* Let us not believe that functions and faculties are essentially different, for nervous energy is one.

Since the value of life is increased and human dignity is elevated, a higher exponent of mental energy is and will continue to be necessary. But still somewhat imperfect are the mechanisms that should develop, direct, transmit, and coördinate such energy toward ends to which State powers ought to aim and converge. Too great is the number of men who lack sufficient mental substance to perceive new situations and to finish even the most elementary work.

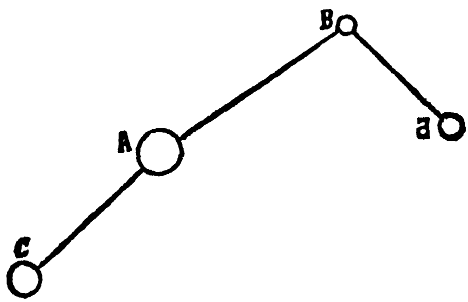
Who are, in fact, all these people who encumber, slacken, or endanger the onward march of the boldest and best prepared ones? And those others who, finding work unbearable, prefer to resort either to intrigue and patronage or to corruption? What do those men represent in whose soul desire twists upon itself and dies out, or changes into hatred? What does this social uneasiness mean that makes men rush headlong either into pleasure and criminal tendency, unconscious of the morrow, or into unfruitful frictions of personal interests, often groping about greedy of public property? Too many are the weak who have faint ideas that rise and sink, like falling stars, in the obscurity of spaces! And not a few are the men whose cerebral motor apparatus never receives energy enough to set it in motion with a charge sufficient to overcome resistance; the charge is sometimes exhausted soon after its initial propulsion. They are the perpetual aspirants having mystic and melancholic inertia, the impenitent passionates who capitulate even before small obstacles and lay down their arms, already worn out with fruitless attempts, or suppress themselves by logical fatality; they are stupid beings whose biological formula is summed up in vain enjoyment, or timid persons in whose soul never flashed the lightning of a single daring. They are the violent who impose themselves upon others with brute force, the presumptuous who encumber their communities with valueless pamphlets and empty speeches, with bad imitations of nature, or with twisted and strange conceptions of truth; men who badly repeat what is already known and give themselves the air of originators. In commerce they wither markets with fraud, in politics they care for themselves only and for the selfish parliamentary skirmishes which have no content of social idealism; or, being God-fearing and somewhat man-fearing too, they intoxicate themselves with the perfumes of the censer and with the monotonous music of mystic chants, and rest their cowardly souls in the peaceful hope of a future life that, in the meantime, dispenses with hard work from which human joy and happiness emanate. Or, they are critics who never produce anything really worthy; they are architects of calumnies and gossips, and they are those whose activity is either concentrated within the limits of vulgar pleasures where much less resistance is met with than within the boundaries of strong souls, or is lost in the vain flowing of time.

These social defectives are too many and are evermore populating the world! What selection will future humanity make from them?

* * *

Every society is made up of four groups of persons. The first group is represented by men who for many reasons have not reached the degree of racial evolution to which they belong; the second is represented by the average of productiveness and efficiency of a country; the third is composed of men of superior talent who determine new routes through the infinite branches of the knowable and of human activity; the fourth, finally, is made up of people who, notwithstanding the fact that they have reached the average degree of evolution, lose the advantages gained thereby and degenerate.

The following diagram graphically portrays my thought. C represents the first group, A the workers and producers, B the strong and of superior talents, D the degenerates.



The value of a country or of a race depends upon the potentiality of group A compared with the same group of another race, and upon the number of those composing group B. Foresight should aim at the development of the capacity and tone of group A, which furnishes the men composing group B in commerce, in industry, in science, in politics, and so on.

* * *

Brain function essentially consists in transforming nature's energies into that synthesis of forces—thought, sentiment, and action—which with perennial motion returns to the world as knowledge and human conduct.

Mental work coexists with organic consumption; and consumption beyond the organic reconstructive limits and the capacity of the nerve cell, which varies in different subjects, becomes usury for the apparatus and brings about progressive reduction of its power efficiency. Many of the socially feeble-minded just mentioned are at least in part the product of excessive sexual-mental excitement during adolescence.

Cerebral fatigue presents itself in two forms. In one group of cases it is shown by excessive consciousness of the changed and unpleasant conditions of existence; in the other it is not clearly noticed, but induces a peculiar orientation and a particular course of conduct and attitude. In the former the subjects are afflicted with numerous phenomena: fatigue, general malaise, localized pains, marked inattention, discouragement, forgetfulness, fear, inertia, fastidiousness. And these conditions sometimes reach such a degree that the ego, tired of suffering, convinced of his own insufficiency and ineptitude in participating at the table of joy, attempts to suppress itself. It is in this manner that the direction of life toward pleasure and the necessary work of procuring it concur in increasing the number of suicides. It is neurasthenia in its very numerous varieties.

In the latter group of cases the subjects do not notice discomforts of any kind. Cenesthesia is not sensibly affected; the sense of strength and of health remain as they were; the tone of the soul is not much changed in comprehension of pleasure and sadness; but those affected with this variety of cerebral fatigue are less intelligent than they promised to be, less keen in their observation, less sustained in effort. They easily forget what they learn, their memory ceases to be faithful, their attention soon becomes tired, their will is either weak or torpid, they cannot arrive at a decision, or the decision arrived at is not the best one; they are doubtful, more emotional, very irritable. Their enthusiasm for good enterprises withers; they are very impulsive, entirely indifferent, or frequently criminals.

If we were to suppose that such a state of affairs in its varying degrees from the lightest to the darkest shades extended to a conspicuous number of citizens possessing ordinary school education, we could easily understand how they would make a decided impress on the social group of which they form a part.

* * *

Exercise or training has great value for a man's mental and social efficiency. Where intellect and human industry have been less trained in overcoming the difficulties of life, the attitudes toward work were less developed, and were lacking in strength, means, and methods capable of securing supremacy.

A gentleman brought up in idleness and comfort, if compelled to perform an unusual piece of work, though he be at the beginning enthusiastic over it, will soon be overtaken by fatigue, and enthusiasm will die in his soul grown thereby indifferent and restless.

A social group, unaccustomed to the dignity of labor, if suddenly brought into an environment of freedom and of conscious labor, will show faulty perception of the horizons that the new state of things discloses to it: it will neither understand the language of the events, nor realize the duties arising from the multiplied interhuman relationships; and rather than adapt itself to the ideas springing from freedom, it will adapt these ideas to its long-held attitudes of political egoism and class struggle.

It will use the granted freedom according to its individual needs, and will develop the spirit of law violation and of rebellion against the moderating powers of the State which often are themselves influenced by the weakness of the country. We are confronted here with a collective phenomenon of weakness due to lack of training.

Very likely is the hypothesis that where man has met with the most difficulties in adapting himself to his environment, where labor has had to be long sustained, and the struggle for existence has been obstinate and fierce, there has been realized a superior cerebral development. The brain is not regulated by the laws of morphological statics, as are the liver and lungs; it is in continuous evolution. It contains in its cellular strata the milky ways of young elements in process of formation. In the art of developing it lies the secret of the country's welfare.

A people is not weak because the cranium of its individuals has a certain shape. It is weak because their brain has not been exercised, because conditions have not been favorable to its development through labor, because it has been weakened by vices and overwork, or because it has been deranged by intoxications.

Mind develops through its intrinsic virtue when favorable conditions surround it. Half a century has sufficed for the Japanese people to achieve an honorable place among civilized peoples. It was affirmed that the prevailing dolichocephaly in the peoples of the Mediterranean basin, including Southern Italy, is a sign of inferiority. Well, independent of the fact that mesaticephaly is incomparably prevalent among us, a little more than half a century of civilization has been enough to enlighten the conscience of South Italy, which, neglected by the State for thousands of years, and abandoned to malaria, is progressing with unexpected rapidity, in spite of its few schools, by its intrinsic virtue, toward better destinies.[7] The great victory in the World War was chiefly due to this part of Italy, both through intelligent leadership and military bravery.

Whenever we search for the causes of decadence and of economic and moral disaster in an individual, a family, or a country, and investigate the circumstances accompanying them, we find, in more than two-thirds of the cases, that spiritual weakness is the single contributing factor.

The exhausted man, I repeat, is not only a pessimist, but he has lost confidence in himself; no more do the lofty waves of the industrious cerebral workshops diffuse themselves with a sense of force and dignity which impel him to action. Prescience of one's own high destiny furnishes the urge for vigorous action.

As the fertile vigor of a brain is the outgrowth of the

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[7] See footnote 2, page 12.

combined work of the cells composing it, so the welfare of a country depends upon the efficient coöperation of all groups forming its population. Consequently a country in which the number of those who forcibly think and desire is small, while the number of the feeble is still too large, and in which the various groups constituting such a country do not meet in the pursuit of a common aim of high idealism, is a country that is compromising its future.

One of the manifestations of a country's spiritual strength is its courage of coöperation for defense, conservation, and further development of the national community.

The weak individual isolates himself or is left by the wayside. The potentiality of energy created by correspondence of the human senses is wanting in the feeble. The exchange of ideas and of sentiments for beneficent purposes, the abandonment of individual inclinations in order to unite individual efforts with those of the community, are qualities possessed by the strong. The imbecile, the extreme expression of mental feebleness, is wholly solitary, living without any cognizance of his native country; he is often a criminal.

Courage and dignity, individual and collective, are nourished by the flow of energy emanating from the community to each member of it. In the sane—those having strong brains in which the number of working neurons is great and their function harmonious—the products accumulated and deposited in the great archives of the memory are always disposable at the order of the constructing and regulating center, which, like a central government, works to meet the needs of life and to develop the individual. At every change of circumstance in the various crises, this central power can depend upon its stored-up reserve wealth, and the more there is subject to disposal and the better organized it is in the unconsciousness, the more happily and triumphantly does life flow.

Intellectual vigor and coördinated and fruitful work produce the sense of civil morality, which is the homage of the individual conscience to the collective conscience, by elevating themselves through their own virtues to the sublime realms where the sense of duty rules.

In all countries, but especially in ours, the popular and the middle schools are the veritable transforming organs of vital energies. Nobody can affirm that our race lacks intellectual and moral energy. But the trouble is that much of it is allowed to remain uncollected in the channels of life, is not coördinated and oriented for the progress of the country, and so is lost. Much of it is profitlessly consumed and dispersed in the schools in a useless diffusive culture through God knows what methods! Much of it can and should be developed by more suitable school systems. If it is possible to transform the soul of a criminal into that of a useful citizen by bringing it into harmony with the community life, the school and a stronger sense of duty in the national leaders will, I am sure, strengthen the national soul, whose deep roots draw from kindness, from beauty, and from the generous force of nature, in order to take care with the greatest promptitude of the physical and mental development of the student.

* * *

All who dedicate themselves to the problem of education should direct their attention to the popular and secondary schools. Monstrous programs, unsuitable automatic methods, the fanaticism of some directors, some of the middle school teachers—fortunately, only a few—and, at times book editors' speculations, have all contributed in reducing the secondary school to such a condition that it is not able to succeed in impressing, within the limits of its attributes, a safe cultural character upon the country.

Education ought to aim at the strengthening of mental activity and at the formation of steadfast character. This would be possible if the school furnished elements of intellectual development proportionate to the assimilating capacity of the different school ages and of single individuals. If a good digestion gives delight to the physical life, so facility in learning, retaining, assimilating, reasoning, and penetrating deeper into the problems of knowledge, gives pleasure of strength and dignity to the intellect, and is an indispensable element in character formation. An educational table sumptuously set with diffused culture reminds us of stupid aristocrats who squander their inherited wealth unmindful of what they do. The adolescent cannot and ought not to be bent under an extravagant dispersion of knowledge—under a weight of work he knows to be superior to his ability to bear.

Professors and directors should know that when memory has been enfeebled or weakened, it will no more regain its original vigor. Indefiniteness and fragmentariness of culture create also uncertainty of character.

We are too theoretical and do not know how to project our consciousness into that of the student. We are borne by individual contingencies to render more homage to philosophy than to other sources of positive knowledge, and have not seriously considered what the citizen of to-day ought to be. Germans and Anglo-Saxons think of this more than we: "National character and not intelligence alone is the predominant factor in social evolution." Civilizations and fortunes are the effects of progressive comprehension of the world and its energies, of practical applications of comprehension, and of the successive adaptation of people to the changing aspects of life. After the Great War that restored to Italy her natural boundaries and gave her a consciousness of strength and capacity, this remains one of the most urgent duties of our State leaders, who should courageously repossess themselves of the reins of the moral government of the nation.

Italians possess, perhaps more than others, a sparkling talent. They have a rapid perception of things and situations, are generous and frank, but they do not enter as deeply as others into the problems they come upon. They face difficult situations with enthusiasm and generosity and overcome them with their rich reserve of sentiment, but they are wanting in organized preparation of means and of men; they have a fortunate practical sense of opportunity, but are less constant and tenacious in their determination to reach distant goals. They are hasty in their research and conclusions and, rather than wait, they satisfy themselves with a little. They become weary in a short time and often give up. They are very sensitive over the justice that has been denied them both in the past and in the present. They are great lovers of liberty and rebel against any form of absolutism. They have fought and are still fighting for liberty, but tend to abuse it if not guided by a strong hand and if not corrected by

State discipline. The weakness of many administrations has rendered them more intolerant of discipline than northern peoples. They are sentimental and chivalrous, capable of great sacrifice and heroism, but they are also very excitable and suggestible. They work to excess. The southerner is peaceable and sober, and is not conceited. Their stronger sentimentality is detrimental to reflection and constant exercise of will; but in times of need they are an admirable people because of their spirit of sacrifice. Legislation could have perfected them, but our legislation, especially that of recent times, has been very superficial. We lack the method for good law-making, and only after laws are passed do we realize their inefficiency and the technical and economic difficulties in the way of their application, even when we make them bad, so as not to have to apply and observe them.[8] We exercise a kind of political romanticism also in our colonies where we have gained the title of "*boni.*" And, after the fashion of the poor, we repudiate our war indemnities while those who owe their good fortune mostly to our sacrifices in money and in men are enjoying the benefits of the victory.

Our sense of solidarity is also weak. Our social plasm has not reached the necessary density to hold fast in a reciprocal, confident understanding the constituents of our national groups (this, by the way, is the secret of successful individualism) and to feel the community and the strength emanating from it and its virtues. We know that national sentiment develops the succeeding generations through common pains, common victories, organizations animated by social ideals, comforting religions, thriving

[8] See footnote 2, page 12.

industry which successfully expresses the talent of the race, and above all, through the school, which exemplifies the ethical state, producing faith and dignity. But for the forming of a firmer national conscience we have not had the time, nor has the State furnished us with the means. People derive their intellectual and sentimental stamp from their origin and their history. In all groups of humanity a peculiar mental tone distinguishes one people from another. These characteristics are discoverable in politics, in industry, in business, in religion, in the degree of morality, in scientific and artistic pursuits, in temper, and so forth.

Undoubtedly, our people possess inexhaustible sources of latent energy upon which political industry has never been opportunely exercised. And for this reason it is essential that the secondary schools keep such a goal in sight and endeavor to attain it.

* * *

The university requires less State care than the secondary school from the standpoint both of its inherent duty and of its part in mental hygiene. A youth at eighteen or twenty years of age has a well-defined intellectual-moral personality and his brain has almost completed its evolution. The best we can ask of the Government is that it disinterest itself in the universities. Lippmann wrote of France: "It is an urgent necessity that teaching be freed from bureaucratic pedantism, and that the university be freed from the yoke of the executive power."

The fact must be borne in mind that institutes of national sciences, of biology and of medicine have exercised a greater influence over the progress not only of the knowledge of the world and its forces, but also of life, the laws regulating it and its history, and of the mind as a function of the organism, than other institutions. Great is their influence upon the progress of the industries and therefore upon the economy of civilized countries, as well as upon the wealth of the nations, through the victory won by them over the obscure insidiousness of the pathogenic elements, whereby the value and duration of life have been increased. For these reasons we need first-class men, extensive funds for research, well endowed institutes, and assistants to whom a future worthy of their endeavor can be opened. In the university we should have another concern: the student. His life should be made less difficult and he should be tormented the least possible with bureaucratic tortures. The obstinacy which imposes upon him with equal compulsion all subjects, which are all natural consequences of the evolution and differentiation of science, is a gross error unseen only by the blind. To grant a university student great liberty that he may be allowed leisure time to give free reign to his attitudes and inclinations for certain lines of knowledge, according to his natural disposition, is a legitimate step in his own evolution. His sense of responsibility is also developed by this plan.

The number of restrictions and examinations has been increased because courage to eliminate some of them has been wanting. The State examination has been added to the examination for degree when it would have been better to have allowed students to take the former during their senior year so that they might be free for the latter. All this injustice is the effect of a rigid and a megalomaniac conception of high State education, which causes severe hardship to the mental caliber of the university generations in some departments, particularly the medical.

The last reforms imperil dignity and the future of our glorious universities. Woe to them if they become infected with the political virus! [9]

* * *

At this point I deem it necessary to sum up the information we possess about the neuron and its function within the limits allowed by the actual anatomical-psychophysical knowledge and the nature of this book. It would not be possible to understand *psychic exhaustion* or fatigue, were we not able to represent to ourselves in some way the deep origins of psychic activities.

The function of the neuron corresponds to the chemico-physical changes which occur in its structure. From this standpoint only should the lowering of psychic powers and mental anomalies be examined.

The neuron is made up of a nerve-cell body and its processes. In the body of the nerve cell there is a nucleus with its nucleoli, the neurofibrillar reticulum and the stainable Nissl's substance. We know that the nucleolar substance is acidophilic and Nissl's stainable substance (Nissl's bodies) basophilic. The reticulum must be considered as a system of conducting wires which in their arrangement in many neurons have a great resemblance to the superimposed wires of a Ruhmkorff coil, and very likely it is, therefore, also an induction and a multiplying apparatus.

It can be affirmed that each nerve cell is a histological integer (Parker, Kappers), a unit which with its processes

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[9] See footnote 2, page 12.

puts itself in relation with other near or distant cells. The contacts or the contiguity of the processes of two or three neurons form what is called synapsis. Synapsis is intimately connected with the chemical processes of the nerve cell. The development of nervous energy depends upon the chemical combination of the nuclear acidophilous substance with the basophilic substance of which we have been speaking.

Such a combination produces electromagnetic discharges which are collected and transmitted to the neurofibrils. From these electromagnetic discharges grow also the amœboid movements of the axis-cylinders and protoplasmic processes with which synapsis is made possible and through which the passage of the nervous waves from one neuron to another takes place. According to this latest neuronic theory the communication among neurons occurs by synapsis and the discharge of nervous waves. Contrary to this doctrine is that which holds that the endo- and extra-cellular reticulum is continuous so that the nerve cell is nothing but a body intercalated in the reticulum, with the function of nourishing the fibrils and, at the most, of reënforcing the nervous waves. According to some authorities the cells also have the function of separating the nervous currents.

No doubt this is a hypothetical field; but the structure of the cerebral cortex has been ascertained, and the neurons estimated at nearly ten thousand million. The structure of each neuron is sufficiently well known. The cellular body and its protoplasm (reticulum and protoplasmic substance), the nucleus contained in a very delicate membrane, and the nucleoli; the great variety in shape of the nerve cells, their stratified arrangement, and the particular direction of some of them, have been demonstrated. The theory of the neuron still remains in the realm of hypothesis as to whether it should be considered a unit by itself or a cellular body intercalated in the reticulum; as is also the theory that the synapsis depends upon the amœboid movements of the extremities of the processes of the various neurons. This hypothesis, upheld

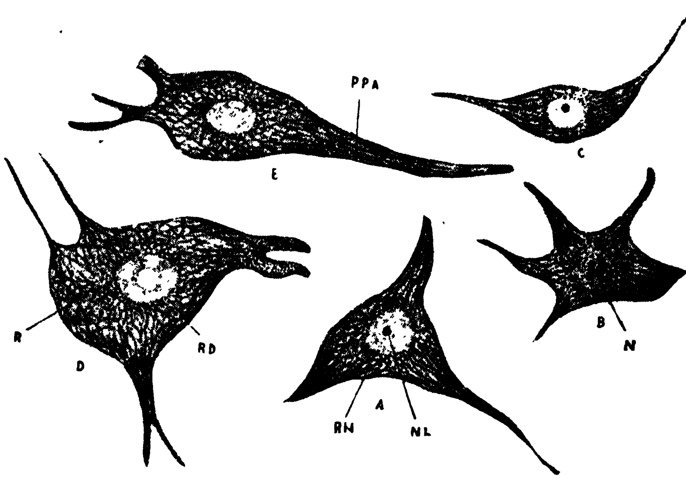

FIG. 5. APPEARANCES ASSUMED BY THE ENDOCELLULAR RETICULUM.
A and *B*, star-shaped cells; *C* and *E*, fusiform cells; *R*, reticulum; *N*, nucleus; *NL*, nucleolus; *Rn* and *Rd*, denser perinuclear reticulum.

by Lepine, includes also that of the electromagnetic discharges. Still unascertained are the nature and the significance of the chromatic substance of Nissl's bodies.[10] But on the basis of the chemical and histological knowledge, useless to repeat here, the theory adopted by me can be considered well founded.

The following illustrations of nerve cells in which the

[10] The existence of Nissl's bodies has lately been questioned: they are now considered a product of the preparation.

variety of the shapes they assume, their processes, their endocellular neurofibrillar reticulum, their nuclei, and their nucleoli are shown, are taken from my *Treatise on Psychiatry* (Third Edition).

In Figure 6 the arrangement of Nissl's bodies is clearly seen. Figures 7 and 8 picture neurons united; their

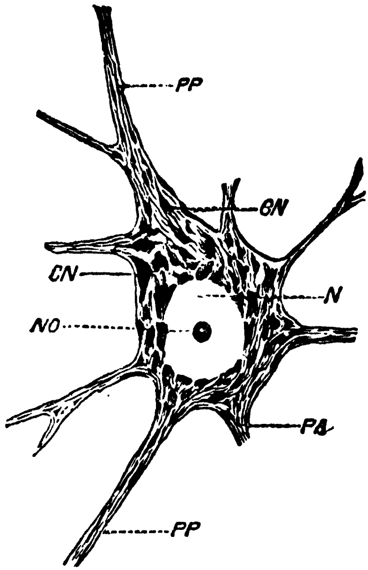

FIG. 6.

PP, protoplasmic processes; *PA,* axis-cylinder; *N,* nucleus; *No,* nucleolus; *Cn,* Nissl's bodies.

cellular body and their axis-cylinder and protoplasmic processes are shown with their collaterals, which are centripetal and centrifugal conduction routes. In Figure 7 the extremities of two neuronic processes are seen near to each other symbolizing the synapsis. I wish to give here also an illustration, from the same treatise, from which a faint idea can be obtained of the arrangement of the cells of a certain zone, of their processes and of the magnificent network they form, some in projection, others in association routes.

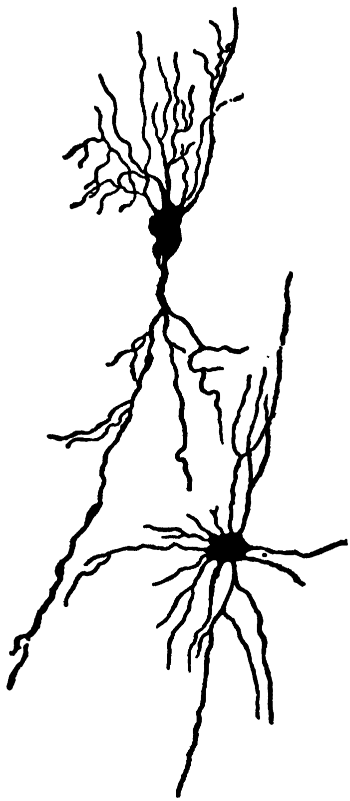

FIG. 7. NERVE CELLS, THE PROCESSES OF WHICH, BOTH AXIS-CYLINDER AND PROTOPLASMIC, ARE VERY NEAR TO EACH OTHER.

Many experiments seem to have established the fact that the neurons through a prolonged activity undergo important modifications; Nissl's bodies become smaller and smaller until they disappear; the stainable substance is found more diffused through the cellular body, in which condition the cell apparently loses a part of its activity.

If we compare a pleiad of neurons with a Ziemssen's

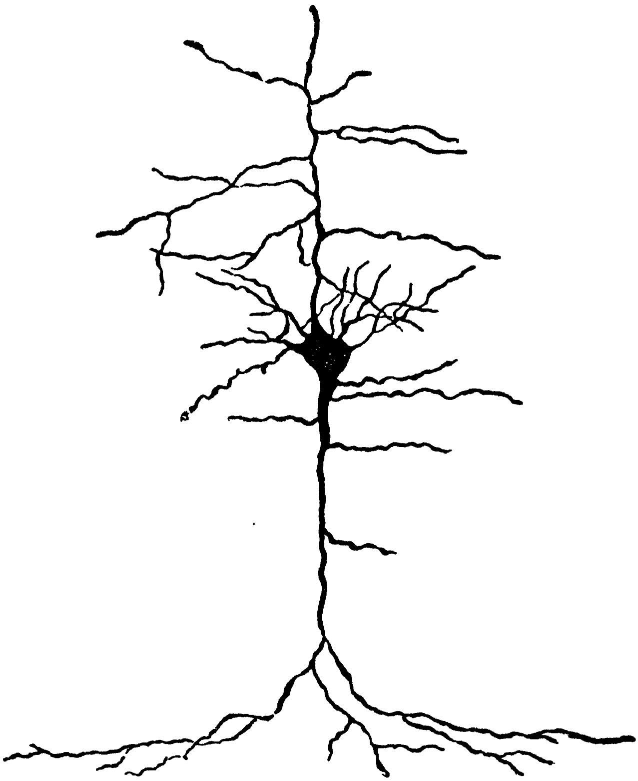

FIG. 8. A LARGE PYRAMIDAL NERVE CELL WITH ITS AXIS-CYLINDER AND PROTOPLASMIC PROCESSES, WITH THEIR RAMIFICATIONS AND COLLATERALS.

cell battery, the analogy is really surprising. The cell develops electrical energy by consuming the copper sulphate plates. If the work is moderate and the salts are regularly replaced the cell will continue to develop electrical energy for a considerable time. If, on the contrary, the work is intense—as when weak resistances are intercalated between the metallic wires—and prolonged, the salts are rapidly consumed and the quantity of electricity is diminished to a minimum that cannot be estimated. If water and copper sulphate are added the cell resumes its activity. But if, as physicists say, the cell has under-

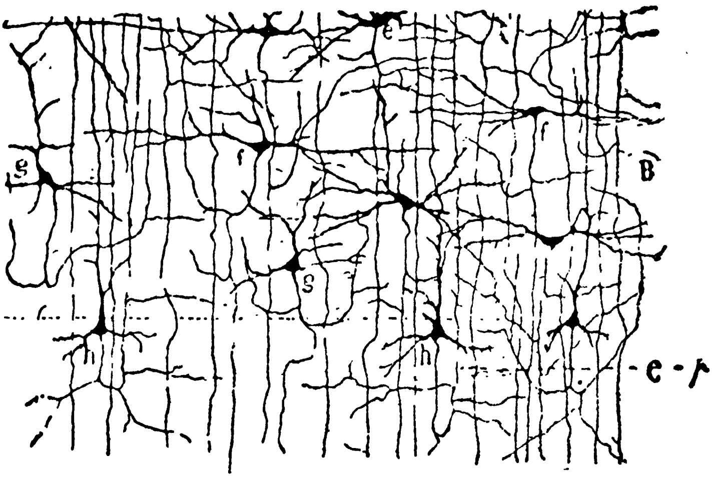

FIG. 9.

B, layer of star-shaped and fusiform cells; *C*, layer of pyramidal cells having arcuated axons; *g*, triangular cells having robust collaterals and the axis-cylinder of one of them divided in an almost T-shaped form; *e*, fusiform cell with descending axon having many collaterals in opposite directions; *hh*, pyramidal cells with arcuated or recurrent axon; *p*, ascending axis prolongation of a pyramidal cell; *ff*, horizontal fusiform cells.

gone the process of polarization, it will not again resume its primitive energy.

E. Haeckel saw the analogy between the clearness of the ideas produced by a psychic apparatus and the messages sent through a system of telegraphy. Something similar happens in the neuron. With intense cerebral work the protoplasmic substance is consumed, but the blood continuously brings to it substances with which it is formed anew, just as a diligent hand adds salts to an electric cell. But if the activity is excessively prolonged, in such a way that the nerve cell does not have sufficient time to restore itself, as it does during sleep, that is, to absorb from the blood and perhaps also from the lymph the chemical elements necessary to reconstruct the protoplasmic substance and to eliminate the waste products such as the autotoxins formed during work, its functional activity gradually loses its intensity and the work produced diminishes to a minimum. At this stage the nerve cell is not always in condition to reconstruct itself, and consequently loses a part, at least, of its primitive efficiency. The weakened electromagnetic discharges are not able to induce the amœboid movements of its processes, and the synapses, which are the physical bases of memory and of the associative process, would be wanting. The physical mechanism of intelligence is thus enfeebled, and the entire mental life undergoes a lowering of capacity, which reflects itself in less efficient or less productive conduct.[11] The condition just described is accompanied by two other phenomena that should be well considered. Weakening of intellectual activity ordinarily produces exaggerated emotivity, and this, in its turn, brings about a lowered tone of high sentiment so that man loses the possibility of reaching that degree of

[11] Allow me merely to raise a question or two that might easily absorb me and carry me into another field: Is the histophysiological process just described the same as a psychic process? Where does the physiological process end and the purely psychic process begin? I declare that on the histochemical basis the physiological process cannot be separated from the psychical fact. But this is not a purely scientific book to permit of such a discussion.

efficiency in meeting the demand of social and business life that he would have reached if the cerebral neurons had not been too greatly fatigued, especially if the fatigue occurred during his juvenile period. More emotive and impulsive, unreflective or indifferent, characters are thus modeled according to the original spiritual direction of the subjects.

Capacity for work varies very much in different individuals. There are men who can carry on intense mental work for many hours with clear mind, while others become weary in a short time.

Fatigue manifests itself by the following signs: a sense of fullness in the head or a frontal or occipital cephalgia, a sense of inquietude with a need to move; wandering of attention, gradual diminution of the power to penetrate into the subject of study; decrease of the selective power of consciousness so that other ideas invade the mind and render the course of the voluntary thought difficult to follow; and diminution of the fixation power of memory so that recollection becomes evanescent and inaccurate. As soon as some or all of these symptoms appear, mental work should cease and the mind should be distracted.

When we consider the law of exercise empirically known also to the ancients, namely, that brains slightly, exercised possess a less potentiality than those that are more energetically exercised; when, in other words, we consider such training as that given a race horse or a professional walker, we find that the problem is to obtain the maximum useful effect by proportioning the exercise in accordance with the resistance, which varies greatly in different individuals. The relation between these two factors regulates the amount of work possible. So long as the effect of exercise predominates, the quantity of work progressively increases: but when fatigue begins the rapidity and the quantity of the mental and muscular work diminish.

Rest and intermissions during a mental exertion increase its duration and intensity. It has been observed that if the intermissions during the mental work are long, students respond with a maximum accomplishment. The Japanese pedagogue Sakaki, speaking of short muscular exercises interposed with mental work, affirmed that walking a mile to school does not impair, but rather promotes mental efficiency.

Rest is necessary to machinery, for protracted use beyond certain limits decreases its efficiency. It has been demonstrated that when school work is prolonged without pause for more than two continuous hours, the number of mistakes made by students is increased, which means that attentiveness is diminished. In Italy many experimental data have been furnished by the researches conducted by Professor Patrizii and in the Experimental Psychological Institute of Rome directed by Professor S. De Sanctis.

The great differentiations in individuality depend upon the inborn potentiality of each individual, the proportion of exercise, and the regenerating power of the brain substance which differs in each individual. There are men who often go beyond the border line of cerebral fatigue, but after a little rest or sleep they recover and acquire their accustomed working capacity, while others, after a protracted mental effort, remain irreparably enfeebled. This misfortune occurs to many students as a result of their examinations, and it appears more alarming in the case of the State examination, for if the State's program is reduced, the very underlying purpose of the State examination, that is to secure a more solid education for our future generations, would be destroyed. But more solid education certainly will remain a dream until the methods and the programs are essentially modified.

The renovation of mental activity coincides with the reproduction of protoplasmic substance in the cerebral cells when the altered chemical metabolism of the cell has not caused deeper and finer alterations in the endo- or extra-cellular neurofibrillar apparatus, which, fortunately, are very resistant.

The scientific and practical problem consists in finding, in the average of one's race, the approximate limit of waste reparability and of the alterations produced by prolonged labor in order that fatigue may be prevented from reaching a chronic stage.

Many researches on the subject of muscular fatigue conducted with the intent of establishing the relationships between muscular and mental labor justify the conclusion that any excess of work rebounds upon the cerebral activity which suffers from the hyperfunction of any other part. In this fact we have another proof of the original unity of nervous energy.

Indeed, the investigations, conducted by me long ago, have demonstrated in an incontestable way that after an excess of muscular work the ascending line of mental work is always shorter, which means that the threshold of fatigue is near at the beginning of the mental work, so that the capacity for mental activity always remains below the normal average in that individual for a given unit of time.

The psychophysical methods applied to the measurements of the attentive and mnemonic powers, that is, to the definition of the threshold of fatigue, have rendered no insignificant services toward the solution of one of the most urgent questions of applied psychology to pedagogy and school hygiene.

Patrizii's application of the ergograph to the investigations designed to define the threshold of mnemonic and reflective fatigue has confirmed for mental work what had already been learned about muscular work from Mosso's and Volkman's researches to Palacios' recent ones. It had already been established that the duration time of muscular contractions is shortened during the extreme stage of exertion. For the purpose of this discussion it is not necessary to participate in the debate as to the possible causes of such a shortening in the contraction time of the fatigued muscle. As for myself, the theory of diminution of voluntary impulse by fatigue is not without influence, for indeed, I believe its influence may be preëminent. It is, however, a positive fact that nervous potentiality exhausts itself and declines, becoming fatigue. Though intellectual efficiency is more resistant than muscular, it is governed by the same laws.

Such a diminution can be measured either by the kilogrammetric height of the muscular contractions registered by the revolving drum, or by the length of time needed for the repetition of a simple mental operation. In the former case the height of the muscular curves decreases, in the latter the time is lengthened. Proof is thus obtained that the mental energy necessary for these nervous operations diminishes, impulses are thereby slackened, and the driving force made less energetic. Investigators have shown by these two methods diagrammatically how nervous energy, independent of the so-called *staircase* or *treppe* occurring at the beginning of work or in other more favorable circumstances, decreases after a short period of time. It is useless to add that the prosexigrams and the mnemograms vary in different individuals and preserve at a distance, and upon repetition of the experiment, their individual type. This is what is termed the *personal equation* except that it must be understood that variations and oscillations vary with the different hours of the day.

As to muscular work, it has been well established by research that fatigue is not localized in the organ performing the work, but is felt by the whole organism. It has been demonstrated also that concentration of attention induces a marked modification in respiration and circulation.

As is muscular activity, and especially muscular fatigue, so is mental work based on chemical processes. Investigations have shown that the last working hours of the day are the least productive (Mosso, Maggiore, Jotenko). According to some researches the work of the ninth hour is 65 per cent of the work performed during the preceding hours (Palacios). This diminished production of work is partially due to modifications in the muscle and in the muscle fiber nerve ends which amount to intoxications, but it is largely due to attention fatigue.

Darwin affirmed that the animals that provide best for themselves are those that have an exact perception of offensive and defensive actions, in other words, those that possess a strong power of attention.

My experiments on monkeys [12] have demonstrated that the faculty profoundly damaged in mutilations of the frontal lobes, the main organs of attention, is the attentive process; maladaptation and incapacity of the powers of defense and preservation are to be especially attributed to weakening of voluntary attention.

A feeling of malaise, not only in the brain, but in the whole body, the neurasthenic syndrome, is often the accompaniment of cerebral fatigue.

Decrease in attention and memory sets in relatively soon in the experiments on associative power, and the sooner it begins or the more forced is the effort, the more complicated is the association. It occurs here, as Patrizii observes, the same as in the ergograms: this complication of the associations is equivalent to the overloading of weight in the ergographic experiments: overloading the scale lowers the effort curve and lengthens the reaction time. Reduction in the height of the curves and lengthened reaction time are signs of fatigue, of difficulty, and of lessened capacity.

To reduce the number of school subjects, to simplify the structure of the school, to reduce the five hours of class work a few days a week; to choose the books, excluding the many inadequate ones that have been adopted in many schools without any criterion of usefulness as to language, clearness, and cultural contents in the development of the intellect and of a good national character; to prevent booksellers from selling the works of poor and mediocre authors and greedy editors and undermining our school influences—these are the immediate tasks of the Minister of Public Instruction.

[12] See Bianchi, *Mechanism of the Brain.*

It is imperative, then, that school programs be reviewed and that teaching methods different from those hitherto followed be prescribed. It is necessary to see that school buildings offer favorable conditions for relaxation from study in the shape of gymnasia, porticoes, gardens, suitable for physical exercises, and so on, during the half-hour recess at the end of the second hour, and that the students be educated especially in will, attention, and moral sense.

To carry out this minimum program, capable teachers are needed. It is the duty of the State to encourage the most competent ones with better salaries, but it is its duty also to correct those, even though they are but a few, who are incapable of fulfilling such a task. State authority can be exercised more effectively through the organization and discipline of a function so fundamental to the future of the nation than by the organization and discipline of any other function.

CHAPTER III

PHYSICAL EDUCATION

PHYSICAL education in schools must be viewed from a variety of angles. Since prolonged concentration has a great influence on respiration and is one of the causes of diminished thoracic expansion among students, mental work should be interrupted to allow free opportunity for respiration promoted by short and complete muscular exercises in the open air. Mantegazza recommended that students exercise frequently with particular attention to deep breathing. Whatever the method, it is essential that the muscles of respiration be exercised.

On the other hand, physical training and gymnastics, performed in a strictly physicophysiological manner, stimulate circulation and improve muscular nutrition—both beneficial to general metabolism and to the sustenance of the whole organism.

Physical education develops muscular strength because of the general law that the organ that is most regularly exercised is most supple, and the function that is best disciplined is best developed. With development of muscle tone and strength, the cenesthetic sense is increased. Inasmuch as this is a constituent element in consciousness and of personality, it is natural that the quality of the muscle tone is reflected upon the personality tone, and this in turn, under equal conditions, contributes to the moral tone and to the sense of dignity.

By methodical physical exercises motor discharges are facilitated according to the mnemic law which, I repeat, teaches us that the more the neuromuscular apparatus is exercised the more easily are motor actions transmitted. This law of life means prompter and more untrammeled action. Men so trained meet with less difficulty in acting and are less conscious of inner resistance, so that they are less torpid, prompter, more precise, and their life flows smoothly and effectively. In a country like ours, physical education in the school is a necessity that ought to be felt by everybody.

Through physical training the attention is also nurtured and with it motor coördination and precision in movement, the latter of which has a very great influence on the precision of the products of art and of industry. This elementary knowledge has not been utilized by the directors of our popular education, and in many schools there are neither ways nor means for practicing physical education. Under such conditions the situation of many manual-training and middle schools is very unfortunate. Theory is preferred, for thinking is easier than doing and dreaming than acting.

At the State Department of Public Instruction there was a control office which represented a tendency, an ideal, at least, whose practical difficulties suggested to a director of education in Italy the thought of suppressing it. A young man of strong talent and profound psychological culture was at the head of it. Instead of keeping him there, the strategists sent him to direct a modest secondary school—using the same amusing thoughtlessness that made them assign to a mathematician the task of teaching physics. Physical education was left in charge of some private concern. It would be fortunate if this office could be taken back within the State's sphere of obligation. We should urge that every middle school be provided with plans and means necessary for physical education, which is an important element in the education of a people.

At one time, our predecessors tried to organize colleges after a military fashion. They could have extended such an organization to all middle schools with small additional cost; and the programs would have been reduced thereby with marked benefit in mental hygiene and in the military preparation of the nation. But it is easier to demolish than to create.[1]

Physical education ought to be a corrective, an equilibrant, of cerebral activity. It must be used to develop thoracic and muscular strength. If entrusted to experts it will contribute to the improvement of the beauty of the race. Students' muscular work should be moderate, for, as we have already seen, excessive muscular work is detrimental to mental energy, and it should be interspersed among the hours during which the student is confined to the schoolroom. It should be practiced in the open, and should develop both courage and attention. The requirement of one half hour of gymnastics, once or twice a week, demonstrates an insufficient understanding of this truth, as other requirements show deficient understanding of many other national problems.

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[1] See footnote 2, page 12.

CHAPTER IV

SEX EDUCATION

THIS is a delicate and difficult theme to treat in a book not intended for physicians alone. However, it is a duty to present here what is expedient and possible.

Sexual development and differentiation are intimately connected with the development and orientation of the brain. The experiments of Ceni and his students (Todde and others) have demonstrated that experimental mutilations of the brains of animals during infancy produces cessation or retardation of the development of the sexual glandular organs. It is also known that castration in adults produces a perverse mental orientation, and in children sluggish development of the brain.

In higher mammals cerebral lesions induce in the female alterations in the parenchyma of the ovaries and in the male an atrophic process in the germinal vesicles. Experimental decerebration produces diminution and cessation of spermatogenesis. These are often temporary phenomena. For a long time I kept alive partially decerebrized dogs that bore puppies, some of which were epileptic. Experimental removal of the frontal lobes in monkeys either weakens or suppresses the sexual instinct, or profoundly alters it.

It is also known that in the first stage of fetal development the sexual organs are not differentiated. Not until about the end of the fifth week does the differentiation process begin. At the third month, in the male, the seminiferous tubules are very voluminous (Mott). At the period of puberty the same tubules are filled with a lipoid substance and spermatogenesis begins. A certain author maintains that sexual differentiation is not always absolute; an element of the opposite sex is present, in some cases, in diverse proportion, so that some males will be *M nF*, and some females *F nM*. These heterosexual elements are manifested with somatic lineaments of the opposite sex; for instance, in men some physical and psychical characteristics of women (feminism) are observed, and in women some of the male characteristics (masculinity).

Lately, bisexual tendencies and functions have been observed, especially in chickens. I recall a case recorded in the splendid memoir of Desogus about a chicken having the appearance of a hen, except that the neck was covered with masculine plumage, there was a comb and right wattle, and its deportment was that of a rooster. It copulated with the hen, but was less aggressive than the normal cocks. It was never heard to crow and never fought with other roosters. It laid eggs. These facts are perhaps due to a perverted exchange of the differentiated chromosomes for each sex.

Ordinarily, the specific secretions are normal in these cases, but not always. Functional disturbances are much more frequent than is imagined, and they have not been well studied. Thus, gradually, real aspermia, sexual incapacity, and somatic infantilism are reached, which often coincide with the degree of hermaphroditism. Anomalies of sexual development are not always parallel with the psychic anomalies. Individual differences in this sphere are much varied.

In the light of these errors of nature in sexual evolution, many of the anomalies of intimate life may be interpreted; frigidity, repugnance against embracing (more frequent in women), man's physical and psychical impotency, incapacity to engender, infecundity, sterility, and the very strange forms of sexual perversion that are often responsible for the bedroom dramas which either remain jealously hidden behind the screen of prudency and escape observation, or are interpreted in the most bizarre way by the profane. Fortunately these anomalies are not very frequent.

Sexual instinct begins its preparation long before it appears on the horizon of consciousness. Spermatogenesis and ovulation, as we have already seen, have a long evolutive history. During the years of prepuberty and of puberty people pass through a stage of psychosexual uncertainty. Children often examine their bodies and those of their mates (narcissism), thereby acquiring knowledge of their own bodies and those of others. This knowledge fuses with the cenesthetic sense and participates in the construction of the psychosomatic personality. They have the curiosity to see and to know, but they do not really know and do not really desire. The attitude of adolescent boys toward girls is rather hostile. At times they show superiority or a protective spirit over girls of the same age; at other times they are indifferent and shun them. The reading of novels, the school curriculum, the contacts and sights in small and poor homes, and the sight of domestic animals copulating in the home or in the streets, all concrete the sexual knowledge in adolescents as through a nebula.

For most youths love at this stage of development is simply Platonic and æsthetically critical. On the horizon of consciousness, instinct appears as an indefinite need, enwrapped, at the beginning, in a dense, gradually dissipating fog. In many, the period of auto-eroticism, which is without doubt more determinant in the male (among us, between the twelfth and the sixteenth years), begins with an inner disquiet and later either with a revealing dream, or with an incident, with a more developed mate, or with an enterprising housemaid, or with college dormitory life. Sex instinct starts its campaign normally in the males of the human species at the fifteenth or sixteenth year, or a little before, and at the thirteenth or fourteenth year in the females. In a few cases special occasions are responsible; they are either youths who live in amorous or perverted environments, or are degenerates, due to their parents' alcoholism (Nanà's type). Not rarely do ancestors' degenerative mental diseases exercise their influence. At the ages above stated, instinct has a rather idealistic affective content, but in some a specific, more or less impulsive sensibility predominates.

These sensations, with vasal and muscular reflexes, are quite particular: a local concentration of a general state, a need, an appetite in which the whole psychosomatic organism participates—in some becoming a veritable obsession. Such a psychically sensitive situation is not the effect of tactile stimuli accumulated from infancy in the unconsciousness as a result of the kisses and caresses of the household woman which, according to Freud, constitute a sexual instinct nucleus incorporated by him in the word "libido"; but it is the expression of a new orientation of the organism and of the mind in consequence of the pouring into the blood of particular hormones secreted by the special glands. Every part of the organism experiences sex orientation. I am under the impression that Freud's doctrine of sex is a fantastic castle erected with a fine and elegant psychological architecture, but in many respects brutal.[1]

The first phase of the evolution of the sex instinct is the most dangerous. To the organic demands of the instinct the twelve- to the sixteen-year-old adolescent answers with onanism. The first time it is casual or taught. The provoked sensation leaves a record, in many cases obsession-like, with a determination to repeat it. The danger of this period of auto-eroticism is much greater in males than in females because in the former it is more impellent while in the latter it very often manifests itself in outer attitudes: the æsthetic care of one's person, toilette, a certain coquetry, and so forth.

In girls this period finds expression in judging the handsomeness or homeliness of a particular individual, vague dreams about the future, indefinite aspirations toward the unknown which gradually become concrete, a slight change of humor, preoccupation that limits the habitual thoughtlessness peculiar to them, as when a psychic complex is actively working in the unconsciousness and trying to force the threshold of consciousness. The finer the æsthetic attitude becomes toward those of the other sex and the more interested the observation of

[1] Whoever desires to know this doctrine and its criticism can either read an article of mine on psychoanalysis in the *Annals of Neurology,* 1920, or in *Scientia,* 1921, or Dragotti's splendid study, or Professor Morselli's great work.

youth's attitudes and graceful actions, the keener becomes the critical sense for whatever concerns them. This is what we mean by psychical contrast; even the manner of talking and of dressing lies within the bounds of criticism for adolescent girls.

The period of auto-eroticism differs very much from one individual to another, especially between the two sexes, as do also morbid consequences growing from it. In man a change of humor is observed; young boys become more irritable, more torpid, less hilarious, more emotional, and less tractable. A certain abatement is manifested in higher mental activities, such as concentration, memory, and associative power. Some paleness, blue rings around the eyes, and a melancholic tint complete the picture.

In these cases a revealing education is very helpful, because abuses are often effects of the complete ignorance of facts and of their danger. To investigate the cause of the disturbance, to represent it to the adolescent's mind, to reënforce with advice the will and the sense of dignity, of duty and of sacrifice, to sublimate, in fine, the soul, is the great task either of the parents, the physician, or the priest, or perhaps of all of them. Under the present conditions of society they can coöperate.

Through these sympathetic channels and not through psychoanalytic professionalism can the task of physicians and educators be expanded. I must offer a parenthesis here concerning human virtue. Sex instinct, with its content of specific emotional and fanciful sensibility, differs very much in intensity from one man to another. From the frigid to the most obsessed sexual subject, from the Platonic to the unbalanced ones, the differences are distributed over a very long scale. Under equal conditions of feeling, continence is a virtue in him who wins by restraint of his instinctive impulses; a frigid person is not at all virtuous. Similarly is it true of the woman in whom the instinctive need of her materiality is less felt, and who is ordinarily confounded with preoccupation about her social condition, with her sense of vanity or of feminine dignity, or with her æsthetic attitude, more or less passionate, for a certain person.

Woman is not free to choose; she is chosen; and if she is not requested to marry she feels humiliated before those who are preferred. Here is a psychic condition of extreme complexity. The unappreciated sympathy, the deluded aspirations, the depressed sense of dignity, the offended vanity, the concern for the future, and, finally, the organic need confounding itself with the maternity instinct, are facts that should be considered in due proportion. Nevertheless, many are the women who overcome, with their intrinsic virtue, this state of mind. Only the ones who are predisposed for the hereditary scrapheap or the daughters of alcoholics are subject to neuroses.

Onanism is rarer in woman, and when practiced it often produces a stronger erethism, so that if she is weak and cannot elevate herself to the high intellectual, moral and sentimental spheres, she becomes neurasthenic; If so predisposed, she is taken with hysterical fits, which, in this limited number of cases, are veritable sexual reflexes.

It is the conscious repression that excites in some neurotic women explosions of hysterical convulsions, and occasionally melancholia or hysteroneurasthenia. The psychic complex of infancy that would conspire in the unconsciousness, according to Freud's doctrine, or a sexual contingency of childhood that, forgotten, is working in the un- or subconsciousness, are fantastic products of high-talented men's scientific industry. No proof can be given in support of this doctrine. On the contrary, we can gather many proofs, from straightforward confessions of serious women questioned with grace and authority, of the organic need that reaches a high tension in some and becomes convulsion or melancholia, the mechanism of which is much clearer than that of conversion.

This should be well borne in mind by mothers whose daughters begin to manifest nervous troubles of an hysterical nature, especially if they perceive a change of humor in these girls between the sixteenth year and the twentieth.

In some cases, such a change is brought about by the nervous exhaustion caused by the inner struggle between need, desire, and the religious, moral, and social exigencies, whence the restraining will develops, which is virtue. This is the reason why these neuroses are at times tardy, after the twentieth year, for the inner struggle wears the patient out in anticipation of a marriage which in her exalted imagination seems to slip farther and farther away every day. For identical reasons such neuroses sometimes occur in married women with children, some years after their husbands' emigration, for whom they maintain religiously immaculate their marriage faith. I said that mothers should keep this possibility in mind because the above-described mental changes, and above all those with a melancholic coloring, may gradually pass into one of the most serious mental diseases, namely, dementia præcox.

In a book like this, written for the general public and not for physicians alone, I cannot enter into greater detail, but I have mentioned as much as is necessary to emphasize the need of sex education, which may attenuate or prevent many ills. The human soul is open, except in degenerates, to all suggestions tending to sublimate and transport it into spheres of universal harmony where work, culture, and social achievement furnish moral compensations of a high hedonistic significance. Work and education have, indeed, opened to women extensive fields in which they find those economic, moral and social satisfactions that they could not otherwise have obtained. Hysteria, to be sure, is greatly diminishing, but it is being supplanted by the neurasthenia often produced by improper school programs and overwork.

Sex education meets the greatest difficulties in practice. In all civilized societies sexual life is wrapped in dense and sometimes impenetrable veils of mystery.

The stimuli, the compulsions, the aspirations, sometimes mystic and fanciful, toward individuals of the opposite sex are by girls jealously kept to themselves. They do not confide in their unknowing and unsuspecting mothers, nor do they open their hearts to physician or to confessor, except when the latter, with authority and with grace, lifts a corner of the dense veil to point out a sin. Aside from this, life goes on amidst breaking waves toward the natural adaptation of the youths in whom the instinct of preservation is fundamental, except in the weak, in the hereditary neurotics, and in the hypersensitive who in their juvenile course are overturned by the exigencies of instinct.

But while the consensus of opinion is unanimous, or almost so, on the necessity for sex education to prevent young people from great danger, we are very far from agreeing upon the methods to be followed.

Who are and who can be the educators? The teachers, the parents, the priest, the physician should be able to fulfill such an office. Sex hygiene lectures in the school? No! A lecture in common is dangerous. The danger is apparent especially in the first grades of the middle and the popular schools (sixth and seventh grades), which are ordinarily composed of both girls and boys. A class lecture is not to be advised because out of thirty pupils of thirteen and fourteen years of age there may be ten who know and twenty who do not know about the subject, and the teacher's word would only tend to sharpen their curiosity and to inspire the practice, as a result of the conative effect of every ideative complex. That is, the idea would tend to reflect itself in associated action. The school certainly cannot assume responsibility for initiating condemnable and dangerous practices, or even for rending asunder the veil which enwraps the nascent sex instinct with its tendencies and impulses. And when we consider that this instinct develops at different ages in the various races and even in the individuals of the same race, we understand the danger that such a system would produce. Teachers should be very cautious in assigning lessons, because if they concerned themselves with sex education and morality, they would abstain from giving to fourteen- or fifteen-year-old students Dante's *Canto V* in which the poet describes Francesca's bad step, or to thirteen-year-old students some of Ovid's revealing elegies.

A good teacher can, if he knows well the psychology of the adolescent, call to him privately a student who has become less attentive and less inclined to exert himself, make him confess, and by talking with him and representing to him the damage and the dangers, he can revive in him the sense of human dignity in the virtue of abstinence and in the sublimation of the soul to the high intellectual moral spheres. The school must be educative and it cannot and should not, for any reason, introduce into its systems any element disturbing to the evolutive processes of the intellect and of the sentiments. Let the school do good within its capacity and wherever it can.

Now as to the parents. Not even for parents is the task easy; the mother for the girls and the father for the boys. The mother is not always so authoritative and affectionate with her daughters as she ought to be, nor is she so intelligent in the use of that graceful, prudent language that conquers her daughters' confidence. However, when menstruation appears, the mother has a safe starting point. At this time girls either do not know what it is or they only know it incompletely from their girl friends. It is the duty of the mother to explain to her daughter some of life's mysteries, and reveal to her the fact that she is now a woman and should give herself more careful attention. She should take this opportunity to ask her whether she feels any pain or other sensations, and warn her against the harm that a certain licentiousness would cause her in health and intelligence. This happy providence of an earnest and intelligent mother is only rarely realized. What can be expected from the ordinary woman? Too often the environment is such that the sex instinct is excited by contacts, sights, obscene language, and so forth—too many of both sexes living in close association!

The family may assume the responsibility of sex education, but only within a small circle; that is, within the social group that is best educated and most highly evolved; in families where labor is a religion and morality is immaculate; where there is order and the good example of the parents from which love for children, authority, and discipline originate. But even in this group of families the task is not always easy. At times the father, though learned and intelligent, has not the courage to face the sex problem with his son. For too many centuries the function of sex has remained buried in the mystic recesses of consciousness, and the difficulty of speaking of it has been transmitted to us; so that we feel the repugnance of talking about it to be almost an insuperable obstacle. When circumstances, that is, education and confidence warrant it, however, the father should overcome the repugnance of talking with his son about the harm caused by auto-eroticism.

The priest exercises a great authority over his believers and may contribute to the intentions of eugenics and of hygiene in general. He can do it either directly, or through his confessional; but he should be an irreproachable and well-educated person and should use language adapted to the delicacy of the situation. Brutality in representations is not at all necessary. In many cases circumlocutions render great service and are well understood.

It would be advantageous for the priest to point out not only the sin but the harm to the physical and mental health which follows after it.

The physician is the most competent person for this work; he often is not only the physician but a friend of the family—a confidant. He has the clinical eye for detecting certain changes in the adolescents of the family, and should investigate, reprimand, and correct them severely when he has elicited their confession. He may coöperate with the parents, especially with the mother, when girls are to be advised, that she may fulfill her duty toward her daughters.

To every adolescent, to every youth, I must recommend continence, but in a special manner to those who perform intellectual work. They must not exhaust their vital energies, particularly the mental, through sexual channels, because their intellectual and physical future will thereby be impaired.

The adolescent and the youth who abandon themselves to onanism will be severely punished by Nature, who assigns to each one of them a balancing account of debits and credits. To dominate the instinct with an inhibiting reason is a virtue that generously compensates a healthy life with graces, and gives to it a sense of dignity unknown to the soul of the incontinent youth who feels his humiliation and inferiority because of the persistent reprimand of his conscience.

To the adults I say: Be sober and, above all, have no mistresses. Many of them exhaust the brain, the spinal cord, and the purse. They often exalt your male dignity and oblige you to honor it at the expense of your health and future. How many are they who have become weak while young and are now despairing on the verge of suicide! How many are preparing themselves in an enfeebled state for the nuptial bed, from which the newly married women hurl at them the supreme accusation! Many youths and mature men abandon themselves with supine unscrupulousness to the flatteries of love. During the mature and presenile years, if they are not chaste and virtuous, they pass from spasms of desire to the anguish of feebleness and have flung at them the disgust of women who despise and humiliate the weak.

I feel greatly embarrassed in discussing the problem of Neo-Malthusianism. It has taken its place in the chapter on sex education, which is intimately connected with eugenics and mental hygiene. On this problem hinges that of hyperpopulation, the solution of which is pressing upon almost all civilized nations, and should seriously interest Italian politicians.

We have a right to ask, at least, a diminution of the feeble-minded, of neurotics, of the insane, of epileptics, of the offspring of imbeciles, and there is reason to believe that civilized humanity has already set herself toward this new adaptation. If we wish to obtain our purpose of diminishing the birth rate of this large group of feeble-minded, we can only call for one of three things, abstinence, sterilization of the sex glands, or Neo-Malthusianism.

Abstinence presupposes very noble souls capable of sublimating and of freeing themselves from the whirls of instinct. It is recommended by Catholics as a Christan virtue and by our country as a human virtue; and many are the men, especially among the ecclesiastics, who overcome the instinctive crisis. They have presented to my observation very worthy examples of veneration. But for the majority of living beings it is a dream that was not realized even in the Middle Ages, when sex instinct was symbolized by the demon, the evil genius who was the real cause of the neuropsychic epidemics and of the burning at the stake of thousands and thousands of mental and nervous patients, of witches and sorcerers. It is useless to deceive ourselves concerning such a virtue. The Catholic Church insists upon it, and we concur in her exhortation, and proclaim the advantages in repressing the sex instinct. And it would be much better if many men and women, especially if sick, feeble and neurotic, were to restrain it; but they are just the ones who rarely possess the ability to elevate themselves above the level of the instincts!

Monasteries are being restored to their primitive state, wherein the human soul can be transformed or deformed, according to the rules taught by St. Ignatius de Loyola, by carrying it into a prevailingly mystic field. They constitute a spiritual region in which the mystics succeed in liberating themselves from the burden of their organic needs. The religious congregations which have pervaded the Catholic world under a different form are a more civilized manifestation of the monastic orders of the past centuries, because many of them exercise various social functions, but they impress on the spirit a particular tendency that obstructs freedom of thought and diffusion of the achievements of scientific progress. On the other hand, can religious orders enchannel a percentage, at least, of the humanity that is flowing in confluent streamlets toward psychiatric hospitals, by receiving those who are unadapted and incapable of sustaining the impetus of the breaking waves of life? Let us hope they can.

The sterilization of the sex glands by X-rays, especially of the chronically insane, epileptics, criminals, alcoholics, tuberculous patients, and imbeciles, would be very much easier. It will cause, perhaps, less repugnance in the not distant future. But, notwithstanding the fact that in many states of America it has been approved in the case of criminals, it meets with much aversion among European peoples. Castration was years ago suggested for incorrigible criminals in Italy and abroad by Lugaro and by Zuccarelli. X-ray sterilization might be preferred; but this method can be adopted only when it has been proved that X-rays will sterilize only the generative part of the sex glands and not the interstitial. We are but at the beginning of these researches, the results of which appear to be very promising.

Neo-Malthusianism has already been adopted in many countries. It can be regulated and can be a chapter worthy of more extensive and more earnest study. But it is also a great danger. I do not withhold reference to the damage I discovered in many women who became neurotic. That is all I can say; but, if the virtue of continence cannot possibly control the majority of men, even the sick, Neo-Malthusianism offers, on the whole, a possibility of adaptation of civilized humanity to the new conditions of existence and to the new exigencies of life. Children represent a heavy burden on the income of a family which during the first fifteen years is, perhaps, almost exclusively supported by the labor of its head. Even peasants realize to-day that they cannot carry on their work alone and cannot support, clothe, and educate a large family, which formerly used to be a source of wealth; and they are adapting themselves to procreate less. This, perhaps, is one of the reasons for emigration!

Neuropathics, epileptics, feeble ones in the widest sense of the word, and women exhausted by pregnancy and nursing can be advised not to procreate. It is a social duty; and if they are married, it is understood, they should either educate themselves to the great eucharistic virtue, or adapt themselves to it. The necessities of life violate all opposing obstacles. There are situations which hold man in the clutches of fate.

CHAPTER V

RELIGIOUS EDUCATION

RELIGION has been educative in all times. In its intrinsic meaning there is a moral content of social consequence—love of neighbor and respect for others, fraternity, and the unification of the conscience in a superior Being who wills and directs all—revealing the cohesive force religion exercises among men. Religion restrains individual instincts in homage to the will of a Supreme Being; this restraint results in respect for the environment in which each individual lives and to which he is impelled to adapt himself. In all times and in all forms it has been a very important element in developing the sentiment of sociability.

The adaptation of the individual conscience to the exigencies of the collectivity which has become for the majority of men a life habit is due in part under normal conditions of existence to State laws, and to a still greater extent to religious doctrines. Always the better and the more highly evolved religions have had a tendency to unify the intellect and the heart, and to orient society through divinity toward moral ends.

Recognition of a power superior to the human creates and develops the sentiments of obedience and of discipline, and restrains individual impulses with the development of that sane sense of sociability which is the index of spiritual progress.

Belief in the immortality of the soul and in the existence of Hell and of Heaven has been a great and sure factor in education. Jesus' teaching: "Purify thy soul for the Kingdom of Heaven is near!" has exercised a profound influence upon individual and collective evolution in a society in which human parasites have abounded. His words of mercy and of consolation to the masses oppressed by gay egotists, and the preaching of love for one's neighbor, have given relief and comfort to the sufferers and have inculcated faith in a better and more brotherly humanity. The struggle against the tendency to transgress God's commandments, substantiated in Moses' tablets, is symbolized in the eternal insidiousness of Satan, the demon, the malignant one who is the principle of contradiction, and incarnates the antisocial tendencies and the conflict between good and evil that even highly evolved individuals notice in their own consciences. But with the passing of time, the Christian religion, to which I am more particularly referring, has not exercised in the same measure its primitive great regulating power over human conduct. The beginning of dissolution in the principle of its religious morality was noticed when the guardians of the Christian communities, who later became the bishops, attributed to themselves great apostolic authority, the representation of Christ upon earth and the faculty of dispensing graces in the name of God and Christ. Religion thus became somewhat utilitarian. It was utilitarian when it derived its strength from the State organization of the Roman Empire, in the period of its early evolution, and it was utilitarian in the Empire when, weak and declining, it drew the vital sap from the organism of the Catholic

Church, still young, vigorous, and prosperous. From the decline of the Empire the Catholic Church derived its universality and its power. But fear and utilitarianism have subjugated the highly moral content of the Christian religion. The Church was utilitarian when it obtained the right to inherit the immense wealth it accumulated through successive centuries, and when it intermeddled in politics by entering into agreements with lay states.

Culture and the great progress of the natural sciences, especially biology, have invaded the vast dominions previously held exclusively by religion. And if the Christian religion will not find in itself the energy to resume with sincere moral purpose the direction of the consciences of men, and if it will continue, by negotiations and reciprocal exchanges with governments, to grant graces and offer the strength of its magnificent organization that it may draw advantages thereby, it will merely simulate an educational power that it does not really practice. Nothing nobler than the symbol of Christ can find its place in the school. But if intelligence coming upon dogmas and symbols does not find in them any assimilable element, it will repudiate them. The truth is that political reason plays an important rôle in this affair; but moral education is an entirely different thing. Religious sentiment should not fall off the throne of the people's moral government.

If, besides, religious teachings that ought to regulate life are not observed in practice, even by the ministers of God, the caressing, comforting or threatening word in the name of Divinity can exercise no influence.

Religion has been and is for the Japanese the most powerful lever elevating the people to a high sphere of morality. It has rendered the greatest service to Japan by facilitating her march toward true civilization when, awakened to the fullness of her energies in the light of oriental civilization, she proclaimed with magnificent pride, "Japan for the Japanese."

As man gradually absorbs from nature and from the environment in which he lives the constituent principles of his personality, he elevates himself by emerging from the foggy strata of mysticism, and behaves himself morally in obedience to the intrinsic impulses of his conscience, as he liberates himself from the extrinsic elements that guided him in his infancy. But we must admit that pain, the weakness with which fear is connected, and ignorance, are, as they were, the ferments of religion; and indeed, pain, weakness, fear, and ignorance will last as long as man lasts.

Nature, as she evolves herself, and man, who investigates and snatches secrets from her obscure energies, always furnish us "The Unknown"; the former through her objectivity, the latter through his intelligence. With the unknown, mysticism arises with all its retinue of fears, of aspirations and of vanities that seize the human soul in their tentacles. Every man, upon examining himself, will find proof that many prejudices remained on the first floor of his consciousness when by evolution he ascended without effort to the second or to the third floor, where he adapted himself perfectly—that is, where he felt amiably his environment, the respect for his neighbor, the echo that the pain of others produces in one's own conscience, piety, generosity, nobility in the use of weapons in the struggle for existence, the duty to labor, honor for assumed obligations, respect for himself, and a higher sense of the Ego composed with the Mine. All of these are intrinsic properties, the great spiritual motors of the human soul. I have an intimate conviction of man's evolutive reach toward a naturalistic morality. In this I follow the same order of ideas as some English psychologists, such as Spencer, Lews, Hamilton, Bastian, and more recently, Mercier, and as the Italians from Lucretius Carus to Ardigó.

The evolutionistic doctrine of moral sentiment coincides with the Gospel formula. The naturalist affirms that man through evolution tends ever more to conform his individual instincts with his social instincts, that is, to forbear and to restrain his individual impulses by shaping them to the rules of the environment in which he lives; and this is in harmony with the evangelical formula that sums up the profound spirit of Christianity in the Golden Rule: "Do not do unto others what you would not like to have them do unto you." Evolution and religion both meet upon a common field and do not exclude each other. We cannot deny that a part of the progress achieved by the naturalistic moral sentiment is due to religion, which, on the other hand, did not derive its origin from revelation, but from fact and natural processes.

The zeal to attain the high finality of morality will not be worn out by conflicts in the conscience, from whence diffidence, or better, incredulity is derived, but some conditions are essential to such attainment. The most important of these are:

1. That the Christian religion be more sincere in its moralizing aim and less sensuous in its worship. The

discharge of rockets, pyrotechnic displays, disordered festivals, noisy amusements very similar to the ancient bacchanalia, do not confer upon religion either dignity or regulating power over human conduct. Some highly intellectual and more eminent prelates are striving to elevate conscience from the sensory world to the nobler and more social sentiments, which are the real animators of the moral and civil progress of the people. In this attempt they will render the greatest service both to religion and to their country. Morality emanates either from the obscure working of nature's energy in the profound recesses of conscience, or from religious faith. In the latter case the religious sentiment is either strong, pure, and sincere, and an excellent factor in moral progress; or it is weak and utilitarian, abandoning to its blind impulses the less evolved humanity, a part of which, tormented, at the most, by the conflicts of conscience, thrusts itself unguided toward unforeseeable destinies.

2. That the clergy be less ignorant of modern society, of its feeling for culture, its needs and inclinations; that they be less mystic and more human, reciting fewer liturgies and showing more kindness among their congregations; and, above all, that they be examples worthy to be followed. It is not the word that educates, but the proofs of goodness, charity, correctness, moderation, and continence, of which many prelates and priests are touching examples.

3. That the schools impose the strictest discipline upon the teachers, many of whom are either ignorant or enthusiastic politicians yoked now to the Socialist and now to the Fascist car, plowing and furrowing the land of the country that they may sow class hatred and the

darnel, which are making this generation unhappy, and I know not how many more in the future.[1]

The teacher has one duty in school: to explain the perfect agreement between the moral content of religion and the naturalistic interpretation of the moral sentiment. Woe be unto him if he generates conflicts in the conscience of his pupils!

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[1] See footnote 2, page 12.

CHAPTER VI

ALCOHOLISM

TO call the attention of the Government, of students of political economy, of farm owners, of teachers, and of all the people to a question that touches Italy so closely as does any question referring to wine production and to alcoholism, is a duty of the eugenist and of the mental hygienist. And, though it is brief, I hope that my short study will not be useless to the progress of the legislation of our country, which should always aspire to the sanitary, civil, and economic betterment of the nation.

In an address of mine before the Chamber on hygiene with a particular reference to eugenics when discussing the national budget for internal affairs, with the purpose of calling the attention of the Minister to the necessity of strengthening, bettering, and protecting our race from the insidiousness of degeneration, I lightly touched the theme of alcoholism in Italy, which had been several times discussed in the National Assembly. Luzzatti's bill was, indeed, a generous social and national legislative attempt, a bold but insufficient advance destined to produce slight effect. The problem of alcoholism must be faced and examined in its essence, for in Italy it is different in some ways from other countries. I am under the impression that only a few understand thoroughly our home situation in regard to the problem. Consequently, this question must be reëxamined with great serenity, less from the economic than from the biologic standpoint.

First of all, I consulted some official documents which place us in a position to proceed on a sure footing and with precise data. In the memoir published by the Minister of Agriculture on wine production in Italy, there are data of very great importance which bring us face to face with the problem. From these we find that in Italy during the five years from 1909 to 1913 there were 68,635,000 quintals of grapes converted into wine with an average yearly product of more than 46,000,000 hectoliters. I hold these figures to be lower than the actual amount because in almost every commune of South Italy (I do not know the habits of the central and northern parts of the country in this respect), the small and the large property owners and a certain number of artisans and peasants possess, mostly for family use, modest or, perhaps, extensive vineyards, the latter often held on a lease. The grapes and the wine obtained from these vineyards are only in part commercialized and are not always wholly reported, a portion of the wine being consumed by the producers.

The average of 46,000,000 hectoliters of wine a year can therefore be raised to a much larger total. From the same document we see that the average price for wine was 36 lire a hectoliter in 1911 and 30.08 lire in 1912; that is, an average price of 33 lire a hectoliter was obtained during the five years. Toward the end of and after the War, the price reached 200 and 250 lire a hectoliter. These figures multiplied by the 46,000,000 hectoliters, without including the quantity not estimated in the statistics of the Ministry of Agriculture, reach a total value of 1,518,000,000 lire yearly before the War, and 8,000,000,000 to 10,000,000,000 lire after the War. The greater part of this is consumed in the country because the exportation of Italian wine does not reach three million hectoliters a year.

France produces much more wine than Italy. Indeed, while Italy produces 28 per cent of the entire grape harvest of the world, France produces 34 per cent. But France's conditions are quite different from those of Italy, for the industrial preparation of French wines has succeeded in securing for them the world market, and consequently, the wine production of that nation constitutes a generous source of wealth, whereas the 46,000,000 hectoliters produced in Italy are almost all consumed within the country. This simple fact alone should make any sociologist and economist think seriously about it.

Finally, in homage to custom and tradition, we consume a good part of the product of our soil upon the altar of joy and oblivion, with very doubtful biological advantage and with very serious damage to our physical and moral health and to the national economy. In the face of such an enormous consumption of wine, equivalent to more than 7,000,000,000 or 8,000,000,000 lire a year, not counting the exported quantity, the need still persists to purchase abroad, for the most fundamental exigencies of alimentation, more than 20,000,000 quintals of wheat a year, which means an expenditure of 4,500,000,000 lire annually, in dollar value, in addition to a large amount for corn.

From this simple exposition, the great lack of equilibrium between agricultural production and the immediate needs of the nation for food is clearly shown. If wine consumption were changed into a sure and determinable purpose for the nutrition of the people, it should be in substitution for bread consumption and should represent, therefore, a compensation for the deficient wheat production. Wine, however, possesses but a mediocre, even, indeed, doubtful nutritive value.[1]

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The heat produced by the combustion of alcohol is 7.1 gross calories for the living organism, while coal produces 8 calories. In other words, one gram of burned alcohol raises 7.1 liters of water 1° C. This can be expressed by another formula, that is, 100 grams of alcohol, which is the average quantity contained in one liter of table wine, would give, if completely burned in the organism, 710 calories (600 according to some authors). This is a little more than one-fourth the amount that a man needs, for his need is estimated at from 2,300 to 3,300 a day, the minimum corresponding to the period of rest and the maximum to the period of work.

But the knot of the problem consists in furnishing proof of the capacity of the organism to burn the alcohol introduced into it, *without injuring the organism itself, especially its nervous functions.* Upon this ground investigators have reached results strongly in contrast with each other and have, therefore, expressed very different conclusions. Perrin, for instance, wrote: *"L'Alcohol ne subit d'oxydation dans l'économie, il circule en nature avec le sang, et est éliminé dans le même état par les différentes vois d'excrétion; il n'est pas donc un ali-*

[1] See footnote 2, page 12.

ment."[2] On the other hand, authors in all countries, by their experiments upon men and dogs, have demonstrated that only when a large quantity of alcohol is introduced into the organism is it excreted in the urine, but when small quantities of it are imbibed, especially if diluted, it is retained and oxidized.

Just recently Demole has demonstrated that alcohol is retained by the tissues and liquids, and that it can be detected by proper methods (*L'Encéphal,* 1914). Delirium tremens, which may develop from previous abuses, is often in genetic relation with the presence of alcohol in the tissues and liquids. It is, therefore, the effect of a direct intoxication of the brain.

The experiments of Binz and of Bondlander, who claim to have been able to demonstrate that the elimination of alcohol by the kidneys, the lungs, and the skin reaches 3.55 per cent in dogs and 2.91 per cent in man, have contributed to the doctrine that alcohol in modest proportions can be a body nutritive.

Though the experiments conducted in America by Attwater and by Benedict, who have maintained that the sugar and the starchy foods of a normal diet may be substituted for an isodynamic weight of alcohol, have been severely criticized, they have, nevertheless, been confirmed by the experiences of Grehant, of Ducleaux, of Albertoni and of Agostini, who in different ways and by different experimental methods have come to the conclusion that a quantity of alcohol, which can be estimated at one gram for each kilogram of animal weight, does not

[2] Alcohol does not undergo oxidation in the organism; it circulates unchanged with the blood, and is eliminated in its original condition by the different ways of excretion; it is not then a food.

perceptibly disturb metabolism. This conclusion is not unlike that reached by the physiologists that convened at the Cambridge Congress in 1898, namely, that no research has been able to contradict, upon purely physiological grounds, the individual experience that alcohol, used in moderate doses, exercises a beneficial influence upon health. Thompson, on the other hand (*Journal of Medical Science*, Dublin, 1910) reaffirms the alimentary property of alcohol, saying that it would also exercise a nutritive and a tonic action on the heart if administered in small doses.

We can, however, agree with Triboulet's affirmation that all those who admit that alcohol is an aliment believe that the organism *tolerates it only in small doses.*

The report published during the War by the English Commission formed by highly qualified men such as Cushny, Greenwood, McDougall, Mott, Sherrington and Sullivan, though not free from preconceptions, is full of ideas and conclusions. Of the latter the most important are the following:

1. Alcohol is not a stimulant but a sedative.
2. It is not useful in reënforcing or in prolonging physical or mental labor.
3. For this reason, under the pressure of modern civilization, it is better to interrupt labor rather than to continue it under a stimulant.
4. In some cases alcohol acts beneficially, and at times, though it paralyzes the higher inhibiting centers, it becomes a stimulant of the lower centers.
5. It diminishes muscular strength and precise coördination of movements.

These same conclusions have been reached by the German experimenters.

Moderate doses have no influence upon circulation and respiration.

The Commission also affirms the disastrous effect of *chronic alcoholism* on the vitality and development of progeny.

From the report of Sir R. Armstrong Jones concerning the *Relation of Alcohol to Mental States, etc.*, 1918, we learn that, though the gentleman is decidedly opposed to the moderate use of alcohol, "in certain circumstances it may render remarkable service to humanity."

* * *

It is generally held that alcohol exercises a favorable action on muscular strength. Truchy, in his preface to Korn's book (*Alcoolisme en France*, 1901), wrote that the prejudice that alcohol is a restorer of strength is still widely dispersed. The researches of Frey and Destrée (*Monatschrift*, Vol. III) have demonstrated exactly the opposite view. The ergograph and the kilogrammeter have furnished proof that alcohol exercises rather a paralyzing action. Increase in strength lasts for a short time, but after fifteen minutes to thirty minutes it is replaced by a decrease which lasts longer.

In a coarser manner Parker's experiences with English soldiers demonstrated that their alcohol ration did not render them more resistant to marching than were those who did not drink. The sense of well-being, that is, the euphoria produced by modest doses of alcohol, has been confused with the efficiency of work. In other words, in this illusory phenomenon the same thing happened that maintained strong and certain the popular belief that alcohol had a warming effect. It is now proved that nothing is more inexact.

Such an error arises from false interpretation of the sensation of heat in the stomach which diffuses throughout the body after drinking a small glass of alcohol. The truth is that small doses of alcohol do not perceptibly modify temperature. Medium doses—from 36 to 80 grams—even when they do not cause intoxication lower the temperature a few tenths of a degree; while large, toxic, narcotizing doses lower the temperature one degree for many hours. This lowering of temperature is due, according to some authors, to a great loss of heat from the body surface coincident with the vasomotor paralysis.

Passive vasal dilatation has been demonstrated by numerous careful researches also conducted in my clinic by plethysmographic methods. This is a result of paralysis of the vasomotor (constrictor) nerves. The experiments show that the action is paralyzing and that, even after moderate doses, the brain circulation is especially altered (V. Bianchi, Jr.). These same experiments have demonstrated that small doses of alcohol, the contents of a hundred-gram wine glass, do not sensibly alter the brain circulation.

* * *

The influence alcohol exercises on the psychic functions is not favorable, although the results have been much exaggerated by some investigators, especially the German. It is a more recent side of the question, raised by the methods of experimental psychologists. These experiments have also taken away much of the force of the ancient prejudice that alcohol strengthens and clears the intelligence. That summary judgment was based upon the sense of euphoria noticeable after drinking a moderate quantity of wine or of distilled alcohol; upon the facility of the psychomotor processes, and upon the diminution or disappearance of the inner resistances, whence images, thoughts, and desires find the paths of actuation and expression more open and less obstructed. As facility in speech and in action, in the development and in the succession of psychomotor processes—images, thoughts, actions—generally measures the strength and joy of existence, it is very natural that the conclusion should have been formulated universally that it was a sign of increased cerebral activity and of greater mental lucidity.

On the contrary, psychological laboratory researches have clearly demonstrated that even moderate doses of alcohol instead of exercising an exciting action on psychic functions exercise a paralyzing one. It is a long time since Ridge succeeded in furnishing the proof of the diminished visual power after small doses of alcohol, and Richardson and Crothers, with analogous experiments, confirmed this observation in respect to the auditory function.

Similar researches, resumed by Kraepelin and by Münsterberg, showed a diminution of the perceptive power, but more especially that of discernment. They also ascertained that increasing doses of alcohol up to 60 grams progressively diminish the capacity to add, to memorize, and to associate, though the individual upon whom the experiments were conducted had the sensation of a greater facility in learning and in understanding.

At the Fifth International Congress, in Basilea, Smith stated that after moderate use of alcohol, mental signs of chronic poisoning become gradually evident as time goes on, and mental capacity for work diminishes; that the capacity for mental work slowly increases after suspension of the use of liquor, but that it diminishes again upon the administration of daily doses of 40 to 80 grams of liquor diluted with water. More significant still are the experiments conducted with the intent of testing mental association.

With doses of from 40 to 80 grams of alcohol, the number of associations, according to some authors, diminishes from 46.8 per cent to 11 per cent. It is important to note that the associations which undergo most marked diminution are those of a higher order, while those of a lower order are very little affected; this is precisely what we observe in some mental states characterized by psychic overexcitement, in which the diminished power of perception, of discernment, of logic, and of judgment is the resultant of the decrease of the associations, often incoherent, and of the lowering of the attentive power.

But it must be noted that many of these researches were conducted, as I believe, by an erroneous method; the use of rather large quantities of alcohol on an empty stomach or with an insufficient meal and all at one time, and the quality of alcohol used, reflect an undeservedly sinister light on the action of moderate quantities of pure wine that our wine does not deserve. Of the researches contradicting the results of the laboratory investigations of many Germans, I could mention those of Partridge (*American Journal of Psychology*, 1900) who obtained results somewhat different from those of Kraepelin and others. The rapidity of simple mental processes is not diminished under the action of *small* doses of alcohol;

the ability to control certain reflexes was found to be much increased, as were also the associative activity and the self-confidence of the experimental subjects, along with a diminution of suspicion, as a result of which more extended social relations are made possible.

We have already referred to some opinions according to which alcohol may be considered beneficial if taken in small quantities. There are some who even believe that complete prohibition of the use of small quantities of alcohol would increase the number of neuropsychoses.

Mrs. Šertoli's experiments (*Rivista di psicologia,* 1913) have very relative value. She claimed that small doses of Marsala wine (the quantity not indicated) given to children made their attention keener, talking more rapid, mnemonic fixation prompter and clearer, and evocation power greater. Another opinion is that of R. Stanford, according to whom alcohol is a "peace messenger," which even though sinister, is nevertheless efficacious in promoting social instincts. According to De Boeck, alcohol exercises an exciting action on the intellectual functions, but this action is temporary and soon followed by paralysis; in every instance a quantitative and qualitative modification of mentality was noted.

* * *

Since this book is not intended for scientific men only, I consider it opportune to report here the hypotheses and the conclusions derived from a series of researches conducted by a phalanx of eminent investigators in different countries. Polemics, counterproofs, and conclusions, not always solidly based but at times worthy of attention, have not been wanting, as, for example, the following.

In the first days of the experiment, alcohol did not act as a body nutritive for the nitrogenous substances; on the contrary, it was detrimental to the life of the cell. Then the organism became accustomed to it and after this the negative influence was no longer demonstrable and it acted, when administered in small doses, analogously to carbohydrates and fats, that is, as a conserver of nitrogenous substances.

If such a conclusion corresponded to reality, it would prove that those people more accustomed to wine, as especially the Italians, among whom the vine is more widely cultivated, would also be able to use wine as an aliment. Proof of this affirmation is given in the fact that in Italy acute and grave cases of intoxication are relatively rare, and many are the men who drink two to three liters of wine a day—corresponding to an average of 220 and 360 grams of pure alcohol—without becoming intoxicated. Many of these, indeed, are convinced that they receive no harm from it, approving the theory of biological adaptation by habit. There is, however, a serious danger in this rather widespread conviction. In fact, I found in all southern Italian cities where I succeeded in carrying out my investigations this harmful prejudice—a prejudice transmitted by the ancient Latins and their great poets, who were deceived by the flattery of the supposed harmlessness that has been transmitted to us as a faith, and confirmed by the conception, both ancient and modern, of the efficacy of wine in maintaining human health and happiness. A great quantity of wine is drunk among us, but acute intoxications with their relative consequences are rare. In fact, in thirty years of service as director in the clinics and in the insane asylums of Palermo and of

Naples, I, who have had the habit of examining personally all or almost all patients that were committed to us, have very rarely met with acute forms of alcohol intoxication and still more rarely with delirium tremens. My conviction, however, is none the less strong and deep-seated, that there has been a slow *alcoholic intoxication of our people through the centuries, and that this slow intoxication exercised in the most viticultural regions an obscure and insidious action on the nervous center, so that it is not by any means extraneous to our deficient tenacity in civil enterprises, to our great tendency to contentiousness, and to the increase of criminality among us.*

From an inquiry I initiated many years ago in my private clinic by questioning the patients frequenting it, I learned that much more wine is drunk by our people than can be regularly oxidized and, consequently, a sure damage to health is resulting from the slow intoxication. Many of those whom I questioned declared that usually they drank a bottle of wine with each meal because such a quantity did not produce, in most cases, signs of intoxication. This, of course, is the effect of habit.

Now two bottles contain from one and one-half to two liters of wine, the alcoholic strength of which, calculated at a minimum of 10 per cent, amounts to an average daily quantity of alcohol of from 150 to 200 grams, not to mention holiday excesses. Such a quantity of alcohol, especially for people who do not work, is undoubtedly toxic; according to the results of the most accurate investigations, it cannot be oxidized and therefore is not an aliment; but it circulates in the blood, exercising a non-beneficial action upon the vessels, upon the nervous centers, and upon the entire economy of the organism.

I do not have the exact data to estimate the quantity of wine that is consumed in the different provinces, and it is not easy to reach even approximate calculations because the owners of large and small farms, artisans and peasants, to varying extent in each province, cultivate their own vineyards and the product is destined for family use, so that this consumption of wine, small though it may be, escapes the computation of the statistician. But leaving aside this investigation and the other one directed to find out how much our per capita consumption of wine is increased, I can still affirm that the greatest number of epileptics and of those who present the more distinct degenerative characteristics come from the most viticultural provinces and from places where the cult for this vine-product is more thoughtlessly indulged. Now may we ask ourselves whether, though we do not experience the acute forms of alcoholic neuropsychoses, such as are very frequently observed in other countries, we have not undergone slow alcoholic intoxication, due in part, at least, to wine liberally drunk beyond the limit; and whether to this is not attributable the genesis of epilepsy, of delinquency, of idiocy, or arthritism, of polysarcia—so frequent and characteristic among us—of indolence, of indifference, of the great excitability of our people, and above all, of the excessive emotivity which, even though it be generous as it is sometimes, is in every case in inverse ratio to the persevering will, more appropriate for attaining purposes useful to individual life and to national collectivity.

I realize the vast field that is open for contradictions and for researches, and I know I am formulating a hypothesis that, though it is based on scientific grounds, cannot be expressed in a precise formula containing all the elements of a demonstration. Social phenomena and ethnic characteristics are not produced from one single cause, but from many combined and different ones. He would be wrong who attributed the anthropological and psychological characteristics of a people to heredity alone, or to any one of the many political, religious, and climatic circumstances that influence the life of a country. I have intended only to indicate a possible cause, indeed, a very possible cause, for I think there is nobody who believes to be harmless a daily quantity of one or two liters of wine of 12 to 14 per cent, drunk by persons who do not become intoxicated by it, whether they work or not. Neither do I intend to refer to those who drink daily the tolerated and utilizable quantity, perhaps beneficial, of 300 to 400 grams of wine having a moderate alcoholicity, nor to the habitual drunkards, who are much more easily recognized.

It is a positive fact that among the southern Italians intoxication is relatively rare. And it is not improbable, then, that temperance is more common, or that we have acquired a certain immunity to ethylic alcohol. In all countries there are those who tolerate a certain quantity of alcohol and others who show toxic phenomena after much smaller doses. The former we may speak of as immune, or relatively so. This immunity results either from a stronger destructive power of the cells of the organism, especially the nerve cells, according to the phagocytic theory, or from the production of special ferments —alexins or bacterial lysins—caused by alcohol in the past generations accustomed to the use of wine, whereby the action of alcohol is less felt by the nervous system.

The northern people are worried over their high proportion of acute intoxications; but they enjoy a privileged situation because of the fact that they began to indulge in alcoholic beverages later than the Italians did in wine. It is true that they can avail themselves only of their amylic and methylic alcohols, which are more dangerous, and for them they should substitute the pure wines of our vineyards, which are less toxic. On this account, it is much easier to disaccustom the northern people from the relatively recent use of industrial alcohols, as has been done in Scandinavia and in some parts of Belgium, and as is now being done in Russia and in North America, than it is to disaccustom our people from their very ancient use of wine. It is well for us to face our problem in such a light that our new generations may take upon themselves fresh vigor in the struggle for life with other people. If the damages caused by wine appear less serious among us, it is because Italians are sober, have been accustomed to wine for thousands of years, and can tolerate it better; furthermore, because ethylic alcohol is much less poisonous than the distilled alcohols used by northern people since a relatively recent time. But this does not release us from the obligation to separate appearances from reality.

* * *

That ethylic alcohol is less poisonous than distilled alcohols we learn from Dujardin-Beaumetz's and Audige's experiments. These two experimenters came to the conclusion in 1879 that ethylic alcohol is less toxic than the distilled alcohols known under the name of fusel oil, and that the harmful action, therefore, of spiritous beverages depends, in part at least, upon the presence in the alcohol of extraneous, toxic substances, and upon the atomic formula of all other kinds of alcohol compared with the ethylic. Various and contradictory were the affirmations, and not always well founded on exact observations, but the best founded seems to be that of the Royal Belgian Commission formed to study the alcohol problem and alcohol abuse in Belgium. This commission had to find out the difference in toxic power between ethylic alcohol and the other qualities of alcohol such as are known by the common term of fusel oil. This difference was determined upon by this Royal Commission which concluded that fusel oil is five times more poisonous than ethylic alcohol. Depaire, the Professor of Chemistry in Brussels University, was a member of the Commission.

Almost all alienists and other observers have arrived at the conclusion that ethylic alcohol also is poisonous. Sommer, for instance, expressed himself in terms even too severe and concise against all kinds of alcohol at the German Psychiatric Congress in Karlsruhe in 1894. The idea prevailing in France and in England is not substantially different. In Russia the same opinion is prevailing, judging by Borodin's and Lozinsky's writings, as reported by Matti Helenius, and by the heroic resolution of the Russian government at the beginning of the last war. At the International Congress of Hygiene and Demography, Forel, exaggerating with an almost sectarian vehemence, assailed with unusual violence all forms of ethylic alcohol. He said that alcohol is always the "*Morder der Seele und des Leibes.*" In Italy there is a conspicuous number of observers, especially alienists, who have unfurled their flag of crusade against the use of wine. We are following with sympathy their propaganda, but are not participating in the personal tendencies of controversies not strictly scientific, the solution of which is possible only in the light of facts which have been carefully scrutinized, collected in abundance, and dispassionately valued. In this rancorous attitude against wine, provoked mostly in Latin countries, we cannot exclude the protectionist tendency of those devoted to scientific pursuits belonging to countries where viticulture is either recent, or where for climatic reasons, it cannot be much extended. Nevertheless, the affirmation made by Dujardin-Beaumetz himself, and afterward by Magnan and many others, Italians, and foreigners, remains true, that even ethylic alcohol is a poison and that the question of its toxicity compared with fusel oil is reducible to the simple question of quantity.

At any rate, excluding the exaggerations of both sides, any one who reads with an impartial spirit the whole literature on the subject will convince himself that wine (I refer to our pure wines and not to distilled alcohols) in small proportions can be considered an aliment; but *beyond certain limits it is a poison.* With the progress of science prejudices are routed out, idols are overturned, and through the new interpretations, harmful only at the beginning in breaking old habits, life will finally adapt and improve itself toward the ends of a nobler and better humanity.

But the dispassionate observer cannot avoid the historical fact of the ancient use of wine in our country [3]

[3] Tradition is uncertain as to the time when the vine was introduced into Italy. In Rome and in Latium, according to Pliny, the vine product was known rather late. Here as well as in Greece, legends connect the introduction of viticulture with the struggles of the race and especially with the decline of the Etruscan domination in Campania and

where viticulture becomes lost in the obscurity of man's adolescence, while only latterly was it extended wherever the climate permitted.

* * *

Latium. According to a certain tradition the vine was already thriving on the soil where Rome later arose. In other parts of the peninsula, as for instance, in the Pontine plain at the mouth of the Po River and in the Picenum, viticulture is at least as old as Greek colonization; in fact, there is nothing to indicate that this cultivation was not already carried on in the pre-Hellenic period in Magna Græcia and Sicily. The name Œnotria may be taken as a proof of this. This name given by the earliest Greek immigrants to one of the extreme southern regions of the peninsula, probably means "the country of the vine on poles," in contradiction to the regions, such as Etruria and Campania, where the vine climbs on trees.

In the first historical period, the vine extended and thrived on the Italian hills and plains to such an extent that Sophocles, in the fifth century B.C., was prompted to say that Italy was the country preferred by Dionysus. Similarly it was in the Pontine regions where fertility of the soil and, above all, the sweet fruits of the vine powerfully enticed the Celtic immigration. A little later viticulture and wine became common among the Latins. Jupiter was called upon to protect the new fruit of the soil and his priest to consecrate the vintage.

Plautus and Cato did not know the Falernian wine, but Cato himself stated that in his time the vine in Italy was the most profitable of all cultures, yielding from 6 to 18 per cent on the invested capital; other later writers insistently reminded their readers of the care that should be given to such a culture from the choice of the soil to the preservation of the wine.

We are told of the ever increasing production of wine in the peninsula in the episodes transmitted through the historical tradition which narrates how the time of the Consul Opinius (121 B.C.) became famous both for the abundance of the vine crop and for the impulse given to viticulture. Martialis stated that the Ravenna region so abounded with wines that a water cistern was much more desired.

Pliny informs us that on the imperial markets there were eighty kinds of wines competing, two-thirds of which were Italian. And if, in Cæsar's time, Falernus and Mamertini wines justly held their place beside the best Greek wines that were dominating the markets during the republican age, under Augustus, Italian wines held the first place in the world markets.

With the Roman conquests the vine was brought across the Alps and rapidly increased in these most favorable Transalpine regions. The

Ethylic alcohol, as wine, drunk in excess of 40 to 60 grams in twenty-four hours and with meals, exercises a paralyzing action upon the vessels and muscles and upon the higher and more delicate mental powers. It

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Romans, foreseeing the possibility of competition, tried if not to monopolize the commerce in wines, at least to limit viticulture abroad.

An order from the Roman government in the year 129 B.C. prohibited the planting of new vineyards in the Transalpine regions, especially in Gaul.

But, while such extensive and intensive cultivation both in the Italian peninsula and in the other provinces of the Empire brought an immense profit to viticulturists, the ever decreasing area of soil devoted to the cultivation of wheat must needs exercise its harmful influence upon the economy of the State. Very soon, in fact in the republican period, the Italian wheat was no longer sufficient for the needs of the population, and Rome was compelled to purchase larger and larger quantities of it from the southern provinces, from Africa and especially from Egypt. The situation became so alarming that in a moment of grave fear of not being able to supply Rome and Italy with wheat, Domitian issued a decree ordering the destruction of at least one-half of the existing vineyards outside of Italy. Naturally, this order was then much discussed, caused complaints and petitions, and in the end had no effect. History is repeating itself again to-day.

What the quantity of the wine produced in Italy was, can be learned from Polibius' statement for the year 150 B.C., reported by Cocchia in one of his important memoirs: *Sulle condizioni disagiate dell'agricoltura in Italia.* (Royal Archeological Academy, etc., 1911.)

A metretes of common wine corresponding to 29 liters, sold for two obols, that is, about 32 centesimi, or a little more than one centesimo (1 lira = 100 centisimi) a liter. It is true that the cost of living, on the whole, was very low, wheat costing only 2.70 lire per hectoliter, but we should consider that viticulture and therefore wine production had the tendency to become, as we saw, from the political and economic point of view, a kind of Italian monopoly.

Wine and oil were Italian industries; the commerce of maritime cities took advantage of them. This resulted in Italy's supremacy in the wine and oil production, in the decline of wheat culture, and in the consequent necessity of importing wheat from the colonies.

An edict of Diocletian fixed the prices of common rusticum wine at eight danari (96 centesimi) a measure corresponding to a liter (R. Biliard, *La vigne dans l'antiquité,* 1913).

How they abused, or at least how widely they used wine in Rome is shown not only by historical data, but by works of art and by poets and novelists. This is so well known that I need no longer dwell upon it.

would be better to call it the narcotic of conscience. Whoever is familiar with mental cases well knows that in the states of exaltation, with the exaggerated sense of well-being, there exists the promptest actuation of thoughts and of intuitions in the respective movements and that this psychomotor facility in its turn deludes the perturbed consciousness to make it believe that strength and habits are really increased.

As the associations of a superior order are weakened in these patients, the contrast is evident between their affirmation of an increased capability, an unusual activity, an enterprising spirit within them, and the huge blunders they commit; for this reason such patients, if engaged in business or in industry, frequently ruin flourishing economic positions. These states of morbid excitement greatly resemble those produced by alcohol, even in slight intoxication. Everybody knows that alcohol loosens the tongue, that is, it paralyzes the inhibitory powers.

Such a condition is brought about only by a large quantity of alcohol. To drink during a meal 300 to 400 grams of wine containing 10 per cent of alcohol, is quite different from drinking 40 to 80 grams of alcohol, all at one time, and sometimes on an empty stomach, in the morning or in the evening, as an experiment.

In this difference lies the error of many northern experimenters, especially German, and out of the error grows the bitterness of the struggle against wine, which may be legitimately supposed to have the intent of shutting the markets of their countries to the French and Italian wines. The experiments should have been conducted by administering 20 to 30 grams of ethylic alcohol (as much as is contained in a small bottle of wine) drunk in little sips during a meal, in the form of pure wine, as our genuine products are.

* * *

It is not, however, with the very moderate use of table wine that we should concern ourselves, but with wine abuse, undoubtedly harmful and an effectual and direct cause of numerous diseases and of feeble characters. From this viewpoint no one denies to-day the degenerating influence the abuse of alcohol is exercising upon the individual, upon the family, and upon the race.

Morel demonstrated the disastrous action of intoxication as a cause of degeneration of the family. The drunkenness of the mother is most pernicious because to the altered condition of the maternal nervous system, the direct intoxication of the fetus during gestation is added and perhaps of the infant during lactation. We know that wine drunk beyond a certain limit by wet nurses produces convulsions in the suckling as a result of the amount that passes into the milk (Malin). Its maleficent action is also demonstrated by the numerous premature labors, by the frequent abortions, by the great mortality among the infants born of alcoholic parents, by the high percentage of degenerates, and by the increasing number of feeble-minded, imbeciles, epileptics, criminals, and suicides which many observers in all countries attribute to the abuse of alcohol.

Sullivan, confirming what had been ascertained by Launier, Morselli, Baer, Westcott, Ferri, and Grotjahn, corroborated this relation of cause and effect between alcoholism and suicide. It is true that Colaianni in Italy, Durkheim in Germany, and less decisively, Strahan in

England, deny this causality relation, both in the individual and in the social group, by asserting that alcoholism and suicide are phenomena which depend upon the same cause.

The number of deaths from alcoholism has increased in many countries. Not without reason, therefore, have men of authority raised their voice against the abuse of alcohol. Raymond estimated that 10,000 persons in Paris are annually rendered useless by alcohol. Coincident with the great consumption of alcohol and with the number of wine and liquor dealers, an increase in the number of suicides is noticed, of attempts at suicide, of criminals and of epileptics.

In France in 1880 there were 356,863 dealers, and in 1898, 431,990. In Belgium the enormous increase in the consumption of alcoholic beverages coincided with the alarming increase of crimes which from 383 went up to 795 for every hundred thousand inhabitants from 1870 to 1889. Contemporaneously the number of the insane doubled and the population of the poorhouses increased from 4,831 to 16,795.

In England the per capita consumption that in the five years from 1842 to 1846 was 0.89 gallons of alcohol and 2 gallons of beer, in 1898 reached 1.05 gallons of alcohol and 32 gallons of beer.

We may agree with Colaianni on the assumed multiplicity of the causes of social attitudes and on the complication of the relations of social phenomena determining the progress or the retrogression of a people. We admit that Baer's affirmation reflects the truth that in Prussia suicide does not correspond with the consumption of alcohol, and that in Sweden the great decrease of alcohol consumption did not arrest the ascending line of suicide. We may also agree that suicide in most cases does not directly depend upon alcoholism, not even in that proportion of cases in which the abuse of alcohol appears as a predominant cause, but we cannot exclude the fact that alcoholism concurs, with the social and hereditary factors, to the increase of the percentage of suicides.

I have barely mentioned the social factors, because a book of this nature, having a definite purpose, does not permit of entering into particulars. However, I deem it opportune to recall the fact that suicide increases in proportion to the exaltation of the hedonistic sense of life to the aspirations of which feebleness, one of the causes of alcoholism, is opposed.

To confirm the relation between suicide and alcoholism this fact should suffice, that more than half of the mature and presenile men affected with melancholia examined by me in private consultation were in their youth, or until a few years before, liberal drinkers of wine, using from two to three and even four liters of wine a day. Now as melancholia, even in the most benign form of melancholic neurasthenia or anxiety neurosis, is precisely the one among the psychoses that is carrying the greatest burden of suicides, it is evident how much alcohol is responsible for suicides. My observation confirms that of Magnus Huss, that the suicidal impulse is very frequent in the melancholia of drunkards.

Suicide, that in England from 1861 to 1870 was in the proportion of 65 for every million inhabitants, increased in the decade 1880 to 1890 to 77 for every million.

Still more conclusive, according to Sullivan, is the number of suicidal attempts, which during the period of the five years from 1867 to 1871 was 35.5 for every million inhabitants, and later, during a similar period of time from 1892 to 1896, it increased to 57 for the same number of inhabitants (*The Relation of Alcoholism to Suicide in England*). Of a thousand cases of suicide reported by Norwood East, 393 were due to alcoholic intoxication (*Journal of Mental Science*, 1913).

In Italy we do not observe the grave forms of acute alcoholism that are found among northern people, therefore we cannot acquiesce either in Sullivan's 57 per cent suicidal attempts by alcoholics, or in Baer's 65 per cent in Sweden before the promulgation of the prohibition law (*Der alkoholismus*, 1878). I think that the 12 or 13 per cent of suicides recorded as due to alcohol by Mulhall, Brown, Brierre di Boismont, Launier, and by the Italian Morselli is nearer to the truth and I maintain that this figure would be much higher if we were to examine minutely the indirect influence of alcohol in the genesis of melancholia, very frequent among wine drinkers who suffer from involution and arteriosclerosis.

* * *

Alcohol is not irrelevant, either, to the origin of delinquency; it is, indeed, the generous friend of it. Very frequently it hands over the passport to crime. The criminal often asks alcohol to silence fear or remorse—if a string of either one of these is still vibrating in his conscience—and to clear away for him the difficulties with which serene criticism obstructs the way to the carrying out of his criminal plan.

Alcohol puts to sleep the most delicate voices with which nature speaks to human conscience, suppresses the control of reason, and facilitates the thoughtless execution of the crime which emanates from low passions and egoistic instincts.

All statistics portray in figures the very great part alcohol plays in retarding the triumphal march of civilization. From Baer's 41.5 per cent to Claude's 45 per cent of crimes attributed to alcohol; from Feketin's (of Hungary) 50 per cent. to Wieselgreen's (of Sweden) 71.20 per cent for men and 11 per cent for women; from Dulhoff's (of Denmark) 31 per cent to Krol and Grigorieff's (of Russia) 24.6 and 47 per cent respectively, the proportion which alcohol is contributing to the thriving of delinquency is enormous.

From judiciary statistics of England we learn that out of 738,061 crimes of different kinds, 189,746 were due to intoxication.

In almost all countries the preceding figures are remaining at about the same height. Hamblin Smith, a student of delinquency in its relation to alcoholism, published a statistical study of prisoners in Wales, a region peopled by 921,000 inhabitants. The convicts committed to those prisons during the years 1911, 1912, and 1913 were 9,341, of whom 7,509 were men and 1,832 women; of the men 4,162 and of the women 1,252 were addicted to alcohol. The same author noticed a parallel between the high percentage of crimes originated by alcohol, and insanity and pauperism. (*Journal of Medical Science,* 1915.)

Among 507 criminals Marxo found 379 who used wine and liquors to excess. Only 8 of them were abstinent. Our statistics do not deal with the causes of criminality. Yet, a search after the causes of the ills included in this chapter on social pathology would be very interesting! They deal with drunkenness as an element of judgment in favor of mitigation of penalties. The convicts who in 1910 had their sentences reduced for intoxication were 8,384, of whom 2,969 had already been sentenced in preceding years. This figure was higher, 9,302, the year before.

According to the statistics for 1911 there were 438,360 sentences pronounced during the year, 40,345 of which were for recidivists who in 1908 amounted to 44,944. The convicts who had their sentences reduced on account of drunkenness were only 6,038; of these 2,284 were recidivists. But it must be noted that recidivists are very frequently drunkards.

The Italian statistics, as I said when pointing out the causes of criminality, only lightly touch the question of pauperism and record the proportion of the analphabets; but I do not believe that Italy should be considered an exception to the universal rule among the civilized people where alcohol is a powerful coöperative agent for the flourishing of criminality. If from the above-mentioned proportions of drunkards brought before the courts we cannot infer the pernicious influence exercised by alcohol upon the life of a nation, we can at least affirm that emotivity, irascibility, impulsiveness, the spite that moves to aggression, analogous to the sadness that colors itself with the duskiest tints of melancholia, the suspicion that advances ferociously up to uxoricidal jealousy, and the often threatening delirium of persecution are very frequent in alcoholics and in their children.

Many recidivists are alcoholics. The greatest number of criminals committed to the Naples insane asylum were wine drinkers who often could not withstand its use.

Nearly all of the most dreadful criminals I have had under observation had drunk before committing the crime. Many barrack tragedies owe to alcohol their *mise en scène.* Misdea, Radice, Caruson, drank before becoming the leading actors in ferocious bloody scenes. Many criminals, not drinkers themselves, are sons of drunkards. Lombroso and Ferri have supported the same thesis with powerful arguments. It is unquestionably in the drinking places that criminality prepares many war plans against civilization. Not a few uxoricides are traceable to the influence of alcohol. Sometimes it is the drunken husband who abandons himself to an impulsive violence animated by hatred and jealousy against his wife who has reprimanded him; at other times it is the wife who, tired of the daily ill treatments, conceives a plan to rid herself of her husband. The home of the alcohol addict is full of tragedy. He is trivial and obscene. He appears humble, but, like the epileptic, he is irascible, impulsive, violent. Revelers open his home to prostitution. He drifts farther and farther from work, abandons himself to idleness and vagabondage, becomes ever more enslaved by his instincts and ever more bewitched by the flattery of crime.

Years ago I was called to give my opinion on an atrocious murder committed by a man who, though he loved his wife, neglected her for his habit of drinking. Almost every day after dinner he used to leave home to loiter in the drinking places of his town, and almost every evening returned home tipsy or intoxicated. One evening he returned late, asked his wife for a bottle of wine and gulped it down. He refused to go to bed, but went to sleep on a mattress brought before the lighted fireplace in the kitchen. An hour later he awoke, entered the bedroom, seized his wife by the hair, dragged her from the bed to the floor, took a shotgun and leveled it at her chest. She struggled desperately, disarmed her maddened husband, unloaded the gun and ran to calm their small children who were frightened by the savage scene. Meanwhile her husband, finding, by chance, a cartridge, reloaded the gun and mortally wounded his wife.

Alcohol smothers every voice with which nature speaks to human conscience. It is a narcotic for grief and for the inhibitive powers, and we understand why it was so much celebrated by the greatest poets of all times and in many countries. Our great poet, Carducci, expressed this thought well when he wrote:

Amo te vite che tra bruni sassi
Pampinea ridi, ed a me, pia, maturi
Il sapiente della vita oblio.[4]

Alcohol produces profound alterations in the sentiments, in the intelligence, and in the conduct. The sense of dignity and of self-respect diminishes and gradually disappears; the sentiment of duty slowly grows deficient; business and social interests are disregarded; work is abandoned; the management of personal and family property is neglected; the education of the children is no more at heart; the wife is left to herself, is no longer protected, receives no more attention, and often becomes, instead, the object of the most illogical and inhuman

[4] I love thee, leafy vine, that smiles among the somber rocks,
While in me, gentlest one, thou ripenest the wise oblivion of life.

jealousy, of ill-treatments and cruelties. There is neither order nor rule in the alcoholic's family life, but only poverty and abjection.

The same can be said of prostitution as of criminality. The relation found by Fornasari between alcoholism and prostitution may be exaggerated, for he said that 80 per cent of the prostitutes have alcoholic origin, but Nanà is the genuine type of a prostitute produced by alcoholism in both of the parents, who were also bad examples. An intimate relation between these two evils is undeniable.

On Mondays workingmen are less attentive and accidents are greater in number than on Wednesdays, Thursdays, and Fridays, for the reason that men abandon themselves to the abuse of alcoholic beverages on Saturday evenings and Sundays.

According to Baer, 54 per cent of the separations between husbands and wives originate from the abuse of alcoholic beverages. The influence of alcoholic intoxications on the progeny is, under all aspects, harmful.

Alcoholism is transmitted as a tendency to drink, and generates in the offspring idiocy, imbecility, epilepsy, and criminality. According to Clare's statistics, criminals and epileptics together with the other varieties of human degeneration bestowed upon society by drunken parents amount to 80 or 85 per cent. This percentage is too high, but it is in part confirmed by French statistics. Out of 2,554 idiots, imbeciles, epileptics, and victims of major hysterias examined by Bourneville, 41.1 per cent furnished indubitable histories of alcoholic heredity. In St. Anna's asylum Dr. Robinovicht found alcoholic heredity in 54 per cent of the inmates.

Leaving aside the high percentage of the degenerates just cited, it is certain that alcohol weakens the evolutive power of the unborn child, especially the power of those organs that require for their development the greatest biological vigor, such as the brain, particularly in its anterior hemisphere. Imbecility and idiocy are effects of arrested cerebral development, or of a strong predisposition of the brain to disease, which is itself proof of weakening of the biological powers. Some agenesiæ, for example, of the pyramidal system, the premature death of some systems of bundles in the spinal cord, as is noticeable in Friedreich's disease, are frequently caused by alcoholism in one of the parents. As alcohol weakens all the biological powers of the intoxicated person, so it weakens the evolutive power and the biological resistance of the children. Fere, Ovize, Reize, and Mirto performed experiments to demonstrate the theory of the alcoholic genesis of child monstrosities. Fertilized hen's eggs, exposed to alcohol vapors in the incubators, gave, according to Ovize, 37.7 per cent of monstrous chicks. All statistics demonstrate that the monstrosities of the human mind—idiocy, epilepsia gravior, criminality—owe their origin, in a high percentage of cases, to the abuse of alcohol by the parents.

In the light of these facts it is easier to understand the disastrous action of alcoholic abuse on the spirituality, variability, and conduct of the parents, and on the transmissibility of these variabilities to the children. The nervous system of the yet unborn, whose evolutive power and strength are much reduced by alcohol, is particularly affected, with the immediate consequence of an alarming predisposition to cerebropathy, epilepsy, and criminality.

Alcohol, therefore, proves to be paralyzing in all cases because delinquency and epilepsy are effects of paralysis of the higher mental powers due to an incomplete and anomalous cerebral construction. On the one hand, idiocy, imbecility, indifference, lack of spirit and of every noble enthusiasm, and on the other hand, epilepsy, hystero-epilepsy, and congenital criminality are nothing else but the final manifestations of the damaged nematosperm or of the germinative paresis of the ovule.

In two years I received in my clinic the members of two families who were affected by Friedreich's disease in degrees of development varying according to the ages of the male and female children. Friedreich's disease may be considered a variety of spinal or of cerebrospinal idiocy. Independent of the fact that those affected by it usually are weak-spirited, the deficient evolution of some spinal cord fasciculi and of some cerebellar systems corresponds, from an etiological and pathological standpoint, to deficient evolution of the frontal lobes or of the speech area, as is observed in certain microcephalous idiots. Now, the only cause of the incomplete evolution of the spinal cord, and, therefore, of such a serious and irreparable disease in two entire families, was the great abuse of alcohol on the part of their respective parents.

It is opportune that the attention of physicians be called to these facts and to the frequency of psychoses and of neuropathies in a region where alcoholism is less serious and not as frequently met with as in some.

Indeed, the percentage of alcoholism in the southern provinces is lower than in other Italian regions, and lower, also than in France, in Germany, and in Belgium. Nevertheless, it is a very high if not an alarming percentage.

In a study on the pathogenesis of progressive paralysis of a certain number of patients about whose progenitors I obtained precise information, I was able to ascertain that, in 26 out of 87 paralytics, alcohol abuse exercised its baleful supplementary action.

From 1901 to 1906 inclusive, 2,446 men were received in Sales (my clinic), 427 of whom upon investigation proved undoubtedly to be alcoholics. This figure must be considered to be lower than it should be because not only was it difficult but indeed impossible at times to take anamneses of many of those admitted. Now it is a notable fact that most of the 427 were affected by the gravest neuropsychopathic conditions, not to mention the many forms of idiocy attributable to paternal alcoholism.

From November, 1902, to January, 1906, we treated, in the nervous disease dispensary, 779 patients, 154 of whom were certainly alcoholics. The morbid forms more refractory to treatment must have been due to alcoholism, for among the 154 we found 29 cases of progressive paralysis, to the development of which alcohol contributed, the disease being always of syphilitic origin; 27 cases of epilepsy; 24 of apoplexy in which were areas of cerebral destruction; and 25 cases of neurasthenia gravis and hysteria major.

During the decade from 1911 to 1921 there were committed to the Milan insane asylum in Mombello, according to the data courteously furnished me by Professor Antonini, director of that provincial hospital, 5,395 patients affected by alcoholic psychoses. Of these there was a percentage of death, a percentage (about 30 per cent) of recovery, and most of them remained *caput mortuum* in the insane asylum, a weight upon the expense of the province and consequently upon the working citizens.

Independent of this latter figure and of the number of deaths, we should consider the loss of hundreds of thousands of working days, the crimes committed, and—what is worse—the degenerative element introduced into the respective families in the form of imbecility, epilepsy, and criminality. The particular disposition to neuritis of the hereditary habitual alcoholics, in whom relatively mild traumata produce hysterical phenomena and sometimes neuritic degeneration of the muscles, is very significant. The gravest forms of hysteria arise from paternal alcoholism.

The demonstration of the poisonous influence of alcohol on the nervous system is no longer disputable. The proof is direct and immediate. We may argue about the greater or less nutritive value of alcohol; and the average dose at which our wine ceases to be an aliment and becomes toxic and insidious to the future of the individual and of the family may continue to be a subject of research; but the pernicious effects of the abuse of alcohol are beyond argument.

Idiocy, imbecility, criminality, and hysteria major are followed in a descending order by lack of spirit, indifference, idleness, vagabondage, tendency to gamble, malice, coldness for every noble enthusiasm, irascibility. This gamut of degenerative pictures is the final result of the evolutive paresis of the germinative cells. The evolutive power of the brain, under the same conditions, in any race and within the same race, is stronger where it has not been disturbed by any intoxication that exercises its action by introducing foreign elements which alter the chemism of the germinal cells and consequently disturb their biological orientation. Such a chemical alteration or deformation is transmitted through the ovule or the nematosperm to the beings of successive generations and reveals itself under the form of feebleness, of incapacity of the descendants to adapt themselves to their physical and social environment, and above all, under the form of the most varied anomalies in interhuman relationships. The enormous mortality among the infants of alcoholics demonstrates their inadaptability to their physical environment; the great proportion of bad characters, of epileptics, of idiots, of neurasthenics, of feeble-minded, and of stupid individuals, such as we find in the families of drunkards, show their inadaptability to their social environment. All of these constitute the sad inheritance of the parents' alcoholism. Here are a few statistics taken from the many available ones: from 120 women addicted to alcoholic intoxication, 600 infants were born of whom only 265 (44.2 per cent) survived infancy, while 335 (55.8 per cent) were either stillborn or died during the first two years of life. With the evolutive defect coincides the weak organic resistance of the alcoholic's children.

The mortality proportion between the children of sober families and those of alcoholics' families, according to Sullivan, is 23.9 per cent in the former and 55.2 per cent in the latter. The latter percentage rises to 57.1 per cent, according to this author, in the families whose alcoholic mothers descended from parents also addicted to drink.

It is important to note that among the children who survived infancy the proportion of epileptics is high (12.5 per cent according to Legrain and 15 per cent according to Demme), while in the entire population the epileptic percentage is from one per thousand, according to some authors, to six per thousand. The number of children of alcoholic parents that die during infancy from eclampsia is enormous (over 16 per cent).

A rapid analysis of our statistics gives us the subject-matter for our conclusions and concern. Under my eyes I have a valuable document furnished me by the General Director of Sanitation. It includes a record of twenty-six years, from 1887 to 1913. In all this period of time the number of deaths due to chronic alcoholism was 16,216 in an average population of 32,000,000. This figure is very low and might be considered negligible. But in some tables there appear 903,523 deaths from apoplexy (cerebral hemorrhage, thrombosis and embolism, very frequent in consequence of the abuse of wine, which produces early arteriosclerosis). In other tables there are recorded 61,523 deaths from epilepsy and hysteria, 93,300 deaths due to spinal-cord diseases, 92,670 due to progressive paralysis and insanity (this figure comprises a very small percentage of deaths from cerebral tumors), and 57,514 from suicide.

In all these figures alcohol occupies a not at all insignificant place among the causes, as my own statistics show. Even admitting that only 20 or 30 per cent of these deaths were due wholly or in part to the abuse of alcohol, though all would tend to increase the percentage of those cases in which alcohol was at least an inevitable accomplice, we still would have a very high number of victims produced by alcohol during the period of time under observation.

But this is not the worst of it. Between those who die of disease caused by alcoholic abuse, or who become insane or sick in other ways, and the perfectly healthy ones of a race, there is a large zone swarming with enfeebled men who have become bad, brutal toward their wives and children, given to gambling, violent or deaf to the warnings of moral conscience, without coming within the limitations of the penal code; and the greater part of the children of these excessive habitual drinkers who feel, in their higher mental functions, the influence of their parent's alcoholic intoxication should be taken into account also. They, indeed, bear the stigmata of the characteristics of degeneration without being themselves intoxicated by alcohol. And in Italy there are many more of them than we suppose!

The statistics and the studies conducted abroad and in Italy now furnish irrefragable evidence of the harm produced by alcoholic abuse, especially in the weakening of the nervous system, which, after all, presides over all actions and over the welfare of the individual and, therefore, of the family and the country. In order to form an idea of the number of victims of alcoholic abuse in Italy, it is necessary to collect data and facts, of which the following are a few.

Out of the 4,160 nervous patients that came for consultation to the dispensary annexed to my clinic during the years 1911 to 1915, 777 were alcoholics or sons of alcoholics. Of the 511 epileptics examined and treated in the dispensary between 1906 and 1911, 42 per cent had unmistakable alcoholic origin, 30 per cent were due to parents' abuse of alcohol and 12 per cent to their own. This proportion is far lower than the true figure because in 37 per cent of epileptics we could not determine the cause. Many cases of unknown origin tend to swell the number of the alcohol victims. Many clinical histories likewise give negative results either because the patients are not in the condition to furnish exact information about their families, or they and their relatives are reticent about reporting cases of insanity or habitual abuse of wine in their parents.

The truth is that many crimes are due to malice and to impulsiveness which alcohol has brought about: and many quarrels (quarreling, by the way, is a degenerative characteristic) have their foundations in spiteful irritability.

And this is not all. A great number of gastro-intestinal, cardiac, hepatic, and metabolic affections have their origin in the abuse of alcohol; some investigators even go so far as to find a correlation between alcoholism and tuberculosis. Early arteriosclerosis, early mental decline in men, impulsiveness, irascibility and, especially, exaggerated emotivity, are most often caused by the abuse of alcohol either on the part of the individual or of his ancestors. The damage that alcohol inflicts upon the central nervous system is also demonstrated by the degeneration of the corpus callosum frequently found in the brains of chronic alcoholics by Bignami, Marchiafava, and Mingazzini. Let us not sit down and rock ourselves thoughtlessly on the soft but dangerous chair of the conventionalism that in Italy alcoholism is negligible, and that criminality particularly owes its flourishing almost exclusively to pauperism, analphabetism, political adventures, climate, and the atavic structure of the Italian people. This latter cause is the philogenetic synthesis of numerous and different factors, which for thousands of years have determined a series of evolutional impulses and arrests, of variations and deformations, of adaptations and misadaptations, of attitudes and spiritual orientations, both useful and harmful, in the unconsciousness of the race; but no one can ever disprove the influence that the abuse of wine has exercised upon the anomalies and upon the deficiencies of a people, abuse that was and still is the inevitable consequence of the abundant production of wine in our country since a remote epoch.

When the northern people were at the dawn of their civilization and drank fermented beverages very sparingly, the Latin civilization was already singing her greatness and dedicating to Bacchus and to the vine the thoughtless impetus of poetry, in which they had already been preceded by the Greeks. And during the period of empire, at the banquets and at the festivals, among the wealthy and among the slaves alike, the consumption of wine was enormous; drunkenness was sung by legionaries and sailors, and from that time to ours the vine has received the artistic homage of the majority of our greatest poets. Whether or not alcoholic abuse played any part in weakening the energies of the Romans and contributed to the decline of the empire, nobody can assert positively, but we may presume it.

Alcoholism, on the other hand, is becoming an interesting social question, says Grotjahn (*Der Alkoholismus nach seiner Wirkung*, etc., Leipzig, 1898), mainly because of the prevalence of concentrated alcoholic beverages among the working classes. The abuse arises, perhaps, from the unconscious choice that forces man to supply with alcohol the deficiencies of alimentation, or to counterbalance with it the effects of the psychic depression produced by opposing physical and social circumstances. The nature of the occupation, especially in mines, the too long working day, the quality and quantity of food, and the domestic conditions are also etiological factors in alcoholism. In southern Italy, where industries are almost entirely wanting, and where extensive territories and entire provinces are traversed without seeing a chimney stack, alcoholism is coextensive with the malarial zones. The psychosomatic depression induced by the malarial infection and the scarcity of food lead the malarial patient to seek a stimulant. From the use to the abuse of wine the way is short when the occasion persists. The conviction that alcohol is a good safeguard against malaria is rather too prevalent. (Even Mircoli contended that alcohol increases immunity.) I do not wish to discuss the subject, but merely mention it, as a fact.

The joy of well-being produced by the use of alcoholic beverages invites repetition, and the weak do not resist the allurement of this illusory temptation. Thus zones are formed where, without the need of a painstaking investigation, malarial environment of alcoholics is seen wherein epilepsy and criminality are very frequent.

Habitual alcoholic intoxication, however mild, is the first step toward degeneration, if it is not itself a symptom, as some one maintains, of a neuropathic constitution. It is worth while to repeat that the abuse of alcohol produces disorder in the home, discomposure, an aversion to work, degrading of dignity, neglect of business, of office duties, of the profession, and even of one's own person.

Of the deleterious effects of alcohol no observer was ever able to depict a more real and vivid picture than Zola in his *L'Assommoir;* nothing shows better the delinquency, prostitution, the brutality in the alcoholic's family, than the pages of many volumes by that great

French novelist. An alcoholic mother gives to the world either a prostitute or a delinquent when she does not give an epileptic, an idiot, or a lunatic.

Maxim Gorky, likewise, has magnificently portrayed human degeneration in his *Creatures That Once Were Men*. Art and science speak the same language. Modern civilization ought to heed it and understand the intimate significance of its warning.

* * *

It is essential that humanity engage in the fight, giving the enemy no quarter, without concerning ourselves with the economic effects. More important duties rest upon us. During the last three decades more material has been collected than is needed to concrete an efficient and rational prophylaxis of nervous system diseases and of degeneration, and our duty is to extract from it the practical conclusion to oppose, with every means with which science is arming us, the causes that are enfeebling civilized humanity.

And considering this problem also from the economic standpoint, I observe that even if 20,000,000 Italians were to drink half a liter of wine daily, we would have to dispose of 3,000,000 hectoliters a month in our country, or 36,000,000 hectoliters a year. Our vineyards would not threaten our nervous vigor; and we could preserve ourselves from as much degeneration as might be caused by the abuse of wine, if the workingmen, the agriculturists, and the idle bourgeois, instead of drinking it soberly every day, did not dedicate many hours of their rest days to the cult of Bacchus, stimulating themselves to intoxication.

It was a great mistake on the part of the socialists to consent to the peasants, their co-religionists, soliciting, for certain farm work, from two to three liters of wine a day from the farmers. In such importunity the maleficent spirit of class struggle is clearly seen, that is, the determination to impoverish the owner as much as possible. But the tactics are wrong. A political ideality that could have civilized through education has soiled itself with the mud of degeneration of which criminality, so much favored by alcohol, is the most logical consequence.

Social phenomena and ethnic characteristics never grow out of one single cause, but out of many different ones in combination; and he would be wrong who would attribute these facts exclusively to heredity or to some other of the many outward circumstances among which the life of a country grows. We may, however, drink our wine in modest quantity without harm and should endeavor to discipline everybody in its use, the workingmen especially, so that they may not pave the way by their abuses on holidays for their own degeneration and for that of their families, but that they may add an efficacious aliment to the perhaps scarce amount that is allowed by their means, by distributing the overindulgence of the feast into moderate daily use of not more than 50 grams of alcohol, or half a liter of wine a day with meals.

We invoke all the sane energies of the country against the abuse of alcohol; but let us not expect prompt help from the legislative powers in the campaign against alcoholism. An indirect coöperation may come through the progress of social politics, through an educative school system, and through a better control in the workingman's family. The betterment of salaries, allowing more substantial alimentation for the workingman, and the rendering of work more dignified and remunerative would have diminished the abuse of wine and alcohol if the workingmen and farmers were instructed and educated. The number of vagabonds and of parasites upon the land and on other people's property has decreased, but the consumption of alcohol has increased.

A law is of little value when it is not reinforced by public education; and in this case education must consist largely in eliminating the prejudice that alcohol is unconditionally a vivifying beverage—the *water of life.* Such a prejudice should be fought and a conviction formed contrary to the one that has so far conquered the public spirit with the affirmation that alcohol, beyond a certain quantity, is a poison for the individual and for the race.

Without education, any law would have no other effect than to open a new field to the practice of fraud. None but the teacher in public school can disseminate an educational principle advocated with such great authority and effectiveness by physicians. The conviction of its harmfulness can only be instilled by science, of which physicians are the arterial rivulets radiating from the center to the most distant lands of our splendid country. The physician, that obscure and neglected pioneer of civilization, is to-day the real medium of exchange in the popular soul between the carbonic acid of error and prejudice and the oxygen of science and reality.

Education can accomplish more than laws in a country where the laws are not always observed.

In England there has been no such absolutely prohibitive law as in America and in Russia, yet, the number of those found guilty of intoxication decreased in one province from 700 a week in 1914 to 239 in 1917. In London and in forty other cities with a population of 100,000 inhabitants or more, 159,000 were found guilty before the War; now they are fewer. This goes to show that a sense of respect for one's self and for his country is diffusing throughout the populace, and that along with it is the sense of dishonor which falls upon the drunkard, on his family, and on the country to which he belongs. In Italy we must forbid the use of alcohol, and must persuade ourselves that we cannot drink more than half a liter of wine a day, and that with meals.

I have the most profound conviction that our system of land cultivation is not responding either to the alimentation needs, to the economic aims, or to the intellectual and moral exigencies of the country. It is not responding to the alimentation needs because, without violating the results of scientific researches, we may admit that only in small quantities is wine a nitrogen saver. The affirmation that even in modest proportions wine is a nutritive food has also been very much contested by some who maintain, contrariwise, that it is always a poison capable of injuring the normal activity of the nervous element. I do not wish to return to this profound dissension, but I believe that we will never solve this problem until we have formulated a more precise definition of the questions: First, what do we mean by alcoholism? Second, of which kind of alcohol do we speak?

In answer to the former question we may affirm that alcoholism begins when the organism does not burn the alcohol introduced. We stated that the organism burns an average of 50 grams of alcohol in twenty-four hours, and at most, one gram for every kilogram of body weight. On this Agostini, too, agrees. Alcoholism begins with the introduction into the organism of a quantity superior to this average. And I refer now to the diluted alcohol of our pure wines.

In answer to the second question we may say that for us Italians the situation is less serious than for inhabitants of the countries where distilled alcohol is drunk, for in the same amounts the alcohol of our natural wines causes less sensible damage. And we would be much less concerned if public officers, who are more interested in solving financial rather than social problems, did not encourage the production of distilled alcohol in the country. We should prevent the introduction of alcohol from abroad, wherein lies the greatest danger.

We should raise our voice high both against the use and the abuse of distilled alcohols, especially the methylic and the amylic, but let us remain calm about the moderate use of pure wine. Yet, I do not know how to reconcile my way of thinking with that of the absolute abstainers. If it is true that the use of fermented beverages dwindles away in the obscurity of time and at the dawn of every civilization, there must be something inherent in the physical and mental organism that determines, unwillingly, the desire for stimulating drinks. The most admirable development of the talent, the muscular strength, and the character of the Latins took place in a period when the production of wine in Italy was already very abundant. The first regulations concerning beer in England date back to the beginning of the year 1500; the wonderful development of English power and civilization was then contemporaneous with the enormous increase in the consumption of beer and other alcoholic beverages.

German civilization developed parallel with the progressive and extraordinary increase in beer consumption. Our *Rinascimento* sprouted and developed, irradiating upon the world a vivid light of civilization, in a vineyard country. The trouble is that we are apt to draw general conclusions from particular facts. This tendency to generalization is very harmful, as is the *post hoc ergo propter hoc*. Since investigators in all civilized countries have denounced the very high figures—almost identical in all of them—of insane, epileptics, idiots, and criminal sons of alcoholics, we have deduced the conclusion without any experimental verification that alcohol is the real murderer of civilization and of health. The thesis excites a certain fanaticism. (Humanity needs to become fanatical on something every now and then!) All fanaticisms are states of exaltation and have therefore a weak basis of positive observation, the constituent elements of which are the interest of the few and the exalted credulity of the crowds. In this question standards were wanting, and the criticism is therefore solemnly defective. Who can say what would have become of the world without alcohol? And what will it be when all vineyards are razed to the ground? In the first chapter I said that North American legislative measures against liquor have no scientific basis. They draw their clues neither from experience nor from human history. If Noah instead of drinking to intoxication had taken only one or two glasses of wine, he would not have become the father of Ham who represents human degeneration. It is said that Jupiter was intoxicated with wine before generating Vulcan, who was ugly and strabismic, a genuine Lombrosian type, driven away from Olympus. The harm, then, came from the intoxication. When we want to obtain from scientific propaganda preconceived results, we must put the problem on its practical basis of truth. And the truth is that nobody has so far demonstrated that small quantities of wine with meals—not on an empty stomach or with little food, as preferred by some experimenters—are harmful to the individual and to his children. I am sorry, but I cannot bend my conviction to that of many in Italy and to that of F. L. Fisk, the authoritative medical director of the Life Extension Institute in New York, notwithstanding the fact that I have the honor to be the Italian member of that splendid Institute. Fisk maintains, with many others in America, in Europe and in Italy, that "the greatest menace to society consists in the so-called moderate use of alcoholic beverages." He foresees that the daily use of small quantities will have no other effect than to distract these parsimonious people from "other resources for a superstructure of character." I know a great number of men, eminent in science, industry, business, and politics, who drink one or two small glasses of wine at each meal, and they are men of splendid ethical-intellectual qualities, even in their old age, and their families, when the wife also has come from healthy parents, are happy, industrious, and promising. Friends of mine who have filled with great dignity high positions in universities and in politics have been not "teetotalers," but sober, to be sure. Many who come from healthy families living in small towns are led into the habit of drinking by their drunken friends and also by their idleness. Imitation is a great factor in the initiation of degeneration. The armies of degenerates, insane, epileptics, and criminals, aside from the percentage made neuropathic by heredity, owe their degrading position in part to the abuse of alcohol, not to the modest use of wine. Since nobody has been able to furnish proof that small quantities of wine are harmful, absolute prohibition originated either from fanaticism or from the fear that small doses are suggestive and prepare the way for abuse. As to the fanaticism, even when it contains a nucleus of truth, it is harmful, and sooner or later is compelled to return to the temperate zone of life; and as to the fear, I have great faith in the intelligence of the Italians, though they were left for thousands of years in ignorance.

On the other hand, where is the normal and the perfect individual? Dr. Fisk asserts a great truth: that all men present some defect. Out of 25,000 examined in the Life Extension Institute "we have yet to find a mentally and physically perfect individual," he says. We cannot, then, attribute to alcohol, drunk in moderate quantities, the responsibility for all defects. But, I repeat, we should concern ourselves, in Italy too, not with the use of small quantities of the pure wines of our vineyards, but with the use of distilled alcohol.

In America the National Prohibition Act of October, 1919, which prohibited the use of alcoholic beverages (whisky, brandy, wine, and beer) gave rise to a powerful opposition. In the referendum about the greater or less utility of alcohol prescribed for medical use in many diseases, 31,000 out of 53,000 questioned physicians answered affirmatively. In New York State the affirmative answer was given by 65 per cent of the physicians, and in the City of New York 72 per cent of the medical men favored the use of whisky. As we may infer from such an attitude of mind and from what I have previously stated, it was not a case of total prohibition of small quantities of wine, which may be beneficial. The question is to prevent intoxication. The measure beyond which intoxication begins can be approximately determined. I have known many persons who could not get along without a glass of wine with their meals, asserting they could not digest food without a little wine, and did not feel well unless such a need were satisfied.

I remember that in our provinces, such as some Samnium townships and *"communi"* where I passed my first years of life, during the winter the peasant population fed almost exclusively on corn: corn bread, thin corn bread or corn bannock, and corn porridge or polenta. Only those who were well-to-do ate wheat bread, brown or white. Once or twice a year they allowed themselves the luxury of meat. Pulse soups constituted a minor appetizing food during the days when the peasants went to work for the farm owners. Food in these towns was essentially vegetables, and the use of wine moderate through a very ancient secular consuetude.

In a population of 7,000 or 8,000 inhabitants only five or six individuals were known to drink to excess; their families have disappeared. Moreover, in this township mental diseases and epilepsy were and are very rare; in half a century the population has almost doubled and was able to give to the World War a great number of valiant men, nearly 300 of whom lost their lives on the battlefields. Not one of them turned his back to the enemy; they fought magnificently for their country. To these heroes Vincenzo Bianchi, Jr., who was Medical Captain in a Samnite Regiment during the bloody battles of Monte Sei Busi, especially dedicated his work *L'anima del soldato* (*The Soldier's Soul*). One may infer from this that abstinence from wine, or sobriety, confers that mental and bodily soundness whence strength and courage originate, so that when a nation needs these noble racial virtues, it can count on them. We would recommend abstinence; but if such an ideal is not realizable in an essentially wine-producing country, it is better to implore moderation in which a great majority of men concur.

It is very true that this problem is entangled in the cogwheels of an infinity of interests, systems, agricultural methods, individual and collective habits that are partially the outcome of the mountainous nature of most of our cultivated and cultivable land. But all these cannot and ought not to obstruct the way for a serene and unprejudiced analysis of the situation; difficulties cannot prevent scientists and political men from facing and trying to overcome them. If a senile misoneistic spirit does not pervade us, every man of heart, especially the vineyard owners, should put before themselves the question of the future of wine production and, for their own interest, coöperate, in different ways, to redeem our country from a historical slavery that is oppressing our fortune and our thought. We are concerned over the enormous consumption of wine and alcohol, and our concern springs from the results of scientific investigations and from a vision of the future of our race. So-called civilization is advancing with an enormous retinue of ideas, aspirations, and tendencies. Among the masses of people bad habits thrive more than good; the ancient ones more than those suggested by the progress of science. Therefore, let us prepare ourselves, armed wtih knowledge, to arrest the march of our old enemy.

If our people have kept themselves sufficiently strong through the centuries and under most unfavorable conditions of existence, it is because of an immemorial sobriety, when viticulture was less extensive, and syphilis and tuberculosis rare. But since through transatlantic emigration, otherwise beneficial, tuberculosis and syphilis have become more frequent and little or nothing is being done against malaria, what would happen to us if we did not fight, with all the strength of prophylaxis, against menaces to the vigor of the race?

As we think of the unhealthy dwellings in the greater part of southern Italy and of the malaria that is so widely diffused, in almost all of our provinces, our surprise at the biological resistance of this population, the greater part of which did not yield to the ancient temptation, continues.

It is known that the course of the people's physical and mental evolution is influenced by numerous and complex causes and is always very slow. But modern government has, among other duties, the following: to guarantee the health of its citizens and to develop their mental and physical vigor. This task should appear the more imposing the more we consider that while many conspicuous families are languishing and extinguishing themselves, strong and promising offshoots are coming forth from the great social trunk of agriculturists, who are increasing in talent and in wealth. The agricultural population is the unconscious of the race wherein the fortune of the country is prepared and germinates from its virgin and uncontaminated depths.

Civilized people should improve their conditions of existence by healthy homes and suitable nutrition; but they must return to sobriety, else civilization will wear itself out. The dissolute chase for pleasure, alcoholic excesses, and urbanism are great threatening perils for the future of civilized people who are also permeated with political intoxication that unconsciously exalts the masses to inebriation.

The last war, which aroused so many popular energies from the bottom of the soul of the race, which destroyed a large part of our national patrimony and demonstrated that every unprepared citizen is a good soldier and may be an excellent and valiant officer, has disclosed a new horizon to national life and must consequently determine a new direction to farm politics. Now more than ever the Government should listen to the high and powerful voice of national interests in the civil struggle of its own country and others for the recovery of wealth. That a greater impulse may be given to the development of moral strength, a new orientation is needed in matters of agricultural politics; we need also a better plan in commercial politics, a sanitary political régime with wider horizons, a wiser school policy—which, as before stated, may be much more efficient and less depressing to the spirit of Latinity. Nationalism, I believe, ought thus to be understood.

I do not allow myself to offer proposals. But, it seems clear to me that from now on nobody should be encouraged to extend viticulture, and still less should any one be encouraged to substitute new vineyards for the Phylloxera-infested fields; the development of regional wine types having low alcoholicity should be promoted and the sale of them in bottles only be made compulsory. It will then be necessary to facilitate through commercial treaties the exportation of pure table wines to foreign countries where the people are now convincing themselves that their alcohol is poisonous for their respective populations, as are the people of Russia, England, and America. It will be necessary to award prizes for table grape productions, the exportation of which from Italy has only slightly surpassed 500,000 quintals, in contrast to the larger amount of grape products of the Rhine, French Switzerland, and other French regions. These wines are less sweet and less agreeable than the Italian product, for which a prosperous commercial future is reserved. The state should not speculate on the production of the very poisonous distilled alcohols the use of which is unfortunately diffusing in our country, too, but it should watch carefully against their use, which ought to be exclusively industrial; it should greatly limit the retail wine rooms, and gradually suppress liquor stores;[5] it should prevent the introduction of foreign alcohol and, finally, compel all the primary and secondary school teachers to catechize the pupils on the harmfulness of alcohol.

We should protect the country against insidiousness of tuberculosis, of syphilis and of alcoholism; we need the oxygen of a different culture and of different sentiments, that we may be driven along rougher but safer roads to the conquest of a well-intentioned prosperity of our nation, which is now overrun with too many men who are busying themselves, without regard to science, with the future of the country.

[5] See footnote 2, page 12.

CHAPTER VII

THE PENAL CODE AND PENITENTIARY SYSTEM

ONE of the measures that is moving our country and that is intimately connected with eugenics and mental hygiene is the reform of the penitentiary system and of the Penal Code. The two combined reforms, when brought into operation, will have a great educational efficacy for the country. It is painful to notice how good ideas, revealing by their originality the good talent of our men, meet even in our legislative and administrative precincts, almost insurmountable difficulties which always make us arrive too late in introducing a sound reform, while people of other countries have been for a long time enjoying the advantages derived from the adoption of these ideas original with us. Greater practical plasticity is necessary if our country is to have a more harmonious appearance of civilized living.

Increasing complications of national and international relationships among individuals and social groups are compelling both the State and the institutions best adapted to guard society to keep this problem at the focal point of their mission. The decadence or the moral weakness of some countries, if not corrected in time, will remain as a degenerative element and will exercise a not-to-be-forgotten influence on the national and international fortunes, for moral weakness impresses a mark of inferiority which is transmitted to future generations. Whether education be religious or naturalistic is of little consequence; what is important is to know that the laws of a country contribute largely to its moral structure and, when equitable, possess a restraining and therefore an educative content. The same may be said of the penitentiary systems.

No man of education can overlook the great difficulties that are in the way of revising and coördinating the classical Penal Code, according to the latest disclosures of biology, which have already opened wide chasms in judiciary practice by an almost unconscious adaptation of the judiciary organs to the truths that experience has brought into full light.

The present Penal Code is a mechanism too worn out and rusty; and it should, therefore, be modified in obedience to the voices of practices and of experiences, for life is always renewing itself against the old juridical customs that are no longer capable of regulating and restraining antisocial eruptions.

The reality is dynamogenic, and it is desirable that it be not broken to pieces against misoneism to the detriment of civilization. If life is renewed in its structure, in its tendencies and in its manifestations, codes must be modified according to the exigencies imposed by the new forms of life and the new social attitudes.

Changes in ways of feeling and of acting, that is, different spiritual contents, and through them new activities and determinations, perhaps too hedonistic, have taken place under our very eyes.

The classical Penal Code was inspired by the dualistic philosophy. None would dare to-day to maintain that it is the perverse soul that arms the hand that commits a crime and that, therefore, the delinquent should be punished according to the severity of the offense. We say, instead, that the delinquent is a feeble-minded one, inadaptable to the civil and moral exigencies of the community, and that he should be punished, not in expression of a social or divine vengeance, but with the thought of eliminating him from a society whose necessities and laws he is incapable of respecting and feeling. Such a feebleness can be corrected by suitable means and methods more than we believe. The presupposition of punishment, with the present social organization, exercises a by-no-means indifferent inhibiting power upon criminal tendencies; and from this viewpoint punishment proves educative for many, just as the presupposition of punishment in Hell used to in the past, and still does even to-day. But we should convince ourselves that as the deforming aspect of jaundice is due to some hepatic trouble, so the original or acquired moral deformities of a man are due either to a disease, or to an insufficient brain evolution which in its turn depends either upon the hereditary deficiency or on the moral attitudes of the environment. If this is so, therapy or, better, psychotherapy, especially prophylaxis, can accomplish a great deal in hindering the progress of criminality. And, indeed, if criminality depends in most cases either upon evolutional defects in the brain, or on a disease, we should find causes and strike them at the root. This is our social duty, yet the difficulties in the way of carrying it out are often insurmountable, because the causes are often found in the environment.

The commission that has been studying for some time the formulation of the articles of the new Penal Code, for the general conception of the proposed modifications has pervaded our legislative conscience, has a great responsibility for the future and the dignity of the country. And it is to be hoped that Enrico Ferri's report, a magnificent document of modern jurisprudence, will not gather dust in the archives of the ministry or the commission. Enrico Ferri, a far-sighted legislator, kept himself within the reform limits of the most essential parts of the Penal Code—that is, within those that conflict too much with judicial practice. This practice in the meantime has gradually adapted itself to scientific postulates, but only so far as to be a serious detriment to the social order and to the juridical dignity of the country.

The statement that criminality is increasing—that increase in crime takes place in greater proportion than increase in population—is very questionable. Like neurasthenia, it increases with the work and the complication of modern life. Such a complication exacts more energy, more discipline, a great facility of adaptation; and not all, to be sure, develop sufficiently in brain power and relative fitness for such demands.

The aspiration for happy living does not hold true in unwilling individuals, for it ferments and excites dreams of happiness at little cost. A misconception of human equality foments the wicked tendencies of the predestined souls; the daily press furnishes in the dramatic reports of court trials the means and the methods used in transgression, and reveals also plans for defense.[1] The weak and slow repression caused by errors in legal proceedings offers an insufficient resistance, and rapidly acquired wealth, sometimes pompously boasted of by men hav-

[1] See footnote 2, page 12.

ing an obscure past, gives a kind of moral passport to the many predisposed and not too scrupulous ones. Among other duties, the State has that of developing the ethical sentiments of the people, who pay in order to strengthen its protective function for the benefit of all citizens. To the State belongs also the task of furnishing the means apt to promote, methodically, a more rapid and harmonious intellectual, moral, physical, and economic evolution of the people. Men and societies who abandon themselves enthusiastically to the cult of gold without any regard for other people's interests have lost the way of human solidarity and of spiritual sublimation. What is taking place in Italy and in many other countries that have been belligerent does not need much comment. A proof of the people's chase for pleasure and of the increasing neurasthenia affecting them, which causes the preoccupying restlessness of the senses in the search for happiness and for new impressions, is furnished by the enormous profits of about 17,000,000 lire a year that the motion-picture and the other theaters are making, and by the abuses of wine and alcohol. Since 1899, when I conducted my conference "On the Nervosism of the End of This Century," conditions generally are very much worse. The phenomenon of the increased expenditure for sensory gratifications coincides with pauperism, always relative, which is a complex product of the social and political conditions, especially of the very serious condition of the high cost of all the necessities of life. And nervous asthenia, which has a very different origin, is not foreign to this phenomenon. Some facts lead to the conclusion that in some countries pauperism has increased since the War. In Italy this may be demonstrated by the increased number of pawns, even in some of our wealthy cities, as I gather from an interesting work by Vidoni.

I owe to the courtesy of the General Director of Statistics some figures showing how the greater consumption of nervines coincides with the increase of pauperism. A few of these are sufficient. Between the years 1921 and 1923 inclusive, Italy consumed annually from 478,913 quintals of coffee (1921) to 480,597 (1923); the consumption of tea increased from 914 quintals in 1921 to 1,938 quintals in 1923. The number of pawns that in 1921 was 1,174,109 for a value of 137,540,130 lire, in 1923 reached 1,340,309 for a value of 188,635,160 lire.

A variety of group neurasthenia—and I judge the anarchism of 1899 to be such—manifests itself in various other forms, among which is criminality.

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That criminality is mostly an effect of inherited morbid conditions and of particular environments, or a product of alcoholic intoxication, or that it is determined by political revolts, is also proved by the remarkable number of nervous and mental patients reported in the statistics published by the Ministry of the Interior for the year 1917.

It is important to note that the neuropsychopathic varieties in the prisons, reported by prison employees or by prison physicians, usually ignorant of psychiatric education, are the very evident ones that impress the laymen. A painstaking psychic-anthropological and anamnestic examination of each prisoner brings to light, in most cases, neuropsychopathic and hereditary stigmata. The diseased prisoners, therefore, from a neuropsychiatric standpoint, are much more numerous than are reported in the statistics. Rigorous psychic-neuro-anthropological researches conducted on a large number of criminals during my forty years of teaching and during the long period of time I was medical director of two large insane asylums, in Palermo and in Naples, confirmed me more than ever in this conviction, namely that criminality is an outgrowth of evolutional defects such as heredity and environment, or of disease, such as the neuropsychopathies, or of intoxication from alcohol and so forth, or of such infections as syphilis and other infectious diseases. Each of the famous court trials in which I acted as an expert (Misdea, Paolo Conte, Sybilla Shaw, Caruson, Caporale, Musolino, Villespreux, and others) offered me a considerable field for investigations, the results of which confirmed the thought expressed above. The same conclusions can be drawn from an interesting book, *The Manner of Man That Kills* (Boston, 1921) by L. V. Briggs.

Recently some studious Americans, Dr. Clinton P. McCord of the Albany School and T. Raphael Arnold, L. Jacoby, and others of the Psychopathic Clinic of the Recorder's Court, and so forth, deduced, from an analysis conducted according to a medicosocial study of 1,988 offenders of all degrees, the idea that most often crime "is not a specific, static and inorganic entity, but a dynamic and vital reaction of a social mass of beings of high potentiality in the kaleidoscope of an extensive individual-social netting that induces a bad adaptation." We may say more plainly that crime depends upon a structural or functional (toxic) anomaly of the brain and that for this reason all prophylactic and curative efforts should be conceived and directed from this point of view, with the intent of purifying, within the limits of possibility, the social organism. In fact, 33.4 per cent were found mentally inferior to the average of their age, and 14.8 per cent feeble-minded were intellectually comparable to children under eight years of age. The latter figure is very high when we consider that, in the general population, the feeble-minded vary in proportion from 0.02 to 2 per cent.

The above-mentioned figures correspond more or less to those reported by Glueck. The situation is still worse in the case of the group of recidivists whose mental anomalies reached about 68 per cent in Glueck's statistics, and 44.6 per cent according to the authors under discussion. The fact is important that recidivists furnish much higher figures of real psychoses, as dementia præcox, alcoholic psychosis, epileptic psychosis, in fact, psychoneuroses in general. To this percentage we must add the figures of the intoxicated psychopathies.

Young offenders, especially the adolescents, should be studied by the most rigorous methods, not only from a neurological and psychiatric standpoint but from the standpoint of their environment; for human conduct is, in part, dependent on the inner conditions of each man, but mostly on the circumstances of his environment. Family influence is, indeed, very great. Neuropsychopathic variations in the parents and in the grandparents could only be demonstrated in 14.1 per cent of the cases, while in 20 per cent a particular constitutional structure caused by tuberculosis, alcoholism, and syphilis was manifested. And if the investigation were pushed with sincerity in all families (difficult, indeed, would it be to do this!) the preceding percentage would be increased greatly.

Besides the morbid conditions I have mentioned, the family situation must be studied as to poverty, disease, dissoluteness in habits, parental desertion, abandonment of children, and so forth. The influence of all these causes was evident in 41.7 per cent of the total figure. Not a small number of young offenders showed upon investigation the most characteristic notes of moral degradation associated with a neurotic state. Among them were thieves, vagabonds, incendiaries, solitaries, dissimulators, and others who were timid, unyielding, querulous, impudent, effeminate, sensual, perverse, adventurers, or victims of nocturnal enuresis.

I have before me a book published by Collin and Rollet on infantile medical jurisprudence, in which the conception of the morbid genesis of criminality, especially of the minors, is set forth. Seventy per cent of the young offenders examined by these two neurologists were found abnormal in different ways, both in their origin and their clinical form. Here, too, the great influence of three main groups of causes is confirmed: the neuropsychopathies of the parents or grandparents, the toxic infections, especially syphilis or alcoholism, and the very bad environment in which these criminals spent their first years of life. It is not necessary to spend more time on this literature, for the facts are confirmed more and more definitely every day. Collin's researches have also demonstrated the possibility of detecting very early in these branded children the neuropathic phenomena by following, by an accurate analysis, the development of the small being from the first months through the successive evolutional phases.

For the last forty years the Italian school of Criminal Anthropology, with Lombroso at its head, together with almost all the psychiatrists of the country, has been maintaining this thesis.

A great emphasis should be laid upon gestation. It is now irrefutably proved that infectious diseases, strong emotions, ill treatments, falls, and blows against the abdomens of pregnant women, exercise a disastrous prenatal influence on the unborn child. I pass over the question of whether, and at what period of gestation, luetic infection is transmitted to the unborn babe, but I cannot let pass in silence the influence exercised by attempts at miscarriage to which Nageotte, especially, called attention. For miscarriage represents a kind of shock and is equivalent to an alcoholic intoxication. The experiments of Feré and others demonstrate the fact that blows, as well as ovular intoxications, have a teratogenetic effect.

* * *

If this thesis is so, and I am sure that time and unprejudiced observation will evermore confirm it, it is evident that the codification of penal laws, and the penitentiary system, must be substantially modified and coordinated so as not to lose sight of the three essentials that civilization imposes upon us: social defense, prophylaxis of criminality, and the redemption of the criminal.

The Honorable Professor Enrico Ferri, the reporter of the Commission appointed for the reform of the Penal Code, on the basis of advanced biological knowledge, wonderfully reconciling the scientific postulates to the juridical customs of our country, proposed the minimum that could be asked. The conclusions of the report can be condensed into the following propositions:

1. Not the criminal act alone must be taken into consideration, but also the person who has committed it. The conviction of responsibility must be rounded out with knowledge of the psychophysical condition of the criminal.

2. Not the crime *per se* must be the standard for punishment, but the punishment must be conditioned and measured by the moral structure of the offender and by how much he is to be feared. In other words, the problem is to shift the fulcrum of the penal laws from the crime to the criminal, as Ferri wrote.

3. Not the gravity of the crime, but social defense should be the criterion of punishment. This conclusion is deduced from the fact that crimes of little gravity may be repeatedly perpetrated and consummated by very fearful criminals, while very serious crimes may be committed by men who have not a criminal soul, but in whom the tendency to crime has grown from inner circumstances such as nervosism, strong emotivity, passional states, subnormal mind, suspicion, fear, illusion, hallucinations, and so forth; or from grave crises of life which sweep away the powers of reflection and of inhibition that, under normal conditions, are sufficient to enable even a mediocre man to adapt himself to laws and to environment.

The sum of disintegrating stimuli which slowly corrode and depress the regulating powers should be considered. Among the determining or predisposing causes of crime, intoxications and infections—alcohol, syphilis, previous infectious diseases—occupy a conspicuous place.

If the Italian legislator enters into the line of thinking arrived at in all countries after long experience, that crime is an inevitable social phenomenon of a morbid origin, in the widest sense of the word, and that consideration should be given in the penal sanctions to the fearfulness of the perpetrator as well as to the crime, we will have a safer social defense, because for an indefinite time the most dangerous criminals will be eliminated, and a more logical orientation of the penitentiary system, with a prophylactic aim, will be achieved.

Two factors contribute to conduct: heredity and environment. Psychopathic heredity reproduces, for the most part, a mental activity in dissolution. Dissolution means decomposition of the mental organism considered in the historical moment of an ethnic group, with loss or weakening of the most recent products of evolution, such as the moderating powers in the field of thought, of sentiment and of conduct; which conduct in the rebellious bears the mark of unmorality, and consequently is changed into simpler reflexes as the impulses of an individual who is in contrast with the reflexes of society. It is certain that the moral sense, and with it moral customs, gradually evolved through a multiplication of interhuman relationships, in the same manner that the languages of the most evolved peoples developed and enriched themselves, and that the struggle for life, on which criminality is pivoted, became complex through the same power. Thus the aspect of criminality increases and complicates itself in a certain proportion to the number and the structure of life's mechanisms; for not all men can reach the most complex forms of adaptation to environment. Many remain who represent former degrees of evolution which contain the elements of criminality.

On the other hand, in the complicated mechanism of political life, the laws of the State often prove to be a discouraging simulation of equality and of justice, and manifest, in fact, their imperfection and the imperfection of the means necessary for applying them; for this reason victory often smiles on the crafty who remain impassive before the humiliation of the honest who confide in the law and in the general morality.

The rapid evolution of civilization in recent times, compared with the almost static condition through a long past, furnishes most convincing proof of the progress and the renewal of the ethical sense which still is the rule of life for individuals and peoples; but too many are the retarders, through whom we can easily understand the increase of criminality, the different forms it assumes, and the necessity to modify and to renew the codification which must follow the changing attitudes of man in the struggle for existence.

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The commission entrusted with the formulation of the new articles of the Code must, then, greatly concern itself with the modern forms of criminality that are developing with the complication of social relationships, especially in commerce, in industry, in banking institutions, in public offices, and so forth. Against this criminality, already mentioned in the first chapter, that is attacking at every step the life of honest and confident workingmen, our legislation does not possess sufficient weapons of protection. Hordes of men under the guise of gentlemen but with pliable consciences are exploiting the work, the politics, and the good faith of the honest, and they laugh and enjoy themselves in constant trifling with the criminal code. Is it possible that a society, wishing to be civilized, is not able to find a way to punish severely these human leeches that suck the work of others who, in addition to their misfortune, must bear also loss and the jeers of the parasites?

That the Penal Code of many lustra ago did not contain precise regulations for this variety of criminality, is understood, because the simple and almost archaic life of bygone times did not offer material for a legislation that has become both necessary and urgent for the protection of the welfare and dignity of the members of a civilized society. Against this more diffused criminality a clear and precise codification is needed, together with a rapid and rigorous procedure which should allow no escape through the loopholes of intrigue, so that the trial, even when it can be effected, is made abortive.

What contradictions are in our codes! If an honest and good girl, overtaken by the fascination of love, deceived by promises, exalted by caresses and by words, abandons herself without fear of the outcome and then, awakening to the realization of her dishonorable act, and in despair seeing the frightful vision of her family's vengeance, she tries to save herself in the tragic moral situation by resorting to an obstetrical operation and is discovered in this, it is the end of the world! The police commissary, the King's prosecutor, the examining magistrate, police agents, invade the unfortunate's home and drag her to prison like a terrible criminal! And with what voluptuousness the case is given to the press to satisfy the curiosity of the public! Who has ever comprehended the meaning of the infinitely great and irremediable moral loss inflicted on a wretched creature and on an honorable family? What kind of morality is this? Is this, indeed, the task of a law that wants to regulate a civilized society? Certainly the law is not permitted to drag into the mire a harmless creature for whom, because of an error which may not have been hers, no other way remains open but the monastery, the insane asylum, the brothel, or the next world! A civilized spirit cannot endure such a scene in the face of the other picture of a gentleman who allows his name to be used in the endorsement of a bank, the later failure of which draws into its own ruin the hard-earned savings of who knows how many families! Civil legislation must exercise a protective and educative office, and should not cause, without any reason of social defense, so much grief and so much damage. The honor of a family may be a small or a great treasure, but the loss of it equals a great financial fortune, or even life itself, if treacherously suppressed.

Much must be corrected in a code that is still manifesting the powerful but equally noxious influence of the dualistic philosophy, and of the now phthisical conception of free will.

The proposals made to solve the problem of criminality err in the method of investigation on the nature and origin of criminality, especially of juvenile criminality. We have good books, such as Ferriani's, and notable studies, but few well-organized schools; and, except in a few cities, we lack a school sanitary service adequate to the purpose we should aim at. And this independent of the fact that many children among us do not go to school and that neither the State,[2] the township, nor the family concern themselves with this deplorable neglect of the education of the children of our common people, which is one of the fundamental functions of a civilized community.

We should apply to criminality the same principles we have been using lately in facing the problem of tuberculosis, establishing dispensaries, and constructing prophylactic hospitals where it is possible to make an early diagnosis at the beginning of the disease, or even to form a simple suspicion, we might say, of a tubercular constitution.

In many northern countries, in North America, and also in South America, such an investigation is conducted in well-organized schools, not only by educated teachers trained for the purpose, but by physicians specially trained in psychiatry; and here and there, veritable clinics are instituted for the study of criminals as well as of other mental patients. Data on family history are collected, on the development of infancy and of childhood, on the home and on the neighborhood, on the habits and on the interests of the child in certain objects. Investigation is carried into the school period and into the offices where the adolescents are employed up to the time of the crime. Then they are subjected to physical, anthropometric, neurological, psychiatric, and psychological examinations. In the psychological examination is included the tests necessary to determine the degree of intelligence, of memory, of abilities—mechanical or otherwise—of motor coördination, of arithmetical or abstract

[2] See footnote 2, page 12.

reasoning, of analytic power, of perceptive activity, and of particular capacity or incapacity. This is just what we ought to do, even though in imitation.

The day when the country possesses a census of the entire school population, and of the deficient, the abnormal, those ruled by instinct, the sick, the irascible, the epileptics, the stammerers, and so forth, will be a signal day when positive prophylactic rules can be applied against criminality. Great will be the benefit that individuals, families, and country will derive therefrom.

* * *

The penitentiary system should aim at the therapy of these morbid states that give a notable contingent to criminality, at the moral education of the receptive ones who are much more numerous than we believe, at the elimination for an undetermined period of time of the ineducable and of the rebel, and at the suppression of Articles 46 and 47 of the Penal Code which constitute another open safety valve for habitual criminality, against which should be directed in a particular way the most serious provisions for social defense.

The principle of an undetermined time-sentence has received the sanction of eminent men in many Criminal Anthropological and Penitentiary Congresses, such as were held in Rome, Colonia, Washington, and Copenhagen, and of many penalists and sociologists who have developed more or less the thesis already sustained by Garofalo, Ferri, and others in Italy (Lombroso, Zuccarelli, Florian, Franchi, Carrara, Colajanni, Mortara, and government officials). It has already been applied in many states both in America and in Europe. Among us the projects of law concerning recidivists, who are mostly habitual criminals, did not meet with success.

As can be deduced from this very brief sketch, criminal anthropology, for which I instituted a chair in homage to the fertile and genial work of Lombroso, wherein is clearly contained, in germ at least, the prolific thought of a new penal legislation and of a penitentiary system better corresponding to the biological criteria now pressing toward a reform, assumes supreme importance for its neuropsychopathological and sociological content.

And while in the very same report of Ferri a psychological or anthropological education for magistrates and for sanitarians of prisons and schools is earnestly recommended, the Superior Council of Public Education and even a Minister, denied such a function to the Universities of Turin and of Naples!

We go so far as to permit even South American states to pass ahead of us!

Last year (1923) Dr. Palacios, in his inaugural address at the dedication of the physicopsychological laboratory in the Department of Law of La Plata University, uttered a severe judgment on the constitution of the law schools by affirming that law in itself, especially the penal law, is founded on man's physical and psychic structure.

The conception of imputability is pivoted on this knowledge. We are tending to-day to establish closer relations between physics and chemistry, psychophysiology and medicine on the one hand, and the moral and economic juridical sciences, from which shall emerge the great dignity of sociology, which must and will be the science for all on the other.

* * *

Having proved that criminality originates in man's abnormal psychophysical structure, peculiar or not, but always of morbid nature, even when produced by the environment; and having proved that upon its genesis the surroundings exercise the greatest determinative power; the corollary, recognized and efficiently acted upon in all other kinds of disease, follows: namely, that therapy and prophylaxis should be applied to criminality. The Penal Code reform appears closely and inseparably connected with reform of the penitentiary system.

The present penitentiary system satisfies only some of the postulates, and these incompletely, inasmuch as it develops the inhibitive power that punishment inflicted by law exercises on the criminal tendencies in a category of feeble-minded men. Social defense is in part obtained by eliminating from human society, for a determined time, an individual who offends with his crime the moral sense and the material interests of the community. But, the system does not provide either for the treatment of the diseased criminal or for the education of those who are not really sick but only feeble and abnormal; and, strictly speaking, it provides still less social protection. Our country that has furnished others with powerful scientific thought [3] and in which the question of penitentiary reform has long been agitated, has lagged behind many others that have, meanwhile, accomplished, or are about to accomplish, the great reform.

The penitentiary reform in Belgium is, indeed, essentially due to the authority of Van Hamel, who in a splendid address delivered before the International Con-

[3] The mere mention of Cesare Beccaria and of the school of criminal anthropology suffices to corroborate the statement.

gress of Criminal Anthropology, held in Turin in 1906, in eulogizng Italy mentioned Cesare Beccaria who said to Humanity, "At last you know justice," and Cesare Lombroso who said to Justice, "At last you know man."

Though a thorough discussion of such a subject is outside the scope of this chapter, I feel the need to refer briefly to the system devised in Belgium, where the fundamental principles informing to-day's criminology have been adopted. If the criminal is sick or abnormal, suitable means must be used to discover his anomalies and their nature, and to clear his psycho-organic situation.

Above all, the necessity has been felt to trace out the proximate and the remote causes of the tendency to crime which are either individual, familial, or environmental, and to be assured of the social and professional value of each convict.

The examination of the convict leads directly to the conception and employment of treatment, of prophylaxis, and of a safer social defense. It is well known—Ferri also stated it in his report—that recidivists are the most harmful or the least corrigible even when their crimes are not very serious; on the other hand, it should be borne in mind that there are irreducible criminal natures upon whom it is necessary to exercise greater severity, according to the cases. The Belgian convicts, indeed, are, as a rule, treated physically, and I may also say, medically; they are educated and instructed in accordance with particular pedagogic methods directed to complete and develop their moral sense. Efforts are made to prevent the second offense by acting upon the causes of criminality whenever possible, especially by disaccustoming criminals to intoxication. In case they are unskilled workers a trade is taught them suitable to their physical and intellectual capacity, and the *"reclassement"* possibility of the convict is always held in view.

To reach such a breadth of idealism some conditions are indispensable: moral preparation of the personnel, special arrangement of the buildings, and a psychopathological and anthropological education of the prison physicians. In such a system the physician assumes a very important position created by his professional function in both the medical and the psychological field, and consequently he is a very important help to the director of the organization.

Labor is a fundamental consideration of this great reform. Says Dr. Verveck, director of the Belgian Penitentiary Anthropological Service:

> We do not have any intention of suppressing the cell system and of allowing the classes in our penitentiary laboratories a liberty that would be dangerous and immoral.
>
> A careful selection of convicts will eliminate from the privilege of working in groups, which, in our opinion, must constitute a favor, all those who show themselves to be disturbers and undesirable from a moral viewpoint.
>
> The hardened recidivists should disappear from the ordinary prisons which we are trying to transform into schools, into sanatoria and into workshops especially destined for occasional criminals, who must be saved, if possible, from social decadence.
>
> The elimination of the recidivists from society is the third goal the Belgian penitentiary reform is aiming to attain.

Nine anthropological laboratories have been organized in a surprising manner wherein 1,700 complete *"dossiers"* of as many criminals were elaborated in 1922, their aim being to examine thoroughly not less than 2,600 inmates a year.

In Italy we have organized a splendid school destined for the identification of the criminals, principally through the fervid work of Professors Ferri and Ottolenghi. We should have organized anthropological offices in the main penal institutions; we have created instead a poor institute such as that of the judiciary insane asylums which, from a certain standpoint, are also good institutions, but they represent a very small portion of the great penitentiary reform that I outlined and that should be realized in the not far distant future.

To eliminate a few among the very many recidivists, we invented the *domicilio coatto* or "forced domicile," that we have not yet the heart to suppress.

Since the criminals sent to the "forced domicile" are almost always habituals and recidivists, it is a mistake to send them there; it is not sufficient to remove them from the social environment, but they must also be separated from their toxic environment. They must be disaccustomed to the use of alcohol, and developed, by means of instruction, education and labor, as well as by proper nourishment, in those sentiments that have remained in the embryonal stage and that, according to my experience, can in many cases be brought to such a degree of development as to reconcile the criminal to society even though the training takes a long time.

The government of criminality should, therefore, be entrusted to the alienists in the penal institutions organized with schools and workshops that I conceive to be very different from the present criminal insane asylums. "Forced domicile, with idleness and alcohol, is a school of criminality and a means of intellectual and moral deterioration," as I said before the Chamber of Deputies.

It is not for me to relate the thought of the Italian legislators who interested themselves in the argument with the intent of remedying the evil, and I will not repeat it here.

Erroneous was the idea of the legislator who hoped to bring about the ennoblement of the criminal by sending malefactors far away and distributing them, according to the regulation of the "forced domicile," in agricultural or manufacturing townships with the belief that they would find work and accustom themselves to the discipline of life. However, the individual instincts of the criminal at intervals ferment and are in complete discord, irreconcilable to social instincts and tendencies. Neither does he adapt himself to the circumstances of labor, of order, and of discipline, unless he has already been educated in suitable prison institutions, nor would the factory and the farm welcome such antisocial beings who cannot guarantee the efficiency of their work or their peacefulness in their surroundings.

The present prisons, in which still prevails the very old criterion of punitive justice, exercise a baleful influence on criminality, especially if they receive adults, young men and young women, and sometimes adolescents promiscuously. In one of my addresses to the Chamber, I affirmed that the prisons are schools of criminality. My observation is confirmed by Dril. Conditions among us have somewhat improved, but not so much as not to need reconstruction and re-creation.

* * *

THE PENAL SYSTEM

Since the War we have witnessed a veritable flourishing of criminality in all its forms. War devastated the ethics of our country as well as of others. Thefts, embezzlements, prevarications, fraudulent failures, bankruptcies, rural and urban brigandish exploitations, and violence against persons and properties have in these last years been of alarming frequency. The shock and the sufferings of the long war, the sight of hundreds of thousands of slaughtered men and the loss of enormous amounts of wealth that had been accumulated by all classes of citizens during centuries of labor, have depreciated life and property; a veritable gale has blown over human ethics which was, perhaps, just germinating from souls in the process of evolution.

A strong society either educates the elements unadapted to the environment, or eliminates them, though she tries to make them more consonant to her requirements. A society is weak or diseased if unable to eliminate the criminals that are the enzymes and the toxins she produces; just as the human organism is sick when the eliminating organs, for various morbid causes, cannot fulfill their function of transforming and eliminating the toxins produced by it.

The "forced domicile" (*domicilio coatto*) carries back into circulation the more prostitute and abject antisocial elements—the masters in criminality that ordinarily are the poisonous enzymes. It is, therefore, necessary to set ourselves boldly to work for a good penitentiary reform, even though we have to imitate in some respects the Belgian reform and others.

* * *

Now that we possess Giubaland, which must undoubtedly become valuable, a penitentiary agricultural colony could be organized with a certain number of recidivists who are allowed to enjoy the privileges of labor, school, and relative disciplined liberty. Natural selection would take care of the results, through the application of its inexorable laws. There the stronger, the more intelligent and corrigible ones would, perhaps, form the nucleus of a civilized people whose future would be profitable to themselves and to our country.

England reformed herself by inflicting severe punishment on every form of criminality and by sending undesirable elements far away from the home land. It is sufficient to remember that even for petty crimes a death sentence was pronounced which could be commuted into deportation at the request of the condemned one. Under George II poaching was punished by exile to America, for from seven to fourteen years. Under James I from 1614 to 1617 even prostitutes were sent away to Virginia.

Deportation to American and Indian colonies was so frequent that in 1776 Maryland protested and decided to repulse the deported English. Sometime afterward, Franklin, speaking on deportation to America, asked what England would say if America should send rattlesnakes to her! Another resort became available to England for her criminals—Australia. The history of deportation to this part of the world is extraordinarily tragic. What occurred in North America occurred also in Australia.

Deportation was an enormous expense at the beginning. In 1840 Tasmania cost the English Government 300,000 pounds sterling (7,500,000 Italian lire) though it was one of the wealthiest regions in cultivable soil and in mines. But the expense gradually diminished, and now Australia is a large contributor to the wealth of the civilized world. The white race has entirely supplanted the original inhabitants; the last Tasmanian disappeared more than thirty years ago!

Nevertheless, banishment of criminals has long been condemned in more civilized countries.

Foinitski, one of the most scholarly students of this subject in Russia, a university professor and attorney general of the Supreme Court of Appeals before the Bolshevik revolution, wrote: "In such conditions the efficacy of deporting criminals without family and without money and of abandoning them to the inclination of the natives was really problematic. Only one-tenth settles in the villages; the rest go, with or without permission, toward unknown destinations. In some villages the number of those who disappear reaches one-half, while in others the figure is higher; of those who remain, very few occupy themselves with their work, and according to the information collected for the section of Tobolsk, for four hundred deported ones there is only one farming concern. The result is an enormous increase in criminality, and the crimes are generally of extreme violence. Deportation to civilized regions always threatens public safety, weighs heavily upon the affected population and necessitates, besides, a powerful police department, courts and prisons."

Italy has neither a law for recidivists, nor has she continued a more rational system of elimination, such as deportation for the more hardened criminals.

Beltrami-Scalia vigorously maintained opposition to deportation before different congresses. With him we should remember the much lamented Senator Canonico who presented to the Congress at Stockholm, together with Dubois, a resolution concluding that "the penalty of banishment presents difficulties of execution that neither permit its adoption in all countries, nor make it possible to hope that it can realize all the conditions of a good penal justice."

The truth is that, until a few lustra ago, we did not have at our disposal a colony suitable for the deportation of criminals. If we add to this essential difficulty the opposition of competent men like Senator Beltrami-Scalia, we will understand the reasons why the good and generous attempts of our government officials to free the country of a part, at least, of the habitual criminals or of recidivists, failed. The various law projects concerning recidivists remained in the archives of the Chamber, or at the most, were discussed in the offices. The fact is that, on a more careful examination of the question, the legislators met with historical, technical, and economic difficulties that paralyzed every good intention.

The freedom of the deported in regions that are developing civilly has been already condemned by English experience. In Australia the same thing took place that happened in North America. With the flourishing of the colony through free emigration, criminality increased through the crimes of the deported offenders; so that while in England there was one criminal in every 850 inhabitants, in New South Wales, in 1829, there was one in every 157, and in 1886, one in every 104. There was no longer any safety. There were drunkards, murderers, thieves, bands of highwaymen in the forests, and so on. Conditions in some English colonies reached such a stage that Lord Grey, who had been a strenuous advocate and supporter of deportation, was forced in 1846 to declare in the English Parliament that "to keep a hot-bed of vice and crime, such as the Island of Norfolk, was a disgrace to English civilization."

During less than three centuries, however, the first deported nucleus of European people, after various vicissitudes, continued to invite others from England, and in this way America and later Australia, which are now two of the wealthiest regions of the world, populated and developed themselves.

We attempted deportation to Assab. It was the least suitable location; even the soil was wanting for breaking up and for bonifying; organization plans, suitable methods, and capable men were lacking.

It seems to me that the sparsely inhabited Giubaland offers the most favorable conditions for a penal colony, and, after a few decades, could give to the Italian emigration a tried-out and extensive territory.

In proposing to utilize Giubaland—a part of it, of course—for the installation of a penitentiary colony, I am duly considering the difficulties met with, especially in the English and French colonies; difficulties both economic and technical in the management of the deported criminals who were incorrigible because they were recidivists, or perpetrators of serious crimes. I know well that deportation, while it purifies, so to speak, the life of the nation, creates enormous difficulties in the colony. But in Giubaland the population is very sparse and primitive; and besides, the phenomenon that emerges with greater evidence from a historical analysis of deportation is this: that if at the beginning the difficulties are great, the colonial life very bad, and the expenses sustained by the governments great, after all, the deportation of the criminals has almost always been followed by the free emigration to the colony which, by increasing a little at a time, has constituted a more or less considerable nucleus of working population. And this without speaking of such possibilities as those occurring in the penal colony of Western Australia when they discovered the gold placer mines. These deposits aroused the hope for wealth, and with the work to obtain it the conditions of the criminals improved, and free emigration increased and drew large capital and laborers. Thus a profound transformation of the colony into an extensive El Dorado took place.

As is well known, the transformation of the colony of Western Australia, which began with the 750 criminals, men and women, that England shipped in 1786, took place in a relatively short time. The school with its religious education contributed to it to a great extent as did later the concessions of land for the benefit of the deported and the soldiers, in the absence of emigrants. The moral conditions in the colony improved when the English Government in 1823 decided to grant free transportation to the families of the deported. A committee that studied the condition of New Wales and of Van Diemen Land demonstrated that the situation was so bright as to make deportation appear a privilege rather than a punishment. Indeed, it was preferable to the situation of many honest workingmen in the mother country. In spite of this, most of the criminals, especially the hardened and the recidivists, did not adapt themselves very easily to the life of the honest when suitable means to improve them were not employed, and they profoundly disturbed the life of the colony. Such a possibility must be excluded in the case of a virgin and sparsely inhabited land like Giubaland.

Without proceeding further in the discussion of what has been done elsewhere, we should consider the question from our own viewpoint. The conditions that are forcing us to face the solution of the problem of the penitentiary system in Italy, the mechanism of which must, I think, include deportation, are many and of diverse nature: (1) The very great number of criminals that are now crowding our penal institutions; (2) the great difficulty of providing, for at least a part of them, suitable schools and work; (3) the structure of the old buildings, some of which should be demolished, and the scarcity of means necessary to actuate the most rational reforms in the prison houses as long as they remain crowded; (4) the density of the Italian population (Italy is, perhaps, the most hyperpopulated country in the world) and the necessity of freeing the nation from the worst criminals; (5) the difficulty of disposing of the products manufactured in the penitentiaries owing to the host of hands among us; (6) the difficulty of finding agriculturists and farm laborers willing to emigrate spontaneously to cultivate the soil of Giubaland; (7) the impossibility of employing in the open on Italian soil a large number of convicts, especially recidivists, and the necessity of trying by deportation to utilize the African colony and to open a way for the emigration from our country, where hyperpopulation is an alarming problem for a not far distant future.

I have under my eyes a very interesting report of the director general of the criminal colonies in Sardinia. These and some others constitute a small Eden in the antiquated and sad penitentiary system of our country, and whatever the value of my appreciation may be, I wish to praise very sincerely the director general of the colonies. These colonies demonstrate in a precise way the possibility of organizing the agricultural work and a good zoötechnic service with criminals, as well as the capacity of their spiritual redemption and social adaptability. But one must be mentally myopic to flatter himself that in Italy there is enough land to offer employment in the open to a conspicuous number of criminals. Clear vision of the extent of the problem and of its complexity is necessary, in order to study, sound, and understand it, not with misoneism (let it be remembered), for that is a characteristic of the feeble-minded and of the ignorant.

It is neither opportune nor profitable to satisfy ourselves with what has already been experimented upon by others. But after availing ourselves of the experiences of other countries, especially of England, we should examine our situation in reference to the problem that I propose. And if history is to have any weight in our determinations, it tells us that the far-sighted English Government succeeded through the deportation system in purifying their race from the degenerative elements and in creating extensive English-speaking civilized sections that are an honor to the race from which they are derived.

The action of France in abolishing the penal colony of Guiana should not be brought forward as an example. After A. Londres' publication, which is a severe requisitory against the methods of organization of the penal colony in French Guiana, and against the administration of the last seventy-two years, its abandonment seemed the best remedy. I do not want to judge; but if a penal colony does not aim, through labor, to protect and educate the criminal who finds in it brutalization and burial, instead of benefaction, it is better to abandon it. It is not so with England whose penal colonies have given extensive civilized regions to the world, nor is it so with Holland whose colony in Dutch Guiana, not far distant from French Guiana, completed enormous road and agricultural work, and rendered the land fruitful so that a flourishing colony was enabled to give the mother country a large revenue. The success of a penal colony hinges on the clearness of the ideal in view, on the methods and means used to obtain it, and, above all, on the culture, morality, and capacity of the men authorized to organize and govern it.

The conditions that are forcing us to face the solution of the problem of the penitentiary system in Italy, in which solution, I believe, deportation should be included, are many and of diverse nature, but, above all, they are the conditions of the moral recomposition of society and the betterment of the race.

Criminality must be fought with much more efficient means and methods. It is the expression of a particular psychosomatic condition of deterioration tending to transmit itself to the offspring.

The treatment and prophylaxis of criminality are included in the scope of eugenics and of mental hygiene for the same reason that attempts are made to forbid marriage between feeble-minded and degenerates in general, and between tubercular and syphilitic individuals. Popular education, the reëstablishment of discipline and of morality in the family institution, the fight against alcoholism, the severity of the codes, the rigid justice in applying them, together with the elimination of the most incorrigible criminals, will bring about a better and more sincere aspect of society, and will live thereafter more trustingly and productively, more safely and happily.

CHAPTER VIII

PROPHYLAXIS OF NERVOUS AND MENTAL DISEASES

SINCE I was invited in 1919 to be a member of the commission appointed to draft bills intended for a more suitable post-war legislation, I have been speaking on the prophylaxis of insanity, the increase of which is an anxiety to all countries, both because of the great number of these falling in the struggle for existence and because of the enormous expense burdening the budget of the provinces for housing and maintaining the insane.

For the realization of the importance of the situation a few figures will suffice, especially since the statistics show only a part of the depth and extent of the evil. Aside from a relatively large number of mental patients treated first in the family and afterward in psychiatric hospitals, an effective and progressive increase of insanity in our country, as well as in all other civilized countries, cannot be denied.

In 1874 in Italy less than 15,000 insane persons were committed to institutions; before the War there were already 45,000; now there are more than 50,000 not including the epileptics, the cretins, and the idiots. In England only 36,000 were in the insane asylums fifty years ago; to-day their number reaches 138,000. In Scotland with its population of 4,736,000, the number of insane has, within fifteen years, increased from 8,937 to 16,545; in France the figure reaches 66,000. In North America the number of the insane in the great asylums exceeds 152,000. In 1878 in Germany the insane housed in the 262 public and private institutions of the country were 74,000; by 1903 their number had reached 108,000 and the public and private institutions had increased to 395.[1]

Civilization is encumbered with her own baggage. It is little more than a century that Australia has been civilized, and in the neurological section of the Medical Congress held at Sydney in 1911, Dr. Smith in his inaugural address stated that in the hospitals of Victoria, from 1869 to 1910, the insane that had been treated were 27,924, and in South Wales, from 1863 to 1910, the number committed was 28,308. At that time in those two regions 2,205,544 pounds sterling had been spent in building construction, and 6,851,401 pounds sterling for the maintenance of these institutions (*Journal of Mental Science*, 1912).

A recent demonstration of this assertion is furnished by the assistance given to the insane in Egypt. In that country the number of the insane in the hospitals was 440 in 1895; by March 31, 1923 it had been increased to 2,491. Since 1895 the mental patients received in the hospitals have amounted to 21,088, of whom 1,081 were affected by progressive paralysis. The great cities, with a total population of 1,358,000 inhabitants, contributed twice as many patients as all the rest of the population of Egypt, which is estimated at 11,353,000. The cost of maintaining the patients has increased from 8,000 Egyptian lire in 1895 to 116,526 lire in 1922.

The problem of the psychoses and neuroses is to be

[1] See volume on the assistance to the insane in Italy and in other nations, published by Tamburini, Ferrari and Antonini.

examined not only from the scientific-technical, but from the political, hygienic, economic, and demographic standpoint.

The increase of insanity is corroding the economy of families and of provinces, and it is necessary, therefore, that psychiatrists and sociologists concern themselves with finding means and methods wherewith to restrain the increasing number of the insane in all countries and to diminish, if possible, its percentage. This implies a problem of wide significance, the prophylaxis of mental diseases; that is, the protection of mental health and of vigor of character. The problem broadens to the finding of proper means to impress a greater intellectual-moral consistency upon the race, and to the increase of the necessary resistance to bear the greater exigencies of civilization, in its work, against the allurements of thoughtlessness and of pleasure.

In Italy, notwithstanding the effects of the well deserving Director General of Sanitation, the great problems of prophylaxis against human degeneration were either not understood by our political men or their importance was not sufficiently felt to make the State institutions face the great problem with efficient means and methods.

It is necessary to fortify the political action of the Government and of Parliament in all legislative provisions aiming at the scope that forms the important theme of this volume and the condition *sine qua non* of victory in the intense competition between civilized nations.

We have only tangentially faced two great problems which directly influence the health of the people: malaria and alcoholism.

We have created for ourselves the comfortable illusion that malaria can be fought by shutting all house-openings with screens to prevent the entrance of the malarial Anopheles and by administering quinine, and we are resting as in a twilight sleep in the presence of the momentous fact that annually about a million men are stricken with malaria. If mortality caused by this disease is relatively low, then the after-effects, such as the poor, anæmic, enfeebled, and often alcoholized life of a great number of malarial patients, ought certainly to arouse in the innermost consciences of our statesmen that sense of national duty that only a few have lightly felt. The depression of the moral and muscular energies of many men means a notable diminution of work which naturally affects the economy of the country, and prepares the ground for psychopathies.

My greatest regret is caused by the provincial municipal administrations of Southern Italy where malaria is most destructive. They all seem to have more important things to think of and to do than to worry about the great health problems which should so deeply concern every public-spirited citizen.

Party interests too often overturn what constitutes the very basis of modern civilization; schools, roads, health. The officials in charge of the provincial and township administrations neither associate nor coöperate with others, and do not know how to elevate themselves to the sphere of more substantial and collective interests.

In a preceding chapter I said that we are much in need of the spirit of coöperation which increases the strength of individuals, and exercises on the ruling powers and on the Government itself that deciding action which ordinarily remains dormant unless it is encouraged by those who are directly interested in the prosperity and the health of the provinces of Southern Italy. The public administrator who is very often moved by other interests does not know and cannot preoccupy himself with the defense of collective interests that are outside the orbit of the small matters of an ordinary administration.

It has often been said that alcoholism does not exist in our country, but I have demonstrated that many billions are consumed in alcohol, and have shown under what conditions its deleterious action is manifested. Similarly, I have demonstrated how in our elementary schools the deficient, who are numerous and are contributing a great contingent to insanity and criminality, are left unassisted.

Exact statistics of deficient children in Italy have not yet been compiled; but our country cannot be an exception to the rule in other civilized countries. From English statistics we learn that the deficient in England and Wales in 1908 were 105,000. Of these, 66,500 were not receiving regular assistance. Another observer estimated the number of the deficient in the same region to be 138,529.

Our deficient ones, who are at least over 100,000, are not receiving a regular and sufficient assistance in many cities and in the small townships.

Special schools should be established wherein by the use of particular pedagogic methods the minds of the children who have inherited an intelligence below the average of our people's children may be developed as much as possible. Before this problem which has given rise to legislative provisions in almost every other civilized country as, for instance, France, England, Germany, America, etc., I have stood in sadness, for I have come to realize that in some great cities, in the systematizing projects of the sanitary systems, the school physician has found no place except as a vague form of hygienist who has nothing to do with the important object of selecting the sick, the anomalous, and the deficient in the schools of our country.

The school, to accomplish the civil task entrusted to it, must not only favor general education, but must have auxiliary organs suitable to the furnishing of a more exact knowledge of the predisposition to certain diseases, and of the mental deficiency of the pupils. Such a task cannot be accomplished without appointing school physicians, whose delicate offices must be well outlined and defined. When the whole child population is enrolled in the schools and precise duties are assigned to school physicians who possess particular qualifications and special aptitude, we shall be able to formulate statistics of the feeble-minded, the neurotic, the epileptic, and the moral imbeciles who should be received, treated, and educated in special schools with special methods different from those used with normal children. To the deficient, to the abnormal, and to the diseased we must give greater care, inasmuch as they represent the hotbeds of mental disease, so that they may develop, if possible, to the extent of becoming social units able to work and to meet the vicissitudes of life. In this way only can we hope to prevent, as time goes on, the ills that arise from the defective mentalities of individuals decidedly inharmonious with their environments and often antisocial.

If these children, from adolescence, are followed in their further stages of development through superior schools, for many of them because of favorable school and home conditions may, even though tardily, develop well, we shall understand what an advantage the social organism may derive, for they will be much more resistant to the hard vicissitudes of life, notwithstanding the fact that they were from an early age candidates for insanity.

The struggle against alcoholism, malaria, tuberculosis, and syphilis, and the regulation of matrimony, which is not an individual but a national concern, will powerfully contribute to the prophylaxis of mental diseases; for, as I stated before, syphilis, alcoholism, malaria, and badly organized schools are all contributing to insanity and to degeneration.

* * *

There is another phase of the question that must be especially considered in this synoptic chapter, for it may contribute either to the increase or to the diminishing of the number of mental patients, and that is the law concerning both the asylums and the inmates of them.

The law of 1904, which I reported to the Chamber the way it was conceived, no longer answers to the modern criteria of treatment and of prophylaxis, nor to those of public economy, nor to the civil exigencies of the historical integrity of each individual and of each family. Its modification is necessary.

Experience demonstrates that a large proportion of a large group of acute mental diseases are cured in a relatively short time, if prompt care is given in properly controlled environments. It is also true that many families do not send their relatives affected by acute mental diseases to the insane asylum because such an institution under the present law impresses a humiliating mark—though this is the expression of an old prejudice—harmful to the patient's future, to his dignity, and to the welfare of other members of his family.

On the other hand, those who recover and are discharged from the insane asylums cannot easily find work in any public or private office.

For this reason many acute cases are not sent to the asylum but are treated at home instead. But the domestic environment not being favorable, and the home treatment usually inadequate and insufficient, these patients, who would recover if treated in a psychiatric hospital, become chronic and help to increase the number of the incurable chronic insane in the public asylums.

The families decide to send these patients to the asylums only when the insanity has become chronic, or after the insane have committed some violent act, or when they have grown weary of the long, difficult and dangerous assistance that these patients require. It has been proved, since I, among the first ones, instituted bacterial researches on the blood of acute mental patients, that acute psychoses really have an infective or toxic origin; they often represent a deplorable episode of life after which the respective patients may return completely recovered to their offices and resume their places in the domestic and social environment.

Lately it has been proved that many psychoses, especially the syphilitic, if treated early and properly, may recover; later, intervention is less efficacious. The distressing fallacy of the incurability of insane and of lunatics has passed away.

Whether or not the boasted therapeutic methods of general paresis, as for instance malarial inoculations, is followed by success, has not yet been established;

but if there were such a possibility, it would be at the beginning of the disease, which is almost always easy to diagnose. Often more than a year elapses before the paretic is interned, that is, after the treponema has destroyed a great number of neurons and has safely fortified itself against all weapons so far contrived by therapy.

All this leads to the conclusion that the law should be modified in favor of free admission of mental patients, especially of the acute cases, to the psychiatric hospitals, without the intervention either of the questor or of the judiciary authorities.

* * *

There exists, moreover, a great number with neuropathic and psychopathic predispositions, certain candidates for insanity or decidedly advanced toward this affliction, who ask advice of general practitioners and of specialists. But they cannot be satisfactorily treated unless they are wealthy, because there is not a single hospital that receives those in less fortunate circumstances, who, carried along by the whirlwind of life, often for lack of means come dangerously near the threshold of the insane asylum.

Many neurasthenic, hysteroneurasthenic, and psychasthenic varieties belong to this great group of patients that is anxiously crowding the frontiers of insanity. We have long been accustomed to read in the daily papers that so-and-so committed suicide because he was neurasthenic. I well know that suicide is sometimes a beneficial form of social selection, but the truth is that many patients with this tendency are, or may become, useful citizens if treated; they are, however, instead, either ill-advised or else they do not find the way or the suitable environment for treatment, and are lost. We have no intermediate hospital institutions where general medicine and psychopathology can find a fertile field for beneficial activity. The existing neuropsychiatric clinics in the cities where the universities are located could render much aid in the prophylaxis of mental diseases if they would receive those who are predisposed and just advancing toward more serious psychopathies.

* * *

We should also organize good neuropsychiatric dispensaries directed by competent physicians. More psychiatric hospitals should be added, and like the antituberculosis dispensaries they should have the duty of recognizing in time the nature of the disease and of advising and possibly also furnishing the means most likely to prevent its further development.

To treat syphilis in time, to discourage the use of alcohol, to correct the entanglement of life, to indicate the adequate amount of work, to break bad and dangerous habits, to practice the most useful proved methods of psychotherapy, in addition to the administration of pharmaceutical and endocrine treatment, should be the function of such dispensaries—splendid institutions of experimentation, of prophylaxis, and of preventive medicine.

Since the beginning of my university career and of my directorship of the insane asylum I have realized continually the necessity for neuropsychiatric dispensaries. The dispensary in Naples has been operating for more than twenty years, and thousands of patients who have come to it have been assisted and cured. The records I have left in the clinic show how that dispensary was crowded; the great though often obscure services rendered; and, also, the benefits that the people directly and the whole province of Naples indirectly derived from my work and from that of my assistants.

The dispensaries annexed to the clinics of mental and nervous diseases and to the insane asylums, independent of the private ones kept by competent physicians, are and will continue to be of great advantage in the prophylaxis of mental diseases, just as are those that have been and are being founded, more or less numerously, in all civilized countries, for the prophylaxis of tuberculosis, the great services of which I have mentioned in the first chapter of this volume.

In these dispensaries deficient children may be helped to expedite their retarded development; the abnormal may be corrected; epileptics may be very early advised concerning an advantageous method of life and treatment, especially of diet; criminaloids may be assisted; hysterical women and neurasthenic men may experiment with the golden resources of psychotherapy; melancholiacs and cenesthopathiacs despairing of their future may be reanimated by the authoritative and comforting word of the psychologist, thus becoming reconciled to life in renewed hope of a cure, while therapeutic means and nature's latent reparative virtues accomplish their rescue work; alcoholics may be brought back to the right path; luetics may be saved from the insidious spirochætæ; exhausted ones may be made aware of the cause that reduced them to their condition.

These dispensaries are necessary for the prophylaxis of mental diseases. If experience means anything, I declare my great satisfaction at having been the first in Italy to establish in 1889 a neuropsychiatric dispensary in the clinic of Palermo, and to have received in the clinic of Naples, since it was transferred to a separate building in the Polyclinic, a considerable number yearly of mental cases of the most diverse acute psychopathic forms, without a certificate or an order from the police headquarters (*questura*); and a great number also of those other patients who were on the borderland of insanity, many of whom were either cured or improved who otherwise would have been committed to an insane asylum, for the reason mentioned above, in graver conditions at a later stage of the disease. The dispensary has rendered a service very praiseworthy and of great efficacy in all respects.

My previous statements about deficient ones is the result of direct observation. Furthermore, I saw, in the private clinic as well as in the dispensaries, deficient children enrolled in common schools where almost all of them are lost either because the teacher does not understand and cannot adapt for them particular pedagogic methods or, frequently, because they become the laughing-stock of healthy children in their respective schools. The result is a perversion of character of the deficient and an increased incapacity for learning.

These provisions tend to diminish the number of the insane either by developing the mentality of deficient children or by placing them in favorable surroundings. From young adults, we may, as I stated before, eliminate the causes, for they originate in abuses that are the result of ignorance. He who drinks excessively does not know that in so doing he shortens his life. He who loves too much exhausts the energies of his nervous system and therefore makes his body more fit for the development of grave diseases, not to mention lowering the tone of his life and his production capacity in whatever kind of work he may be engaged. He who becomes infected with lues and is predisposed to nervous-mental diseases, may, from this viewpoint, take more appropriate treatment at an opportune time and prevent the development of cerebro-spinal diseases.

We can do nothing to modify certain domestic situations, such as the disagreements and the incompatibility of character between husband and wife, but the authoritative intervention of a psychologist-physician may not be without beneficial influence upon the future of the family.

* * *

Now to return again to the law of 1904, I wish to call attention to the fact that it permits the acceptance of an insane person to an asylum only when he is dangerous to himself and to others. Such a standard is now both harmful and uncivilized. It is harmful because insane persons are sick and should be treated as such; they should have care in hospital institutions that offer suitable conditions for treatment, especially when the domestic or the working environment is no longer satisfactory for the nature of the diseases.

A highly evolved country cannot shut its hospital doors to mental patients who are not dangerous. Indeed, these are the ones that are most in need of care that further development of the disease may be prevented.

Our law is the expression of a transitory medical-juridical phase. While it considers the insane as diseased it has not succeeded in ridding itself of the old criterion of his dangerousness. It is a protest against the fetters justified by the mediæval conceptions of insanity which were broken by Pinel and by Chiarugi at the dawn of the nineteenth century, but prejudice and history often chain the legislator.

The law, then, cannot consider insanity only from the standpoint of the patient's dangerousness but must also look at it from the standpoint of treatment. The hospitals for mental diseases must be real hospitals, and not simply institutions for isolating and sequestering the patients; which latter is a function of the police and of the public safety departments to whom the dangerousness of these patients is merely a contingent fact.

* * *

On the other hand, the law contradicts itself, because an insane person who is committed to an asylum under conditions prescribed by the law—that is, who is dangerous to himself and to others—may become, after a certain time, much more governable. The stage of dangerousness is ordinarily temporary, and yet the asylum does not put out or return to society an insane one who is not cured, though he is not or does not appear to be dangerous any more.

The number of inmates of the provincial asylums who have become quiet after a more or less stormy period of the disease is very great. They constitute a social *caput mortuum* that the insane asylums, it seems, have the mission to receive and to watch over, even when they are in need of no more care.

The contradiction is striking. Who knows how many mentally deranged individuals are living in families or other social environments and are just as dangerous or as harmless as those kept in the insane asylums? No law compels the housing of all the insane; this is ordered only when one of these unfortunate patients either commits really scandalous deeds in public or when he becomes a threat or a danger to his family and to the public. But such an occurrence is not frequent.

The judgment of the offensiveness or inoffensiveness of an insane person is usually arbitrary. It is the family that declares him to be dangerous after it has become weary of a long home treatment, in order to have him placed in an asylum. Who knows how many clandestine places there are which are preferred by the families to avoid going through the difficult and humiliating procedure of the court or of the police office, the *questura?* We all know that the wealthier ones go abroad where there is greater freedom for the treatment of psychopathic patients.

The contradiction and uselessness of such a legal requirement that confines within an asylum only the dangerous insane are evident when the judgment of their inoffensiveness is technically as difficult as their offensiveness is presumptive; and still more useless is it if there is no way of compelling families or public institutions to take back a patient who has already been confined to a psychiatric hospital for a psychopathic episode that rendered him temporarily dangerous and who, though not recovered, may be considered inoffensive.

The law orders that when the insane person's nearest relatives (father, mother, husband, wife, son, brother, etc.) wish to treat at home an inmate who was committed to an asylum as dangerous, they must assume responsibility for his assistance and for the deeds he may commit. Considering that many are the insane, the idiots, and the demented who are kept and cared for in the family, we do not see the reason for such a vexing order to those families that are compelled to house their patients in an insane asylum.

The opinion of the sanitarian who knows the inmate's disposition, his interests, his affectional relations with the family, and the degree of education and civilization he has reached, should suffice.

If artist X had been sent to the insane asylum he would not have given to art the magnificent productions with which he supported his family.

This condition is complicated by another requirement of the law, that of attributing to the director the power of discharging the quiet insane, but upon his own responsibility. The requirement is restrictive and at the same time misleading, because the dangerousness of an insane person, improved or in the chronic stage, is relative to the discipline he receives. If the family does not wish to take him back home, or ill treats and ill feeds him and does not watch over him when he returns from the asylum, it is evident that he may commit acts harmful to property and to persons. An insane individual, though calm and a worker while in the hospital, if unable to find occupation after his discharge and if allowed to wander through the streets of a city or through the country, abandoned to himself without a guide or a comfort, may become a dangerous being. How then, can we pretend that a director of an insane asylum can swear to the innocuousness of an inmate in his original environment, when for months and for years he has been much corrected and disciplined in the psychiatric hospital? This restrictive provision on the discharge of the insane from a psychiatric hospital, after the physicians judge them calm, must be suppressed. The psychiatric hospitals should be allowed to breathe; discharge of the insane ought to be left to the judgment of the sanitarian, who also knows the environment to which the insane will presumably be entrusted.

Considering the crowding of all psychiatric hospitals and the enormous expense burdening the budgets of the provinces, and considering also the possibility of utilizing the residual and reconstructed energies of the chronically insane, there remains no other way than for these patients to earn a part of what they consume by working in their own families—for many of them are agriculturists, carpenters, shoemakers, tailors, and what not—or to be left in special departments of the asylum (unless the directors and the sanitarians wish to provide work on a larger scale, as has already been done for a long time in all asylums) without being mixed either with the excitable and the dangerous, or with the acute cases for whom the probability of cure is presumed by an exclusively hospital treatment. Toward these latter ones every care, every scientific aid should be directed, and the fragrance of the human sympathy should envelop them.

Honor should be conferred upon the Italian alienists, most of whom have adopted the rule of discharging many of the uncured insane. Had it not been for their heart, for their courage, for their self-abnegation, and had they not concerned themselves more deeply with the responsibility attributed to them by law than with the moral and economic interests of those patients who can produce and live freely, and with the economic interests of the provinces, the insane asylums would be still more crowded. In our country they are those who have accomplished a task worthy of mention. I have in my hand a detailed report of Dr. Frisco, Director of the Insane Asylum of Girifalco. This brave colleague, entirely devoted to his psychiatric hospital wherein about 500 inmates from the province of Catanzaro are housed, succeeded in stabilizing the proportion of those admitted and those discharged, and in utilizing on a larger scale the industry of mental patients. Naturally, not all the psychiatric hospitals are in the fortunate circumstance of possessing a quantity of land for establishing agricultural departments strictly organized according to the dictates of modern scientific agriculture, following the examples of several asylums such as those of Reggio Emilia and of Girifalco.

Of this sort also is the insane asylum of Pergine in the region of Trent, which owns a vast extension of land cultivated and organized in a very praiseworthy way as an agricultural estate where many mental patients are working to great advantage to themselves and to the administration.

It is often useful to hasten the discharge of a patient who is improving because his family's assistance, and the awakening of his affections, of his desire to work, and of his relative freedom, all are accelerating his recovery; provided that his home environment is enlightened, affectionate, and intelligent, and that his disease is curable. Under the present law, the necessary steps for the home-going of a patient whom the hospital sanitarian cannot declare cured are indeed vexatious. But I remember returning very many of them to their families during the twenty-two years I was director of the insane aslyum of Naples, and never have I had occasion to be sorry for it.

This is no contradiction to what I heretofore affirmed, because the discharged are either cured or on the way to a recovery which may often be facilitated in the family and in the country with a little labor in the gentle warmth of affection, as Guicciardi says; or they are chronic patients whose attitudes may be utilized more opportunely by their families who are very glad to be of assistance to their relative.

This is now among Italian psychiatrists a field of noble strife for superiority, a demonstration that the laws for the relief of mental patients are useless when the sanatoria authorities lack culture, sympathy and intelligence.

A misfortune sometimes befalls these patients, discharged or not; but we are alarmed by this more than we ought to be. While a very great number of criminal recidivists who disturb the social environment and cause damages by thefts, robberies, woundings, and homicides are left free, we are at times shaken with a mistaken sentimentality over the suicide of an insane one or by an accident occurring to one of these patients discharged uncured, and fly with our complaint to the physicians or to the director of the psychiatric hospital to attribute to them responsibility for the sad event.

Necessarily we must accustom ourselves to such events, each of which is largely compensated for by the pleasure of the regained liberty of many of these patients and by the product of their work.

The wisdom and the heart of the Italian psychiatrists, with a few exceptions, have broken the bonds of the law, the insufficiencies of which have been partially corrected by their daily experience in the psychiatric hospitals. But it necessarily follows that the law should be modified to eliminate that restrictive clause that makes the director of the psychiatric hospital responsible for any damage caused by patients discharged without being entirely cured.

* * *

The question covering the prophylaxis of mental diseases raised in the report of the Post-War Commission, and my address on the same subject delivered in the Senate, gave rise to a notable movement in the psychiatric press; many colleagues, already turned toward this new direction, openly expressed precisely the same line of thought.

Professor Morselli corroborated the proposal with his authority, and many others, among whom I wish to mention D'Ormea, Dotto, Vidoni, and Tommasini, encouraged him both in their writings and in their conferences. There was a certain alarm among some colleagues inasmuch as my proposition was apparently limiting to the official psychiatric clinics the task of accepting acute cases. Out of my experience I was inspired to speak of the right of the clinic director to receive in his own clinic patients who could not be housed in an asylum. And, giving due importance to the really remarkable results obtained during my many years of experience, I limited myself to indicate the clinics only in my proposal, fearing that, if I included the asylums in the same proposal, I would only succeed in complicating much more the sanitary function of the asylum physicians, who are already burdened with responsibilities and with anxieties. However, for the free admission to the psychiatric hospitals of mental cases, a modification of the law was necessary. But later I had the great satisfaction of seeing directors and physicians of asylums who had been almost offended by my restrictive proposal fall in line with my idea.

This new direction of the Italian psychiatric spirit, inasmuch as it concerns assistance to the insane, is comforting and full of promise. For the present it is necessary to keep well fixed in mind the fact that acute mental diseases—above all, those due to intoxications and infections—should be cured as soon as possible with all the means science has acquired up to this time. It is urgent that the obstacles that the present law places before us be overcome.

My proposal was, after all, founded on the results obtained, partly in my clinic but mostly in many others, especially by Kraepelin in his clinic of Monaco in Bavaria, and by Sommer in his clinic of Giessen. In some countries the acute cases are freely housed in special departments of psychiatric hospitals.

It is futile to discuss the dangerousness of the patients. All mental cases contain the germ of dangerousness whether they are simple melancholiacs or neurasthenics, epileptics or victims of hallucinations, paretics or victims of dementia præcox, and they must be cured. The sooner they receive a rational treatment and assistance, the more probable is the cure.

On the other hand, it is premature to discuss, as Attorney Mognaini did, whether such specialized institutions should spring up *ex novo* near the general psychiatric hospitals, or whether some departments of these hospitals should be set apart to meet the need, or whether the clinics together with the insane asylums should render such service. This does not matter; it matters only that the principle be agreed upon. In all countries the advantage of a liberal admission of the insane to psychiatric institutions has been realized. In France a mental patient wishing to be treated may be received in a special hospital; if he does not, he may be brought by his relatives. Many such cases, not subject to the law that requires certificates, are treated in special departments of general hospitals. French qualified experts, such as Henri Colin and Toulouse, judge this method imperfect; and in that country too, they maintain that the requirement of the certificate and of the successive provisions of the law represent a vexatious measure. A remarkable current of opinion has made its way into the medical and legislative fields in favor of the voluntary treatment of the initial forms of insanity without any certificate, either in the infirmaries or in the general hospitals, insane asylums or special clinics, which are completely equipped with men and means necessary for the diagnosis and treatment of these diseases.

In Germany the treatment of mental cases is not regulated by a uniform law effective throughout the different parts of the old empire. With the laws of 1910 in Baden and with the law of 1912 in Saxony, voluntary admission to the hospitals for mental diseases was provided for all persons so afflicted who present themselves or are sent by relatives or friends.

In England extensive provisions are being made by means of special psychiatric hospitals—such as Maudslay Hospital in London that is accepting mental patients without certificate, and another that has been projected for Birmingham—or by the creation of clinics for mental and nervous diseases, which are well organized in Italy, in Germany, and in Austria, but are still wanting in England. It is evident that the movement for the free welcome to special departments or clinics, as well as the free discharge of mental cases from psychiatric hospitals, has been felt in almost every civilized country.

Neither in the open-door clinic nor in any other clinic of the Polyclinic of Naples has any mishap occurred, except one. This single exception was a psychasthenic woman, almost cured, whose domestic conditions were very bad. She threw herself from the window the day after it was decided that she should be discharged.

* * *

With the conviction that all physicians should receive a good psychiatric education, without which it is useless to hope for a rapid application of the knowledge of the prophylaxis of mental diseases, I have preferred, since 1884, when I was Professor Buonomo's associate, to teach psychiatry as well as nervous diseases clinically by bringing patients before the students in the lecture room to demonstrate their behavior and all their abnormal manifestations. I questioned the patients before the students, indicating the anomalies of their answers, or their mutism and other phenomena, and interpreting them. Even when the patient was agitated it was useful to the youths to know the varieties and the origin of the agitation, whether it was due to a simple psychomotor excitement or to hallucinations or other causes.

These very patients were objects of symptomatic study in groups of students who could thus observe them near at hand and examine better the psychic or the somatic phenomena which from afar, in the lecture room, could only be communicated by the teacher's word.

A task so delicate and full of responsibility could be accomplished only through the assiduous, cordial, and diligent work of the valiant aides and assistants of the clinic, and through a group of male nurses moved by an unflinching spirit of sacrifice to whom I wish now to express my gratefulness and the attestation of their uncommon virtues.

This digression is not altogether useless because my example and that of some other colleagues in Italy should be sufficient to induce the government to modify the law governing the insane asylums for the reasons stated above, which may be summed up in two propositions: first, the necessity, or rather the duty, of treating in good time acute varieties of mental disease and, secondly, those psychopathic forms which we know, or may legitimately suppose, will develop into more serious forms. Many mental diseases progress through a longer or shorter period of incubation during which the patient does not feel well and seeks the physician's advice. Many of these patients are affected by syphilis, have the habit of drinking wine or other alcoholic beverages, or are living a disordered life or in an unsuitable environment. In many of these cases specific treatment, or authoritative advice with the purpose of representing the danger of the abuses, is sufficient to correct them and therefore to prevent the further development of insanity. We sometimes succeed in removing those psychopathics who are candidates for the gravest forms of insanity, from their family environment, which is harmful for diverse reasons, or in modifying the attitudes of the members of the family. Such methods have indubitable prophylactic effect.

The great English Medico-Psychological Society, to which all the greatest psychiatric authorities of England and of other countries belong, has placed great importance on what has been done in other countries, and even on the proposals similar to that contained in my address to the Senate. They are trying in England (*Memorandum of the Evidence to be Given on Behalf of the Association of the Royal Commission of Lunacy,* 1925), in addition to the accomplished fact I have heretofore mentioned, to obtain a law, the main point of which is free admission for many mental patients in special departments, annexed to general hospitals, equipped with all the means necessary for biological researches. The purpose of these departments is to ascertain the nature and the pathogenesis of the disease from which the most rational methods of treatment and of prophylaxis is deduced, and to freely discharge the patients when they are cured or improved.

The report written by Mott, Goodall and R. Lord, three eminent men devoted to this branch of neurology, aims also at the foundation of university clinics like those that have been for a long time well organized for the progress of the sciences and for the diffusion of education in Germany, Austria, Italy, and France.

In England, instead of discussing these things in vain, they do them. In Cambridge University before the War they were planning to confer a degree in psychologic medicine. Systematic teaching has been carried on for the last four years in Maudslay Hospital, which is annexed to the Royal University College of London. Medical psychological courses are given in Edinburgh, in Glasgow, and in some other universities with decided advantage to medical education and therefore to the management of mental patients.

In all countries, then, the idea is being put into practice of the admission of mental patients to special hospitals and of the free dismissal of the recovered and of the improved ones without that bureaucratic "responsibility" which at times paralyzes the good will of the psychiatrists. Regulation has surely aggravated the imperfections and contradictions of the law among us. Furthermore, it has rendered more difficult the housing of the insane, especially on the part of the general practitioners who justly concern themselves with the responsibility they assume when they declare a mental patient "dangerous to himself and to others," the only condition that justifies commitment, which has now the fundamental character of personal sequestration.

All the provisions that now obstruct or retard the housing of the acute cases in the respective hospitals help to increase the number of chronic patients committed to the insane asylums and the relative moral and economic damage to the individual, the family, and the nation.

For over forty years we have had reason to be proud of our magnificent university for instruction in nervous and mental diseases, and I think that, besides the teaching and the scientific researches, the Italian clinics could render a still better service in the prophylaxis of mental and nervous diseases by admitting freely in their respective departments those nervous and mental cases that are on the borderland of insanity, or the acute toxic forms which, under timely institutional treatment, contribute a higher percentage of recovery than when they are treated in the family, which is the least favorable environment from all points of view.

* * *

For reasons of competency that every reader may easily understand, I have merely touched upon the grave question of tuberculosis; I have only mentioned the problem of syphilis and the venereal danger, and have barely brushed the subject of physical education. Those best qualified in our eugenic society will complete the series of studies of proposals which will contribute to the construction of new sanitary surroundings in our country; but, before closing, allow me one last word on the subject of matrimony.

What is condensed in the few pages of the first chapter on the heredity of the morbid conditions of the progenitors' nervous system should admonish both the State and individuals concerning the regulation of matrimony, when the knowledge is more diffused and within the reach of every citizen, and especially when the teachers find a way to present to the mind of the youth those notions apt to prevent one of life's greatest afflictions, mental disease, with which the moral and economic decadence of a great number of families begins.

Tamao Saito of Tokio, in a very interesting study of the schizophrenetic psychoses, affirms that modern biological progress assures us the most particularized knowledge of the factors affecting the transmission of mental characteristics to the descendants. In the first chapter of this volume I declared that the Mendelian laws are not always applicable to the heredity of man's physiological and pathological characteristics. But we must agree that, even in the more complicated mechanism, the fundamental fact is incontestable and is being every day more and more surely confirmed. The studies that are becoming ever more intensive permit us to hope that we may reinvigorate the normal dominant factors and considerably weaken or eliminate altogether the recessive latent factors which often have deep roots.

If this is true, irresistible is the conclusion that we should adopt particular measures for the mental patients who are dismissed from the psychiatric hospitals without complete cure being achieved. Many of them between twenty-five and forty-five years of age, if married, will continue to procreate, and it is common knowledge that all their progeny will be candidates for psychiatric hospitals. Society has the right to raise its voice against the production of degenerating enzymes that are produced by individual instinct—the instrument of the law for the perpetuation of the species.

If we demand that betrothed individuals obtain a health certificate before marrying, it is much more necessary that bad characters, insane patients, criminals, and imbeciles be compelled to meet the demand. In the first chapter I mentioned the general lines for the new social orientation of legislation in what concerns matrimony. Law and popular education should fully concur in the realization of the great promises of eugenics.

Marriage is not an exclusively individual function regulated only by civil and religious laws; it is essentially a social function, and the State, as the supreme regulator of social life, should intervene to protect the future of the race and to save it from the factors of decline. If what is maintained is true, that the family is the corner stone of a good social edifice (this is considered a harsh statement by some political groups whose tendencies take us back to human primitivity), the family, that small institution which is the foundation of society, is either sane and concurs in giving a great exponent of strength and dignity to a nation, or is weak and deviates from the line of evolution and is detrimental to the strength and the dignity of the race. The opinion, often repeated, that the present increased human productiveness is a guarantee of the strength and vitality of the race, is erroneous; the phylogenetic history of life in the zoölogical series would contradict it. It is not sufficient, however, to produce much only; but also to produce well. A cultivated field does not have a great value for the quantity of its crop, but it is especially for its quality that it conquers the markets of the world. It is toward this lofty end, foreseen by our great Campanella, that eugenics and mental hygiene are aiming; and toward this end this book, without pretense, is designed to be but an essay and an introduction.

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