INSANITY:

ITS CAUSES AND PREVENTION

BY

HENRY PUTNAM STEARNS, M.D.

SUPERINTENDENT OF THE RETREAT FOR THE INSANE, HARTFORD, CONN.; LECTURER ON INSANITY IN THE MEDICAL DEPARTMENT OF YALE COLLEGE, ETC., ETC.

"It is the mynde that makes good or ill,
That maketh wretch or happie, rich or poore."

SPENSER—*Faerie Queene*, Book XI, Canto IX.

NEW YORK
G. P. PUTNAM'S SONS
27 & 29 WEST 23D STREET
1883

Press of
G. P. Putnam's Sons
New York

TO

JOHN SIBBALD, M.D., F.R.S.E.,

COMMISSIONER IN LUNACY FOR SCOTLAND, IN PLEASANT REMEMBRANCE OF A PORTION OF OUR STUDENT-LIFE PASSED TOGETHER, THIS BOOK IS INSCRIBED WITH SINCERE REGARD BY HIS FRIEND,

THE AUTHOR.

PREFACE.

IT is something more than two years since I read a paper, entitled "The Insane Diathesis," at a meeting of the Connecticut Medical Society. The numerous requests received for copies of that article have led me to think that something more in detail in relation to the prevention of insanity might be desired by the reading public both lay and professional. Hence this little book. It has not been written for specialists exclusively, though it is hoped it will not prove wholly uninteresting to them, but rather for those in the general practice of medicine, educators, and the more intelligent lay members of society.

It has been written during odd snatches of time and with many interruptions, so that there exists less uniformity of style than there would otherwise be. Moreover, some of the subjects presented have been discussed by me in papers which have already been published. These papers, however, so far as they have been introduced into this work, have been rewritten, and, it is thought, improved.

H. P. S.

HARTFORD, *Dec.*, 1882.

CONTENTS.

CHAPTER I.

PRELIMINARY.

CHAPTER II.

INCREASE OF INSANITY.

CHAPTER III.

INSANITY AND CIVILIZATION.

CHAPTER VI.

INDUSTRIAL EDUCATION.

CHAPTER VII.

MORAL EDUCATION.

CHAPTER VIII.

HEREDITY.

CHAPTER IX.

CONSANGUINEOUS MARRIAGES.

CHAPTER X.

ALCOHOL.

CHAPTER XI.

TOBACCO.

CHAPTER XII.

SEX IN RELATION TO INSANITY.

CHAPTER XIII.

POVERTY.

CHAPTER XIV.

RELIGION.

CHAPTER XV.

INSUFFICIENT SLEEP.

CHAPTER XVI.

CONCLUSION.

PRELIMINARY.

CHAPTER I.

PRELIMINARY.

THE subject of insanity, in its relation to both individuals and society, is becoming of greater importance every year. A larger measure of interest in relation to it has been manifest, not only in the writings of specialists, who have made it a study, and the care of its subjects a profession, but also in those of general practitioners of medicine and philanthropists, who are ever seeking to improve the conditions of society.

This results from two causes: 1, the change which has taken place in the public mind in relation to the nature of the disease, it no longer being regarded as something for which an individual is responsible in a larger measure than for other diseases, or as entailing a stigma upon those who are so unfortunate as to have experienced it, but rather a disease which invades the brain in the same way that diseases of another character affect other portions of the system, bearing with it neither more nor less of responsibility or disgrace; 2, and, as a re-

sult in part from this change, a more clear realization on the part of the public, that there exists an obligation to make provision for care and treatment of those who are deprived of reason, and consequently unable to care for themselves, to a larger extent than for any other unfortunate class in the community.

The obligation resting upon the strong to provide for those who become helpless from the effects of other forms of disease has long been acknowledged, but it is only within recent times that this obligation concerning those who become helpless from the effects of insanity has come into general recognition. Now, however, it is readily conceded that this unfortunate class appeals even more strongly for sympathy and aid than any other, more especially by reason of the consequences which result to the individual himself, as well as to his family, and the community in which he resides.

The lower we descend in the scale of existence, the less importance does the nervous system sustain in its relation to other systems of the entire body; and conversely, the higher we rise in the scale, the larger importance does it hold, until, in man, it reaches its highest relation, crowning all the others, and making its possessor supreme in the world of animal-life. When, however, disease invades the brain, and the individual no longer holds

sway over the purposes evolved from his mental operations, he becomes the most helpless of creatures. Thought no longer follows the dictation of the will; designs or plans, for the present and future, are no longer possible. That intellectual power on which he so much prided himself, and on which his highest happiness and usefulness depended, has passed into darkness and confusion. Henceforth, if he is to be cared for at all, or treated for the amelioration of disease, or for recovery, it must be by friends on the ground of obligation, or by the public, in virtue of that charity which is the growth of civilization and religion.

Persons affected with other forms of disease may be cared for, in the most part, at their own homes and by members of their own family better than elsewhere, while the indirect influence of such care and surroundings is often of much service in promoting both the happiness and the recovery of the patient. But in the case of the insane the opposite is true: the atmosphere of home and the care of friends are unfavorable conditions. More often than otherwise, the disordered mind regards the oldest and dearest friends as the worst enemies, while the circumstances of home and scenes long familiar, are those which are the least calculated to improve the mind.

In most other forms of disease, individuals may

exercise their own judgment or preferences in the selection of medical attendants, nurses, and such appliances as may be thought necessary to comfort and recovery; they more or less fully realize their own condition and requirements, are capable, in some measure at least, of controlling their desires and feelings, and of explaining their experiences, and are generally influenced by such favorable indications as may arise in the progress of their diseases.

But in the case of the insane all this is generally reversed. Individuals have little or no judgment by which to be guided, as to those appliances necessary for their care and treatment; they rarely recognize their conditions fully enough to feel the necessity for doing any thing, beyond yielding to those impulses which may be uppermost for the time being; they are not generally capable of controlling their own feelings, restraining their desires, or of intelligently realizing and describing their condition, or of caring for themselves.

These conditions, so peculiar and opposite to those existing in many other forms of disease, and the fact that even under favorable circumstances, the vast majority of insane persons cannot be cared for in private homes, except at greatest disadvantage to other members of the family as well as themselves, renders it imperative for the highest in-

terests of society, that governments interpose and make provision for their care as wards of the State, in a greater or less degree.

It appears to have been only within the last half century that this obligation has become more fully recognized, and, in consequence, society seems to be striving to make amends for past neglect. Hospitals and asylums have been erected and equipped at large expense, and physicians, selected with reference to experience and efficiency, have been placed in the care of them. In some countries commissioners have been appointed whose duty it becomes to see that kindness and sympathetic care take the place of former neglect and cruelty; physicians and others, influenced by professional and philanthropic motives, have been active in efforts to secure measures for the most enlightened treatment and the most humane care for these unfortunate members of society, so that, in process of time, this charity has become one of the largest importance, affecting all classes and conditions of society, and influencing, directly or indirectly, every property-holder and every voter.

And, while it is a most melancholy truth that so large a number become insane and dependent on society for care, yet the fact, that society is so ready to recognize its obligation and respond so generously to it, appears to be a cheering and hope-

ful indication. So far as it goes, it indicates a diminution of selfishness and a growth of charity. It indicates that the more humane, sympathetic, and finer qualities of character are having a larger measure of influence in the tendencies of the present time.

INCREASE OF INSANITY.

CHAPTER II.

INCREASE OF INSANITY.

IF the general tendency of movement in relation to the public interest in the care and management of the insane during the last twenty-five years, has been such as I have intimated in the preceding chapter, I think there exists at least a probability, that there will be an increase of this public interest and consequent action in the years to come. The ground of such probability will be more apparent, I think, from the evidence of statistics now to be presented. But, as preliminary to this, I propose to mention several points for consideration, which have a bearing, of more or less importance, upon the discussion of the subject, and which may serve to indicate the tendency and general drift of influences in operation in the present and recent past.

1. It appears almost trite to remark that there have come large changes over the conditions of civilization since the beginning of the nineteenth century, and yet, I think, we generally fail to realize how great many of them, of such a character as espe-

cially to influence mental as well as physical health, have been.

Previous to, and during the early part of this period, the history of those nations with which we are most familiar, especially of those portions which now constitute the Empire of Germany, and of France and England, had been one of wars, which were waged in the interests of the few in distinction from those of the many.

Kings, and generals of armies, and rulers of petty nationalities and clans, were the personages who stood out in bold relief; their plans, intrigues, and movements, and the marshalling of their armies for combat, together with the results which followed in the way of conquering and re-conquering of territories, constituted the great business of life among these nations, and furnished the themes of which historians wrote; while the conditions of life, pertaining to the great body of the common people, as to education, modes of living, occupations, and health, were of almost no account. Education related chiefly to military matters, and was practically confined to the higher classes, while the well-being of the common people was of little concern, except so far as it might prove to be of service in the battles of conquest.

The manufactories, commerce, machinery; the law, and politics as now existing, and which play so

large a part and exert so great an influence on the lives of the common people of to-day, were then practically unknown. The people were divided, for the most part, into two classes, those who fought the battles, and those who tilled the soil, to obtain the wherewithal to sustain both. These conditions immensely simplified the problem of life, as compared with that of the present time, and, moreover, necessitated an existence out-of-doors for the vast majority of persons.

2. At the present time a much smaller number till the soil and follow out-door occupations, and the improved agricultural machinery now so largely used, and the numerous other avenues of life which have been opened so freely to all, are tending constantly to still further diminish it. Large numbers are congregated in factories and mills, and are engaged in mechanical occupations, counting-houses, mercantile and in-door pursuits. Instead of being in the open air, and breathing it in its freshness and purity, they are, for twenty or more hours of the twenty-four, in the confined and vitiated atmosphere of the factory, store, or counting-house, and, what is not unfrequently worse, that of the illy ventilated sleeping-room. In the one case, the blood is purified and nourished by the influence of a large supply of oxygen which it bears to every portion of the system, and especially the brain, while in the

other, it is only partially decarbonated, and bears a taint during its whole round of circulation. The thousands who are, in the present, immersed in the dense atmosphere of cities, large towns, manufacturing establishments, and mines of various kinds, were accustomed, in former times, to live largely out-of-doors, and were engaged in such pursuits as tended to develop and strengthen the whole system.

In the former conditions of life, persons were, to a much larger degree, governed, and their requirements provided for, by legal, or arbitrary, enactments, so that there existed less care on their part, as to obtaining those things necessary for self and family, while in the present, the larger degree of personal liberty enjoyed, and the multiplied artificial wants created, bring increased care and individual responsibility.

3. Again, there has, within quite a recent period of time, come a considerable change in the human system itself, attributable in a measure, probably, to some or all of the above causes, in relation to the character and tendencies of diseases. During the former period, it is believed that diseases affected more often the circulatory system, and that they were largely of a more sthenic character; that they were treated in a manner much more heroic than would be well borne at the present time is quite plain, whether it was judicious or otherwise. Now,

the force or tendency of disease seems to be carried over (if I may so speak) into the nervous system, so that diseases affecting this portion of the body are much more frequent than formerly. People are more sensitive and nervous; indeed, nervousness has become exceedingly common among all classes, and modifies many forms of disease, thereby inducing an asthenic type, which requires the use of vastly larger quantities of those tonic medicines which act on the nervous system, than would have been tolerated fifty years ago. And the keen competitions in business, the intense mental activities which pervade all the vocations of modern life, the ruling passion for wealth which extends through almost all classes of society, and the consequent neglect of those laws which govern health, all tend to further increase it. From these causes, there can but result, on the whole, a much less vigorous system and one less able to resist the effects of strain and anxiety, and much less robust families of children, many of whom have, from the beginning, in their nervous systems, weaknesses which cling to them through life.

These considerations, and others which may be referred to more fully hereafter, would appear to indicate the probability that there have been in operation such powerful influences as would tend toward an increase of insanity beyond that which

would be anticipated from the increase of the general population.

The increased demand for hospital accommodation for the insane, which has been so great within recent years, has been thought, by some, to indicate a certainty of such increase of insanity. While there may be some show for such an inference, I do not think it very conclusive, as this demand may be readily accounted for by other reasons, of which the following may be mentioned.

1st. The general condition of asylums for the insane has greatly improved everywhere within the last forty years: buildings, grounds, and the general external appearances have become more attractive; halls and rooms have been better furnished, lighted, heated, and ventilated, and consequently more cheerful and inviting in appearance to patients and friends. There is much less of mechanical restraint used than was formerly considered necessary, and a larger amount of personal freedom; while the introduction of labor among the inmates more generally has served to render life in asylums more like that at home, especially for the chronic insane. In consequence, or partly in consequence, the public have come, more fully than ever before, to appreciate the good results which arise, both directly and indirectly, from asylum treatment, and have lost, in a large measure,

the distrust formerly existing in relation to these institutions, and are now more ready to place their friends and relatives in them for care.

2d. The view has become more general, that those who are so unfortunate as to become insane, have claims upon the public, more obligatory than any other class in the community can have, and, consequently, very large numbers who were formerly detained in almshouses and in county poor-houses, have been removed and placed under the more favorable conditions of hospitals better adapted to their humane care.

3d. Formerly it was considered necessary to place only the more acute and violent forms of disease in asylums for treatment, while the chronic insane, especially those in a demented and quiet condition, were retained at home; but more recently persons are inclined to recognize the importance of placing these classes, also, in asylums, where they may be under the care of persons who have been educated for the purpose, and consequently understand better how to manage and care for them; and also for the purpose of leaving the productive members of the family free to engage in ordinary industry.

4th. It has also come to pass that many who were formerly considered only as *eccentric* or *singular* in their general conduct and relations with others, are now recognized as partially insane, and consequently

society is less tolerant of their presence, and more urgent that they be removed to places of greater safety, and where their general influence may be less harmful.

Further, 5th. Allowance has to be made for ordinary accumulation of persons who may be considered as asylum inhabitants. It is a general rule, with few exceptions, that persons who have once passed through the experience of a serious illness never are in quite as perfect a state of health afterward, and in many cases are more likely to be again affected; and in reference to insanity this is especially true. Every one who has once been insane is more likely to become so again; so that the fact that from thirty to fifty per cent. of the insane recover once, renders the probability of larger numbers hereafter greater. Then, of the numbers who do not recover and do not die, many live on for a much longer period than formerly. There can be no doubt that the existence of even such functional disease of the brain as may cause insanity, tend to shorten life in the vast majority of persons so affected, while the lack of care and treatment, and too often long-time neglect and abuse formerly prevalent among the insane, served to shorten the period of life still more. The fact that under the more favorable conditions of hospital life these persons live for much longer periods than would otherwise be the case,

tends largely to explain the increase of numbers who appear to be so rapidly accumulating in the asylums and hospitals of the country.

In forming an opinion, therefore, as to the increase of insanity, from indications based on the *numbers* which are now provided for by the public, it becomes necesary to take into the account all the above considerations, and perhaps some others. Indeed, the item of *numbers in asylums* is but one of the factors of the problem, which embraces a large field for observation.

Bearing the above preliminary considerations in mind, we may now refer to something more definite in the way of statistics, for the purpose of answering our inquiry.

It is evident that the usual census, if it could be made frequently enough, and also accurate, would go far toward a solution of the problem, but this has hitherto not been practicable in this country. Owing largely to the migratory character of large portions of the populations, the great extent of the country, and the sparseness of population in many sections, and for other reasons, any conclusions from it can be only proximate.

But, while we do not at present possess the data requisite to determine the question with accuracy in this country, we may refer to the statistics which have been yearly published since 1858, by the

Boards of Commissioners in Lunacy for England and Scotland; and do so with the assurance that what may be found to be true there, will, at least, be good evidence as to what exists with us.

Both these countries have vastly greater facilities for accurately determining the number of insane persons living at any one time within their borders, than are possible in the United States. The population is much more homogeneous; it is greatly more dense, there being about 25,000,000 of people on a number of square miles less than are contained in some of our single States. The people are not accustomed to frequent change of residence from one portion of the country to another, and all classes are readily reached and their conditions of health determined.

In these countries, so favorably constituted in these respects, there have existed Boards of Commissioners in Lunacy, for many years, whose duties are concerned solely with the insane, and their system of inspection appears to be wellnigh perfect. I therefore propose to introduce some of the statistics furnished by these Boards, from which we may learn in what direction has been the tendency of insanity there. In this procedure I shall divide those which I use from both Boards into periods of ten years each, the first, from 1859 to 1868, inclusive, and the second, from 1869 to 1878, inclusive; giv-

ing the numbers of increase and decrease of both *private* and *pauper* patients, as they appear in the reports, distributed in asylums, licensed dwellings, and with relatives and friends.

From the report of the Commissioners for England: first, as to private patients, the whole number was, in 1859, four thousand nine hundred and eighty (4,980); and there was an *increase* of this class in registered hospitals, during the first decade, to the number of two hundred and thirty (230); and in licensed houses, to three hundred and twenty-six (326).

Of this class of patients residing with relatives and others, there has been an *increase* of one hundred and fifty-two (152); and in naval and military hospitals, of eighteen (18).

Of this class of patients in county and borough asylums, there was a *decrease* of eight (8).

Second, as to pauper patients;[1] there has been an *increase* of these, in county and borough asylums, amounting to nine thousand eight hundred and forty-four (9,844); and in registered hospitals, of one hundred and ninety-six (196); and in workhouses, of twenty-seven hundred and twenty-one (2,721); and residing with relatives and others, of one thousand and thirty-one (1,031).

There has been a *decrease* of this class residing in licensed houses, of six hundred and ninety-eight (698.)

[1] The whole number was 31,782.

By adding together the several sums of *increase* which have occurred in both classes, and the increase in the number of criminal lunatics, three hundred and forty-two (342), who have been provided for, since 1864, in a special asylum at Broadmoor; and deducting the sums of *decrease* which have occurred by removals and redistribution of patients among the several asylums and registered houses, we have, as a grand total of *increase* during the ten years, fourteen thousand two hundred and thirty-eight (14,238).

I have presented the above statistics somewhat in detail, in order that it may be more apparent among what classes of society this large increase has mainly occurred. It will accordingly be observed that, while it has been only seventeen (17) per cent. among the private patients, it has been about seventy (70) per cent. among the pauper class.

It is apparent that the above statistics present only the total number of increase, without relation to the increase of the population. To enable us to appreciate their full significance, another statement, therefore, becomes necessary.

The ratio of the insane to the sane, the total number of the population being estimated at the middle of the year, for the several years of the decade, was as follows:

In 1859	one	in	535	In 1864	one	in	466
" 1860	"	"	523	" 1865	"	"	460
" 1861	"	"	507	" 1866	"	"	449
" 1862	"	"	495	" 1867	"	"	441
" 1863	"	"	478	" 1868	"	"	430

exhibiting a higher ratio of the insane to the sane for every year of the decade.

I now introduce the statistics of the second decade, viz., from 1869 to 1878 inclusive; and perhaps it is fair to assume that these will be more nearly perfect than those of the former period, as the system employed had been longer in operation, and the conditions of the problem somewhat simplified, as the result of previous labors. For convenience, I shall group together the private and pauper patients.

In 1869, there were of both private and pauper patients in the county and borough asylums twenty-six thousand eight hundred and sixty-seven (26,867); in 1878, there were of the same classes of persons, thirty-seven thousand seven hundred and sixty-three (37,763): exhibiting an *increase* of ten thousand eight hundred and ninety-six (10,896).

There were in registered hospitals, in 1869, of both private and pauper patients, twenty-three hundred and fifty-two (2,352); and in 1878, twenty-seven hundred and seventy-eight (2,778): showing an *increase* of four hundred and twenty-six (426).

In licensed houses, there were, in 1869, four thousand seven hundred and ninety-six (4,796); and in

1878, there were four thousand two hundred and two (4,202) : exhibiting a *decrease* of five hundred and ninety-four (594).

In naval and military hospitals, in 1869, there were two hundred and nine (209) ; and in 1878, three hundred and sixty (360) : an *increase* of one hundred and fifty-one (151).

In the Criminal Lunatic Asylum at Broadmoor, in 1869, there were four hundred and sixty-one (461) ; and in 1878, four hundred and eighty-two (482) : an *increase* of twenty-one (21).

In the workhouses there were, in 1869, eleven thousand one hundred and eighty-one (11,181) ; and in 1878, sixteen thousand two hundred and sixty-five (16,265) : equal to an *increase* of five thousand and eighty-four (5,084).

Residing with relatives and others, there were, in 1869, seven thousand three hundred and eleven (7,311) ; and in 1878, six thousand six hundred and eighty-eight (6,688) : giving a *decrease* of six hundred nnd twenty-three (623).

By the addition of these several sums of *increase*, and deducting those of *decrease*, we have a total of *increase* during these ten years of fifteen thousand three hundred and sixty-one (15,361).

The increase, therefore, as between the first and second decade, amounts to one thousand one hundred and twenty-three (1,123).

The ratio this increase bears to the total number of the population, from year to year, appears from the following table :

In 1869	one in	417	In 1874	one in	381
" 1870	" "	411	" 1875	" "	375
" 1871	" "	401	" 1876	" "	373
" 1872	" "	396	" 1877	" "	364
" 1873	" "	387	" 1878	" "	362

It will be observed from the above statistics, that there has been a considerably uniform increase of insanity, greater than that of the general population, but that it has been less rapid during the second decade than the first. By reference to the last Report of the Commissioners, I find that in 1880 there is one insane person to every three hundred and fifty-seven (357), which indicates that insanity continued to that time to increase more rapidly in proportion than the general population.

I have presented the above numbers somewhat more in detail as to classes and methods of distribution than was necessary, thinking the lay reader may be interested to understand something as to these points, in the care of the insane in England. As these methods are quite similar in Scotland, I shall, in some measure, omit this detail in presenting the statistics relating to that country.

From the Reports of the Board of Commissioners in Lunacy for Scotland, it appears that in 1860 there were of insane persons :

1. Of paupers in asylums and poorhouses, three thousand three hundred and seventy-nine (3,379); of the same class in private dwellings, eighteen hundred and forty-seven (1,847).

2. Of private patients in asylums, nine hundred and seventy-one (971); and in private dwellings, twenty-one (21): making a total of both classes of six thousand two hundred and eighteen (6,218).

These numbers are understood to be exclusive of criminals and imbecile children.

In 1869 there were under observation:

1. Of pauper patients in asylums and poorhouses, four thousand four hundred and ninety-four (4,494); and in private dwellings, one thousand and five hundred (1,500).

2. Of private patients in asylums, one thousand one hundred and twenty-eight (1,128); and in private dwellings, thirty-five (35): making a total of both classes of seven thousand one hundred and fifty-seven (7,157).

During these ten years, therefore, from 1860 to 1869, inclusive, the total number of insane persons in Scotland, of which the Board had cognizance, advanced from six thousand two hundred and eighteen (6,218) to seven thousand one hundred and fifty-seven (7,157), giving a net increase amounting to nine hundred and thirty-nine (939).

I introduce the table as before to show the relation this bears to the number of the population :

In 1860	one in	487	In 1865	one in	487
" 1861	" "	487	" 1866	" "	480
" 1862	" "	480	" 1867	" "	473
" 1863	" "	490	" 1868	" "	467
" 1864	" "	490	" 1869	" "	458

It will be observed that the increase has not been uniform, as was the case in relation to that of England. There was a decrease for two of the ten years, 1863 and 1864, but from that time forward an increase.

Referring next to the second decade, from 1870 to 1879, inclusive, it is found that in 1870 there were :

1. Of pauper insane persons in asylums and poorhouses, four thousand seven hundred and twenty-eight (4,728) ; and in private dwellings, one thousand four hundred and sixty-nine (1,469).

2. Of private insane persons, in asylums, one thousand one hundred and sixty-three (1,163), and in private houses forty-nine (49) : making a total of the private and pauper insane of seven thousand four hundred and nine (7,409).

In 1879, there were :

1. Of pauper lunatics in asylums and wards of poorhouses, six thousand two hundred and ninety

two (6,292); and in private dwellings, one thousand three hundred and ninety-eight (1,398).

2. Of private lunatics in asylums, one thousand three hundred and fifty-eight (1,358); and in private houses, one hundred and ten (110): making a total of both classes of nine thousand one hundred and fifty-eight (9,158).

The advance, therefore, during this decade was from seven thousand four hundred and nine (7,409), to nine thousand one hundred and fifty-eight (9,158); which equals one thousand seven hundred and forty-nine (1,749), as against nine hundred and thirty-nine (939) during the preceding decade, or nearly one hundred per cent. larger.

In relation to the general population it was as follows:

In 1870	one in	448	In 1875	one in	432
" 1871	" "	440	" 1876	" "	420
" 1872	" "	438	" 1877	" "	408
" 1873	" "	434	" 1878	" "	400
" 1874	" "	436	" 1879	" "	392

exhibiting a decrease in relation to the total of population for one year only of the decade, and on the whole a steady increase for the whole twenty years.

It further appears from the tables of statistics, that the number of *insane* paupers per 100,000 of the population, which was one hundred and fifty-seven (157), January 1, 1858, advanced to two

hundred and seventeen (217) per 100,000, January 1, 1880, notwithstanding the fact, that during this period the number of pauper-persons per 100,000 of the general population diminished from two thousand six hundred and thirty (2,630) to one thousand seven hundred and eighteen (1,718).

It thus appears that insanity is, both absolutely and relatively, a much larger element in the pauperism of the country than ever before.

In considering the force of the above statistics there is one element which may, I think, properly be referred to as entering into the calculation, to which I have nowhere found any allusion, namely,—that of emigration. I have not at hand the statistics to show how great this has been from England and Scotland during the last twenty years, but we know that it has been very considerable from both countries to Canada, Australia, and the United States; and I think it fair to assume that this emigration has generally been from those who have been in good mental health, at least at the time of leaving these countries; and if at this time they had relatives who were insane, these would be left behind. Therefore, so far as this would have an effect upon the statistics of insanity, it would be toward exhibiting a higher ratio of the insane to the whole population than would otherwise appear.

Having made due allowance for this, and other

considerations, which were alluded to in connection with the statistics of asylums, I still think the evidence all points toward a large increase of insanity, both absolute and relatively to the population, in both England and Scotland.

At the time of this writing, the statistics of the census for 1880, for the United States, have not been so far completed and published, that evidence from them can here be presented, but I think there can be no doubt that, when they appear, they will tend to confirm very strongly those already presented, which have been prepared with so great care, and collected under such very favorable conditions, and which demonstrate, or so nearly demonstrate, both the absolute and relative increase of insanity.

INSANITY AND CIVILIZATION.

CHAPTER III.

INSANITY AND CIVILIZATION.

INFORMATION in reference to the character of the diseases which formerly existed among the aborigines of North America, or among uncivilized peoples of other countries, in the past, is both meagre and indefinite. Legends concerning widespread epidemics of some forms of disease, especially the yellow fever and small-pox, among those tribes which formerly lived on the territory which now constitutes New England, have been handed down, and there must have occurred cases of insanity, to a greater or less extent, among all savage nations, arising from injuries to some portion of the nervous system; but, for the most part, those conditions and experiences of life which appear to predispose or excite the nervous system into diseased action, were probably absent.

Those who were born with weakened or defective organizations, either physical or mental, would, under the exposed conditions and the rude experiences of uncivilized life, hardly attain to adult age, even if they were not intentionally left to perish, so

that the vast majority of those who did arrive at those periods of life during which insanity generally manifests itself, would probably possess such nervous organizations as would be little liable to become insane.

Their modes of living, also, being for the most part in the open air, and without excessive labor or exertion, except on occasions, and during short periods; and living in comparative freedom concerning those uncertainties of business and property which exist so generally among some classes, and even nations, under the conditions of civilized life; having few needs, and those of such a nature as to be easily supplied, would all be unfavorable to the development of insanity.

Again, uncivilized persons have but little sensitiveness, and are easily satisfied in reference to that long range of sentiment and feeling which holds so large a sway, and wields so strong an influence, in the lives of their brethern and sisters in civilized life; and, moreover, experience few of the annoyances, disappointments, and vexations which result from the habits and customs of our forms of domestic and business conditions.

Yet it appears to be a humiliating admission to make, that, with all the increase of mental power and range of thought, with acquired power over the forces of nature, with ability to convert the hidden

treasures and forces of nature, into the means of supplying wants and ministering to comfort, and, with the vast storehouse of mental wealth which comes into the possession of mankind through the influences of civilization, there should, somehow, necessarily come with them, greater liability to such a calamity as insanity. This is, however, but one of many evils which invariably come into existence under the changed relations and circumstances of life, not only while passing from the habits of uncivilized life to those of a high state of civilization, but especially while living in the latter condition.

It is exceedingly difficult to differentiate, and accurately state in few words, what is signified by either insanity or civilization. Both are terms, the general signification of which, for practical purposes, is supposed to be well enough understood, but when we are called upon to give a clear and at the same time a fully comprehensive definition of them, there is much difficulty in doing it.

As has been very clearly shown by Dr. Arthur Mitchell,[1] civilizations may differ in different countries, as well as at different periods of time in the same country; they may be old or new, high or low, one thing in this century, and another in the next. That of the ancient Greek certainly differed widely from that of the Roman, while both differed largely

[1] "The Past in the Present: What is Civilization?" by Arthur Mitchell, M.D., LL.D., ed. 1880, p. 227.

from the European civilization of the present time.

In one view of the subject, that which regards it as something separate and distinct from those unfavorable conditions which always accompany its progress, we may say that *civilization may be considered as the measure of perfection reached by society as a whole, toward living in harmony with its environments, in a civil condition.*

But, inasmuch as no civilization has yet appeared among any people, so far as we know, or is soon likely to appear, free from those imperfections which affect even large numbers, some other more practical idea of its character will be necessary. For my present purpose it may be considered as *the sum of results, which follow from the total of activities in operation among any people, while living under those conditions which always have pertained to civil life.*

These results will vary even largely from one period of time to another, and will be partly good and partly bad. Indeed, I think it will be found that, in the degree in which nations have passed from those conditions which pertain to life in the savage state, upward toward those which abound in civilized life, in that measure has the sum total of diseased conditions, in both body and mind, increased; in this measure have there resulted degenerations of nerve element, and consequent failure to attain to and live in harmony with those artificial arrangements

and conditions with which society in the civil state has, thus far in its history, uniformly surrounded itself.

In other words, while man has largely gained in some directions; while his mind has become more active and far-reaching in its range of thought, and many-sided in its activities; while the comforts and luxuries of life have become many times larger, by abandoning those conditions of life which pertain to the savage state, and assuming others of a vastly higher and more complex nature, yet, thus far in his history, he has not succeeded in surrounding society by such regulations, and in securing obedience to such laws, as will suffice to preserve and retain the health and strength of body which existed while in the savage state, except among the few.

That many of the conditions pertaining to modern civilization prove to be highly conducive to physical diseases, needs hardly to be said, and that they are no less productive of insanity and other diseases of the nervous system, will be evident from some considerations to be alluded to in connection with this discussion.

1. At first thought it might appear that the development and extension of civilization, which carries with it so many and great advantages in many other respects, should also be favorable to mental health.

It is a law of the human system that the various organs become strong and maintain a high standard of health, only while under a considerable degree of activity, and this is especially true of the muscular and nervous systems. Inactivity and disuse tend toward degeneration, therefore, such circumstances and surroundings of life as will conduce to harmonious activity of these organs and parts, would, *ceteris paribus*, be most favorable to health.

Now the various portions and faculties of the human brain are brought into a state of full development and activity only under the conditions and influences of civilization; all of those higher and finer manifestations of thought, sentiment, and feeling, which pertain only to man; the satisfaction which comes from the results of mental activities both in relation to mechanics, education, governments, and the social amenities; the increase of strength pertaining to thought, and consequent self-reliance, and ability to rise above the adverse circumstances and experiences of life; freedom from the conditions of uncertain and limited supply, with attainment of those of a fairly certain and abundant character; the results which come from travel, and intercourse with persons of other nationalities; from trade, commerce, and intellectual pursuits; together with the possession of knowledge, which is power,—all come only from the conditions and influ-

ences of civilization, and should rather have a tendency to confirm and make strong mental health.

And this would undoubtedly be the result, if these were all, or indeed mainly, the effects attendant on living under the influences of civilization.

But, unfortunately, these are only some of the beneficent results of this change. Other influences, customs, and practices, and those of a character highly adverse to the maintenance of healthy mentality, have also come into operation, to a greater or less extent, and are especially potent in modern civilization.

With the increase of mental activity alluded to, there have come into a fuller range of activity those portions of the brain which are concerned with thought, and which, in the narrow limits and simple conditions before experienced, had been comparatively inactive. Consequently, a larger supply of blood has been summoned to these parts of the brain to repair the loss incurred by this increased activity. This change and consequent disturbance in the relative blood-supply, as between the brain and other parts of the system, would be of little importance if sufficient care be exercised that it comes in the right degree, and does not cause too great activity in the organ of the mind; indeed, there might be expected favorable results from a larger exercise of function, or at least not unfavorable ones.

In the experience of modern times, however, this has not proved to be the case. With the measure of mental power and scope which attends the change, there has been a large tendency to overstimulate the intellectual faculties, which has been aided and thought to be necessary, in consequence of the immense competitions and business activities of modern civilization.

This tendency to stimulation has been manifest even to a much larger extent than formerly, first, in the matter of education. The new conditions and employments of life, rendered prominent by some of the discoveries which pertain to science, agriculture, commerce, and the general conduct of business pursuits, have developed requirements on the part of those who are called upon to conduct them, which have been heretofore unknown. To meet these requirements it has been thought necessary to pursue such courses of education, and to present such special incentives to study on the part of the young, by the use of prizes and grades of scholarship, and public exhibitions, as will bring into operation the largest possible activity, and secure the highest discipline of the brain, even at a very early period of life. At this time all the forces of vitality and physical growth are in the fullest activity, so that the strain comes upon the brain at the period when it has the least of ability

to bear it, and at expense to other portions of the system.

And again, in the use of stimulants, especially alcohol, in some of its forms, and tobacco, during the period of growth and early manhood. The use of these substances, as well as the subject of education, in their effects upon the nervous system, will be discussed more fully in future chapters, and are only mentioned, in this connection, as causes of nerve degeneration, which have come into operation more fully through the influence of modern civilization.

2. One of the conditions of savage life, is that of *a community of interests and supplies*, to a large extent. Families and tribes seek for and possess supplies in common; the weaker depend upon the strong, and the strong aid the weak, so that when privations, from failure in the chase and other causes, may come, they affect all together, and generally in like degree. The passion of avarice is in a latent state; those who are strong do not thrive at the expense of those who are less so, while the latter depend upon aid from the former. Wealth and poverty and such distinctions as arise from these civil conditions are unknown.

Under the conditions and customs which pertain to civilized life, how great the contrast! All, or nearly all, is changed. Individuality appears at once.

Each and every person, or family, is expected to rely upon his, or its, individual effort for success in obtaining such things as are necessary to comfort and well-being. In this he stands, in a large sense, isolated, and fails, or succeeds, by himself, alone, or with his family,

In other words, *community of interests*, except in some very indefinite and limited measure, is lost sight of, and swallowed up in those of the individual. In the conduct of life, the strong are almost sure, not only to neglect the weak, but often to tyrannize over them; they become selfish and not unfrequently covetous, and require much for little. The distinctions and conditions of society incident to wealth and poverty, knowledge and ignorance, appear, and the latter too often surrounds its unfortunate victim with such hardships and exposure, as tend rapidly, in too many cases, toward bodily and mental disease.

In this way the struggle incident to the conditions of civilized life, becomes tenfold greater than in savage life, for one portion of the community, and in this struggle, the weaker ones, sooner or later, tend toward the wall. The strong become stronger from the very conditions and influences which surround them, while the weak tend to become weaker, and many are almost sure to fall by the way. Ignorance, poverty, and unhealth are long-time

companions, and lean strongly toward immortality.

Under the complicated conditions and antagonizing interests of civilization, the strong make the laws and establish the customs, which become obligatory upon all alike, and these will invariably be of such a character as will, in the long run, discriminate in their own favor. This has been apparent in all the older civilizations, especially in reference to the tenure of land; so that, *once owned, always owned*, might be considered as the law. Land, once in possession, continues in families for long generations, or indefinitely, unless it revert to the government. In either case its resources in ameliorating the conditions of the poor, and ministering to the productive wealth of the country, are greatly diminished, while under the influence and laws of a larger community of interests, it could be made productive toward the support and comfort of thousands who now live and die in poverty, want, and ignorance, and who, all their lives, from infancy to death, are in those circumstances of privation which render them specially liable to disease of mind.

But not only in respect of land does the tendency to unequal conditions manifest itself; it becomes apparent in reference to property in nearly all its other forms. In the conduct of commerce, manufactures, trade and exchange, in government itself, there exist vast ranges of opportunity unknown to

savage life, for the strong to triumph over the weak: To him that hath shall be given, and he shall have an abundance, while from him that hath not shall be taken away even that which he appeareth to have. The rich have an abundance and surfeit, while the poor become poorer, and suffer for the requisites wherewith to become strong, or even to remain in physical health. To the one class pertain all those conditions which serve to invigorate and strengthen, while to the other pertain the opposite ones. To the one belongs abundance in the way of food, clothing, shelter, warmth, pure air, change, and education, while to the other pertain privation, insufficiency of food, impure air, overwork, ignorance, and a never-ending monotony and drudgery of life.

And in the history of the world, thus far, there has never appeared any high states of civilization without these unequal and inharmonious developments. No peoples have as yet ever learned the art of living under the conditions of civilization without them; no peoples have ever passed from the community of interests and possessions, which exists so largely in savage life, up to those conditions which pertain to civil life, except with attendant results similar to those already indicated; and these results are plainly those which tend largely toward the development of mental disease.

If the views presented in the preceding chapter and also in this, in reference to the tendency of insanity to increase, and which statistics appear to confirm, are correct, we perceive at once how important, in relation to both political economy and the future health and happiness of society, becomes the problem of this disease.

As a subject of science and philanthropy, it has for some years engaged the study and interest of many who have been desirous more fully to understand its bearing in both these respects; but in the no distant future, it will become the disease of paramount importance and interest to legislators and political economists; and as there exist reasons for supposing that, under the changing conditions of our modern civilization, it will more surely tend to invade the homes of many who have heretofore been exempt, and will in the future even more surely than in the past, affect all ranks and conditions of society, the increasing importance of making its causes a subject of investigation, and of endeavoring to prevent its increase, even in a limited degree, becomes at once apparent.

It may be remarked at the outset that many of the *exciting* causes of insanity are uncontrollable. We can do little, or nothing, toward changing or modifying the demands which are made upon us by the business operations of the present; nor toward

modifying those great activities which are so loudly calling for development and conduct in life; we cannot do much toward changing the unequal conditions which pertain so largely in relation to property, occupations, and modes of living; or in avoiding the sufferings which result from the bereavements and disappointed expectations of life; we cannot, nor is it desirable, in all respects, if we could, do much to promote community of interests in property. But it is important to bear in mind that, after all, the prime condition of insanity lies, to a large extent, back of these exciting causes. Thousands have passed through such conditions and experiences, have suffered from disappointment and failure in respect to their plans and purposes; have endured exposures and hardships all their lives; all, without becoming insane, and thousands more will continue to do so in the future. It is evident, therefore, that there must exist back of these experiences, a state of the nervous system which renders it susceptible of the disease. This, it is, which is the prime factor in the problem of insanity; and it becomes of the first importance to discover, so far as we may be able to do so, in what this predisposing tendency may consist, or, at least in what ways, or through the operation of what causes, it more especially tends to come into existence and operation to so large an extent at the

present time, and by what means it may be avoided.

In this study we are proceeding along the same road we follow in investigations concerning other diseases. In a philosophical sense, there lies back of all manifestation of diseased action, an antecedent condition, which is the soil from which morbid actions spring. There exist the scrofulous, the phthisical, the gouty, the rheumatic diatheses, and, hence, the question of heredity is of the utmost importance in reference to many forms of disease.

"To many intents and purposes, we are born one generation at least, and generally more, before we come into the world. The soil whence the protoplasm of our grandfathers was formed, has a large significance in reference to ourselves. We limp, because they were gouty; we groan with rheumatic pains, because they slept in damp rooms; the neuralgic twinges of their fifth pair of nerves extend over into ours. The acid of the grapes, which our fathers ate, has acted on the enamel of our bicuspids and molars. That intangible tendency to weakness, to unhealth, so indefinable, so delicate, so inappreciable to our senses, is yet the mightiest factor in our being, and measures the amount of our physical pains and sufferings with a greater delicacy than we have been wont to think. It is the match, which needs only to be rubbed,—or the tinder waiting for the spark,—or the acid for the alkali.

On no other theory are we able to explain the effects, or absence of effect, from the exciting causes of disease. For instance: in one case cold produces neuralgia, in another rheumatism, in another pneumonia, in yet another bronchitis, and in the fifth person no morbid action at all. Now in these several persons there must have existed a primary or induced condition of the several parts affected, of such a nature, that a common cause, acting upon all alike, yet produced widely different results.

"Again, two persons may be exposed to the same atmospheric conditions, or be brought within a similar miasmatic influence, resulting in the one case in fever; in the other, in nothing. The miasm or poison was doubtless present in both systems alike, and, perhaps, in similar quantity, and yet in one case with no appreciable effect, and in the other, creating an illness which may continue for weeks or months. It is evident that there must have been, in the last case, a condition of the system which rendered the action of the miasm possible, and without which, it would have been entirely, or nearly, inert. In fact, strictly speaking, this cause, or antecedent condition, is rather a part of the disease itself, and cannot, in fairness, be separated from it. For, if disease be abnormal action, either in the structure or function of an organ, whether

sufficient to be recognized or not, subjectively or objectively, then this weakness, inherited or acquired, becomes the chief factor, and those changes, which are sufficiently gross to be observed by our senses, and which we are accustomed to term disease, are only the remaining factors of it."[1]

I apply the same course of reasoning in relation to *that necessarily antecedent condition of the brain*, which renders it especially liable to become diseased through the operation of those ordinary exciting causes, which, to a greater or less extent, surround the lives of all persons, and which we term *the Insane Diathesis*. It becomes necessary, therefore, to study this peculiar condition of the brain, first, as to its *nature*, and, second, as to some of those *causes* which tend especially to create it.

[1] From "An Address delivered before the Graduating Class in the Medical Department of Yale College," by the Author, 1875. Tuttle & Morehouse, New Haven, Ct.

THE INSANE DIATHESIS.

CHAPTER IV.

THE INSANE DIATHESIS.

THE ideal human system would be one of perfection, that is, it would be one so constituted as to discharge all its functions perfectly. Yet, its capacities would be limited as they now are, though not to the same extent. Digestion of such articles of food as the system requires would be perfect, though this might not be true as to many other articles, which are appropriate as food for other animals. Sight and hearing would be perfect, but only within certain ranges and distances; memory would be perfect in reference to every thing comprehended and understood. The limitations would be dependent on the inherent nature of the organism, in its relation to the external world. What is stated above as true, in relation to certain parts of the system, would be equally true of the functions of all parts of the human system, both physical and psychical.

Now, the *actual* human system approaches toward this *ideal* one in a greater or less degree. It possesses all the faculties, both physical and psychical,

but they are tainted with imperfections, and their health varies from the highest state attainable, down to some assumed standard, below which we say that a diseased condition exists. It will, however, be observed, and hereafter more definitely appear, that this border-line is merely one of assumption. No definite standard can be applied to all persons, and a condition which would be normal for one person may not be so for another. Besides, the *actual* condition of many persons is one of changing stability, both in respect of the body and the mind, and this may depend upon causes which operate from either *within* or *without*.

A few simple statements in reference to differences existing among persons, as to those physical and mental conditions which are inherited, may be in point, and prepare the way for other considerations.

I. Though we may not be able to determine the causes of these differences, yet it is quite evident that there exists, from the time of birth, the largest diversity in reference to the physical constitution of persons: while some are strong and vigorous, and capable of large effort, and of enduring exposure to the heat and cold with almost indifference, others are so delicate and sensitive as to be easily affected by such influences; while the muscles of some are susceptible of making the most delicate and difficult

movements in all mechanical operations, with very little training or education, those of others can never be trained sufficiently to be able to accomplish them; the skin and the lungs of some persons are so constituted as to be easily influenced by such degrees of moisture and cold as have little or no such effect on those of others; the capacity for labor, and endurance, also varies very largely.

Again, these physical conditions are more or less variable with many persons. They are conscious of feeling more active and vigorous, of experiencing a larger degree of pleasure in physical activity at one time than at another; they may be conscious of more or less painful sensations, experience a measure of indisposition to make effort; they may be more restless and uneasy, and feel discomfort from slight causes which had rarely before produced such results.

In short, there may exist not only a difference in the constitution of the different organs of the body, but these natural conditions are more or less changeful in their states, within certain limits, while still in a state of health. There may exist a condition of over-activity, or of under-activity, in any or all portions of the body, and from the operation of causes, the nature of which we are entirely ignorant, and concerning which persons do not much care, so long as they do not experience so much discomfort as to

be unfitted for their usual occupations and pleasures. Such experiences are common with many persons, who yet remain in a condition of health.

Passing now to the conditions of the mental side of the human system, we find, in what are called healthy states, that there exists as broad a diversity of character as in the physical. While some apprehend any thing a little abstruse with great difficulty, or fail to do so at all, others understand it with a readiness which we are accustomed to call intuition; while many occurrences seem merely to impinge upon and glance off the minds of some persons never to be remembered again, they pass from the minds of others only after long years, or remain through life.

Some persons always look upon and judge of occurrences and results in an unusual way. They are odd or singular in their mental constitution, and are accustomed to do odd and out-of-the-way things just as naturally as others would do the same things in such a manner as to attract no attention. Some persons see, hear, taste, touch, and smell so much more quickly and delicately than others, that we must conclude there exists a radical difference in the perfection of the organization of the nerve-cells of these various organs of special sense.

Again, there are periods in the experience of some persons, when they see, hear, touch, taste, and

smell with much greater readiness and delicacy than at other times, even in a state of so-called health. Musical sounds are more delicate and pleasing; harsh and rough sounds are more harsh and rough; certain articles of food produce a keener sense of relish, and colors a greater sense of pleasure: all of which would indicate temporary changes in the structure or function of the nerve element comprising these special organs of sense.

The same is true to even a larger extent of the emotional nature. Persons, in certain states of the nervous system, are pleased with persons, objects, and sensations, which afford them no pleasure at other times; they are displeased and pained, while in other conditions, with sentiments which would at other times produce no such effect. They sometimes feel that the world and its possessions and pleasures are so great and grand that they can never leave them, and the thought of doing so causes the keenest anguish; while in another state all these pleasures and possessions appear as empty and valueless as a bubble of air, and the thought of leaving them, and throwing off the burdens and cares of life, which are usually so much enjoyed, seems almost pleasurable.

Again, some persons have periods of being irritable, restless, nervous; they cannot bear much; little incidents which, in other conditions of the

nervous system, they would think little or nothing of, turn them into a passion of excitement, which can hardly be controlled for the time being. In other states they may long to weep, or to be in solitude where they cannot be disturbed ; or they may shout, and laugh, and talk, while thoughts come coursing through the brain so fast that words fail in their expression.

The same changes occur among the impulses; these are at times almost irresistible. Nearly every one, while standing on a high cliff or house-top, has felt an impulse to jump off or push his friend off, reckless of the consequences.

In the usual condition of the nervous system persons love their children and relatives, and are ready to do and suffer and at times even to die for them, if need be, while at other times all these sentiments fade away, so that they are unconscious of them, and even the opposite sentiment of dislike or hatred takes their place.

Periods of mental lethargy come over many persons at times, so that they care neither to talk nor engage in any of their usual intellectual or physical pursuits; and such stimuli as are usually sufficient to rouse the brain into action appear to have very little effect. They feel and say that there is a state of only partial brain-activity. At other times the brain acts with the greatest freedom ; occurrences which

took place long years before, and which, perhaps, have not been thought of since, come back with all the freshness of yesterday. Thoughts come rapidly. Keen flashes of wit, bright scintillations of thought, forms of expression of unusual felicity, pour forth spontaneously, while the mind apprehends and retains many kinds of knowledge with the greatest readiness. Similar variations take place in reference to courage and its opposite, timidity; truthfulness and suspicion; and, in fact, the whole range of mental endowments.

Now all this grand play of diverse emotions and conditions in the psychical functions takes place in a state of health; still, there can be no doubt that it comes from an unstable condition of the nervous elements of the brain, or from changes produced in some manner in these varied and delicate structures. It may be from varying states which are constantly occurring in the blood, in the processes of reception and elimination; or from those delicate chemical operations which must be forever going on in the nerve elements of the brain hemispheres, affecting their recipient and sensitive capacities; or it may be from other unknown causes: and these changes occur much more readily and frequently in some persons than in others.

Bearing in mind, now, these conditions of the physical and mental systems, the tendencies to which

are inherited, and more or less changeful in character, we may proceed a step farther.

This unstable condition, both physical and mental, may exist not only as an inherited condition, but it may be produced, or become greatly increased by causes external to the system, which are brought into contact so as to influence it.

A few illustrations may serve to make this more clear:

1. When a person who has not been accustomed to use the muscles of the arm in active and vigorous exercise, lifts, or makes a strong effort to lift, a heavy weight, if the effort is continued any considerable length of time, two conditions result therefrom:

First, a state of tremulousness, or spasm of the arm, hand, and especially of the fingers. The largest effort the individual can make toward controlling this irregularity of movement, is insufficient, and these parts remain in a condition of more or less spasmodic action, until the nervous energy is restored.

Second, there results a sensation of pain, more or less severe, according to the time the exertion has continued. This would indicate positive injury, to some extent, in the nerve filaments of the muscles which have been so unusually exercised. The degree of effect will be dependent upon the condition of the nerves of the hand and arm at the time the

effort is made, and upon the amount of force expended.

If the effort is repeated soon, there will result a similar condition, and ultimately the nerve would cease to respond to the call for action in any degree,—the arm would be paralyzed.

2. All are more or less familiar with that condition which is usually termed the *writer's cramp*. Sometimes persons of a peculiar nervous organization, who have been accustomed to spend many hours a day in the mechanical process of writing, experience such a loss of nervous energy that the arm fails to respond to the will power. There results spasmodic and irregular movements in the arm, and more especially in the fingers, indicating that some morbid condition of the median nerve has been produced. If the case is neglected, and the exciting causes continue in operation, after awhile the nerve will become less and less responsive to the call of the will, and the arm may become seriously affected, after a longer or shorter period of more or less pain. In this case, as in the former one, there may exist all degrees of impairment of nerve function, from that of slight unsteadiness or instability, up to entire failure.

3. The condition of the nervous system in chorea presents another illustration. Between the ages of ten and fifteen years, in some children, there may

occur such changes in the condition of the nervous element, from the altered character of the blood, as to render it more or less unstable in some portion. One arm or one leg, or a hand, or some of the muscles of the face or neck, cannot be kept long at rest by any effort which can be exerted by the individual, and this may be so slight as scarcely to attract attention, or it may be so great as to cause extreme suffering for a long time, and ultimately destroy life.

Now the primary condition in the above cases is one of *instability of nerve function.* Such a change has occurred in the elemental tissue of the nerve, as to injure its power of activity so far as it is under the control of the will. The nerve has been stimulated to over-activity, or its energy impaired by other causes arising within the system itself.

These illustrations have related to those portions of the nervous system which are more immediately connected with motion, and which, consequently, are located in the muscular system. If, now, we pass from these portions of the nervous system up to its grand centre, or that part of it whose function is connected with mental operations, we shall find similar effects resulting from like causes.

If a person experiences a sudden mental shock, occasioned, it may be, by sad intelligence of some kind, or if he passes suddenly through some great personal peril, or if he has made unusual mental effort in some

abstruse study, or in the conduct of business, which has been long protracted, he becomes conscious of what is called mental fatigue. The brain refuses to respond to any calls which may be made upon it for further action, or partially refuses; it becomes confused and bewildered, and unsteady in its action; it is difficult to force it to further application, or to connected lines of thought, and if, by a strong effort of the will, this is done during a short time, it is inclined soon to wander from the subject, and there exists a more or less distinctly recognized sensation of pain as well as inability to regulate its action.

In this case, also, as in the others, there may result any degree of effect, from a sensation of fatigue up to mental spasm, and the amount will depend on the condition of the brain during the time the effect continues, and its intensity. The two conditions of instability and pain may be less marked in the case of the brain than in the nerves of motion, but there can be little doubt there has resulted something of a similar character in both.

Precisely in what this change which has taken place consists, may not be easily determined. There may have occurred actual lesion of nerve element, or only impairment or exhaustion of functional power without lesion; probably the latter condition only, in the primary stages of the operation. Certain portions of the brain have been over-stimulated

in action, and consequently their power of normal activity and stability is impaired, as was seen in the cases of nerves distributed to the muscles of the arm and other portions of the body.

II. Again, if the arm or hand of a vigorous person, which has long been trained to make either large efforts, or the more delicate movements, or again, to make but little effort in any direction, be placed in splints, or be suspended in a sling so that there is little or no activity for a few weeks, more or less, there results a failure of nerve-function; and there may be any degree of impairment, from that of slight degree, such as may be evinced by spasm, to that of paralysis.

The same is true in reference to any portion of the nervous system which can be placed in a state of inactivity.

A few sentences of recapitulation in our process of reasoning will now be in order.

1. We have seen that imperfection and instability of nerve-function may be inherited; that weakness, or impairment, exists with many persons from the time of birth, which affects more or less the functions of the various portions of the nervous system; and that this is seen not only in the mechanical operations of the hand and arm, in the execution of all the more delicate movements of which it may be susceptible, but also in the mental operations. By

no possible amount of training can the nerves of the arm in certain persons be educated to do the finer portions of mechanism, any more than can their brains be educated to continuous or concentrated thought on the solution of problems in the higher mathematics; that the broadest diversity as to strength and steadiness of nerve-function exists from the period of childhood to old age: while the nerves and brains of some bear long-continued and large effort without disturbance or failure of function, these portions of the system in others soon manifest the effects of such treatment, and ere long break down; and there may exist any degree of difference, from the manifestations of genius, to those of imbecility.

2. We have also observed that disturbance and imperfection of nerve-function may be produced in all persons by the action of causes operating from without upon the nervous system, and that the results may be similar in character, whether there has been too great or too little exercise of function.

It will further be observed, that we have in a definite and somewhat continuous line passed from the production of disturbance and irregularity of the function of simple motion in the hand and arm, up to the more complicated and less understood activities of the hemispheres of the brain. We have seen that there exists at least a similarity in the

exhibition of failure in the functions of execution in both cases, whether acquired or inherited.

I think there can be little doubt that there exists some such condition of that portion of the brain which is concerned in mental operations, as I have in a somewhat crude manner attempted to illustrate, which is the primary condition in a large number of persons who become insane. Precisely in what it may consist during the earlier stages we may not be able to explain. There doubtless is no change which can be termed *organic* in either the nerve cell or any other portion of the substance of the brain during the primary stages of this failure in function, but rather an exhaustion or lack in functional power, which after a longer or shorter period *may* lead to organic change of structure.

Now we have only to suppose a person with a nervous system so constituted that these conditions, which I have described as temporarily occurring with many persons from exciting causes, are permanent, though in a latent state, and we have that peculiar organization which we term *The Insane Diathesis.* That is, we have a nervous system so sensitively constituted, and illy adjusted with its surroundings, that when brought in contact with unusually exciting influences, there may occur deranged instead of natural mental action, and it becomes more or less continuous instead of evanescent.

The mind passes from the control of the will, and wanders hither and thither, or persistently holds on in one channel of thought. Its action may become spasmodic and irregular in all degrees from slight aberrations, or excitement, up to incoherence and mental spasm; or from slight degrees of depression, down to almost inactivity and dementia: in short, such abnormal conditions of mental activity as constitute insanity.

The husband hates his wife, and the wife her husband; the parent his child, and the child the parent. We have the person, whose brain is so perverted in its action that he feels no pleasure and experiences no satisfaction in life, but hates it, and longs to throw off its burdens and cares, and leaves no effort untried to accomplish it; while another is so filled with joyous emotion, his brain is so excited in functional activity, that he can neither eat nor sleep, but ideas flow forth in one constant stream of words—words; bright visions appear on every side, and his life is worth a thousand worlds. Or, we may have any other of the ten thousand perverted mental activities which attend the "mind diseased."

"And he * * * (a short tale to make)
Fell into a sadness; then into a fast;
Thence into a watch; thence into a weakness;
Thence into a lightness; and by this declination
Into a madness, whereon he now raves
And we all mourn for."

In the above view, there does not appear to be any well-defined, sharply bounded line between what is termed normal and abnormal mental activity in its primary stage. The one insensibly merges into the other, while both depend upon the physiological condition of the brain for the time being. When that portion of it which is immediately concerned in thought is in what is termed a healthy state, that is, a condition in which its involuntary functions are normally performed and under the control of the will, then we have healthy mind; and, *vice versa*, when it varies from this condition, either from the effect of influences which have been inherited or acquired, then we have for the time, abnormal mind. Thousands are born into the world with brains so constituted as to become easily deranged by external influences and experiences, and thousands more attain to such conditions of the brain, from the frictions of life, and abuse of its enjoyments and requirements.

If these views, in relation to the principal condition of insanity, are correct, it is evident that the question of largest interest in relation to its *prevention*, relates, not so much to the long catalogue of exciting or secondary causes, as to the avoidance of such courses of life, habits, and tendencies of society, as specially assist to develop and perpetuate this diathesis. It now becomes necessary to suggest

and discuss, more or less fully, some of the influences which are in operation in modern modes of education and habits of life, and which have a special tendency to create this condition of the brain. I shall first refer to some points in connection with present methods of education as related to the young.

THE INFLUENCE OF EDUCATION.

CHAPTER V.

THE INFLUENCE OF EDUCATION.

THE highest conception of an education would include the idea of its being symmetrical; that is, that the psychical and physical should be trained together and in harmony; that the system should be considered and educated as a whole, the brain not being stimulated in its cultivation at the expense of the body, or neglected while the latter is in process of development. If both are educated together, and with due proportion of attention to the laws of development and growth of each, then they will be in the most favorable condition to withstand the effects of the wear and tear which come in the lives of all.

That the courses of education at present pursued in the larger number of our select and common schools, especially those located in cities and large towns, are of this character, will hardly be claimed by persons who study educational systems and processes from a physiological and sanitary point of view.

At five or six years of age, and while for some years the system must be in the formative, growing

period of its existence, the child is confined five hours a day on a hard seat or chair, in a room often illy ventilated and irregularly heated. During the larger portion of this time he or she is expected to have the mind occupied in study, or recitation, which is quite equivalent to study. In addition to this, after the child arrives at the age of ten or twelve years, tasks of such extent and difficulty are imposed, that it becomes necessary to study one or two hours during the evening. I think that most persons, with much experience in intellectual occupations, will agree with me, that six hours a day are quite enough for an adult mind to be occupied, with advantage, in study. I am confident it will be found that our most successful clergymen, lawyers, and *littérateurs*, though at times a more protracted period of mental effort may be necessary, yet, as a rule, do not spend a longer period daily in intellectual efforts.

Yet in the education of our little children, we find that both teachers and parents, in their blind ambition to hurry them forward, conspire in imposing tasks of such a character and magnitude as to require longer hours of study than we know to be best for the adult brain.[1]

[1] As an example of what is required of young pupils, in addition to the usual study hours in school, I herewith subjoin a list of what a lad, twelve years of age, brought home from school, by direction of the teacher, to learn during the evening :

I believe, however, that the largest mischief does not come from the length of time occupied in confinement and study, great as this may be. A still larger defect in the system lies in the multiplicity of the subjects studied and the lack of sufficient individuality in its administration.

In the graded schools children are parcelled out in numbers ranging from forty to sixty in one room, and put under the charge of one teacher. The sys-

---

1—*a*. From what incident is the phrase "passed the Rubicon" derived?

b. Why is the Archipelago southeast of Greece sometimes called the Ægean Sea?

c. What poet is sometimes called the Ettrick Shepherd?

d. What is the largest bell in the world, and how much does it weigh?

e. What was the debt of the United States at the close of the Revolution?

2.—Spell the following words and give the definition of them (being prepared to write both the spelling and definition as they are announced by the teacher):

Clarify, Pyrenees, judgment, leguminous, critique, pistachio, deceit, scissors, superficies, idiom, anodyne, filigree, monody, cartouch, committee, tobacco.

3.—Work out and hand in on paper solutions of the following problems:

a. What number is that from which if you take $\frac{8}{14}$, the remainder will be $\frac{1}{8}$?

b. What number is that to which if you add $\frac{4}{9}$ of 11, the sum will be $44\frac{3}{5}$?

c. What number multiplied by 11 will give $44\frac{3}{5}$ for a product?

d. What number divided by $4\frac{2}{7}$ will give $\frac{3}{3}\frac{4}{2}\frac{8}{4}$ for a quotient?

e. What divisor will give $4\frac{2}{7}$ for a quotient, 66 being the dividend?

f. What number is that $\frac{8}{14}$ of which exceeds $\frac{1}{2}$ by $4\frac{2}{7}$?

g. What number is that to which if $\frac{8}{14}$ of itself be added, the sum will be 66?

h. What number is that from which if $\frac{1}{3}$ of itself be subtracted, the remainder will be 11?

I call attention: 1st, to the amount of labor and time it will require simply to do the work of the above lesson, even supposing that a class of children from eleven to thirteen years of age have the ability, and after five hours in the school-room during the day; and 2d, to the character of some of the requirements.

tem is too purely a mechanical one; all must come in, go out, rise up and sit down, study, and recite in very large classes. There is no room or time for individuality in any department of study, and very little in any recitation. Each one goes on with the whole, or he drops out and back, while the half-exhausted teacher has neither time nor opportunity to bestow the little attention and aid which would often be of so much value.

No teacher can do even half justice to any such number of children, and I presume it is not expected he will. His task appears to be to find that in some way or other the pupil seems to be able to recite his lesson, and if not, that he work at it until he does; and if the unfortunate one fails, see that he goes back to a lower class. Now, doubtless, one or two out of every five of these fifty or sixty children will be able to press on with comparative ease and health through all the studies which all are expected to master, but for the other three or four of the five, there exists a large tendency toward confusion of mind and imperfect knowledge, rather than those clear conceptions and definite understanding which tend to give vigor and strength of brain.

In this respect, I believe the educational process of fifty years ago was better than that of to-day. The teacher had a much smaller number of pupils, and, consequently, had better opportunity to study

the peculiarities and tendencies of individual minds: he was better able to appreciate their deficiencies and the consequent needs each had. Fewer books were read, and these of such a character as was adapted to strengthen the memory; fewer subjects were studied, and there was time to more thoroughly understand and fully master them. Facts and processes attained were clear and definite, and there were less confused and half-understood lessons and theories, so that, as the mind became more mature, it went out for larger fields and broader pastures of knowledge.

They, doubtless, did not have much information as to the movements of the heavenly bodies, or of the names of insignificant towns, hamlets, or rivers on the eastern or western coast of Africa. They might not be able to define the boundaries of Kamtchatka, nor give the pluperfect of a large number of irregular verbs; but, on the other hand, their brains were clear and active, and possessed a recipient capacity. They were not crammed or confused by the dim memories of a vast multitude of names or facts which, by no possibility, could have any important bearing on their future lives or fortunes.

Knowledge, to be of much practical value to its possessor, must be clear and definite in the mind. When only partially understood or dimly perceived

by the mind, it tends rather to confuse and weaken than invigorate; consequently, during the earlier periods of life, study in our schools should be confined to a comparatively few subjects, and there should be opportunity for the teacher to see that the scholar receives such individual attention as will enable him to fully master the allotted tasks. We must ever bear in mind that the grand object in attending school is, physiologically considered, to make the brain vigorous and stable in its operations, and as little liable to instability and irregular action as possible. Any course of training, during this early formative period of life, which tends to crowd the brain or stimulate it to over-activity, must tend to after-weakness and instability.

This leads me to protest against the modern tendency to continually increase the requirements for entering and continuing in the graded schools of our cities. The number of dates and names, relating as they often do to many different subjects of study, and the amount of writing in a short space of time, tend to mental confusion; and while the number of studies is increased, the time for their acquisition must remain unchanged, so that the scholar is hurried on through or dropped by the way. To avoid this latter result, too great and too protracted mental effort is necessary on the part of some children, while in many cases the results are manifested in a

state of mental confusion and uncertainty, or a nervous, hysterical condition.

I have in mind at this writing cases which will illustrate my point. One was that of a young lady of ordinary mental endowments, whose parents usually brought her to me for advice as often as every two or three weeks, because she was nervous, and suffered from frequent and protracted headaches. Inquiry elicited the fact that she was obliged to study during the evening until ten or eleven o'clock to accomplish the tasks which were assigned to her class. It was thought by the parents that this practice was all right, that it evinced faithfulness and ambition, and it was with much difficulty that I could convince either her or her parents that her ill-health was due to the constant violation of the laws of health; that her brain and whole nervous system required longer periods of repose and quiet at her age than it would be likely to need later; that the future of her whole life as a member of society might, and must, in a large degree, depend, not on the grade of the marks she might receive in her daily recitations, but largely on the nervous and physical strength she might be able to build up before she should become twenty-one years of age. This young lady was of a healthy parentage, and inherited a good physique, and with proper habits of life and study would have had excellent

health. As it is, her system will not for years, if ever, recover from the effects of her habits of excessive hours of study.

The name of another patient occurs to me: a young man of good parentage, and apparently inheriting a good constitution. He was ambitious in study, and his parents permitted him to do all he might choose to. He entered college at sixteen, standing among the best scholars of his class, but before the end of the first year, began to be troubled with noises in his head and confusion of mind. He was removed from college, and remained out till the end of the year, but partially kept up his studies at home. He entered the sophomore class but was obliged to leave earlier in the course than before. He tried the junior year with a like result, and from this time exhibited more pronounced indications of mental impairment. He travelled both in this country and in Europe; he consulted some of the most eminent physicians, but all to no purpose; the mischief had been too effectually accomplished. The delicate tissues of the brain had been over-strained, and so impaired that when his parents awoke to the gravity of his condition, it was too late to repair the mischief.

I have under my care at the present time a young girl, thirteen years of age, who has come to me from one of the seminaries for girls in New England.

She informs me that the pupils in that institution are required to spend eight or more hours a day in study and recitation, and some portion more of every day in household work, and that *she* was permitted to study and recite some ten hours a day, as she was behind her class in some of the studies when she entered.

It is not surprising that in less than one year she returned to her home, suffering from headaches, cold feet, nervousness, and inability to sleep, and in a short time became so excitable and incoherent in thought and language, that it became necessary to remove her from home. After a long period of rest with appropriate treatment, she has become so strong that she will soon go into the country, where I have directed that she remain for one or two years without study, in the hope that the nervous system may regain its health under the influence of a life spent largely in the open air.[1]

A young man, standing, so far as was indicated by marks, in the front rank of his class, had strength of brain barely to graduate, and then for years was

[1] Before this patient left the Retreat she gave me the following schedule of her daily duties and mode of life while in school :—

"Breakfast at 7 A.M. From 7½ to 8½, did work. Studied from 8.30 to 8.55. From 9 till 1½ o'clock P.M., studied and recited. Dined at 2, and after dinner worked until 3. Then ½ hour for recreation. From 3½ till 5½ o'clock, study hours. From 5½ to 6, turns were taken by the pupils in preparing supper. Supper at 6. From 6½ to 7, recreations. From 7¼ to 9, Latin recitations and study."

Other pupils need not have studied so much by 1½ hours.

Comment on the above is unnecessary.

able to do but little study, and spent his time in a vain search for that health which by judicious habits in study he would never have lost. Many other cases of similar character could be cited if it was necessary to adduce additional confirmation of my views.

I desire, however, not only to call attention to, and greatly emphasize, the effects of study so far as they may manifest themselves on the individuals themselves, but the effects which these persons are certain to transmit to their posterity. The brain may and does, in many cases, so far recover that it may fairly do the work, or *a* work in life, but it has attained a bias—a twist,—which will be seen to manifest itself in the next generation in something more than a twist; it will be an insane diathesis—a brain constituted in so unstable a manner, that the friction of ordinary life will upset it, ending in insanity.

I have often thought that teachers are only partially to blame, as they are countenanced and encouraged by the parents in this injudicious course of mental stimulation in early life. Especially is this the case if a child happens to be so fortunate—I perhaps should rather say *unfortunate*—as to have in any measure a higher order of mind than his fellows; he is likely to be the theme of conversation, in relation to his studies, not only in his own home, but with all the cousins, aunts, and neighbors, until

finally the child comes to form altogether a false estimate as to the importance of its own attainments and ability. It is quite possible, also, that the freedom of our educational and governmental institutions may serve to help it on. Every child is taught, at home and in school, that all the prizes of life are within his grasp, *if he will only make the requisite effort*, while every parent is anxious to have his child higher up in the social scale than he is. These conditions not unfrequently serve to stimulate those specially ambitious to over-exertion, while again, there is less of the controlling element, both at home and in social life, than exists under most other forms of government.

It becomes necessary here to refer to the system, so universally prevalent in our colleges, of competition in grades of scholarship. I do this with greater reluctance, knowing very well how fully men of long experience have studied the subject, and how extremely difficult it may be to devise and carry into operation any plan which may prove to be more desirable for all concerned.

In any considerable number of boys, from the ages of fifteen to twenty-two years, there will be some who realize so little the objects and benefits to be obtained through the discipline of study, that they will care little for honors or standards of scholarship, and are in no possible danger of over-

exertion to obtain them. With such persons we need not concern ourselves at present.

On the other hand there are those who so fully appreciate the grand advantages resulting from an education, that they would be sure to do a fair amount of labor, and honestly employ their time, under almost any system of management. Now it is from the latter class, that come the students who are to attain to and hold the positions of influence in after-life, and too great care cannot be exercised that their characteristics of mind be judiciously brought into exercise and strength. They are, for the most part, ambitious; and in many cases this ambition stimulates them to the largest effort to carry off the prizes which may come in the way of scholarship during their college course.

These prizes frequently depend on extremely small differences in proficiency which may be obtained, in many cases, over long periods of time. It is understood that it is commonly the case that the differences in scholarship of those who obtain the highest five or six honors in college are often very small, and that these honors may be assigned to one or to another by failure or success on some point, the knowledge concerning which could by no possibility have any influence in after-life, and which must be but an imperfect indication of true scholarship and mental ability; and yet so strong is the power of

ambition as to lead some few of the highest minds, in almost every class, to neglect the commonest laws of health in reference to physical exercise and sleep, that they may secure these temporary honors. The brain is stimulated to long and weary hours of study by the effects of tea or coffee, or in some cases by the use of more objectionable substances, when regard for health would require it to be in a state of repose and sleep; and this is during the period of life when it has not yet attained to its full growth, and while its substance is still in a more sensitive and delicate condition, and consequently more likely to be unfavorably affected by such treatment than in the maturity of later life.

From personal observation I am satisfied that some of the brightest minds are essentially ruined for the accomplishment of any large work in life by such a course of conduct in their education, who, under some other course of management, in which these mental tendencies could have been better understood and guided, might have been saved; and that often these are minds with the best natural endowments.

How it is possible that instructors of young persons can suppose that any larger power of intellect, or any greater capacity for usefulness in after-life, can possibly be secured by such treatment, or rather by such abuse of the organ of the mind, or why they

have not been more careful to instruct those under their care as to this most important of all subjects to them in their future work, it is not easy to imagine, and can only be accounted for by the supposition that they have not studied the subject carefully enough in its physiological relations.

It should always be borne in mind that excessive use or stimulation of any part or organ of the system can in no sense be considered as education of it, but as a sin against its nature, which will be sure to require retribution. It may be made to accomplish more in a given time, but it must be at a discount on its future activity; there must come a reaction, that is, a condition in which there will be performed less of function than before; and that such a course of treatment has a tendency to produce a condition of *instability*, and more or less of *uncertainty of action.*

Within the last twenty years there appears to have come, in some measure, a reaction in reference to exclusive attention to brain discipline, and in favor of more attention to physical exercise during the college curriculum. There have been organized in most of the colleges and academies, boating clubs, base-ball clubs, and other associations with the avowed object of securing a higher state of physical development and education. This has been a step in the right direction, and none too soon have we come to realize the fact that the brain depends very

largely upon the health of the body for its exercise of the best thought. The importance of a physical education will be more fully referred to hereafter, but at this stage of the subject it is pertinent to suggest that violent use of the muscles for short periods is generally not the best mode of exercise; that the sudden expenditure of so much nervous force in training and in contests, as is necessary in order to secure the highest attainable power in rapidity, skill, and strength of stroke, during a half or one hour; or to attain the highest skill in throwing a ball, or in receiving it in hand, or in many other of the manœuvres of base-ball playing, which require such quick changes of position, and violent motion of the body, is in great danger of ultimately defeating the very object for which they are ostensibly practised.

The skill and power may be obtained, and the winning crew or club may have the satisfaction of receiving the welcome plaudits or the crowning laurels bestowed on victors, but how far all this will prove to be of service in securing either strength or health of body, may be a question; or rather it will not be a question at all. In nine out of every ten cases there exists almost a certainty that a larger measure of physical health and capacity of endurance in after-life would have been attained by some other course, or method, attended with less stimulation and expenditure of nerve-force. The period of reaction no

less surely comes than in cases of other kinds of stimulation, and is frequently manifested in functional or organic derangements of the heart and other organs. Healthy and continuous muscular power comes more surely by the expenditure of a medium amount of nerve-force, and no other method can properly be considered as physical education.

Lest, however, it may be thought I have placed too much importance in this matter of over-study and nervous exertion, and to show that we Americans are not the only ones at fault, I will here introduce some statements from an English physician[1] of the highest authority.

He says: "The master of a private school informs me that he has proof of the effects of overwork in the fact of boys being withdrawn from the keen competition of a public-school career, which was proving injurious to their health, and sent to him, that they might, in the less ambitious atmosphere of a private school, pick up health and strength again. He refers to instances of boys who had been crammed and much pressed in order that they might enter a certain form or gain a desired exhibition, having reached the goal successfully and then stagnated." He further says: "Too many hours' daily study, and the knowledge of an approaching examination, when the system is developing and requiring

[1] D. H. Tuke: "Insanity and its Prevention."

an abundance of good air and exercise, easily accounts for pale and worn looks, frequent headache, disturbed sleep, nightmare, and nervous fears. When the career of such students does not end in graduating in a lunatic asylum, they lose for years, possibly always, the elasticity and buoyancy of spirits essential to robust health. A strong constitution may be sacrificed to supposed educational necessities."

"Mr. Burndell Carter,[1] in his 'Influence of Education and Training in Promoting Diseases of the Nervous System,' speaks of a large public school in London from which boys of ten to twelve years of age carry home tasks which would occupy them till near midnight, and of which the rules and laws of study are so arranged as to preclude the possibility of sufficient recreation. The teacher in a high school says that the host of subjects in which parents insist on instruction being given to their children is simply preposterous, and disastrous alike to health and to real steady progress in necessary branches of knowledge. The other day I met an examiner in the street with a roll of papers consisting of answers and questions. He deplored the fashion of the day; the number of subjects crammed within a few years of growing life; the character of the questions which were frequently asked, and the requiring a student

[1] Quoted by Dr. Tuke.

to master, at the peril of being rejected, scientific theories and crude speculations which they would have to unlearn in a year or two. He sincerely pities the unfortunate students. During the last year or two, the public have been startled by the number of suicides which have occurred on the part of young men preparing for examination at the University of London, and the press has spoken out strongly on the subject. Notwithstanding this, the authorities appear to be disposed to increase instead of diminish the stringency of some of the examinations."

These statements were made as showing a tendency on the part of the prevalent modes of education in England, to produce in its subjects either insanity or a tendency toward it. I here reproduce them as confirmatory of my own views already expressed, and would especially call attention to the fact that though this influence may fail in producing actual insanity, yet it is of such a character as will tend to develop instability of brain tissue, and in the coming generation the insane diathesis. Parents transmit acquired tendencies toward disease as well as, and indeed I think more frequently than, disease itself.

I must beg, however, not to be misunderstood. I think I appreciate the importance of an education for the development and discipline of the brain as profoundly as any one. I believe the lack of brain discipline for those who are to compete in the midst

of such a civilization as that of the present, is one of the greatest misfortunes; but I do desire to protest with much emphasis against the system of indiscriminate cramming toward which the schools appear to be so rapidly drifting. It defeats one of the most important ends to be sought. It tends to confusion and weakness of mind instead of strength. Children have so many subjects to learn about, that they do not have time to fully understand subjects studied. The brain is occupied so many hours daily that its energy is exhausted, and there remains little ability to accurately appreciate, discriminate, or fix the attention.

The same conditions result, as there would from the too long and continuous use of the muscles of the arm, when one is learning to execute a piece of delicate work—the drawing of a picture, or making a work of art. In such a case the importance of only limited periods of application would be readily appreciated; great care would be exercised by the teacher lest the pupil should continue the work too long, or after the muscles had become weary and consequently incapable of accurate work.

We observe the same care in our treatment of the young of domestic animals, and are watchful that they be not over-driven or over-worked while their systems are undeveloped and in the growing period. When one is looking for the best growth, or the

highest strength or speed attainable, if judicious, much vigilance will be exercised lest the animal be over-driven or worked many hours a day, until the system is developed and firmly knit together. Shall we be less careful or less wise in our treatment of children?

Surely, there should not be need that I plead for such a course of education as will render the brain stronger and more capable of vigorous work in life, and of transmitting to another generation a sound mental organization, instead of, as is too often the case, a tendency to unstable and irregular action, which will have a final ending in insanity. That this may be the outcome of education there must be changes in the present system, and I plead earnestly that these may relate to at least two things, if no more: first, a larger measure of *individuality*,—smaller schools and fewer pupils for each teacher, that each may have more special assistance and *special* training; and, second, *a less number of subjects of study*. Let there be fewer subjects studied, and let what is studied be more thoroughly mastered. Have fewer half-understood problems and half-remembered lessons, and I believe we shall have more stable brains and stronger intellects in after-life.

INDUSTRIAL EDUCATION.

CHAPTER VI.

INDUSTRIAL EDUCATION.

I HAVE lifted at random from my table five yearly reports of institutions.

The first is that of the Conn. Hospital for the Insane at Middletown. By reference to the table of occupations of persons admitted last year it appears that more than thirty-four per cent. were of persons, the larger portion of whom had never been educated in any regular method of obtaining a living. Some of them had been accustomed to depend upon the precarious results attending common labor, and some upon domestic labor, while others were without any regular occupation. Probably some of these persons may have had a measure of education in some occupation in early life, but if so, this does not appear in the statistics.

The second is the report of the Hospital for the Insane at Taunton, Mass. Of those who were admitted last year to this institution, it appears that thirty per cent. would be included in the same general classes of the population.

The third is that of the new Hospital for the Insane

at Worcester, Mass.; and of the admissions here last year, we find that more than forty-two per cent. were from the above-named classes.

The fourth is that of the Western Pennsylvania Hospital, and of the admissions here, thirty per cent. were of these classes; while an examination of the occupations of those admitted to the Somerset and Bath Asylum, England, shows that nearly forty per cent. were of persons similarly circumstanced.

In these statistics I have included those persons who, in the reports, are classed as *domestics*, *laborers*, and persons of *no occupation*. I have not included *wives* of laborers, or persons whose occupation was "*unknown*." I think it may fairly be assumed that, in the case of laborers, those who dig and shovel and labor on the public works, or in other places, under supervision, and in the case of domestics generally throughout the country, not one in ten has ever had any training or education in any special line of service before they undertook to earn a living in following these avocations; that, in fact, they could not do any thing else.

Possibly reports of other asylums might show statistics varying somewhat from these, but I take it that these are sufficiently accurate for my purpose, which is to show from what class of persons, so far as an education in any of the ordinary employments is concerned, a very large percentage of the admissions to

our State hospitals comes. Without doubt a still larger per cent. of the admissions to some of the county asylums in England comes from this class of persons.

But so far we have shown only the per cent. the admissions of this class sustain to that of all admissions to asylums. Their true significance will appear only when we bear in mind the percentage this class of persons sustains to the whole population. The whole number of domestics, common laborers, and persons of no occupation, must be small as compared with the whole number of persons above fifteen years of age, and from whom admissions to asylums come. If, therefore, this amounts to more than one third of all admissions, it must amount to a very much higher per cent. than comes from any other class in the community to these asylums.

It may be proper to add to the above classes of persons the no inconsiderable number who, throughout the States, are engaged as mere operatives in our factories and manufacturing establishments. Many of these are engaged, and have been for years, in tending to some portion of machinery which is nearly automatic in its operations, and which requires little or no special training or education on the part of the operative. There might also be included, for my present purpose, that not inconsid-

erable class whose education for any business has been only partial, and who, with little previous training, have assumed the full responsibilities of such business.

The fact that more than one third of all admissions to those State hospitals which are located in the older portions of our country are from those who have never been properly educated in any of the regular occupations of life, is certainly significant, and I think will appear more so as we proceed. This, however, is only one element or factor in their condition, and it would be far from correct to conclude that this lack of education is in all, or nearly all, the only cause of their insanity. Doubtless many other causes have united in producing this result, as in other classes of society; but in many cases these other causes would have proved to be insufficient of themselves to effect such a result.

The amount of brain irritation, and consequent stimulation; the worry and anxiety attendant on the lives of the above-named classes of persons is oftentimes very great, and that there may not result actual injury to the brain, there can hardly be any thing of so much importance as an education and training in some regular pursuit. Without this, the individual is left at a large disadvantage in the use of all the ordinary means of success, or even of securing a living by any honorable course of life;

while, having had such a training, he always has the consciousness of possessing these resources; and not only this, but the brain remains in an undeveloped and comparatively weak condition without it.

Mental operations have been more or less active, as this is a necessity during the hours of consciousness, but they have proceeded in an exceedingly limited sphere of thought; they have gone on day after day in a few channels only, while the larger portion of that part of the brain which is connected with thought, or, more accurately speaking, many of the faculties of the mind, have been left in a comparatively undeveloped and inactive condition. The result is similar to that which would occur if only a portion of any other part of the system should be brought into exercise, for instance, one hand or arm, while the remaining portion should be left in an inactive state for a long period.

So true is it that certain trains of thought proceed only in limited channels of the brain, that it is found in experience, that a change of study from a subject which has long been under consideration, to another which has not been, and which is of a different character, and which requires combinations of memories and reasonings of a different order, is almost equivalent to a period of rest. After a period of application in the solution of mathematical problems, and the mind begins to weary of this study,

it may, with ease and pleasure be turned to the study of some language; so that persons whose duties cover a wide range of thought and subjects of diverse character, are frequently able to employ themselves with ease more hours in the day than others whose occupations are more uniform and less diversified in character. The law of health and strength applies alike to all portions of the system, and requires a certain degree of activity in all portions, else they remain in an undeveloped or weak condition.

Besides, in the case of the brain and nervous system in general, this lack of education in the direction of labor tends largely to produce too frequent self-distrust and introspection. The individual has little range of mental vision, or measure of that self-confidence which arises from ability in skilled labor, and not having any training in those activities and occupations of life which tend to develop and strengthen the nervous system; and, consequently, being unable to engage in these with any degree of satisfaction, if at all, is likely to pass into a state of self-distrust, doubt, and, after a few years, actual inability to take on any considerable measure of education of the nervous system.

It is, therefore, not surprising that, in the adult period of life, when the care and responsibility of providing for others in addition to one's self, come upon such persons; and especially when periods of

uncertainty and long-continued depression in the market of simple manual labor occur, individuals so illy equipped and helpless amid the competitions of society should become insane in large numbers. And I think it must be confessed that there are in operation certain tendencies, in the progress of modern civilization, which are at present very potent in their influence, as against remedies for this condition; influences which tend to push out of sight the individual, or merge him into a large whole, which moves forward for the accomplishment of purposes, regardless of the individualities which may fall out by the way.

In the strife and competition attending life in all our large towns and cities, there have been developed new methods of conducting business, as well as most of the occupations. Formerly the trades were conducted vastly more by individuals, either alone or in small numbers. Work was done by hand, and frequently at home, so that every father could easily have his child or children, from an early age, in some measure under his own supervision. The natural outcome of this was that children very often followed avocations similar in character to those of their fathers, and began to learn them early in life. Beginning thus early, though the progress toward any considerable degree of proficiency was slow, yet there resulted a symmetrical training and consequent

strengthening of the nervous system, during its growing period, which tended to render it largely self-reliant, and was of inestimable value in after-life in securing stability of action. In cases, too, where the children followed other lines of employment, they were early placed in training for them, while the influence of home-life was still strong, and before other habits of thought and less definite and profitable purposes of life had become developed.

In consequence of the great changes which have come to pass by the introduction to so large an extent of machinery, and by the conduct of almost all the trades and mechanical occupations by large numbers of persons in the form of companies, it has become extremely difficult for the young to have any special training for these vocations; there would result too much trouble and inconvenience from their presence.[1]

[1] Since writing the above, the following, in a newspaper published in Chicago, Ill., has come to my attention:

"The chief cause of the 'lumping' system is that, owing to the disappearance of apprentices, a good workman in any trade is becoming a rarity. This leads to the lumping system in two ways: first, there are few workmen who know how to do more than one or two things; second, a vast army of inferior workmen are drifting about who cannot command good wages, and consequently have to work upon the cheapest class of work, and these are the only men whom the sub-contractor can afford to employ. According to old master-carpenters and masons, the disappearance of apprentices accounts for the new state of affairs. One of the best carpenters in the city, who owns a shop and does a large business, said: 'It is scarcely an exaggeration to say that the race of good workmen is dying out, and that were it not for the immigration of foreign workmen we should be at a loss for men to do even the commonest jobs. The best foreign workmen do not come here at all, finding enough to do at home, so that those we do find are not such work-

What now has been substituted in the place of this home-training for business occupations and trades?

One of the substitutes, indeed almost the only one, is that of the public school. We have built palatial houses at the public expense in all our large towns and cities, and into these the children flock by the hundreds, at all ages from five up to eighteen years, and with the largest diversity in reference to physical and mental constitution: the highly sensitive and nervous, with the lymphatic and dull; the weak with the strong; those with the largest mental capacity, with those who have but little. In other words, routine education of the brain by means of books has taken the place of that which was formerly directed to other portions of the system and toward the more practical side of every-day-life.

The importance of such an education of the brain up to a certain period of life, which may vary somewhat according to the individual, both in the inter-

men as we had twenty years ago; but at least they are better than the men who have failed to learn a trade here. The newspapers say that men do not know their trades nowadays because there is no such thing as apprenticeship. There is no such thing as a legal apprenticeship bond between a boy more than sixteen years of age and an employer; consequently a boy who is taught something useful in a shop, will learn where he can get half a dollar more a week in some other place. A boy will not stay in a shop more than a year without pay; we have to pay them for allowing themselves to be taught a trade. As boys are usually not worth their salt in a carpenter shop, we do without them. The consequence is that boys pick up a trade in a superficial way instead of learning it.'"

est of the State and of the individual, is readily conceded; but that it should extend beyond the period of thirteen or fourteen years, for that large portion of the community which is to obtain a living by some form of productive industry, is not so evident.

That the brain should have all the training and discipline it can receive with a due regard to bodily health, till that period when the system becomes capable of manual effort and of receiving education, is clear; but from that time forward, why not have it educated in the line of its future industry and activity, whatever that may be?

Does the ability to work out some algebraic or geometrical process, or to conjugate some verb, or decline some noun in the Latin language, or the ability to speak German or French, or the study of music, very much assist him who is to follow any of the ordinary businesses or occupations, unless in exceptional cases? And would not the limited number who are benefited, and who, in consequence, or partly in consequence, are able to push on and enter other spheres of active life, be quite sure of finding the means of doing so in other ways? These acquisitions may be well enough; indeed, should be made essential for persons who are to follow such employments as require mainly brain action alone. But in any country,

these persons are the few. There must exist the producing classes, and in almost any state of society these must comprise by far the larger number, both of men and women.

But not only is that part of the public education which is generally obtained between the ages of fourteen and eighteen of little practical value for the ordinary productive avocations of life, but I think it has a strong tendency to unfit persons for entering upon these pursuits. The boy and girl are inclined to think they have secured an education by means of which they are entitled to a living in the world without manual labor, and frequently look upon it as something tending to degrade them, and as appropriate only for those who are ignorant. They have lived too long in the atmosphere of book-learning, and the physical ennui of the school-room, to be willing to undertake and thoroughly master the details of a trade or avocation, and yet have been there too short a time for any thing else. They may make an effort, however, looking toward some middle course, and if any trade is selected they are unwilling to take sufficient time to fully master it; they try to enter by some "short cut," while in too many cases they prefer to depend on the precarious mode of simple employment in any direction which, for the time, lies open to them. They consequently are in danger, in process of time, of drifting into the class of persons who have no regular occupation.

When viewed in the light of physiology, or of political economy even, the State should educate her young in such a manner and to such an extent as will tend to give the largest measure of health, both of body and mind, to the individual, and make the most self-reliant and self-supporting citizen, rather than give a smattering of algebra or music or astronomy, the remembrance of which will be almost certain to fade into darkness in less than five years after the individual enters upon the active duties of any kind of work in life which does not require their practical use.

How far short of such a procedure she comes by her present methods of education, may be inferred in some measure:

First, from the large numbers who, in all our cities and large towns, fail in the conduct of any general business which may require much skill and experience in its conduct.

Second, from the large numbers of foreign-born and foreign-educated persons who are at present employed in most of the oldest and best known manufactories throughout New England and indeed through the whole country, the number being greatly larger, I understand, than of American-born citizens.

Third, from the fact which has long been recognized, and in some degree commented upon, espe-

cially by those who have longest had large opportunities for observation, that during the last twenty or thirty years there has been a rapid diminution in the number of those, especially of the American-born, who apply at the manufacturing establishments to be received as apprentices. While formerly more used to apply for such an education than were required, now very few make such application, while those who do, rarely desire to remain long enough to fully apprehend and apply to practice the details of the industry.

Fourth, from the large numbers who have been educated in our common schools, who are drifting around from place to place, and frequently changing from one kind of business or occupation to another, not unfrequently imagining that they are eminently qualified for some office of a political nature, and dissatisfied if it is refused them, and unable to succeed in any of the callings they may seek to follow.

Fifth, from the large numbers of that class which has no regular employment nor any training for one, and which, at the present time, furnishes so many admissions to our asylums.

Of the inestimable value of brain discipline alone for all that class of persons who are to follow certain vocations, there can be no question ; but have we not been hugging the vain delusion, that because

the rudiments of book-learning are necessary for every person who is to become a citizen of the Republic, therefore, something further in this direction would be of still greater value to everybody? that, somehow or other, a smattering of book-knowledge would enable everybody to get on in the world without hard work? Have we not forgotten that an education of the nervous system in an occupation, is also one of the brain, and often one of vastly more value in the way of success and health in after-life? I fear that in our appreciation of, and zeal for, the public-school system, where so-called education is poured into the brains of waiting children by the wholesale, we are in danger of forgetting the grand truth, that, after all, the vast majority must earn their living, if at all, by honest labor, and that these persons require such an education as will best qualify them for practical industries.

In saying this much in reference to our public-school system, I am fully aware that I am approaching a subject and calling in question principles which have been supposed long settled, at least so far as this country is concerned. The system of education has become one of great power and large significance, especially in all our cities and large towns. The cost of that in the city of Boston alone, was, last year, more than three millions of dollars, and that of New York and other cities correspond-

ingly large. The disposal of such a vast patronage has become one to be sought for by interested persons; while the introduction of new school-books every few years proves to be sufficiently remunerative to secure large fortunes to those interested.

The question of expense, however, is of little importance as compared with the results of the system in the way of qualifying the subjects for the duties of life, and when this is considered, I am persuaded that a considerable portion of the sum now used could be better used in some other method; and I would, therefore, venture to suggest whether, instead of supporting public schools as they are now constituted for all classes of boys and girls between the ages of thirteen and sixteen or eighteen years, at so large an expense, it would not be better both in the interest of the State and of the individual, so far as the future health of the body and mind, and consequent ability for self-support are concerned, to make some provision whereby future citizens could learn, at least, the elemental steps in some mechanical or business calling?

By beginning thus early, the highest skill in any occupation or calling may be best attained. The nervous system grows into the strength requisite to conduct it in all its diversities much more readily and thoroughly while in its years of growth,

than is ever possible in later years. The occupation at this period becomes, so to speak, wrought into the texture of the nervous system, constituting, as it were, a part of it, so that in after-life it is conducted with much less friction and mental anxiety than would otherwise be certain to exist; while the discipline which comes to the brain in the process of learning, should be of quite as much value as may come from other modes of education.

There can be little doubt that statistics would confirm the statement, that a large majority of those men who attain to success in almost any mechanical occupation, are those who began their education in this way, while young; the large majority of inventors in any kind of machinery are those who have thoroughly mastered the details of the kind of work to be done, in early life; while, on the other hand, the larger number of those who fail, are persons who have not been carefully educated in the pursuits they have chosen to follow.

The inferences to be drawn from the above considerations would appear to point in one direction. There can be no doubt that the irritation attending the conduct of a business or employment which has been only half-learned, and the disappointments which come from failure and recognized inability, have largely to do with creating instability of brain-action, and consequent insanity. If, therefore, we

desire to do any thing toward diminishing the large numbers from these classes which now require care and treatment in asylums, one of the most efficient means of accomplishing this would be some such change in the course of the public system of education, as would enable these persons to qualify themselves for self-support by various modes and kinds of labor.

The same principles apply equally to *domestic service*. This, certainly, is one of the most important kinds of labor when regarded in relation to the comfort, happiness, and health of society, while its indirect influence upon family-life is, perhaps, greater than that of almost any other. Probably there exists no other source of so much irritation, discomfort and dissatisfaction, in home-life as the utter inefficiency of domestic service in this country. Perhaps no one cause has more largely contributed toward creating a dislike for family-life, and a tendency to seek hotels and boarding-houses. There is no one more potent influence in creating dyspepsia and ill-health of various kinds than illy prepared food, leaving out of consideration the loss of enjoyment which would come from its use when skilfully prepared.

But the irritation and consequent ill-health are not confined to one party in the contract; they come to both sides. The poor, uneducated, and ignorant

servant has perhaps done the best she knew how to do; indeed, it has been her desire and for her interest to do so, but with no previous training, or with the little that could be obtained while at service with wages, what could be expected except failure during the first few years, with consequent worry, anxiety, and ill-health? It would be as unreasonable to expect a person who had never been educated as a cabinet-maker to make good furniture, as to expect food nicely prepared, and a house well cared for, by a person who has not had the means of learning how to do this kind of labor.

Success and ease in the conduct of all kinds of labor are the largest promoters of health and happiness, and yet society goes on satisfying itself with having established public schools in which Bridget may make any proficiency in book-learning she may prove herself capable of, fondly dreaming, that somehow or other, this kind of education, *if it only be carried far enough*, will make good cooks and efficient housemaids; while schools in which persons could be thoroughly educated for these most important duties, could be established and conducted in all our large cities at a very trifling expense. The results in the way of mental health, as well as convenience and happiness, would, I believe, prove to be of inestimable value to society.

MORAL EDUCATION.

CHAPTER VII.

MORAL EDUCATION.

A FEW words in reference to deficiency of education in another direction, and bearing especially on the future of the mental health of children, will conclude what I have to say on this branch of my subject. Perhaps I cannot introduce these remarks in a better way than by relating two occurrences recently observed by me.

When sailing with a party of young people, during the last summer, on Long Island Sound, and while there was blowing a stiff breeze, three of the younger members of the party went forward very soon after we started, and stood together on the front part of the boat, in an exposed position. The captain quickly called to them to return to the rear part of the boat, saying there was danger of their becoming wet, or washed from the prow of the boat by the waves, which were rapidly becoming larger. No attention was paid to his call, and he again and with great earnestness warned them to return. Greatly to my surprise, not the slightest attention was paid to his second order, but the young persons

continued laughing and talking as if no orders had been given. As the boat was rapidly passing out of the harbor and into a locality more exposed to the wind, and the waves were becoming more dangerous every minute, the captain again shouted to them to return, and had but just done so, when a wave partially covered all of them, and one was barely saved from being washed over-board.

A few days after the above occurrence I was standing not far from a stage-coach which was near the door of a hotel. Very soon a little girl, nine or ten years of age, came near to one of the horses, and began endeavoring to put some flowers into the bridle. The animal soon became restive and looked vicious, while the driver at once warned the child to desist and to keep at a distance. Apparently not the slightest attention was given by the child to this warning, and she was still persisting in her effort, when the driver again, and this time in an angry tone, shouted to her to keep away, adding some statement to the effect that the animal was vicious and would hurt her. No more attention was paid to this than to the driver's former order by the child, and before any one could remove her, the horse had struck her head with his teeth, leaving a wound, the scar of which will remain for life.

As will be observed, in both the above cases the

children were in positions of great danger; they were, in both cases, warned by those who fully understood and explained to them the danger, and who had charge (the one of the boat and the other of the horses). In both cases the children were old enough to fully understand what was said to them, the danger described, and the duty to obey orders so urgently and repeatedly given; and yet their conduct seemed to differ in no respect from what it would have been had no orders been given. Indeed, after the *denoûment*, they did not appear, in any measure, to realize that they had been to blame for neglecting to obey the directions given.

These cases have not been related as unique, or in any measure remarkable or uncommon in character, but as illustrations of such as may, almost any day, be seen by the visitor at a summer resort, or by physicians in the experience of their daily duties. The children were not half so much to blame as were their parents, who utterly failed in their appreciation of the importance and duty of parental government; who imagined that in order to be a good and kind parent, and to avoid the trouble arising from refusal, one should constantly yield to every wish and whim of the child; and that to refuse a request indicates a lack of kindness and sympathy on the part of the parent, and thus ere long, and indeed very early in life, the child becomes the

master of the situation, and feels little or no obligation to yield obedience to authority.

The child who has not learned to obey the parental command is out of the way of learning obedience to any other. Growing up under such an order of home influences, and indulged in nearly all his wishes, he soon comes to believe that he need be under no restraint from authority or duty outside that of his home, and will be in danger of experiencing the penalty of violating both the laws of society and of his own health.

If such cases were rare or exceptional, or if the results were of a temporary nature, they might be considered as of less importance; but this is far from the case. Every physician will readily recall many cases of sick children who have died, not from the irremediable nature of the disease, but because the mother will persist in allowing the child to refuse the use of the necessary measures of relief. Darling Johnnie or Minnie will not submit to disagreeable measures, and fights and screams if any attempt is made to use them. This is extremely unpleasant, and the mother cannot endure to have her pet crossed or thwarted, or obliged to do what it does not wish to, *especially while it is ill;* and never having required obedience when the child is in health, she is entirely unable to do so, even when the greatest necessity may arise.

Such cases are pitiable in the extreme, as well as highly censurable. If the mischief ended in the less grave instances, as between the child and its parents during childhood, it would be of less importance; but this is far from being true. The effects of such training, or rather lack of training, continue through life with a tendency to much suffering to both children and parents.

One of the first requisites in any course of education for the young is to learn to obey. From the cradle to the grave, man is in constant danger from the effects of violated laws. He is surrounded by laws as with a wall of fire, and their infringement in any measure or degree requires that the penalty be paid to the full. Home and school education should aid the child in learning obedience to these laws while in childhood, that in later life it may constitute a part of his character. No person can become a good citizen, or useful in any considerable measure to either the State or the community in which he may live, without such an education, and is largely liable to become a nuisance, a criminal, or an invalid.

If, however, it is important that the child be educated to obedience so far as his relations to others extend, it is doubly so for his own physical and mental health. I have sometimes thought that the freedom of our institutions and State and national

governments greatly favored the general tendency toward lax rules as to conduct, both at home and in school, so that there exists less of self-control, both in home and social life, than under most other forms of government. But, however this may be, I regard it of the highest importance that the child should learn self-control and some self-denial, both for individual and the public good, and when this element of education is lost sight of, and the child is permitted to grow up having his own way in most things, and his every wish gratified, he has a large disadvantage when brought into contact with the friction of adult life.

I have seen not a few young men and women hopelessly stranded in life, whose early education had been one of extreme indulgence. They had never been controlled in home-life, and when projected against the rough experiences of actual life, were brought up with a round turn, or with no turn at all. The shocks were too much for them; they could not bend, nor yield, and were, therefore, broken. The lesson of obedience, which is often one of the most difficult to learn, must be learned, like most other lessons, when young, if it is to be effectually learned.

Again, the acquisition of self-control and obedience to law is essential to mental discipline and training. The operations of the brain are more or less under

the control of the will, and the more thoroughly the habit of obedience and self-control is gained, the more fully are all mental operations under individual or will-control. The will is the highest and grandest manifestation of the *Ego* possible. This it is which lifts man so immeasurably high above all other creatures, and so largely helps him to control his own destiny on earth. By the judicious use of this, he guides his mental operations into channels which lead to happiness and health, or to those tending in the opposite direction; he brings into subjection and control the vast army of his lower passions and desires, making them minister to his own and the higher welfare of society, or he leaves them to run riot, and ultimately to become his master.

If, therefore, he would have a brain capable of healthy mental action, he must learn to have its operations early under the control of his will-power. He must learn to guide it toward its higher and better impulses, and to strengthen it with the best nourishment. He must learn how to use not only his brain but his whole nervous system, and by this means acquire skill in the accomplishment of various kinds of labor. In no other way can he become self-supporting and independent, in the midst of the conflicting and competing tendencies of modern life. Without such self-control and independence he is constantly in danger of drifting down and

backward in the grand race in which the society of the present is competing.

I must repeat that obedience to law, whether it be parental, social, or civil, is one of the corner-stones, in fact, the fundamental element, in any efficient and worthy system of education. While I would not go back to the strict system of a hundred years ago, wherein all individuality was lost, and nearly every thing was made to yield to the law element in society, yet I fear that, in the recoil from that system, we have been, and still are, in great danger of going too far in the opposite direction. Freedom of individual thought and action, especially for the young, is in danger of degenerating into mere license, so that, in too many quarters, respect for parental, school, and civil authority is considered an indication of weakness and indecision.

If something beyond mere knowledge of right and wrong always has been necessary, and is likely to be necessary for some ages to come, among adult persons, to deter many of them from violating the laws of society and of their own health; if persons need the fear of penalty in the way of illness, helplessness, and suffering to aid them in conforming to obedience, how much more necessary it is in relation to the young, whose experiences have been so limited, and whose reason is so immature. Hence it is, that the parent and the educator must not only *instruct, but enforce obedience.*

HEREDITY.

CHAPTER VIII.

HEREDITY.

IT may be remarked, in a general way, that the subject of heredity is one of profoundest significance in its relation to society. Through its influences the peculiarities and characteristics of families and nations are largely developed and perpetuated. It "is that biological law by which all beings endowed with life tend to repeat themselves in their descendants."[1] It depends upon "an internal principle of vitality" which is so engraven upon every portion of the system before birth, that its influence remains through life, and within certain limits pertains alike to both the physiological and psychological nature. Not that this influence is such, or operates in such a manner, as to repeat itself in any stereotyped form, but rather in an endless variety of forms; while no child resembles its parents in all respects, yet there ever occurs a blending of the characters of both parents, together with

[1] "Heredity: A Psychological Study of its Phenomena, Laws, Causes and Consequences," p. 1. Th. Ribot, 1875.

a large number of those characteristics which have, for long generations, been interwoven in multiform shades and degrees in ancestors.

Passing now from the general to the particular, we find, first, in reference to physiological characteristics and peculiarities, that these tend to repeat themselves more or less directly, so that when they have once appeared, they may, with reason, again be expected. Peculiarities of the fingers and toes, of the hair, the shape of the head, the conformation of the face, and even particular portions of the face, remain for long periods in the same family and nations. The characteristic form of face and nose peculiar to the Jew, is an example in point, and so invariable as to lead to recognition, in spite of the changes and vicissitudes incident to travel and residence during many hundreds of years, under climatic conditions of large diversity, and ofttimes experiences of great and protracted severity.

Not only are such peculiarities as may be considered normal transmitted, but also such as are abnormal,—a supernumerary finger or toe, or a mole on some portion of the face or part of the body. A supernumerary finger or toe may be transmitted for at least four generations, though not to every member of the family, and the experiments of Mr. Darwin, with birds, go to show that the tendency to perpetuate such a peculiarity, exhausts itself after a

few generations, the type returning to its original character.

Fecundity is also well known as an inherited character. A mother is referred to by Girou,[1] as having had twenty-four children, five of whom, in turn, gave birth to forty-six. A granddaughter of this woman gave birth to sixteen. The females of some families have all or nearly all daughters, who, in turn, have more daughters than sons for several generations. A grandmother had nine daughters, several of whom had no sons in the third generation.

Longevity has long been recognized as one of the most transmissible of family traits.

Cæteris paribus, persons connected with long-lived families have a much more tenacious hold on life than others: the capacity for resisting the changes of climate, the morbific conditions of the atmosphere and soil, the influences of epidemic diseases, and the experiences of privation and hardships, is greater than with other persons; and, conversely, the capacity for resisting these influences is much less with persons whose ancestors have invariably died at an early age.

So also if a person resembles in physical form, complexion, and constitution, the ancestors of one side of his family who have lived to old age, while

[1] Quoted by Ribot.

those on the other side have died comparatively young, his prospects of longevity are generally strengthened in proportion to the extent of such resemblance. M. Levy says: "To be born of healthy and strong parents is to have a good chance of longevity; the energy of the constitution is the best buckler against the assault of destructive causes. Rush did not know an octogenarian whose family did not offer many examples of advanced old age. This observation, made by Sinclair, has acquired the force of an axiom, so common is it to meet with longevity as a frequent occurrence among many members of the same family. Inheritance exercises the same influence on the total duration of life of short period: in the Turgot family scarcely a member passed the fiftieth year; he, who rendered it illustrious, died at the age of fifty-three, in spite of the appearance of great vigor of temperament."

So familiar to every one are the facts connected with the transmission of morbid physiological processes, that I need not refer to this point further than to remark, that the phthisical, the cancerous, and the scrofulous diatheses are those well known to be more surely inherited, and that through these channels of diseased action whole families cease to exist after two or three generations, unless the tendency is counteracted by more vigorous and healthy influences from the other parent.

Passing now to the psychological traits and characters, we observe that the same law pertains. The heredity of mental qualities is quite as persistent as that of the physical; imagination, memory, will, intellect, the sentiments and passions, may all be inherited. It is estimated that not less than forty per cent. of eminent poets have had illustrious relatives. The families of Darwin, Cuvier, Bacon, Sir Benjamin Brodie, John Adams, Lord Macaulay, Madame de Staël, present good illustrations of the inheritance of intellectual ability.

But no less surely are the characteristics of *morbid* mental activity transmitted from one generation to another. The records of asylums all indicate that the tendency to insanity, in some of its forms, is one of those most likely to be inherited. It is thought that more than one half of the admissions to English asylums present evidence of an inherited taint. The same is probably true in reference to admissions to asylums in the United States, though it is exceedingly difficult to arrive at the truth in all cases, inasmuch as many persons are inclined to deny that any such tendency exists in their families, lest such a fact should appear to its prejudice in some way or other.

It is not the case, however, that definite forms of insanity always repeat themselves, but, on the contrary, change, so that a case of mania may appear in

the second generation as a case of melancholia, or acute dementia ; and, *vice versa*, melancholia may appear as dementia. Information concerning the inheritance of general paralysis is not so definite ; indeed, this form of insanity generally manifests itself in those having no tendency by inheritance, and would seem to be more frequent among the strong and robust, and also has a tendency to appear in the very prime of life.

It is not necessary that the tendency toward unstable mental action should be fully developed in the parent in order that it may so appear in the child. Parents who have for years been very odd or singular in their habits of life and manner of speech and mental operations ; those who are subject to periods of depression, and are accustomed to look upon the dark side of daily experiences ; mothers, more often, perhaps, who have all their lives been " nervous " or irritable and easily excited, impress more or less profoundly these abnormal conditions upon their offspring. Great singularity of conduct habitually displayed, periods of depression, irritableness, and nervousness, when crossed with similar characteristics in the other parent, or other unusual ones, not infrequently develop into actual insanity in succeeding generations.

A good example of such a tendency is related in the April No. of the *Journal of Mental Science*, 1881.[1]

[1] " Illustrations of Heredity," by J. R. Dunlap.

It began on the male side, the father being "eccentric" or "peculiar," so much so as to attract the attention of the village children. The wife had no peculiarities of sufficient import to be marked. They had four children, three of whom were affected mentally, one female and two males. The female was "uncommon" and "slightly weak-minded." One of the males was said to have been "weak-minded"; the other was "strange-looking," and odd in general conduct. He married a woman in good health and free from any special tendency, either mental or physical. There were born eleven children: of these, five were imbecile; two were idiots, and the remaining four were sane. Of these four, two had one child each, one of whom died of phthisis, and the other is at present an imbecile.

A consumptive parent may have children who are free from this particular form of diathesis, and yet at some period of life may be affected with insanity; or parents with an insane diathesis may have offspring who are tainted with scrofula, or phthisis.

Perhaps there are no habits or acquired tendencies which are more surely transmitted than that of dipsomania or alcoholism; nor are there any which are more difficult to eradicate when inherited, or acquired in early life.

This diathesis, however, is not always repeated in

form, but frequently passes into other abnormal conditions. Sometimes it manifests itself in some of the forms of insanity ; and again in uncontrollable passions, or cruelty, or in idiocy, or again in a failure of moral character, or in epilepsy.

One of the most marked cases which have come under my own observation, occurred in a family resident in K——. The grandfather and father both died prematurely from the effects of alcohol, and one of the children, a lad of seven years, had such a passion for liquor, that he would swallow at once half a tumbler of wine or whiskey unmixed with water, and could never be near alcohol in any of its forms without begging for it. This child, at that age, could not enunciate clearly enough to be understood by those not familiar with him, and had been unable to learn letters, though much care had been expended to effect it.

Gall refers to a similar case, in which both the father and grandfather had prematurely died as drunkards, and a little grandson, exhibited strong tendencies for alcohol when aged only five years.[1]

"Charles X——, son of an eccentric and intemperate father, manifested instincts of great cruelty from infancy. He was sent at an early age to various schools, but was expelled from them all. Being forced to enlist in the army, he sold his uniform for

[1] Quoted by Ribot.

drink, and only escaped a sentence of death on the testimony of physicians, who declared that he was the victim of an irresistible appetite. He was placed under restraint, and died of general paralysis.

"A man of an excellent family of laboring people was early addicted to drink, and died of chronic alcoholism, leaving seven children. The first two of these died at an early age, of convulsions. The third became insane at twenty-two, and died an idiot. The fourth, after various attempts at suicide, fell into the lowest grade of idiocy. The fifth, of passionate and misanthropic temper, broke off all relations with his family. His sister suffers from nervous disorder, which chiefly takes the form of hysteria, with intermittent attacks of insanity. The seventh, a very intelligent workman, but of nervous temperament, freely gives expression to the gloomiest forebodings as to his intellectual future." [1]

Dr. Morel, after having an opportunity of studying the subject in a very large number of cases observed among the "*gamins*" of Paris, came to the conclusion, that the effects of alcohol were of the most terrible nature, especially when used in boyhood and early manhood, not alone on those using it, but on their descendants; and that it became manifest in "physical, moral, and mental degenerations."

[1] Ribot on "Heredity," pp. 86, 87.

Echeverria,[1] who has collected a large number of statistics on the subject, gives the following in reference to the histories of sixty-eight males and forty-seven females who had experienced alcoholism in some of its forms: The number of children born to these persons was four hundred and seventy-six: and of this total, twenty-three were still-born; one hundred and seven died from convulsions in infancy; thirty-seven died from other maladies; three committed suicide; ninety-six are epileptic; thirteen are congenital idiots; nineteen, maniacal or hypochondriacal; seven have general paralysis; five, locomotor ataxy; twenty-six, hysteria; twenty-three, paralysis; nine, chorea; seven, strabismus; three are deaf; and nineteen are scrofulous and crippled. Of these children, two hundred and five (205), or nearly fifty per cent., have exhibited drinking tendencies.

From the above statistics it appears that of all the nervous diatheses which may be inherited, there are none which are more invariable in their effects, or more surely disastrous to their unfortunate victims, than that of alcoholism.

In short, imperfection and abnormality of nerve function in its relation to mind, especially of intellect and character, of all shades and degrees, may be inherited as well as acquired; and this is equally

[1] *Journal of Mental Science*, January, 1881.

true when the condition has not attained to that of actual disease, but simply a tendency toward it. And if such tendency should exist on both sides of the house, it becomes increased in the offspring in geometrical ratio, except in so far as it may become modified through the influence of counteracting qualities of character under the law of atavism.

The question now arises: By what measures, or through what influences, if any, can such proneness to nervous diatheses be avoided? It may be replied, that there are two channels through which partial relief may come; but that any substantial results may follow, it will become necessary that education concerning the laws of heredity shall become more general, and the importance of right conduct in relation to them impressed especially on the minds of young persons.

First.—Through the influence of that law of heredity by means of which there may occur an elimination of weaknesses and proclivities toward disease. This influence comes from the healthy side of parentage; for instance, in the case of parents, one of whom has physical or psychological tendencies toward disease, if the other has a healthy and vigorous constitution, and is endowed with mental qualities of an opposite character, these forces of the system may prove to be quite sufficient to affect or neutralize those which, on the other side of

the house, lead toward disease, and the offspring may have an inheritance nearly, or quite, free from such influence.

This is not unfrequently witnessed in the case even of the strongest hereditary diseases, namely those of phthisis and insanity. The offspring of mothers with proclivities toward either of these diseases, in case the father is strong, may escape entirely or nearly so; this is very often true when the well parent has an unusual power of transmitting race-characteristics, and belongs to a family which has been noted for longevity during two or three generations.

In this hereditary influence there lies a power of incalculable value to the human race, a power conducing toward the elimination of morbid diatheses, which otherwise would go on increasing in almost geometrical ratio, until families, or even whole communities, would become diseased.

The tendencies toward health, under favorable circumstances, are greater than toward disease, and, therefore, there exists a probability that race-characteristics on the healthy side may prevail over those on the unhealthy side of the house, though this may may not always be found to be true in actual experience.

Through this line of influence, and this only, can there exist any probability of diminishing the in-

crease of inherited insanity. Governments and society encourage, and rightly so, the institution of the marriage relation; the family is the corner-stone of society, and on it are reared the fabrics of civilization and civil institutions. Probably from no other practice or custom does there ensue so large effects in the way of happiness, prosperity, morality, and well-being to the human race, as from that of marriage; but the conditions of a large part of the beneficent results of this institution, depend upon freedom from certain tendencies to disease. Communities and states are composed of units, and their strength and stability must depend upon that of the individuals composing them. Quite in the degree that disease or degenerations, physical or mental, exist in any community, in that measure prosperity and happiness are diminished; so that from the stand-point of political economy, even, it becomes of vast importance that the laws of hereditary influence should be more fully understood.

The instinct of love, however, is so powerful in the vast majority of the human race, that it overrides almost all other considerations. Persons do not stop to consider consequences to themselves, or to those who are to come after; they are borne on by the considerations of a present fancy or sentiment, and there is reason to fear that any legal enactments, or regulations, even, in the present

state of knowledge on this subject, would not be worth the paper on which they might be inscribed.

Probably the only thing which can be done is to instruct the public, and make known, so far as possible, the influences of hereditary tendencies, publishing them in the higher text-books of schools, and in periodicals. It might be more clearly understood in reference to marriage, that a sentimental fancy or a choice founded on the existence of like characteristics, either mental or physical, not only often proves to be of little real value in after-life toward securing happiness, but on the other hand proves, too often, to be the source of vast misery to parents, their children, and the community in which they may live; that the highest consideration for the present and future should lead to careful examination as to inherited characteristics on both sides, and of a selection which may tend toward elimination, rather than an increase, of these. It might be more fully understood that, generally, characteristics of body and mind of *different qualities*, within certain degrees of limit, contribute toward securing a well-balanced and healthy system, and also toward a larger degree of happiness in domestic relations; that acquired diatheses, as well as those inherited, are transmitted to those who come after; that violations of the laws of healthy brain activity are almost sure to be punished in the

persons of children, whether they have consisted in immoderate devotion to business or study, or in any of the physical indulgences. In this way some advance may be hoped for, in guiding toward that course in which lies the least danger.

The old adage, however, that "the fathers have eaten sour grapes, and the children's teeth are set on edge," was a truth well understood some thousands of years ago,—and yet the fathers go on indulging in sour grapes, because the great truth fails to have taught its lesson, and the heedlessness of youth requires line upon line, and precept upon precept, as well as, ofttimes, the sternest of discipline. The future will doubtless be, in a large degree, as in the past, but we may hope that when the laws of inheritance are more commonly known, when the learning of them becomes a part of the general education of the young, their influence will be more beneficent than at the present time.

Especially may we have reason to expect that such will prove to be the result in reference to those diatheses which are formed through the influence of alcohol and tobacco, or by the indulgence of the lower passions, but the elimination of insanity by these means can, at the most, be only partial.

The second measure by means of which the unfavorable influences of heredity may be modified in their subjects, is that of *education.*

I confidently believe the day will come when the first question which will be asked concerning a child who is to commence an education, will be as to his or her inheritance; and after obtaining all possible information concerning this point, it will be a part of the teacher's duty to study the physical and mental traits and tendencies of each child in the light of this information. The time will come when the importance of *individuality* in education will be so highly appreciated that it will be considered as essential in all recognized systems. Already there has been a beginning in this direction, in reference to certain classes of children. It is not many years since *feeble-minded children* were treated as most others now are, and were left to get any little education they might be able to, with all others. Gradually the importance of individual education for these weak-minded ones has dawned on the public mind; so that by systems now in use, many of these, otherwise almost utterly useless members of the community, have been trained to a degree of usefulness and self-support.

What has been done for this class should be done for all classes of persons whose inheritance has in any measure been of a morbid character. These pyschic neuroses group themselves into certain forms, often at an early age, and require special care and training from childhood, lest they develop

into actual disease in later life. Among these may be mentioned the following:

1. The Precocious,
2. The Passionate and Cruel,
3. The Timid,
4. The Wilful,
5. The Lonely,

} Child.

For each of these classes of children special lines of education and management should be followed, and they should be of such a character as may tend to repress and correct tendencies of character which in the future will be almost certain to become morbid. The professional observations of most physicians who have large experience with diseases of the nervous system, will suggest the cases of patients who have become insane, and in whose inheritances and histories some of the above-named characters have been specially prominent in childhood.

Whatever, therefore, is to be done with a view to modify proclivities toward those morbid neuroses which result from hereditary influences, or have been acquired through the force of habit, must be accomplished mainly through the influence of education, reaching, in different channels, both parents and children.

CONSANGUINEOUS MARRIAGES.

CHAPTER IX.

CONSANGUINEOUS MARRIAGES.

SOMETHING relating to the subject of consanguineous marriages, which are not uncommon in some communities, may properly be added here, as bearing on this subject, and as in some measure supplemental to the preceding chapter.

There have been differing opinions among physicians in reference to the effects upon offspring, both physical and mental, of consanguineous marriages. Several French physicians have written able articles, the tendency of which is to indicate that such marriages result in deaf-mutism and idiocy. It has been claimed that the statistics of asylums for the deaf and dumb, the blind, and the idiotic, give color to such conclusions. Among those who have more or less fully and carefully examined the subject, with results tending to confirm such a theory may be mentioned Dr. Bemis, of Kentucky; Dr. Chazarain, of Bordeaux; and Mr. Boudin.

On the other hand, there have been adduced numerous statistics which indicate that no unfavor-

able results follow such marriages, which can fairly be considered as arising from consanguinity. Without entering fully into the details of this discussion, I propose simply to indicate certain principles and facts which have been pretty definitely settled, and such inferences as may appear to be entirely legitimate, and also have a bearing on our subject. For a more exhaustive examination of the question, I may refer the reader to Ribot, on "Heridity," and Miles, on "Stock-Breeding."

1. The ancient Egyptians, the Persians, the Syrians, and some other nations, were accustomed to practise consanguineous marriages. Brothers married sisters, cousins married cousins in all degrees of relationship, and sometimes even fathers cohabited with their own daughters. Dr. McGraw[1] says "there can be no doubt that close and continual interbreeding has taken place time and again, without evident injurious consequences, among simple and uncultivated communities. Notable examples are the Pitcairn Island settlements, formed from the close in-and-in-breeding of the progeny of four mutineers from the ship *Bounty*, and nine native women; the small community of fishermen, near Brighton, England; the numerous small and isolated villages of Iceland; and the Basque and Bas-Breton settlements among the Pyrenees. We

[1] Dr. McGraw, "Address on Heredity and Marriage," pp. 12 and 15, quoted by Dr. Miles.

must admit, from overwhelming evidence, that under such circumstances as the settlements just mentioned afforded, consanguinity among married people does not necessarily cause evil results to the progeny. If it be asked how it would be with men of more civilized habits, we are unfortunately obliged to confess that there are no statistics whatever on the subject which can give us any exact and trustworthy information."

2. Experiments in interbreeding of cattle go to prove that in some cases, at least, this may be continued for many generations with no unfavorable results. A friend of mine has bred in-and-in a herd of Jersey cattle, as close as a father to his progeny, for five generations, and with apparently good results.

I have a flock of India pigeons which have been in-bred for fifteen years to my own knowledge, and apparently with no deterioration. They are still strong, vigorous, and prolific.

There is a herd of wild cattle now in the Chillingham Park, England, which has been confined there for several hundred years, and strictly isolated. No new strains have been introduced, and the herd still remains hardy and healthy.

On the other hand, there exists a general impression among physicians, based upon experience and observation of a general character, that marriages of

consanguinity result, more often than other marriages, in unfavorable effects upon offspring; and the statistics collected by Dr. Bemis and others appear, on first examination, to confirm such conclusions.

The majority of farmers and stock-breeders in this country act upon the theory that it is important and, indeed, necessary, in order to maintain herds and flocks in a healthy condition, to frequently introduce other strains of blood; and the farmer who should fail to do this in reference to his cattle, his swine, and fowls, would be entitled to little sympathy in case his animals should degenerate in any measure physically, or become less prolific.

Now, the well-established principles of heredity appear to confirm, in a general way, both these views. The qualities of parents whether healthy or unhealthy are transmitted to offspring; and if all herds of cattle and swine and flocks of fowls were in a strictly healthy condition, there would exist no reasons why they might not remain so indefinitely, so far as interbreeding is concerned.

The conditions of animal life, however, under the influence of civilization, are certainly more unfavorable to health than when in a native condition. This is especially true of those classes upon which we depend for labor. The change from animal life on the broad prairies and woods of a temperate

zone, to life in stables of crowded cities and yards of farmers, many of which are in any thing but a sanitary condition, and to the experience of daily exposure and labor, and ofttimes to ill treatment and improper food, induces disease no less surely among animals than among the human race.

If either men or animals were in a condition of perfect health, there would be no unfavorable results from marriages of consanguinity, or other marriages, as there would exist no imperfections, either physical or mental, to be transmitted. No such persons, however, are found. All are tainted with the seeds of disease to a greater or less extent, and health is a question of degree. If, now, two persons of a phthisical or insane diathesis contract marriage, the tendency toward such a diathesis will be greatly increased in the offspring. If this tendency in each parent be represented by two, then it will be two multiplied by two in the offspring, except so far as it may be modified through the influence of atavism. This would be the case without reference to the question of consanguinity.

But blood-relatives are vastly more likely to inherit a similar diathesis—indeed, are quite sure to do so, if it be one of unhealthy character,—and the atavic influences would also be similar ; so that any counteracting effect through this influence would be much less between blood-relations than with others,

and would probably be the greatest when no such relation exists.

Here, then, becomes apparent the danger arising from consanguineous marriages, *i. e.*, that of perpetuating and intensifying unfavorable physical and mental traits, which may be alike on both sides. Where no such relation exists, there is a great probability that other counteracting qualities of character and hereditary influences may modify and even remove weaknesses, while, with such a relation existing, there is every probability that weaknesses or tendencies toward disease, both physical and mental, whether inherited or acquired, will become greatly increased.

Therefore, as there exist in many families, undesirable traits of character, both physical and mental, a removal or diminution of which is desirable; and as there is a greater probability that this can be more surely done, of whatever nature they may be, by introducing other and opposing tendencies from unrelated families, it would appear to be highly important, as a rule, to discountenance marriages of persons who are related to each other by ties of blood.

ALCOHOL.

CHAPTER X.

ALCOHOL.

OF the several individual factors, which are especially potent, as tending to develop and perpetuate the Insane Diathesis, there are none which can be regarded as more influential, either directly or indirectly, than alcohol. Over-education of the brain, under-education, and heredity, all may exert an influence which tends toward this result, and their victims may be found in large numbers in all our asylums and hospitals; but the effects of alcohol are so insidious, it has been so generally used in the past, and its effects are so often transmitted to succeeding generations, that probably the sum total of its effects are far greater than those of either of the above-named agencies.

I therefore regard it as a happy omen for the future of society, that the physiological effects of this substance, and its absolute uselessness and positive injury to the human system, except as a medicine and under exceptional circumstances, are beginning to be more clearly recognized by the medical profession, and more generally understood by the edu-

cated portion of society. And yet I fear we are far from the realization of any millennial period, as to its use and abuse, in this or other countries. Indeed, while probably there is much less of alcohol used as a beverage among the more intelligent portion of the community at the present time than there was fifty years ago, yet I think there is more used in that way among the operative classes, and especially the young of large towns and cities. The facilities of obtaining it are so much greater, that the temptations to its use are greatly increased, and the habit of using lager beer, ale, and wine, among those from fourteen to twenty-four or twenty-six years of age, is certainly greatly increased, if the numbers of this class who frequent and assist in sustaining the large number of saloons and public-houses now so prevalent in cities, may be taken as an indication of existing facts.

Granting, however, that actually less of alcohol is now consumed than formerly, per capita, it by no means follows that the amount of its evil effects is less. The conditions of life are so greatly different to-day from those existing fifty years ago; populations reside to a so much larger extent in-doors, so that alcohol would be much less freely and easily eliminated from the system, than when exercising and breathing in an out-of-door atmosphere; life is so much more intense in many of its avocations

which were then unknown, necessitating very much larger drafts upon the brain and nervous system; the means with which to purchase and use alcoholic beverages by the laboring classes are so much more abundant and easily obtained now than formerly, and while living in places of larger population than would be possible if residing in the country, or in small villages,—all these conditions and others unite in rendering the probability of its use greater, and its effects upon the nervous system vastly more injurious than formerly. Under these conditions of modern civilization a small quantity goes a long way. Besides, society is to-day reaping the harvest of its abuse of this drug during a long period, in the shape of a diathesis which manifests itself in various ways and under many forms of disorder.

Some years since I had occasion to examine the history of admissions to the Retreat, which at that time amounted to more than five thousand cases, and it was found that in more than one tenth of these cases the cause of insanity had been traced to the use of alcohol. This, however, did not embrace those cases which had inherited an unstable condition of brain in consequence of the use of alcohol by parents, and became insane for this reason.

Of the sixteen hundred insane and imbecile or feeble-minded persons in Connecticut at the present time, it is estimated that not less than one fifth have

become so either directly or indirectly through the influence of alcohol. Some writers estimate the amount of insanity which is caused through the influence of alcohol, on parents and their children, in England, at a much higher proportion than this. Statistics indicate that a considerably larger amount of spirits, beer, and wine, per capita, is used yearly in Great Britain than in the United States.

My present purpose, however, is to draw attention to the part it plays, more particularly when used not immoderately as a beverage (if any use of it as such can be so characterized), in creating a diathesis which renders the brain liable to unstable and irregular action. And I may remark at the outset that it does not so much signify in what form of beverage it may be used. The *quantity* taken is the important point—whether it be in the form of beer or wine, brandy or whiskey. The alcohol contained in any or all of these articles is *the* thing sought for, and *its* influence upon the brain is that of paramount importance and consideration.

In order that we may more clearly understand the manner in which the use of alcohol, in its various forms, as a beverage, tends to create an unstable condition of the nervous system and irregular mental activity, it becomes necessary to study, in some measure, its physiological effects upon the system,

as they have been demonstrated by means of experiments conducted with scientific accuracy. This becomes the more necessary, as there has always existed, and still exists, in the public mind a firm belief that its effects are quite harmless, and may be even beneficial, *if it is used in moderation only.*

I. That the primary physiological effects of alcohol upon the nervous system are such as to cause, either directly or indirectly, a large increase of some of the functional activities of the body, has always been so well known, that alcohol has long been regarded as one of the most active stimulants. Hence its so general use in medicine. And yet, to how great an extent it acts as such, and how much is physiologically signified by its effects as a stimulant, especially upon the primary tissues of the body, has not been so well understood. That this may be rendered more clear in the mind of the reader, I shall now introduce some of the results of experiments conducted by Dr. Parkes and Count Wollowicz. These experiments were upon the person of a strong and healthy young man, and were intended to be as accurate as possible. They extended over two periods: the *water period* and the *alcohol period*, and were continued many days in succession. During the first period, the person used no other fluid than water, and the action of the heart was registered at regular intervals, a mean of the several registrations being taken as a basis for computation.

The same plan was followed during the alcohol period, and during the days while increased amounts of alcohol were administered. I herewith give the results in the words of their own report:

"The highest of the daily means of the pulse observed during the first, or water, period, was 77.5; but on this day two observations were deficient. The next highest daily mean was 77 beats.

"If, instead of the mean of the eight days, or 73.57, we compare the mean of this one day, viz., 77 beats per minute, with the alcoholic days, so as to be sure not to over-estimate the action of the alcohol, we find:

"On the 9th day, with one fluid ounce of alcohol, the heart beat 430 times more.

"On the 10th day, with two fluid ounces, 1,872 times more.

"On the 11th day, with four fluid ounces, 12,960 times more.

"On the 12th day, with six fluid ounces, 30,672 times more.

"On the 13th day, with eight fluid ounces, 23,904 times more.

"On the 14th day, with eight fluid ounces, 25,488 times more.

"But as there was ephemeral fever on the 12th day, it is right to make a deduction, and to estimate the number of beats on that day as midway between

the 11th and 13th days, or 18,432. Adopting this, the mean daily excess of beats during the alcoholic days was 14,492, or an increase of rather more than 13 per cent.

"The first day of alcohol gave an excess of 4 per cent., and the last of 23 per cent.; and the mean of these two gives almost the same percentage of excess as the mean of the six days.

"Admitting that each beat of the heart was as strong during the alcoholic period as in the water period (and it was really more powerful), the heart on the last two days of alcohol was doing one fifth more work.

"Adopting the lowest estimate which has been given of the daily work done by the heart, viz., as equal to 122 tons lifted one foot, the heart, during the alcoholic period, did daily work in excess equal to lifting 15.8 tons one foot, and in the last two days did extra work to the amount of 24 tons lifted as far.

"The period of rest for the heart was shortened, though, perhaps, not to such an extent as would be inferred from the number of beats; for each contraction was sooner over. The heart, on the fifth and sixth days after alcohol was left off, and apparently at the time when the last traces of alcohol were eliminated, showed, in the sphygmographic tracings, signs of unusual fulness; and, perhaps, in conse-

quence of this, when the brandy quickened the heart again, the tracings showed a more rapid contraction of the ventricles, but less power than in the alcoholic period. The brandy acted, in fact, on a heart whose nutrition had not been perfectly restored." [1]

In reference to the result of the above experiments, it will be observed that no special notes are made except in relation to the action of the heart. The primary effect of alcohol is upon this organ, through its influence upon the nervous system. It, however, by no means ends here, but through it extends to all other portions of the body.

Now, the heart (and all other organs of the system) may be said to have a unit of power—so much, and no more inherent strength of action; so much capacity of function. If, therefore, under the influence of alcohol or any other drug, an organ is made to do two hours' work in one, or in any measure an increase of its normal activity is secured, a draft is made upon its *reserve* power, and, that it may regain this, there must necessarily afterward occur a period of so much less than normal activity. In other words, what has been gained in action under the effect of stimulus, must be lost on its withdrawal, and there must ensue a period of feeble and imperfect action, which is radiated to all other portions

[1] Quoted from "Diseases of Modern Life," by B. W. Richardson, M.D. D. Appleton & Co., 1877, pp. 213 and 214.

of the system, and is manifest in none more fully than in the brain. Indeed, upon the action of the heart as to frequency and regularity, depends the action of the brain as to continuity and strength of thought; and this, in even a greater measure than in relation to the functions of other parts.

The brain at all times contains a much larger portion of the blood than any other organ, and this quantity is imperatively necessary to its normal action as to thought. To such an extent is this so, that consciousness at once fades into darkness, and all thought ceases instantaneously, upon the check of its circulation, even in certain limited areas of its surface.

We therefore perceive how even more important than for other organs it is, that the circulation of the brain, the tissue of which is the most delicate and sensitive, should remain unaffected by over-stimulation of the heart's action, which, in reality and effect, is the controlling power of the system, and may be likened to an engine, by means of which is kept in operation the force requisite to move the machinery of all other portions of the system, and maintain them in harmonious activity.

But, let us study this physiological effect of alcohol a little further, that we may more fully understand how much is signified by it.

Every heart-beat causes a certain amount of blood

to pass through the larger arteries to the brain, and thence through its minute vessels or capillaries. It is by means of the capillary circulation that the brain, its cells, connective tissues, and all membranes, are supplied with the requisite material for life and activity. So important is the *regularity* of this supply to the brain in the discharge of its functions, that a special arrangement of blood-vessels is provided, or rather the number of arteries is larger and their distribution more complicated and various than for any other organ. If now this supply of blood is increased by one fourth or one sixth, or in any other degree, through the action of the heart, there must result a relative increase of it to the brain-cells and tissues, together with a corresponding increase of function

The anatomy of the brain teaches us that every fibre, brain-cell, and even nucleus, is enclosed with an exceedingly thin covering, through which its contents may be nourished, and also through which, when its constituents are no longer of any use, they may be eliminated and removed from the body. These coverings, or membranes, as they are called, in turn, derive their materials for growth and function from the minute capillary blood-vessels which, in almost infinite number, supply them, while all portions of brain tissue are together dependent upon the *regularity* of the heart's supply of blood to en-

able them to discharge their functions in a normal manner.

Now, physiological experiments have shown that the effect of alcohol upon that portion of the nervous system—the vaso-motor—which presides over and supplies power of action to these capillaries, and also regulates the action of the heart, is that of a narcotic. Its effect is to partially paralyze this nerve, and leave the heart to act more freely and rapidly under the influence of the motor nerve; in consequence of this partial paralysis of the coats of the capillary vessels, when the blood passes through them so much more rapidly than when in their normal state, they fail to absorb from the blood the material requisite to nourish them, and also fail to remove material which has already been used.

One of the most important of their functions however, is the removal of this used-up material of the brain-cell, connective tissues, and fibres. If this is imperfectly performed, and some portion of this secondary metamorphosis of material is left unremoved, there must result at least two not very remote effects.

1. A less sensitive and delicate condition of these several constituent portions of brain-substance, and they will become correspondingly less responsive to both objective and subjective impressions or influ-

ences. There must result, therefore, a less perfect discharge of thought-function in its various manifestations, both moral and intellectual.

2. This imperfect removal of material which has once discharged its function, and is consequently useless, will ultimately cause a thickening of the coverings of these cells and fibres of the brain, which, in process of time, must render the discharge of their function more difficult and imperfect.

II. So far, it will be observed, we have referred only to the indirect effect of alcohol upon the brain, which results from its influence upon the heart-action. I wish now to refer, in a few words, to its direct physiological effect upon the mind, when used as a beverage. Its primary effect is to cause a more rapid flow of thought. It is, as if that portion of a watch which holds its spring and prevents its too rapid uncoiling should be removed; the result would be a quickening of movement, and its power of action would be greatly increased for a little time. So it is with the mind under the primary influence of alcohol; as the blood flows through the brain more freely, thought becomes more accelerated, and there is an excitement of utterance and imagination. This period, however, soon passes by, and before long the mind becomes less clear and accurate in its perceptions; it is partially clouded; it loses the nicety of its moral sense; it does not

perceive the moral side of conduct so clearly and definitely as formerly; it does not judge so accurately in reference to the claims of friends and society; and there is not that sense of propriety as to personal conduct which formerly existed. Moreover, the rapidity of impressions becomes lessened, and consecutiveness of thought is impaired, so that the mind fails to carry through a train of thought, or conduct a course of reasoning, as it would do when free from the influence of alcohol. This effect may continue under the repeated influences of alcohol until impressions, both objective and subjective, become less and less vivid and more circumscribed, and ultimately there may result partial paralysis of the power of thought. It becomes more and more liable to irregularity, confusion and weakness; the will loses its power of control in a large degree over mental operations, and insanity in some of its forms not infrequently ensues.

III. There is reason to believe that there results a further action of alcohol upon the electrical currents of the body, which originate in and proceed from the brain. Dr. Mulvaney, Staff Surgeon of the Royal Navy of England, conducted some experiments upon the effects of alcohol on these electrical currents, with the following results: "He discovered that an ounce of brandy, equal to about half an ounce of alcohol, taken by a healthy man, raised

the galvanometer in a few minutes, in one case twenty-five degrees, and in another case forty-five degrees. He concluded that the thermo-electric currents of the system were strongly excited by small doses of alcohol, and that this excitement may be profitably employed when there is 'clear evidence of derangement of function springing from enfeeblement of the organic system of nerves'; but that 'in health, when function, nutrition, and blood and nerve influence are harmonized by structural integrity,' such artificially excited currents, by tending to abstract an undue amount of water from the brain-cells, 'must interfere with their normal working.'"[1]

It appears, then, that there are three well-recognized and clearly pronounced effects upon the elements of brain-structure which must result from the use of alcohol even in small doses. It will be observed that nothing has been said as to its physiological effects upon membranes in other portions of the body. I hardly need enter upon this branch of the subject in order to establish proof of its very great effect as an agent in producing a changed and unstable condition of brain-action. And yet we need to bear in mind how greatly its effects on the nervous system in general are increased by its affinity for water; and how it absorbs this from all portions

[1] "A Sober View of Temperance," by Rev. Daniel Merriam, Bibliotheca Sacra, Oct., 1831.

of the body with which it may come in contact, thus tending to leave them in a shrivelled and dry condition,—one unfavorable to discharge of function.

That this may be more clearly understood in relation to the membranes of other portions of the system, as well as those of the brain, I quote from Dr. Richardson[1] a few sentences :

" Upon all these membraneous structures alcohol exerts a direct perverting power of action. It produces in them a thickening, a shrinking, and an inactivity that reduces their functional power. That they may work rapidly and equally, the membranes require to be at all times properly charged with water. If into contact with them any agent is brought that deprives them of water, then is their work interfered with ; they cease to separate the saline constituents correctly ; and if the evil that is thus started be allowed to continue, they contract upon their contained matter, in whatever organ it may be situated, and condense it.

" By its effects upon these membranes, envelopes, and coverings, alcohol becomes one of the most extreme causes of modification of animal function, and one of the greatest sources of structural degeneration."

In the consideration of the subject as above,

[1] " Diseases of Modern Life," by B. W. Richardson, M.D. pp. 228 and 229.

reference has been made to the effect of alcohol upon the adult system. But there can be no question that it is vastly greater and more ruinous in its effects upon the brain, when used during the period of youth and early manhood. At this time, the whole system is much more susceptible to unfavorable influences of all kinds, and especially is this the case with the brain, and that portion of it which is concerned in mentality.

The more highly sensitive and delicately organized any portion, or the substance of any part of the system may be, the more easily and rapidly are impressions and changes of a permanent character made upon it. The brain, being more highly organized than any other organ or portion of the body, and the metamorphosis of its tissues being more rapid during the earlier periods of life, becomes greatly more susceptible to the bad effects of alcohol, and a diathesis is more rapidly created. And, it may be added, that, when this diathesis has once become developed during early life, there exists almost no hope of eradicating it, or of again rendering the brain healthy.

Improvement may take place while abstinence from alcohol continues and the person is under restraint, but when once again the unfortunate victim is thrown upon his own resources, and left to his self-control, he always falls, and returns again to

his cups, as a sow to her wallowing in the mire.

In the preceding chapter upon Heredity in its relation to the Insane Diathesis, it was shown that the effects of alcohol are such, that they are most surely transmitted from parent to child ; and that its effects, both moral and physical, are of the most serious character.

We have now seen how it comes to pass that such is the nature of its effects. By its too frequent use there results a changed condition of the coats of the blood-vessels, and an abnormal state of the brain-cells and fibres. In accordance with the laws of heredity, a tendency to this condition is transmitted from parent to child, to the third or fourth generation, unless it be sooner eliminated, and may manifest itself in any one of the many forms mentioned, all of which are of a serious nature and generally exist through life. The importance therefore of abstinence from the use of alcoholic beverages by all parents, and especially by the young of both sexes in its relation to the subject of healthy brain action, can hardly be overestimated. No one change in the customs of society and the habits of individuals could occur, which would exert a larger influence toward the prevention of insanity.

TOBACCO.

CHAPTER XI.

TOBACCO.

AS this substance is so generally used and so often referred to in connection with alcohol as to its effects upon the human system, it appears proper to allude to its physiological effects upon the brain in this immediate connection.

Views of an opposite character as to its use have long prevailed. Much has been written in relation to its baneful effects upon the human system, the active poisons it is known to contain, and its demoralizing tendencies in general. It has been accused of being the cause of numerous diseases of a grave nature, such as cancer, chronic bronchitis, insanity, diseases of the throat and the mucous membranes of the mouth and nose, etc., etc.

It bears the blame of causing filthy, and ofttimes disgusting, habits, and of being not only a useless but a pernicious and expensive luxury.

On the other hand, much has been and continues to be said as to its comforting and soothing effects, and the sense of enjoyment and luxury resulting from it, when used in the form of smoke and with

moderation. And if an opinion as to its excellencies and value to the human race could be formed from the amount yearly consumed, or the vast sums of capital invested in its culture, manufacture, and sales in the United States alone, it would take rank as an article possessed of the highest value to mankind.

This, however, cannot be considered as a fair criterion by which to judge of its virtues or its vices; neither can we look for an impartial judgment as to its influence upon individuals or society, from those who may form opinions founded on impressions or prejudices only. It becomes necessary, therefore, to study its physiological effects as accurately and impartially as possible, and accept such results as this course may lead to.

For my present purpose it does not become necessary to go into details as to the effects of all the elements of tobacco, or of the effects of any of these elements, except as observed in their action upon the nervous system. I shall not, therefore, enter upon any minute analysis of the substance, preferring to leave this for those who write with a view of covering a more extended field of research.

When tobacco, in substance, or in the form of smoke, comes in contact with the mucous membrane of the mouth, throat, and nose, there results a more or less distinct biting sensation on the tongue

and in the throat, unless these parts have already become accustomed to its effects. This increases in the case of the beginner, until in a few minutes a feeling of warmth and faintness comes on, often attended with nausea, vomiting, and headache. If the dose has been sufficient, the person becomes faint and unable to stand, the skin becomes cool, a perspiration appears on the forehead, the heart acts feebly, the respiration is short and hurried, and life itself is in danger.[1]

One of the elements of tobacco, nicotine (which is itself composed of several bases), passes into the blood, and is conveyed in it to the brain. As this is one of the most active poisons of which we have any knowledge, and, as such, acts directly on the brain, rapidly inducing the conditions mentioned, and overpowering the functions of the nervous system, it will readily be comprehended how profound its influence must be upon the nervous filaments and brain-cells. This influence is one of paralysis—a deadening of the functional activity of certain portions of the brain, and, if continued long enough, is radiated through the nerves to the heart and other organs.

If, however, a small quantity only has been absorbed into the circulation, the effect upon the brain is less permanent than would be expected

[1] The writer is here describing a personal experience.

from its profound influence. It soon becomes eliminated from the system through the agency of the lungs, the skin, and the kidneys,[1] and the nervous system resumes its normal activity.

Subsequent experiences after the first few are widely different. The brain becomes *tolerant* of the poison, so far as relates to its more manifest and paralyzing effect, and in the process of time the smoker realizes very little, if any, other than a sense of soothing, and, therefore, grateful influence upon the system. The brain even comes, in the process of time and experience, to crave its influence. A condition, abnormal as to experiences and cravings, has resulted, which will demand the frequent and continued repetition of those pleasing sensations which result from its use. When this influence passes off, there comes again into operation a more acute activity of nerve function, and a consequent sensation bordering upon or akin to pain as the brain begins to act under the freedom and force of a vitality not blunted or partially paralyzed by the presence of the poison. To relieve this there must be a repetition of its use,

[1] "After a short time the products of tobacco find a ready exit out of the system. They are thrown out by the three great eliminatories —the lungs, the skin, and the kidneys. The volatile matters exhale by the lungs; * * * while "both (nicotine and the bitter extracts), I believe, are carried off by the kidney, the grand eliminator of all poisons of the soluble type."—"Diseases of Modern Life," by B. W. Richardson, M.D., pp. 283 and 285.

and this process continues until there becomes developed a true *diathesis* of the nervous system, as in the case of alcohol and opium, though one not, in general, so difficult to overcome.

Moreover, the influence of tobacco upon the brain is essentially different from that of alcohol. From the effect of the latter there results a vast increase of functional activity of the heart, and, in the primary stage of its influence, of that portion of the brain which is concerned in mentality, while no such increase of functional activity of any portion of the nervous system results from the physiological effects of tobacco. On the contrary, these are of a paralyzing nature while they continue. The field of consciousness is less broad, the imagination and reason less keen and active.

But, on the other hand, the immediate effects of tobacco are much less permanent than those of alcohol; its elements are more speedily eliminated through the action of the lungs, to which they pass in the blood, and also by the skin and kidneys, toward which organs the essential oil contained in tobacco has a much stronger tendency than alcohol has.

It must be borne in mind, however, that the effect of tobacco upon the brain-cells is essentially and directly that of a narcotic, and in this respect differs from that of alcohol, which acts only indirectly as

such, through its paralyzing influences upon the vaso-motor system; and therefore its immediate effects, while they continue, are more injurious, than would be those of alcohol, though, in reality, they are much less so, as they so soon pass off.

It is the narcotic influence upon the brain which renders tobacco so injurious when used by young children and youth. The frequent repetition of this narcotic upon the nervous system in early life, serves to partially check its growth and development, and consequently must impede very greatly its normal activity and power of application and mental attainment. Both the intellectual and moral powers of the mind become less keen and sensitive, so that a less high standard in these departments of mentality is reached by those children who use tobacco than would otherwise be possible for them; and I am not surprised, therefore, to learn that, in consequence of observations as to the influence of tobacco upon the youth in the schools of both Germany and France, legal enactments, as against its use by these scholars, have been made. Such enactments ought to exist in the schools of all civilized countries, and I have no doubt the time will come when they will.

It appears to me to be especially important that such legal enactments as against its use by children should obtain in this country, where the facilities for

obtaining it are greater than in most others. The example of its use is almost constantly before little children when on the street. It is generally and lavishly used by a large proportion of men; the tax on it is lower, and the price cheaper, than elsewhere; and there exists a custom of throwing away half-used cigars on the streets and sidewalks, so that children can easily obtain the article without cost. It is rarely the case when in town that I do not see boys from six to twelve years of age, smoking together these half-used cigars.

The children of the poor are frequently or nightly on the street long after dark, and are, consequently, very little under the restraint of parental government; they are constantly under the influence of the example of older persons in reference to this habit of smoking, and, therefore, are in danger of contracting it very early in life. In the absence of other restraint they specially need that of the guardians of law, and the highest interests of society require that they have it.

The *Boston Journal* has recently published the results of investigations concerning the number of boys in the public schools of that city who use tobacco. The master of the Latin School informs the reporter that one half of the boys from fourteen to eighteen years of age had used the weed, though probably few had fully contracted the habit.

Many of them smoke on the sly, though some have the permission of their parents to use it. In the English High School, it is thought that few of the boys smoke, and none are allowed to chew. The master's view, however, is that a teacher's precepts are of little use in preventing the habit unless they are reinforced by his example. The principal of the Dudley School, Boston Highlands, is of the opinion that something like forty per cent. of his boys use it more or less. The master of the Emerson School, East Boston, having studied the subject, concludes that out of four hundred boys there are forty habitual smokers, and that one third of the whole number occasionally smoke. He thinks that it is rarely the case that boys begin smoking *before they are eight years of age*. In the Grammar School at Charlestown it is estimated that forty of the three hundred boys use tobacco habitually, and that many more have occasionally smoked. Master Harrington, of the Eliot School does not think that a larger proportion than one third of all his boys have yet contracted the habit.

Not a few young men have consulted me professionally, whose nervous systems have been greatly impaired from the habit of smoking, and who say they formed the habit when not more than eight or ten years of age, and they would gladly give it up, and undo its influence if such a thing were possible.

In such cases society should protect itself, at least until the individual has become old enough to realize, in some measure, the results of his action.

Of the effects of the use of tobacco upon other portions of the system than the brain it is not within my province, or necessary to my purpose, to refer at this time, though they may be, and doubtless are of a grave character in some cases. To sum up its effects upon the mental and moral character of the young, when it is daily or frequently used, I cannot do better than use the words of a pamphlet published by Monsieur Fiévée in relation to its general effects upon society:

"We do not insist principally on the material disasters resulting from tobacco, knowing very well that any reasoning on this subject will not produce conviction. A danger of far greater interest to those concerned in the preservation of the individual, is the enfeeblement of the human mind, the loss of the powers of intelligence and of moral energy; in a word, of the vigor of the intellect, one of the elements of which is memory. We are much deceived if the statistics of actual mental vigor would not prove the lower level of the intellect throughout Europe since the introduction of tobacco. The Spaniards have first experienced the penalty of its abuse, the example of which they have so industriously propagated, and the elements of which originated in their conquests and their ancient

energy. The rich Havana enjoys the monopoly of the poison which procures so much gold in return for so many victims; but the Spaniards have paid for it also by the loss of their political importance, of their rich appanage of art and literature, of their chivalry, which made them one of the first peoples of the world. Admitting that other causes operated, tobacco has been one of the most influential. Spain is now a vast tobacco-shop, and its only consolation is, that other nations are fast approaching its level.

"Tobacco, as the great flatterer of sensuality, is one of the most energetic promoters of individualism—that is, of a weakening of social ties. Its appearance coincides fatally with reform and the spirit of inquiry. Man inaugurates the introduction of logic in matters inaccessible, at the same time that, as Montaigne says, he gives way to a habit destructive of the faculty of ratiocination—a contradiction which shows us that necessity of defect by which he is tortured."[1]

Two inferences may be drawn from the results of our discussion.

1. It does not appear from the considerations presented above, that tobacco is an agent *directly* responsible in any large degree for the production of insanity, nor does this appear to be the case as

[1] Quoted by John Lizars—"The Use and Abuse of Tobacco," New York, 1880, p. 21.

indicated by the statistics of asylums for the insane, nor by observation or experience. It rather appears that it is responsible as an agent which, in some measure, from its effects as a poison on the brain, must tend to check the growth and development of the intellectual and moral power in the individual, especially when indulged in during the period of youth and early manhood; and thus it becomes allied with other agencies which, in many cases, would not otherwise become operative in the production of insanity.

2. It also becomes a factor of importance in indirectly producing disease of the nervous system, through hereditary influence. As we have so frequently had occasion to observe hitherto, any abnormal condition which has existed sufficiently long to become a true diathesis, not only may, but is very likely to be transmitted in some form or other to those who come after. This has been shown in relation to the influence of over-stimulation from application to study, and from the effects of alcohol; and though the effects of both these are essentially different from that of tobacco, yet we can but consider the latter as very injurious in its influence. Indeed, I am inclined to regard the physiological effects of tobacco when used to excess as likely to appear in offspring in the form of a lower grade of intellectual and moral character, though to a less extent than are those of alcohol.

SEX IN RELATION TO INSANITY.

CHAPTER XII.

SEX IN RELATION TO INSANITY.

THE relative frequency of insanity in the sexes varies somewhat in different countries and under the differing conditions of civilization. There can be no doubt that under circumstances and surroundings adapted equally to the maintenance of the health of both sexes, there would be as little disease of brain in the one as in the other. The conditions of life, however, nowhere exist bearing alike on both. While there are certain hardships, exposures, and dangers to be endured by the male to which the female is little liable, on the other hand there are many unfavoring experiences growing out of the nature of her labor and duties as arranged in modern civilization, as well as from the constitution of her system, from which the male sex is exempt. While the male is more often exposed to the inclemency of weather, the cold of winter and the heat of summer; while he must endure the hardships of war by sea and land, and the larger expenditure of physical force in the performance of his labor; while he is much more liable to injury of the nerv-

ous system from accidents arising in connection with his exposures in the larger sphere of locomotion; on the other hand the female is much less favorably situated in relation to the beneficial effects arising from living much in the open air. The sphere of her activities is much more circumscribed, and the larger portion of her time is passed in-doors, and often in an atmosphere less favorable as to its hygienic conditions.

There are, however, certain physical conditions of the female sex which are intimately connected with the sexual system, and which have been supposed, by both lay and professional persons, to be closely allied, as causes, to mental derangements, to which I desire to call attention for the present. These will relate more especially to the unmarried.

In a general way the sexual system in the female exerts a much larger influence on the whole physical and mental economy, than in the male. A very intimate sympathy exists between it and both the stomach and the brain. This becomes especially manifest at the period of puberty, and continues until after the cessation of menstruation. The whole moral nature appears to become changed, or rather it appears to come into existence and activity when the child becomes a woman, and thereafter, for thirty or thirty-five years, the whole person is

largely affected one fourth of the time by the functional activity of the pelvic organ.

The amount and quality of the blood, and its physiological effect upon the vessels and cells of the brain, must largely depend upon the regularity and perfect discharge of this function; and in the case of married women the whole economy is subject to the large changes which come from conception, pregnancy, child-birth, and lactation.

The cessation of menstruation must also, in most cases, be attended by such changes as are of grave import: the calling into a larger activity other organs of the body, especially the liver and the skin for the purpose of eliminating those products of secondary metamorphosis which before had passed from the system by the uterus; the consequent disturbance of the circulation while this adjustment of functions is being made; the increased amount of carbon left in the blood, and its effects upon the brain;—every general practitioner of medicine has abundant occasion to witness how great effects all these experiences produce upon the nervous system; how excited or depressed, how irritable and nervous and changeful the brain becomes from their influence upon it.

But in addition to these generally obvious effects, the gynæcologist has occasion to observe other, and which he may regard as no less potent, results

of reflex influence on the brain from uterine disturbance of other kinds, which more especially affect the unmarried class, which every year becomes larger among all the older civilizations.

The condition of marriage is doubtless the normal one for both sexes, and, as a rule, a larger degree of physical health is enjoyed by persons who live in this relation. In no other is the discharge of the natural functions of the sexual organs possible. As society is at present constituted, however, more especially in the older civilizations, marriage and its consequent responsibilities become more and more difficult, and the female is the larger sufferer by a failure to consummate this relation. All those instinctive yearnings for objects of affection and love in the way of husband and children; all the outgoing of longing for all that is implied in home, the care of it, and all connected with it; with no one to cling to and depend upon in hours of sickness and trial; the turning back, keeping down, and putting forever away into darkness all those natural desires and passions which arise and tend to press forward for recognition from time to time;—in short, the failure to develop and bring into its mutual relation to other portions of the system this, which is arranged and designed by nature to play so significant a part in the female economy of life, can but tend in no small degree to cause a some-

what abnormal condition and activity of the general nervous system.

Persons become nervous, capricious, irritable, and hysterical. A feeling of lassitude and weariness results from any considerable physical effort, and they are unable to endure the friction and annoyances of ordinary daily life without much complaint. They feel badly without knowing why, and are unable to long apply the mind to any particular task, or persistently to carry forward any kind of employment. An experience of a year or two, more or less, of this kind of nervous debility and suffering generally lands many of these persons in the hands of the physician, and no small number in those of the gynæcologist.

On examination there is frequently found to exist uterine derangement of one kind or another: it may be congestion or a sub-acute inflammatory condition of the neck of the uterus; in some cases there is endo-metritis, or peri-metritis, abrasive ulceration attended with discharge, or there may be displacement in the way of any of the flexions. Or again, there may be defective, or irregular menstrual discharge, dysmenorrhœa, or amenorrhœa. My impression is that some one of these various lesions of the uterus will be found to exist in a large number of females who have exhibited, for some time, such physical and mental conditions and symptoms as have been detailed above.

Now, one of the inferences of the gynæcologist is likely to be, that the uterine lesion, of whatever nature it may chance to be, is the cause of the failure in mental and general health; that it is the "*fons et origo*" whence has arisen the long train of nervous symptoms, and, doubtless, in some cases this may be a correct inference; but in a vast majority of cases my impression is that both the existing debility of the nervous system and the uterine lesion are to be regarded as *consequences*, and that neither is a cause of the other, but rather that they both result mainly from a failure in the discharge of those functions which more especially pertain to the sexual system, and a disregard of the laws of health as to physical exercise.

But what I desire to specially note in this connection is, that these symptoms or manifestations of nervous derangement are not those of insanity, that they rarely pass over or develop into those of insanity. There is prevalent, both among lay and professional persons, an idea that a large number of females become insane, from the existence of some such uterine conditions, or that these have a large influence in producing insanity. My experience, however, points to an opposite conclusion. It is rare to find any of the uterine lesions referred to existing among insane women; and this is doubtless explicable for physiological reasons.

In almost all cases of acute insanity there exists a much larger amount of mental activity than when the brain is in a normal condition. The processes of thought go on during a larger number of hours every day, and the period of sleep, in which there is a demand for a more limited supply of blood in the brain, is correspondingly diminished. Then, again, the character of mental operations is generally of much greater intensity; impressions are more numerous, sensations are more vivid, and thoughts press their way onward through the channels of nerve-cells and fibres of the brain with greater rapidity and constancy.

Almost the whole force and energy of the nervous system appear to be centred in the brain, and to supply the wear arising from such increased activity of the brain, the system calls for a larger supply of blood in this organ. It is therefore diverted from other portions, and there results a diminished sensibility and activity especially of the sexual system. In a large majority of these cases also, the monthly discharge ceases to appear, and the sexual functions are in partial abeyance.

Now, in consequence of those changes which tend to occur in the vessels and cells of the brain when a person becomes insane, if there were existing any such functional uterine lesions as I have referred to, there would at once arise a tendency to recovery

from them; the monthly congestions generally disappear, and such passive congestions as may have long existed would also tend to pass away. An inflamed, or irritable, or ulcerated neck would, in the absence of the usual physiological activities of the organ, have a tendency toward recovery, except in some few rare cases; and by the removal of congestions there would exist little if any cause for displacements.

This may be said to be mere theory, but it happens to be certainly in accordance with the experience of those psychologists who have studied the tendencies and conditions of the uterus during periods of insanity. In an experience extending over many years and embracing many cases, the number of the above-named uterine diseases found by me could almost, if not quite, be counted on my fingers.

While, therefore, such diseases of different kinds and degrees may, and generally do, co-exist with general debility of the nervous system, they are rarely found to be, and probably seldom are sufficient in themselves, as causes of insanity, though they may sometimes be allied with other and more potent influences in its production.

I may add that similar conditions of the female nervous system not unfrequently arise among the married, when persons long live in the relations of

marriage, and yet without its natural results in the way of a number of children, especially if, as is almost always the case, improper measures are used to prevent the increase of the family.

I might in this place refer to another of those conditions of life inherent in our civilization, which is unfavorable to the mental health of the female sex, viz., the limited sphere of physical and mental occupation, as compared with that of the male sex. So much, however, has been written on this subject in its relations to and effects upon the general welfare of women, and there appears to be so large a tendency on the part of society, at least in this country, to admit her to any and almost all such occupations as she may qualify herself to follow, that I shall not refer to it further than to remark that, in so far as there may exist a disposition on the part of women to avoid the care and responsibility incident to home life and family, and, instead, to indulge in physical inactivity; in so far as they avoid physical exercise in the open air, and spend their hours of leisure in reading exciting novels, or love-stories, whose heroes and heroines are generally of almost any other kind of character than real, living, healthy, ones; in so far as they avoid the conscientious discharge of those duties which devolve upon them by virtue of their high mission as wives and mothers, and seek, instead, to follow occupations or profes-

sions for which they cannot be best qualified by reason of the nature, physiological activities, and duties of their sex; in so far as they divert that nervous energy and physical strength which is designed by nature to enable them to discharge the sacred function of motherhood into other channels of activity, however high and ennobling they may be,—in just so far are they deviating from that great highway which leads to mental health and the highest interests of humanity.

No aspirations of woman can ever reach so high and grand a sphere in the activities of the world as that enshrined in the name of mother; and since Nature has crowned her with this supremest function, all effort to forget or change it, to belittle or push it aside for other more transitory pleasures or missions, can only lead, in the end, to unhappiness and too often to disease.

POVERTY.

CHAPTER XIII.

POVERTY.

PHYSICAL labor is one of the greatest promoters of both physical and mental health, and its necessity should therefore be regarded as a blessing rather than a curse for the vast majority of mankind. On the other hand, idleness of mind and body, or conditions of life which give neither opportunity nor necessity for exertion, tend toward ill-health and unhappiness, and consequently are to be avoided.

The condition of poverty creates the necessity for labor, and, if its stress is not too great, is not to be regarded as an unmixed evil. It stimulates to exertion, and exertion tends to develop and strengthen all portions of the system. The natural tendency of the mind is to run riot, to avoid hardship, and to follow the enjoyment of the present moment irrespective of the future, and it is only that discipline which comes from the necessities of life in the midst of civilization, which can lead it up to a higher standard of endurance and health.

If, therefore, the effects of poverty were to end here, they might properly be regarded as blessings.

But this is not the case; for the vast majority of the poor they go much beyond the requirements of health-giving labor and discipline, and manifest themselves in quite an opposite result. The lack of brain-discipline, ignorance, too many hours of toil, too few of relaxation, illy-prepared or unsuitable food, foul air in sleeping apartments, unsanitary surroundings, and other conditions always attendant upon the poor, especially in large towns and cities, all tend toward deterioration of brain-tissue.

There have also resulted, for that class of the poor which has, in more recent periods, and in some cases by fortuitous circumstances, come suddenly into the possession of considerable sums of money, even greater evils than those experienced from poverty. There are many persons who get along well enough while obliged to live in the simplicity and continence of a laborious life which provides for them food and raiment, who, when possessed of the requisite means, will suddenly rush into wild excesses, and in a few years their nervous systems become poisoned and wrecked. This is especially the case in many of the new cities which have been springing into existence within the last fifty years, stimulated thereto by manufacturing industries. These cities provide the temptations toward, and the means of gratifying, physical excesses, and the influence of example serves to drag down thousands who might otherwise escape.

Moreover, the accumulation of wealth in these large places exerts an influence not only upon those residing there, but also upon the ignorant poor living in the vicinage, and serves to allure them to dangerous courses of conduct who have never learned that the violation of laws which should preside over and regulate their appetites and passions leads to death, or, what is frequently a thousand times worse than death, viz., a poisoned and wrecked life.

If the effects ceased with those primarily concerned, the mischief would be less: but, unfortunately for society, they pass on to the next, or succeeding generations, unless, as is frequently the case, through the operation of a merciful law there does not come another generation. We are told that the intemperate and the vicious will be shut out of the kingdom of heaven. We have only to observe that they are shut out of the kingdom of health while upon earth, and that the retribution of their works follows them with a surety, and often a severity, which can be fully realized only by physicians.

As illustrative of this point, I may refer to a class of laborers in some of the northern portions of England. When living on the simple necessities of life and obliged to practise the habits of frugality and industry, that form of disease which is termed "general

paralysis of the insane " was almost unknown among them ; but in consequence of physical excesses made possible and easy, by obtaining through labor combinations the means necessary, this most formidable and incurable disease has appeared among them to an extent hitherto unknown among any class of society.

Similar influences are silently working and similar results are following in a less marked degree in all our great cities and their vicinage, so that there are to-day in all the large hospitals for the insane which are located near these places, as indicated by statistics, more than three times as many cases of this disease as existed thirty years ago.

There is another class of the poor, or rather of those who are living in the conditions of poverty, and yet have, by virtue of hard labor and economy, succeeded in accumulating some property, which contributes a large number yearly to the admissions to hospitals for the insane. These persons go on year after year in one unvarying routine of labor and care, allowing themselves little or no change or hours of recreation. Perhaps I cannot delineate more clearly the courses of daily conduct followed by them which not unfrequently eventuate in insanity, or better illustrate the results of such a course of life, than by reciting a case from my yearly report for 1881.

Mrs. M., aged forty-four years, the mother of eight children, was admitted to the Retreat in the month of January, 18—, affected with acute mania. The husband, when asked if he could suggest any cause, or causes, of her illness, exclaimed with much animation that he could not conceive why his wife had become ill. "Her is a most domestic woman, is always doing something for her children; *her* is *always* at work for us all; *never* goes out of the house, even to church on Sundays; her never goes gadding about at neighbors' houses, or talking from one to another; her always had the boots blacked in the morning; her has been one of the best of wives and mothers, and was *always* at home."

This appreciative husband could hardly have furnished a more graphic delineation of the causes of his poor wife's illness if he had understood them ever so thoroughly, and I allude to the case as a type of many, and to the husband's statement as evincing how thoroughly ignorant many people, who may be shrewd and quite thrifty in worldly matters, may be as to the primary conditions of mental health.

This woman's utter disregard of the simplest laws of health, had rendered her in her husband's eyes chief among women, had raised her so high on the pedestal of housewifery, that he could not conceive how it was possible for such a model of excellence

ever to become insane. If, however, she had committed a few of the sins which were so heinous in her husband's sight; if she had gossipped more; if she had broken away from the spell of husband and children, forced herself from that ceaseless round of household care and duty; if she had taken herself out of the house, into the pure air and sunshine of heaven, even at the expense of much tattle and large gossip, and, if need be, at the expense of less cleanly floors and *boots*, and an occasional tear in her husband's shirt, or her children's frocks, the probabilities are largely indicative that she would never have come to the Retreat insane.

This case, so homely in its presentation, is one representative of many, especially of persons who live in the country portions of New England, a little more pronounced in character perhaps, and a little more exaggerated in detail, but, nevertheless, it exhibits how insensibly and slowly operate many of the influences existing among the ignorant, which ultimately land victims in institutions for the insane.

The currents of thought and care have gone on day after day, and month after month, from early morning until late at night in one ceaseless round; wakeful and anxious often for children sick, for children who are to be clothed and fed and schooled; anxious in reference to the thousand and

one household cares, which never lift from the brain of such a mother; with no intellectual or social world outside the dark walls and many times illy ventillated rooms of her own house; with no range of thought on outside matters; with no one to interpose or even understand the danger; with no books to read, or, if she had, no time to read them;—in short, with no vision for time or eternity, beyond one unending contest with cooking and scrubbing and mending,—what wonder that the poor brain succumbs! The wonder rather is that it continues in working order so long as it does without becoming utterly wrecked. More fresh, health-giving air, more change, more holidays, more reading, more gossiping, more of almost any thing to change the monotony of such a life, to break the spell which so holds these poor women, and to lead their minds in pastures more green, and by rivers whose waters are less stagnant and bitter.

But below and far beyond this class of persons, there are the innumerable ones who are born into a world of poverty and vice. It is their inheritance from long lines of ancestry; they are crippled from the beginning and have but half a chance in securing or retaining the prizes of health and success.

In the great contest of life the weaker go to the wall. That term so commonly now in use, "the survival of the fittest" in the struggle of life, covers

a large ground, and numberless are the tales of suffering, want, and consequent disease which, hidden from the light of day, are known only to the physician or the philanthropist. I hardly need refer to the sanitary surroundings of those portions of our large cities, and those of Europe, which are occupied by the poorer classes of society: the impure air from overcrowding, the effect of which upon the delicate tissues of the nervous system is deleterious in the highest degree; the lack of all facilities for bathing; the insufficient, irregular, and often unwholesome food-supply; the habit of drunkenness from the use of alcohol in some of its worst preparations, and habits of daily tippling which keeps the brain in a state of constant excitement; together with the immoral practices which grow out of such surroundings and habits of life,—all tend strongly in one direction.

By going through some of the hospitals for the insane in the vicinity of New York, or those which are the recipients of the mental wrecks which drift out of the lower grades of society, in the great manufacturing towns and cities of this country or of England, one may gain some more vivid conceptions of the influences which expend themselves upon the nervous system among these poorer classes of society.

We have seen, in the spring season of the year,

the trees of an orchard white with unnumbered blossoms. Myriads on myriads feed every passing breeze with delicious odors for a day, and then drop to the ground. And when the fruit is formed from a very few only of these innumerable blossoms on the trees, a limited number only of the whole attain to maturity and perfection, while the ground is strewn with the windfalls and the useless. Why the one goes on to maturity, while the other perishes so prodigally and so soon, we may not say with certainty, but doubtless it is due to some slight degree of advantage in the starting of the voyage; it may be a moment or an hour of time, or a particle of nourishment, but to whatsoever cause it may be due, it is sufficient, and there is no remedy.

So it is in the grand struggle of human life. Myriads perish at the very start, and as the process of life goes forward, as its conditions become complicated and antagonistic, one by one—always the weaker,—by reason of some poverty in organization, inherited or acquired, falls out by the way, while the vast procession of humanity presses on and upward on its mysterious mission. So it has ever been in the past, and so it will be in the future. The stronger in body and mind will rise above and triumph over the hardnesses and roughnesses of life, becoming stronger by the very effort of so doing.

To him that hath shall be given, and he shall have an abundance of the possessions of life, but that abundance is drawn from him that has but little, and he falls out by the way, as the fruit untimely falls from the tree. Many of these poverty-stricken ones are the psychological windfalls of society.

Christianity has taught us to pick them up and try to nurse them to strength for further battle. She has built hospitals and asylums of refuge from the storm, into which these weaker ones drift, and here, at least for the present, lies the field for her efforts toward ameliorating their condition. It was true thousands of years ago that the poor were everywhere and always present in all conditions of society. It has been so since, and probably will always continue to be so, so long as society continues; and we have no reason to expect other results from the conditions of poverty hereafter than heretofore. Only as the number of its victims may become fewer, through the influence of an education which will enable persons to be self-supporting, will the grand total of mental disease and the misery caused by it become less.

RELIGION.

CHAPTER XIV.

RELIGION.

TWO facts relating to the history of religious belief stand out with clearness and prominence in the past. The first is, that man's belief in his relation toward and responsibility to a Supreme Being has been one of the most important and influential factors in guiding his conduct, and leading him on and up in the pathways of civilization, since his history began. Indeed, it has been the foundation on which governments and societies have been built up, and the relations and obligations of man toward man have been established.

The other, which is no less clear and important, is, that this belief has been made an instrument, in the hands of designing men, of vast suffering to thousands of the human race, and its history, under the influence of fanaticism, has been too often written in suffering. The most gigantic wars have been instituted, and the most cruel wrongs have been perpetrated; the advancement of science and liberty has been retarded, in too many instances, by those claiming to be the ministers of religion.

Perhaps it is not too much to allow that some of the most bigoted cruelties which have ever disgraced the human race have been done in the name and under the garb of religion.

These things, however, have not resulted directly from the character of religious influence, but rather from an absence of such influence upon the conduct of men; and in some cases from the darkness of misconceptions and only partly realized truths.

If, then, religious belief has exerted so powerful an influence for good, and indirectly for ill, on human character and conduct while in health, we are prepared to appreciate the fact that, when weakened by the influence of disease, it still manifests itself, and that, in some cases at least, the mind is tinged with morbid views concerning it. When the brain is under the influence of disease, or when the will-power is much impaired, thought runs in channels long used, or where deepest impressions have been made during some former period of life, and hence it would be expected that the disordered mind, in some cases, would dwell more or less continually on such a subject as religious experience or a lack of it; and accordingly, we find in most asylums patients whose thoughts are occupied more especially on their failures in the past in relation to religious obligation and conduct.

In my view, however, it would be a mistake to

conclude in these or other cases, that the insanity has been in any wise occasioned by any form of religious belief, or by the absence of it, unless in consequence, the individual has been more ready to violate the laws of health by courses of conduct which he would have been hindered from had he been under the restraint of such belief. That these religious sentiments have become excessive is a result of the disease of brain, and has no relation to *cause;* and, if the mind did not dwell upon this subject with a morbid anxiety and intensity, it would be sure to do so on some other. The fact that it happens to be upon religion, rather than on some other subject, is a mere accident, or rather is probably due to the past experience of the individual, or lack of it in this respect.

The truth is, that religious ideas and beliefs are innate in man. We find them in some form or other among all tribes and races, from the lowest South Sea Islander up to the representative types of the race; all alike realize, imperfectly it may be, and yet distinctly, that they are both feeble and ignorant, in the midst of the infinite variety and extent of the universe about them, and they instinctively look, in their feebleness, toward a Power above and superior to them, as naturally as the child looks to the parent for support and protection.

There is a law operative among all creatures, that every instinct of the being has something answering to it from without, toward which it turns in its periods of need and helplessness. The breast of the mother answers to the instinctive action of the hungry infant; the strength of parents to the feeble clinging of the child; the atmosphere to the outstretched moving wing of the bird; the water to the waving fin of the newly hatched fish; and these instincts would not exist except for the answering reality outside and about them, which calls them into activity.

So it must ever be, as to religious belief in the human race. Man realizes at times, and will always continue to do so, that he is a very helpless being in the midst of a stupendous system, a relentless on-going of nature, silent as the tomb and terrible as fate, and from which there come to him no voices of assurance and no gleams of hope. It cannot otherwise be, than that he should feel, even in the fulness of his strength and the highest realization of his powers, that he stands as on a grain of sand only; that the longest ranges of his vision are soon enveloped in darkness; that his knowledge is as ignorance when compared with that wisdom which is manifested by the greatness of worlds which look down upon him from the depths of space. He must always realize how

feeble are his highest conceptions or imaginations, when he tries to push them out among the systems of worlds which are so much larger and grander than his own, or when he undertakes to change or regulate a movement or operation of nature.

This being so, it must be that man will, in the future as in the past, look toward and seek help from some Power above and beyond himself. The instinct is and must be as true to the reality as is that of the hungry child when it turns to its mother, or that of the fish which leads it to move when in the water; and, as the water answers to the instinct of the fish, as the breast of the mother to the calling of the child, and the atmosphere to the wing of the bird, so, too, must there exist a Being responsive to that instinct which leads man to pray and trust.

That this quality or faculty of his nature has been unwisely used, that it has been greatly abused ; that it has been mis-educated, and often mis-directed, and too often turned into an instrument for inflicting suffering and ill, history, alas ! makes only too clear ; but so have other faculties of man's mind, and so will they continue to be, except they are trained and educated toward higher and better purposes ; and the problem in reference to religious belief is, not how to ignore or blot it out, or ridicule

it as a monument of superstitious belief, or explain it away, but rather how to so educate and strengthen it, that it shall conduce toward endurance and stability of the brain, and thus render it better able to bear up under the strain, labors, and harassing disappointments of life. It appears to me that religious belief may be made one of the most potent of agencies in this direction, and the following suggestions would seem to strengthen this view.

First, the laws of health and those of religion go hand in hand; the two fundamentally agree. There exists a broad basis in the very nature of man's system, on which to build up religious belief and practice. Temperance, honesty, obedience to parents, truthfulness, chastity, recognition of sacred times, and brotherly kindness are no less in accordance with the laws of bodily and mental health, than they are with the laws and ordinances of the Christian religion, and when man sins against one he does also against the other. The two are in harmony with the constitution of his system, and their observance can conduce only toward his highest health and consequent happiness. On the other hand, a failure in their observance, or intemperance, licentiousness, and dishonesty, no less surely war against the nature of his mental constitution, and tend toward ill-health.

Again, a religious belief and practice conduce

largely toward sustaining the mind in the experience of suffering and misfortune, and thus are indirectly of very essential service toward securing and preserving integrity of mental action.

Account for the fact as we may, the conditions of society are sadly out of gear. The vast majority of the human race now are, always have been, and are always likely to be, in a condition largely of dependence. The most sanguine optimist must admit that long ages will pass, ere that time shall come when the superior in physical and mental ability shall not use that superiority for his own advantage, as against that of his less-favored brother. In the later phases of civilization, this has passed somewhat from the manifestation of muscular force, but it has only gone over into that of mental force. Brain now rules where formerly muscle did ; and the man of superior brain, to-day, under the forms and protection of law, and by virtue of his intelligence, rules over others, and secures his purposes, as surely as formerly the man of greater physical strength did.

So long as such conditions continue, so long will ignorance, disease, and misery exist, and consequently there will exist in the human system needs of the consolation and hope which can come to man only from the teachings of religion. And he will not only require the teachings of religion by

which to be guided and its admonitions to influence, but also such hopes and anticipations as it alone can offer as to a higher and better condition of existence hereafter. The expectation that, some time in the ages of the world, some of those who are to come after him may possibly be in a more favored condition of existence on earth, will afford too little comfort to him in his ofttimes-condition of suffering and ignorance. If the present is to end all, and there may be no to-morrow for him in which he may hope for some adjustment and anticipate a higher plane of existence, then the darkness and mystery of life itself become profoundly inexplicable. But the expectation of a condition of existence hereafter, wherein he shall be released from the companions of disease and want, which now so often haunt his every year of life, will stimulate hope, and consequently tend toward health of mind.

Again, man requires that which religion alone can bring to him to satisfy the aspirations of his higher nature. The press and throng of daily life, in its many-sided avocations, satisfy only as to material things and for a brief present. Science, in its numerous phases and advancing strides, has done something, and there can be no doubt will in the future do still more, for man's happiness and material gain; but these are not all, nor sufficient for his

greatest needs. They deal only with things observable and physical.

Science unfolds some of the mysterious processes which are constantly going on in man's system; it demonstrates or photographs for the eye the approximate structure of nerve-cells or globules of blood; it has traced out some of the mysterious mechanism of cerebration, and delineated with more or less exactitude some of the great chemical activities which are forever going on in organic bodies. It has gone farther, and revealed some of the hitherto wonderful mysteries in the earth and in the worlds above.

But, after all, its sphere is circumscribed, and mystery still surrounds us with an impassable wall. The greatest and wisest of its votaries have at last to confess with confusion of face that they have arrived only on the brink of an ocean which is infinite —that they know but little.

Science is good and its study ennobling, but it does not suffice for man's highest aspirations, nor for the development of his moral nature. It has never explained the mystery of a single act of his will, and can never ascend into the region of the spiritual. Man may press onward and upward in its paths never so far, and there still remains the infinite beyond. His imaginations may invade the furthest circle of planetary motion, and yet we

know there remain system after system of worlds, and suns shining with ineffable light, still beyond. His questions are never answered; his longings are never satisfied, and never can be until they reach The Infinite One—the object of his worship,—the Source of light and all knowledge.

His questions have ever been, whence am I? and whither do I go? and it can never satisfy his aspirations, to reply that he is from the ape, and goes to the ground, and that this ends all. There still remains to him a longing for immortality; a craving for something above and beyond what he now sees and knows, and only in the hope of this something hereafter, does he have a realization of his highest possibilities.

I believe that thus far in man's experience he has been the loser, not by too much religion, but rather by his unbelief and misconceptions as to its true nature and the extent of its obligations. The plan should therefore be, for a broader, higher, and more pervading religious influence, which can come only from an intelligence educated as to his relations toward and responsibility to God, and his fellow-men. As the tendency of the laws of health and religion are in the same direction, it is not easy to understand how a religious belief, or the influences which legitimately flow from it, can be otherwise than for the highest interests of society, and the mental health of its individual members.

INSUFFICIENT SLEEP.

CHAPTER XV.

INSUFFICIENT SLEEP.

WE learn the most important lessons from observing the facts and studying the operations of nature, and it is largely by such a course that we may hope to learn the true method of either understanding or practising such courses in life as will conduce to health.

From the time of birth until the body finally rests in its last sleep, the human system requires periods of repose under the conditions of sleep. The child, during the first few months of its existence, passes the larger portion of the time in this state. While in it, the brain and nervous system develop more rapidly, grow in stability, and attain capacity for activity more surely than is possible in any other.

It is true that we do not yet understand precisely in what the phenomenon of sleep consists; we do not know fully what change in the operation of the brain occurs for its induction. It may be from deviated or lessened currents of blood in certain portions, or from the opposite condition. Both these

theories have been advocated by men more or less eminent as physiologists; some maintaining that while in sleep the brain contains a larger amount of blood, that there exists a diminished action of the vaso-motor nerves which control the coats of the vessels of the brain, and that in consequence they become more fully distended than when the brain is in a conscious state of activity.

On the other hand, others become equally positive, from observations made on portions of the brain which have become exposed through the effects of injuries to the skull, that these vessels contain less blood during sleep than when in other conditions. I think these observations are conclusive, and that there can be no doubt as to the fact that there exists a diminished quantity of blood in the vessels of the brain in sleep; but that this is the cause of the occurrence of that condition of the brain which constitutes sleep does not appear to be so certain. It is quite possible that this diminished quantity of blood is rather a *consequence* than a *cause*. I am more inclined to think that sleep is primarily caused by a diminution, or cessation, of some of the electrical currents which constantly are passing through portions of the brain while in a state of consciousness, and which are probably necessary to a condition of consciousness, and that the anæmic condition of the brain which is observed

during sleep is a result of such change in these currents.

But from whatever primary cause it may occur, we know that it is only when there are frequent periods for this condition of the brain in the case of the child, that its nervous system develops and becomes strong in the largest measure. And on the other hand, when, for any cause, whether it be pain or artificial excitement, sleep is prevented, the whole system speedily becomes deranged, and manifests its sense of indignation by irregular or imperfect development and suffering.

The necessity of sleep for the system might be illustrated by the presentation of many remarkable and curious facts, such as those of persons who are greatly exhausted sleeping during surgical operations; of physicians sleeping while walking to or from visits to their patients, or while sitting beside them when in conditions of great suffering. I have myself, when greatly fatigued from excessive professional labor, slept through a considerable portion of a disagreeable and somewhat painful dental operation. The torture resulting from the deprivation of sleep for long periods is said to be greater than that of hunger or thirst, or from the infliction of the severest bodily injury.

Accounts received from persons who have been shipwrecked, or exposed in open boats upon the

water in situations of great personal danger, and where, in consequence, no sleep could be indulged, go to confirm this view ; and, though these accounts may have been somewhat exaggerated, and reporters have drawn somewhat upon their imagination in their efforts to depict these experiences, yet those who have been long deprived of sleep, and have been obliged to struggle against its mastery day after day, may easily imagine how terrible must be the suffering under such circumstances. And yet, how little this imperative demand of nature and the importance of this great necessity of the brain have been understood, especially in reference to children.

When a young man and a student, I well remember hearing some lectures from a person calling himself a physician, in which he took the ground that fifteen minutes was ample time in which to take a regular meal, and that all time spent in sleep in excess of four or five hours at most, was so much lost time ; that if persons slept only five hours instead of eight, they would gain more than six years of time in the course of fifty ; therefore, every person who was so much of a sluggard as to sleep eight hours instead of five, was responsible for wasting six years in fifty. That ambitious insect, the ant, was held up by the doctor as an example of industry and lofty enterprise, worthy the imitation of everybody who expects to do much in life—as if he knew

how many hours that creature is in the habit of sleeping every year.

He might almost as well have put his case stronger, and argued that it was everybody's duty to sleep only two of the twenty-four hours, because, forsooth, we would gain more than twelve years in the fifty by so doing.

Unfortunately for society, this man has not been alone in advocating such views. There have been others who, in their teachings, have greatly under-estimated the importance of an abundance of sleep as a means of securing and maintaining a high standard of health. I think that most persons, especially of the laboring classes, in cities as also in the country, sleep too little. This is true as to adult persons, but to a much larger extent of children, and it is hardly possible to over-estimate the good effects arising from an abundance of sleep upon the brain of the child.

There are certain physiological and anatomical conditions existing which tend to show why this is true.

1. The brain at an early age attains a size out of proportion to other organs and members of the body. This is especially true of that portion of the brain supposed to be concerned in mental operations, while those portions whose office is connected with the organic life of the system are less ad-

vanced. After twelve or fourteen years of age, the relative rapidity of development as to size becomes changed, and other portions of the system increase more rapidly.

2. The cells of the hemispheres of the brain contain a considerably larger amount of water during the younger periods of life than they do during the adult period. One of the results of this condition of the brain is that of less stability of character, and a larger measure of susceptibility. It is more sensitive and easily disturbed by external surroundings, while the influences which act upon it, in connection with its daily experiences, tend to create a much more rapid metamorphosis of its tissues.

The nerve tissue of the brain in adult life is the most unstable in its elemental composition of that of any organ, but in childhood and youth the change resulting in degeneration and restoration of tissue is much more rapid than at any other period. Hence the importance of frequent and considerably long-continued periods of sleep and inactivity of this organ.

Now, my observation and experience lead me to believe that young children in our cities sleep far too little to enable the brain to receive the largest benefit from it; that they are out on the streets, or employed at tasks, long after they should have been in bed. In many portions of our large cities there

exist excitement and noise, which are quite sufficient to prevent sleep, until the system is very greatly fatigued, and the nervous elements exhausted. Parents are frequently thoughtless and careless in this respect, and the children are left out on the street or visiting at neighbors' houses until too late an hour.

A teacher in a public school informs me that one of the greatest hindrances in the advancement of some of her scholars, lies in the fact that one or two nights of every week these children are out at musical or dancing parties, or attending some place of public amusement, so that the period of sleep is greatly abridged, and the brain has not recuperated its energy so as to be able to study. The sensitive tissue is in a condition of too great weakness to be much used, and in consequence the difficulty of learning lessons is greatly increased.

Again, children are often called in the morning, long before enough sleep has been secured to refresh the brain, and employed in different ways, perhaps in attending to some piece of machinery in a large factory, which is filled with dust and the noise of thousands of wheels, and kept there ten or twelve hours a day; and the brain is not allowed to sleep for sixteen or seventeen hours.

Now, one of the effects of these long periods of wakefulness and over-activity is to check the nor-

mal development of the brain, to stint its growth, and give it a twist from which it never recovers. This habit, formed in childhood, frequently extends into adult life, and becomes so fixed that it is difficult for the brain afterward to change its custom. The period of wakefulness tends to increase so that sleep is limited to six or seven instead of eight or nine hours.

That man who regularly and soundly sleeps his eight or nine hours a day should be the man capable of large physical or mental work; moreover, he is the man who lasts longest; his system becomes daily recuperated, and he has the largest prospect of reaching his threescore and ten, while yet his system is in a degree of health; while his neighbor, less favored in this respect, becomes old at sixty if he chances to live so long.

It is not intended to imply that there may not be exceptions to this rule. There have been some who could do with four or five hours' sleep for many years and do good work, and there are probably such men to-day, but they are using up the nervous energy and strength with which they have been endowed far too rapidly; and they are exceptions to the mass of people, who require much more sleep in order to enjoy good mental health.

Sleep is to the brain what rest is to the body:

"Sleep, that knits up the ravelled sleeve of care,
The death of each day's life, sore labor's bath,
Balm of hurt minds, great Nature's second course,
Chief nourisher in life's feast."

No words could paint more beautifully or effectively the office of sleep, than these of England's greatest poet. But we need not turn to the writers of prose or poetry in the past for instruction in this matter; all nature teaches the importance of sleep. Every tree, and shrub, and vine, has its period of sleep, and, if stimulated into ceaseless activity, would soon die; and every portion of the human system is subject to the same great law of necessity.

The stomach must have its periods of inactivity and rest; and there are periods during every twenty-four hours when the kidneys secrete very little, if any, urine. It is sometimes said the heart is an exception to this rule; that its beat never ceases from more than six months before birth until nature's last great debt is paid in death. But, in truth, it is at entire rest nearly if not quite one third of the whole time. Its action consists of a *first* and a *second* sound, covering the contraction of right and left auricles and ventricles, and then a rest,—and so far as we know a perfect one. Reckoning this at one third the time occupied in each full action of the heart, and we have more than twenty years of perfect quiet out of the threescore and ten.

The same is true to even a larger extent of other involuntary processes and movements; for instance, that of respiration. The muscles concerned in this operation are at entire rest during more than one third of the time, and if the process of respiration be much quickened in frequency for any considerable period of time, weariness and languor ensue.

Now the brain is no exception to this same law. During every moment of consciousness this is in ceaseless activity. The peculiar process of cerebration, whatever that may consist in, is taking place; thought after thought comes forth, with no volition on our part; long trains of meditation come forth unbidden, one after another, from the hidden recesses of the brain; sometimes things supposed to be long since forgotten, which have for years been consigned to the rubbish lumber-heap of dead plans and disappointed expectations, rise up suddenly, like a frightened bird before the hunter. Then, again, the sound of some voice, or the strain of some music long unheard, or the glance of an eye, will call up the memories of some bitter and suffering experience with its ten thousand harrowing associations, which go marching forward and backward through the trackless channels of the brain like a vast army of ghosts.

All this when the brain has no set task to perform, no intent purpose to follow out, and the body

is at ease; and it is only when the peculiar connection or chain of connection of one brain-cell with another is broken, and consciousness fades away into the dreamless land of perfect sleep, that the brain is at rest. In this state it recuperates its exhausted energy and power, and stores them up for future need.

The period of wakefulness is one of constant wear; every thought is generated at the expense of brain-cells, which can be fully re-energized only by periods of properly regulated repose. It not unfrequently happens, however, that sleep is only partial; that the brain still continues in some degree of activity, and when we wake, we have dim memories of sub-conscious thought, which has been moving through the brain. Such rest, for the brain, is imperfect, and we are conscions of the conditions of fatigue, which shows how imperative is the necessity for sound, healthy sleep; and if this is not secured, if the brain, through over-stimulation and thought, is not left to recuperate, its energy becomes rapidly exhausted; debility, disease, and finally, loss of power supervene.

Hence the story is almost always the same in the history of the insane; for weeks or months before the active indications of insanity appear, the patient has been more than usually anxious about some subject or other, and worried and wakeful, not sleeping

more than four or five hours out of the twenty four. The trains of thought have been left too long moving on in certain channels of the brain, some experience has made too profound an impression, and the effects of what we call the will have been unable to control it; or there has been perhaps some source of eccentric irritation which has been reflected; or it may be that the blood, upon which every organ depends for nourishment and strength, has been poisoned, or its nutrient properties impaired; and the poor brain, unable to do its constant work under such influences, begins to waver, to show signs of weakness or aberration; hallucinations or delusions hover around like floating shadows in the air until, finally, disease comes and

> "Plants his siege
> Against the mind, the which he pricks and wounds
> With many legions of strange fantasies,
> Which, in their throng and press to that last hold,
> Confound themselves."

CONCLUSION.

CHAPTER XVI.

CONCLUSION.

IT has been my aim to conduct the preceding discussion in so plain and direct a manner, that its lessons of instruction and warning, if it has any, shall be readily appreciated by the reader. It will not, therefore, be necessary to add chapters filled with specific directions how to avoid insanity.

Some remarks, of a somewhat desultory character, concerning some branches of the subject will comprise this closing chapter.

There are few diseases the conditions of whose existence are so clearly and fully understood that they can in every case be avoided, and in reference to the ultimate causes of many we know little or nothing. It is true that, within a few years, we have more clearly recognized the relations of hygiene to the prevalence of some forms of disease, and by this means have done much toward limiting their progress, thus achieving some of the grandest triumphs of medical science in recent times.

In doing this, however, we have not always, or

even generally, known the exact nature of the primary causes of these forms of disease, but have simply learned, from observation, their relations to hygienic conditions; but the knowledge of this relation has put society on vantage-ground in all efforts to maintain the public health, so far as it relates to certain forms of zymotic disease; and to the extent of our progress in understanding these relations to most other forms of disease, shall we be in a condition to avoid them.

The existence or the prevalence of insanity, however, does not depend on any such conditions as relate to zymotic diseases, at least in the vast majority of cases. Our study of its causes, therefore, has been in other directions; and if our views of the influences which lead to degeneration of nerve tissue are correct, these are even more easily appreciable than are the causes of some other forms of disease, and consequently may be avoided.

This must come largely, primarily, from the education of home and school life, and from the regulation of daily conduct in its relation to the brain; and, as the nervous system presides over and controls the body and its several members in the discharge of their functions, an understanding of its physiological action, at least in some degree, is of great importance to everybody. While we cannot do much to lessen the amount of brain-work

or check the ambitions of adult life, as they have become so intensified by modern modes of living and the requirements of business, yet we may hope to do something by the judicious training and education of the young.

That this may be effectually done, we must study the action of the brain and nervous system when under the influence of different external conditions and agencies. We have been accustomed to draw up long lists of experiences and occurrences in the lives of those who have become insane, as *causes*, such as *shock*, *grief*, *loss of friends*, *fever*, etc., etc. but it should be borne in mind that the vast majority of persons pass through these or similar experiences, and yet do not become insane. It becomes necessary, therefore, to go back of these experiences or antecedents, and inquire as to the causation of that peculiar condition of the nervous system which renders it susceptible of the effects of such secondary causes.

This I have endeavored to do, more especially in the chapter on the Insane Diathesis. I have sought particularly to draw attention to the delicacy and great susceptibility of the brain while in childhood and youth to external influences and impressions, and to show that if much in the way of stimulation of any kind is added to its daily experiences, the effect upon its future development and character

may prove to be most unfavorable. We have seen how at this early period of life it is moulded and changed in no small degree by its experiences, and that if these are of a disturbing character from any cause whatever, there can but result such an influence on the brain-cells as will be incorporated into their growth, and manifest itself in after-life in uncertainty and liability to irregularity of brain-action.

Again, I have proceeded, in discussing the subject, on the supposition that the nervous system is a unit; that, though the functions of the several parts are of diverse character, such as motion, sensation, and thought, yet the same laws of healthy activity pertain to all portions alike; and that we could safely reason, in reference to the effects of unfavorable influences, from the observed and known to the less known, from the simple to the more complex processes of nerve-function; that what is known to be injurious to the one must be so to the other. I have endeavored to show that as too great or too little activity of the various portions of the nervous system result in irregular activity or in failure of activity, so, also, too much stimulation to the brain, as well as too little exercise of function, both result in failure in some degree; that through these two channels, and also from the effects of poisons acting on the brain,

comes the largest danger to its integrity of activity.

While some of the causes of insanity, however, are of such a character as has been pointed out, and consequently preventable, yet it will readily be perceived how difficult it will be to educate society so that it may be avoided. The conditions of its existence pertain in many cases to all classes of society, and ramify in the customs and habits alike of the rich and the poor. In many other forms of disease there exists some degree of unity in etiology,. and we are able to discover their immediate hygienic conditions with considerable certainty, and these conditions can in many cases be avoided without much inconvenience ; but those of insanity are so multifarious, they are so interwoven with the very texture of our modern civilization, that any warning which we can give, any words of help, or of caution even, all are only too likely to fall on ears which are dull of hearing. The ruling tendencies in our modes of living and of conducting the great business enterprises of life, some of which are inherited, and others learned in the years of early life, lie directly athwart its path.

Again, in many other forms of disease, we approach toward their nature and causes by examination of the secretions and excretions of the body ; we use our chemical tests; we percuss and auscul-

tate; we reason from the pathological conditions existing after death, to those which must have existed prior to death; but in cases of insanity, these modes of procedure have so far availed us very little. While we find slight degrees of difference in the secretions of the insane at times, yet these changes do not appear to be pathognomonic. They may be found to exist equally with the sane and insane, and therefore avail little or not at all in determining any change which has taken place in the brain. Nor can we determine the nature of those vibratory movements which are supposed to take place during the processes of reasoning or the experiences of sensation.

In examinations after death of the brains of those who have died while insane, we find certain morbid changes in the cells and connective tissues in many cases, and a few years since we were indulging large expectations that we had at length arrived on solid ground, and thenceforth could proceed to more perfect knowledge and definite results. But, so far, there has very little of positive value, in determining the "*fons et origo*" of insanity, been brought to light through pathological researches. The changes in brain tissue found after death in the insane are degenerations in various stages of progress, and in no essential respect differ from those which may be found in some cases after death from injury and disease, where no insanity has existed.

Indeed, if we ever should be able to definitely determine the connections between morbid changes in the brain and the various modifications of thought and action among the insane, while we should be in a position to frame more perfect classifications of the insaniæ, yet it is not easy to perceive how we should be much the gainers in our appreciation of the ultimate causes of insanity, or in its treatment.

Notwithstanding all these and other difficulties, however, we may hope for progress in the future in our ability to appreciate at least some of the causes of insanity more fully and be able to avoid them.

A few sentences in the form of a recapitulation will serve to recall some of the more important points embraced in our discussion, and indicate through what channels we may anticipate successful effort in the prevention of insanity.

I.—*In Improved Methods of Education.*

1. A larger appreciation of the importance of *individuality* in giving instruction. The teacher will have a fewer number of pupils, and find it necessary to study the peculiarities and tendencies, both physical and mental, of each one. Instead of having all together pass through a regular routine of education, with little or no reference to mental constitution, the system will be, in some measure,

adapted to the present, and what may appear to be the future, requirements of each scholar.

2. There will be less importance given to education of the brain by means of books only, for all children, and a larger importance to *industrial education.* Inasmuch as the large majority of the members of society must obtain the requirements of living by industrial operations, society will appreciate more fully the importance, not only to itself, but especially to the individual, of so educating each person, that he may be self-supporting, and consequently less liable to become a diseased and dependent member of it.

3. A larger importance will be given, in methods of education at home, to inculcating and enforcing obedience to laws and regulations. This is essential, not only to the interests of society, but especially to those of the individual in his relations to the laws of health. Man is endowed not only with intellect, but with a will in the direction and use of it, and it becomes his duty and essential to his interests to find out those courses of conduct which will lead to health. In a considerable degree he is capable of regulating his conduct so as to be in harmony with such regulations. If, however, he is not taught the necessity of obedience while young, and how to obey easily, the lesson becomes one very difficult to learn in later life, and he is in great danger of never learning it.

4. A larger degree of importance will be given to education in relation to physiology and heredity, especially so far as they relate to the institution of the family. As the well-being of both society and the individual depends so largely on that of the family, a knowledge of the laws of heredity will be considered as essential to all persons who enter into the relation of marriage, so that tendencies toward diseases may be, at least in some measure, avoided.

II. — *In Reference to Certain Habits and Customs of Living.*

1. One of the most important of these will relate to the use of alcohol, in its various forms, as a beverage. Its stimulating and deteriorating influence upon the brain will be more fully understood and avoided, thereby removing one of the largest factors in the causation of insanity.

One of the astonishing facts which confronts the student of sociology, is the unaccountable indifference, which has existed hitherto in society to the vast evils of intemperance. When, however, the young become more generally educated in reference to the physiological effects of alcohol, and more fully appreciate the fact that they do not cease with those primarily concerned, but pass over from the individual to his family and to society; that the amount of disease and suffering to both,

from this evil, are so much greater than from any other—nay, I had almost written from all others together,—extending in the family to the third and fourth generations frequently in the forms of insanity and idiocy, and in society to ignorance, poverty, crime, and a larger expenditure of charity than for all other forms of evil,—why, it seems certain I shall be justified in my prophecy, that the day cannot be far distant when society will proscribe and limit the ravages of this enemy of human society.

2. The second refers to the excessive use of tobacco, especially by the young, before the system attains to the maturity of its growth.

3. The importance of less stimulating and exhausting methods of conducting business avocations in large towns and cities. A more full recognition of the fact, that every brain is limited to its unit of power in activity—so much and no more,—and that length of days and fulness of strength can be expected only by the judicious care and expenditure of brain-force.

4. A more full recognition of the importance to the brain of *change* and longer periods of rest, both for adult persons when engaged in the usual avocations of life, and especially for children in relation to the hours of sleep.

5. The importance of improved sanitary condi-

tions for all houses occupied by the poor, especially in cities, and of all shops and manufacturing establishments.

The kinds of avocations followed in-doors are not likely to be much changed or lessened; indeed, I think they are likely to become even more common; that larger numbers will be engaged in such occupations in the future than in the present; but it is quite possible to realize more fully the fact that the brain requires the effects of pure air, if it is to remain in a condition of health, and that it is practicable to introduce this to all places so occupied.

As will readily be perceived, the tendencies of the preceding pages have served to point toward the importance of systematic preventive measures concerning insanity. *Prevention* is the watchword which is being signalled along the line of the medical profession, at the present time, concerning the management of disease. The importance of State Boards of Health in many of the larger States has become so generally recognized, that they are yearly appointed, and make regular reports, with more or less full accounts as to the results of observations in reference to the public health and the prevention of disease, which prove to be of the highest value.

I would suggest the importance of appointing on such Boards one or more physicians who are qualified for such a position, whose special duty it shall

be to ascertain and make public reports upon the prevalence of such conditions as conduce to the production of mental disease. They should be appointed by the State, so that they may have influence with school teachers and school boards. In this way they may be able to point out the dangers which lie in methods of educating and preparing the young for the duties and responsibilities of life. Such persons should be able to wisely direct in laying the broadest and most secure foundations on which to rear the fabric of vigorous mental health.

That physicians appointed by the State, and operating in conjunction with superintendents of public institutions and with teachers, would be able to accomplish a most valuable work, in reference to the conduct of education, and in instructing the public concerning those habits of life which are at variance with mental health, I have no doubt. I may add that there can be no question that a generous expenditure of money for such a purpose would save many minds from the suffering and ruin which result from disease, and, in the end, prove to be the wisest economy.

THE END.

Date ~~Issued~~ Due			
~~Je 2 0 '33~~			
[redacted]			
APR -1 '65