

PART III.

CHIEFLY CLINICAL.

“Et l'on nous persuadera difficilement que lorsque les hommes ont tant de peine à être hommes, les femmes puissent, tout en restant femmes, devenir hommes aussi, mettant ainsi la main sur les deux rôles, exerçant la double mission, résumant le double caractère de l'humanité ! Nous perdrons la femme, et nous n'aurons pas l'homme. Voilà ce qui nous arrivera. On nous donnera ce quelque chose de monstrueux, cet être répugnant, qui déjà paraît à notre horizon.”
— LE COMTE A. DE GASPARIN.

“Facts given in evidence are premises from which a conclusion is to be drawn. The first step in the exercise of this duty is to acquire a belief of the truth of the facts.”—
RAM, *on Facts*.

CLINICAL observation confirms the teachings of physiology. The sick chamber, not the schoolroom ; the physician's private consultation, not the committee's public examination ; the hospital, not the college, the

workshop, or the parlor,—disclose the sad results which modern social customs, modern education, and modern ways of labor, have entailed on women. Examples of them may be found in every walk of life. On the luxurious couches of Beacon Street; in the palaces of Fifth Avenue; among the classes of our private, common, and normal schools; among the female graduates of our colleges; behind the counters of Washington Street and Broadway; in our factories, workshops, and homes,—may be found numberless pale, weak, neuralgic, dyspeptic, hysterical, menorrhagic, dysmenorrhœic girls and women, that are living illustrations of the truth of this brief monograph. It is not asserted here that improper methods of study, and a disregard of the reproductive apparatus and its functions, during the educational life of girls, are the sole causes of female diseases; neither is it asserted that all the female graduates of our schools and colleges are pathological specimens. But it is asserted that the number of these graduates who have been per-

manently disabled to a greater or less degree by these causes is so great, as to excite the gravest alarm, and to demand the serious attention of the community. If these causes should continue for the next half-century, and increase in the same ratio as they have for the last fifty years, it requires no prophet to foretell that the wives who are to be mothers in our republic must be drawn from trans-atlantic homes. The sons of the New World will have to re-act, on a magnificent scale, the old story of unwived Rome and the Sabines.

We have previously seen that the blood is the life, and that the loss of it is the loss of so much life. Deluded by strange theories, and groping in physiological darkness, our fathers' physicians were too often Sangrados. Nourishing food, pure air, and hæmatized blood were stigmatized as the friends of disease and the enemies of convalescence. Oxygen was shut out from and carbonic acid shut into the chambers of phthisis and fever; and veins were opened, that the currents of

blood and disease might flow out together. Happily, those days of ignorance, which God winked at, and which the race survived, have passed by. Air and food and blood are recognized as Nature's restoratives. No physician would dare, nowadays, to bleed either man or woman once a month, year in and year out, for a quarter of a century continuously. But girls often have the courage, or the ignorance, to do this to themselves. And the worst of it is, that the organization of our schools and workshops, and the demands of social life and polite society, encourage them in this slow suicide. It has already been stated that the excretory organs, by constantly eliminating from the system its effete and used material, the measure and source of its force, keep the machine in clean, healthy, and working order, and that the reproductive apparatus of woman uses the blood as one of its agents of elimination. Kept within natural limits, this elimination is a source of strength, a perpetual fountain of health, a constant renewal of life. Beyond

these limits it is a hemorrhage, that, by draining away the life, becomes a source of weakness and a perpetual fountain of disease.

The following case illustrates one of the ways in which our present school methods of teaching girls generate a menorrhagia and its consequent evils. Miss A——, a healthy, bright, intelligent girl, entered a female school, an institution that is commonly but oddly called a *seminary* for girls, in the State of New York, at the age of fifteen. She was then sufficiently-well developed, and had a good color; all the functions appeared to act normally, and the catamenia were fairly established. She was ambitious as well as capable, and aimed to be among the first in the school. Her temperament was what physiologists call nervous,—an expression that does not denote a fidgety make, but refers to a relative activity of the nervous system. She was always anxious about her recitations. No matter how carefully she prepared for them, she was ever fearful lest she should trip a little, and appear to less advantage

than she hoped. She went to school regularly every week, and every day of the school year, just as boys do. She paid no more attention to the periodical tides of her organization than her companions; and that was none at all. She recited standing at all times, or at least whenever a standing recitation was the order of the hour. She soon found, and this history is taken from her own lips, that for a few days during every fourth week, the effort of reciting produced an extraordinary physical result. The attendant anxiety and excitement relaxed the sluices of the system that were already physiologically open, and determined a hemorrhage as the concomitant of a recitation. Subjected to the inflexible rules of the school, unwilling to seek advice from any one, almost ashamed of her own physique, she ingeniously protected herself against exposure, and went on intellectually leading her companions, and physically defying nature. At the end of a year, she went home with a gratifying report from her teachers, and pale cheeks and a

variety of aches. Her parents were pleased, and perhaps a little anxious. She is a good scholar, said her father; somewhat overworked possibly; and so he gave her a trip among the mountains, and a week or two at the seashore. After her vacation she returned to school, and repeated the previous year's experience, — constant, sustained work, recitation and study for all days alike, a hemorrhage once a month that would make the stroke oar of the University crew falter, and a brilliant scholar. Before the expiration of the second year, Nature began to assert her authority. The paleness of Miss A's complexion increased. An unaccountable and uncontrollable twitching of a rhythmical sort got into the muscles of her face, and made her hands go and feet jump. She was sent home, and her physician called, who at once diagnosticated chorea (St. Vitus' dance), and said she had studied too hard, and wisely prescribed no study and a long vacation. Her parents took her to Europe. A year of the sea and the Alps, of England

and the Continent, the Rhine and Italy, worked like a charm. The sluiceways were controlled, the blood saved, and color and health returned. She came back seemingly well, and at the age of eighteen went to her old school once more. During all this time not a word had been said to her by her parents, her physician, or her teachers, about any periodical care of herself; and the rules of the school did not acknowledge the catamenia. The labor and regimen of the school soon brought on the old menorrhagic trouble in the old way, with the addition of occasional faintings to emphasize Nature's warnings. She persisted in getting her education, however, and graduated at nineteen, the first scholar, and an invalid. Again her parents were gratified and anxious. She is overworked, said they, and wondered why girls break down so. To insure her recovery, a second and longer travel was undertaken. Egypt and Asia were added to Europe, and nearly two years were allotted to the cure. With change of air and scene her health im-

proved, but not so rapidly as with the previous journey. She returned to America better than she went away, and married at the age of twenty-two. Soon after that time she consulted the writer on account of prolonged dyspepsia, neuralgia, and dysmenorrhœa, which had replaced menorrhagia. Then I learned the long history of her education, and of her efforts to study just as boys do. Her attention had never been called before to the danger she had incurred while at school. She is now what is called getting better, but has the delicacy and weaknesses of American women, and, so far, is without children.

It is not difficult, in this case, either to discern the cause of the trouble, or to trace its influence, through the varying phases of disease, from Miss A——'s school-days, to her matronly life. She was well, and would have been called robust, up to her first critical period. She then had two tasks imposed upon her at once, both of which required for their perfect accomplishment a few years of

time and a large share of vital force: one was the education of the brain, the other of the reproductive system. The schoolmaster superintended the first, and Nature the second. The school, with puritanic inflexibility, demanded every day of the month; Nature, kinder than the school, demanded less than a fourth of the time, — a seventh or an eighth of it would have probably answered. The schoolmaster might have yielded somewhat, but would not; Nature could not. The pupil, therefore, was compelled to undertake both tasks at the same time. Ambitious, earnest, and conscientious, she obeyed the visible power and authority of the school, and disobeyed, or rather ignorantly sought to evade, the invisible power and authority of her organization. She put her will into the education of her brain, and withdrew it from elsewhere. The system does not do two things well at the same time. One or the other suffers from neglect, when the attempt is made. Miss A—— made her brain and muscles work actively, and diverted

blood and force to them when her organization demanded active work, with blood and force for evolution in another region. At first the schoolmaster seemed to be successful. He not only made his pupil's brain manipulate Latin, chemistry, philosophy, geography, grammar, arithmetic, music, French, German, and the whole extraordinary catalogue of an American young lady's school curriculum, with acrobatic skill; but he made her do this irrespective of the periodical tides of her organism, and made her perform her intellectual and muscular calisthenics, obliging her to stand, walk, and recite, at the seasons of highest tide. For a while she got on nicely. Presently, however, the strength of the loins, that even Solomon put in as a part of his ideal woman, changed to weakness. Periodical hemorrhages were the first warning of this. As soon as loss of blood occurred regularly and largely, the way to imperfect development and invalidism was open, and the progress easy and rapid. The nerves and their centres

lacked nourishment. There was more waste than repair,—no margin for growth. St. Vitus' dance was a warning not to be neglected, and the schoolmaster resigned to the doctor. A long vacation enabled the system to retrace its steps, and recover force for evolution. Then the school resumed its sway, and physiological laws were again defied. Fortunately graduation soon occurred, and unintermitted, sustained labor was no longer enforced. The menorrhagia ceased, but persistent dysmenorrhea now indicates the neuralgic friction of an imperfectly developed reproductive apparatus. Doubtless the evil of her education will infect her whole life.

The next case is drawn from different social surroundings. Early associations and natural aptitude inclined Miss B—— to the stage; and the need of bread and butter sent her upon it as a child, at what age I do not know. At fifteen she was an actress, determined to do her best, and ambitious of success. She strenuously taxed muscle and

brain at all times in her calling. She worked in a man's sustained way, ignoring all demands for special development, and essaying first to dis-establish, and then to bridle, the catamenia. At twenty she was eminent. The excitement and effort of acting periodically produced the same result with her that a recitation did under similar conditions with Miss A——. If she had been a physiologist, she would have known how this course of action would end. As she was an actress, and not a physiologist, she persisted in the slow suicide of frequent hemorrhages, and encouraged them by her method of professional education, and later by her method of practising her profession. She tried to ward off disease, and repair the loss of force, by consulting various doctors, taking drugs, and resorting to all sorts of expedients; but the hemorrhages continued, and were repeated at irregular and abnormally frequent intervals. A careful local examination disclosed no local disturbance. There was neither ulceration, hypertrophy, or congestion of the os or cervix

uteri; no displacement of any moment, or ovarian tenderness. In spite of all her difficulties, however, she worked on courageously and steadily in a man's way and with a woman's will. After a long and discouraging experience of doctors, work, and weaknesses, when rather over thirty years old, she came to Boston to consult the writer, who learned at that time the details just recited. She was then pale and weak. A murmur in the veins, which a French savant, by way of dedication to the Devil, christened *bruit de diable*, a baptismal name that science has retained, was audible over her jugulars, and a similar murmur over her heart. Palpitation and labored respiration accompanied and impeded effort. She complained most of her head, which felt "queer," would not go to sleep as formerly, and often gave her turns, in which there was a mingling of dizziness, semi-consciousness, and fear. Her education and work, or rather method of work, had wrought out for her anemia and epileptiform attacks. She got two or three physiological

lectures, was ordered to take iron, and other nourishing food, allow time for sleep, and, above all, to arrange her professional work in harmony with the rythmical or periodical action of woman's constitution. She made the effort to do this, and, in six months, reported herself in better health—though far from well—than she had been for six years before.

This case scarcely requires analysis in order to see how it bears on the question of a girl's education and woman's work. A gifted and healthy girl, obliged to get her education and earn her bread at the same time, labored upon the two tasks zealously, perhaps over-much, and did this at the epoch when the female organization is busy with the development of its reproductive apparatus. Nor is this all. She labored continuously, yielding nothing to Nature's periodical demand for force. She worked her engine up to highest pressure, just as much at flood-tide as at other times. Naturally there was not nervous power enough developed in the uterine and associated gan-

glia to restrain the laboring orifices of the circulation, to close the gates; and the flood of blood gushed through. With the frequent repetition of the flooding, came inevitably the evils she suffered from, — Nature's penalties. She now reports herself better; but whether convalescence will continue will depend upon her method of work for the future.

Let us take the next illustration from a walk in life different from either of the foregoing. Miss C——was a bookkeeper in a mercantile house. The length of time she remained in the employ of the house, and its character, are a sufficient guaranty that she did her work well. Like the other clerks, she was at her post, *standing*, during business hours, from Monday morning till Saturday night. The female pelvis being wider than that of the male, the weight of the body, in the upright posture, tends to press the upper extremities of the thighs out laterally in females more than in males. Hence the former can stand less long with comfort than the latter. Miss C——, however, believed in doing her

work in a man's way, infected by the not uncommon notion that womanliness means manliness. Moreover, she would not, or could not, make any more allowance for the periodicity of her organization than for the shape of her skeleton. When about twenty years of age, perhaps a year or so older, she applied to me for advice in consequence of neuralgia, backache, menorrhagia, leucorrhœa, and general debility. She was anemic, and looked pale, care-worn, and anxious. There was no evidence of any local organic affection of the pelvic organs. "Get a woman's periodical remission from labor, if intermission is impossible, and do your work in a woman's way, not copying a man's fashion, and you will need very little apothecary's stuff," was the advice she received. "I *must* go on as I am doing," was her answer. She tried iron, sitz-baths, and the like: of course they were of no avail. Latterly I have lost sight of her, and, from her appearance at her last visit to me, presume she has gone to a world where backache and male and female skeletons are unknown.

Illustrations of this sort might be multiplied but these three are sufficient to show how an abnormal method of study and work may and does open the flood-gates of the system, and, by letting blood out, lets all sorts of evil in. Let us now look at another phase; for menorrhagia and its consequences are not the only punishments that girls receive for being educated and worked just like boys. Nature's methods of punishing men and women are as numerous as their organs and functions, and her penalties as infinite in number and gradation as her blessings.

Amenorrhœa is perhaps more common than menorrhagia. It often happens, however, during the first critical epoch, which is isochronal with the technical educational period of a girl, that after a few occasions of catamenial hemorrhage, moderate perhaps but still hemorrhage, which are not heeded, the conservative force of Nature steps in, and saves the blood by arresting the function. In such instances, amenorrhœa is a result of menorrhagia. In this way, and in others that we

need not stop to inquire into, the regimen of our schools, colleges, and social life, that requires girls to walk, work, stand, study, recite, and dance at all times as boys can and should, may shut the uterine portals of the blood up, and keep poison in, as well as open them, and let life out. Which of these two evils is worse in itself, and which leaves the largest legacy of ills behind, it is difficult to say. Let us examine some illustrations of this sort of arrest.

Miss D—— entered Vassar College at the age of fourteen. Up to that age, she had been a healthy girl, judged by the standard of American girls. Her parents were apparently strong enough to yield her a fair dower of force. The catamenial function first showed signs of activity in her Sophomore Year, when she was fifteen years old. Its appearance at this age* is confirmatory evi-

* It appears, from the researches of Mr. Whitehead on this point, that an examination of four thousand cases gave fifteen years six and three-quarter months as the average age in England for the appearance of the catamenia.—
WHITEHEAD, *on Abortion, &c.*

dence of the normal state of her health at that period of her college career. Its commencement was normal, without pain or excess. She performed all her college duties regularly and steadily. She studied, recited, stood at the blackboard, walked, and went through her gymnastic exercises, from the beginning to the end of the term, just as boys do. Her account of her regimen there was so nearly that of a boy's regimen, that it would puzzle a physiologist to determine, from the account alone, whether the subject of it was male or female. She was an average scholar, who maintained a fair position in her class, not one of the anxious sort, that are ambitious of leading all the rest. Her first warning was fainting away, while exercising in the gymnasium, at a time when she should have been comparatively quiet, both mentally and physically. This warning was repeated several times, under the same circumstances. Finally she was compelled to renounce gymnastic exercises altogether. In her Junior Year, the organism's periodical

function began to be performed with pain, moderate at first, but more and more severe with each returning month. When between seventeen and eighteen years old, dysmenorrhœa was established as the order of that function. Coincident with the appearance of pain, there was a diminution of excretion; and, as the former increased, the latter became more marked. In other respects she was well; and, in all respects, she appeared to be well to her companions and to the faculty of the college. She graduated before nineteen, with fair honors and a poor physique. The year succeeding her graduation was one of steadily-advancing invalidism. She was tortured for two or three days out of every month; and, for two or three days after each season of torture, was weak and miserable, so that about one sixth or fifth of her time was consumed in this way. The excretion from the blood, which had been gradually lessening, after a time substantially stopped, though a periodical effort to keep it up was made. She now suffered

from what is called amenorrhœa. At the same time she became pale, hysterical, nervous in the ordinary sense, and almost constantly complained of headache. Physicians were applied to for aid: drugs were administered; travelling, with consequent change of air and scene, was undertaken; and all with little apparent avail. After this experience, she was brought to Boston for advice, when the writer first saw her, and learned all these details. She presented no evidence of local uterine congestion, inflammation, ulceration, or displacement. The evidence was altogether in favor of an arrest of the development of the reproductive apparatus, at a stage when the development was nearly complete. Confirmatory proof of such an arrest was found in examining her breast, where the milliner had supplied the organs Nature should have grown. It is unnecessary for our present purpose to detail what treatment was advised. It is sufficient to say, that she probably never will become physically what she would have been had her education been physiologically guided.

This case needs very little comment: its teachings are obvious. Miss D—— went to college in good physical condition. During the four years of her college life, her parents and the college faculty required her to get what is popularly called an education. Nature required her, during the same period, to build and put in working-order a large and complicated reproductive mechanism, a matter that is popularly ignored, — shoved out of sight like a disgrace. She naturally obeyed the requirements of the faculty, which she could see, rather than the requirements of the mechanism within her, that she could not see. Subjected to the college regimen, she worked four years in getting a liberal education. Her way of work was sustained and continuous, and out of harmony with the rhythmical periodicity of the female organization. The stream of vital and constructive force evolved within her was turned steadily to the brain, and away from the ovaries and their accessories. The result of this sort of education was, that these last-mentioned organs,

deprived of sufficient opportunity and nutriment, first began to perform their functions with pain, a warning of error that was unheeded; then, to cease to grow; * next, to set up once a month a grumbling torture that made life miserable; and, lastly, the brain and the whole nervous system, disturbed, in obedience to the law, that, if one member suffers, all the members suffer, became neuralgic and hysterical. And so Miss D— spent the few years next succeeding her graduation in conflict with dysmenorrhœa, headache, neuralgia, and hysteria. Her parents marvelled at her ill-health; and she

* The arrest of development of the uterus, in connection with amenorrhœa, is sometimes very marked. In the *New-York Medical Journal* for June, 1873, three such cases are recorded, that came under the eye of those excellent observers, Dr. E. R. Peaslee and Dr. T. G. Thomas. In one of these cases, the uterine cavity measured one and a half inches; in another, one and seven-eighths inches; and, in a third, one and a quarter inches. Recollecting that the normal measurement is from two and a half to three inches, it appears that the arrest of development in these cases occurred when the uterus was half or less than half grown. Liberal education should avoid such errors.

furnished another text for the often-repeated sermon on the delicacy of American girls.

It may not be unprofitable to give the history of one more case of this sort. Miss E—— had an hereditary right to a good brain and to the best cultivation of it. Her father was one of our ripest and broadest American scholars, and her mother one of our most accomplished American women. They both enjoyed excellent health. Their daughter had a literary training,—an intellectual, moral, and æsthetic half of education, such as their supervision would be likely to give, and one that few young men of her age receive. Her health did not seem to suffer at first. She studied, recited, walked, worked, stood, and the like, in the steady and sustained way that is normal to the male organization. She *seemed* to evolve force enough to acquire a number of languages, to become familiar with the natural sciences, to take hold of philosophy and mathematics, and to keep in good physical case while doing all this. At the age of

twenty-one she might have been presented to the public, on Commencement Day, by the president of Vassar College or of Antioch College or of Michigan University, as the wished-for result of American liberal female culture. Just at this time, however, the catamenial function began to show signs of failure of power. No severe or even moderate illness overtook her. She was subjected to no unusual strain. She was only following the regimen of continued and sustained work, regardless of Nature's periodical demands for a portion of her time and force, when, without any apparent cause, the failure of power was manifested by moderate dysmenorrhœa and diminished excretion. Soon after this the function ceased altogether; and up to this present writing, a period of six or eight years, it has shown no more signs of activity than an amputated arm. In the course of a year or so after the cessation of the function, her head began to trouble her. First there was headache, then a frequent congested condition, which she

described as a "rush of blood" to her head ; and, by and by, vagaries and forebodings and despondent feelings began to crop out. Coincident with this mental state, her skin became rough and coarse, and an inveterate acne covered her face. She retained her appetite, ability to exercise and sleep. A careful local examination of the pelvic organs, by an expert, disclosed no lesion or displacement there, no ovaritis or other inflammation. Appropriate treatment faithfully persevered in was unsuccessful in recovering the lost function. I was finally obliged to consign her to an asylum.

The arrest of development of the reproductive system is most obvious to the superficial observer in that part of it which the milliner is called upon to cover up with pads, and which was alluded to in the case of Miss D——. This, however, is too important a matter to be dismissed with a bare allusion. A recent writer has pointed out the fact and its significance with great clearness. "There is another marked change,"

says Dr. Nathan Allen, "going on in the female organization at the present day, which is very significant of something wrong. In the normal state, Nature has made ample provision in the structure of the female for nursing her offspring. In order to furnish this nourishment, pure in quality and abundant in quantity, she must possess a good development of the sanguine and lymphatic temperament, together with vigorous and healthy digestive organs. Formerly such an organization was very generally possessed by American women, and they found but little difficulty in nursing their infants. It was only occasionally, in case of some defect in the organization, or where sickness of some kind had overtaken the mother, that it became necessary to resort to the wet-nurse or to feeding by hand. And the English, the Scotch, the German, the Canadian French, and the Irish women now living in this country, generally nurse their children: the exceptions are rare. But how is it with our American women who become

mothers? To those who have never considered this subject, and even to medical men who have never carefully looked into it, the facts, when correctly and fully presented, will be surprising. It has been supposed by some that all, or nearly all, our American women could nurse their offspring just as well as not; that the disposition only was wanting, and that they did not care about having the trouble or confinement necessarily attending it. But this is a great mistake. This very indifference or aversion shows something wrong in the organization as well as in the disposition: if the physical system were all right, the mind and natural instincts would generally be right also. While there may be here and there cases of this kind, such an indisposition is not always found. It is a fact, that large numbers of our women are anxious to nurse their offspring, and make the attempt: they persevere for a while, — perhaps for weeks or months, — and then fail. . . . There is still another class that cannot nurse at all, *having neither the*

organs nor nourishment requisite even to make a beginning. . . . Why should there be such a difference between the women of our times and their mothers or grandmothers? Why should there be such a difference between our American women and those of foreign origin residing in the same locality, and surrounded by the same external influences? The explanation is simple: they have not the right kind of organization; there is a want of proper development of the lymphatic and sanguine temperaments, — a marked deficiency in the organs of nutrition and secretion. You cannot draw water without good, flowing springs. *The brain and nervous-system have, for a long time, made relatively too large a demand upon the organs of digestion and assimilation, while the exercise and development of certain other tissues in the body have been sadly neglected.* . . . In consequence of the great neglect of physical exercise, and the *continuous application to study*, together with various other influences, large numbers of our American women have

altogether an undue predominance of the nervous temperament. If only here and there an individual were found with such an organization, not much harm comparatively would result; but, when a majority or nearly all have it, the evil becomes one of no small magnitude."* And the evil, it should be added, is not simply the inability to nurse; for, if one member suffers, all the members suffer. A woman, whether married or unmarried, whether called to the offices of maternity or relieved from them, who has been defrauded by her education or otherwise of such an essential part of her development, is not so much of a woman, intellectually and morally as well as physically, in consequence of this defect. Her nervous system and brain, her instincts and character, are on a lower plane, and incapable of their harmonious and best development, if she is possessed, on reaching adult age, of only a portion of a breast and an ovary, or none at all.

* Physical Degeneracy. By Nathan Allen, M.D., *Journal of Psychological Medicine*. October, 1870.

When arrested development of the reproductive system is nearly or quite complete, it produces a change in the character, and a loss of power, which it is easy to recognize, but difficult to describe. As this change is an occasional attendant or result of amenorrhœa, when the latter, brought about at an early age, is part of an early arrest, it should not be passed by without an allusion. In these cases, which are not of frequent occurrence at present, but which may be evolved by our methods of education more numerous in the future, the system tolerates the absence of the catamenia, and the consequent non-elimination of impurities from the blood. Acute or chronic disease, the ordinary result of this condition, is not set up, but, instead, there is a change in the character and development of the brain and nervous system. There are in individuals of this class less adipose and more muscular tissue than is commonly seen, a coarser skin, and, generally, a tougher and more angular make-up. There is a corresponding change in

the intellectual and psychological condition, -- a dropping out of maternal instincts, and an appearance of Amazonian coarseness and force. Such persons are analogous to the sexless class of termites. Naturalists tell us that these insects are divided into males and females, and a third class called workers and soldiers, who have no reproductive apparatus, and who, in their structure and instincts, are unlike the fertile individuals.

A closer analogy than this, however, exists between these human individuals and the eunuchs of Oriental civilization. Except the secretary of the treasury, in the cabinet of Candace, queen of Ethiopia, who was baptized by Philip and Narses, Justinian's general, none of that class have made any impression on the world's life, that history has recorded. It may be reasonably doubted if arrested development of the female reproductive system, producing a class of agenes,* not epicenes, will yield a

* According to the biblical account, woman was formed by subtracting a rib from man. If, in the evolution of the future, a third division of the human race is to be formed by subtracting sex from woman, -- a retrograde development, --

better result of intellectual and moral power in the nineteenth century, than the analogous class of Orientals exhibited. Clinical illustrations of this type of arrested growth might be given, but my pen refuses the ungracious task.

Another result of the present methods of educating girls, and one different from any of the preceding, remains to be noticed. Schools and colleges, as we have seen, require girls to work their brains with full force and sustained power, at the time when their organization periodically requires a portion of their force for the performance of a periodical function, and a portion of their power for the building up of a peculiar, complicated, and important mechanism, — the engine within an engine. They are required to do two

I venture to propose the term *agene* (*a* without, *γενος* sex) as an appropriate designation for the new development. Count Gasparin prophesies it thus: "Quelque chose de monstrueux, cet être répugnant, qui déjà paraît à notre horizon," a free translation of Virgil's earlier description: —

"Monstrum horrendum, informe, ingens, cui lumen ademtum."

3d, 658 *line*.

things equally well at the same time. They are urged to meditate a lesson and drive a machine simultaneously, and to do them both with all their force. Their organizations are expected to make good sound brains and nerves by working over the humanities, the sciences, and the arts, and, at the same time, to make good sound reproductive apparatuses, not only without any especial attention to the latter, but while all available force is withdrawn from the latter and sent to the former. It is not materialism to say, that, as the brain is, so will thought be. Without discussing the French physiologist's dictum, that the brain secretes thought as the liver does bile, we may be sure, that without brain there will be no thought. The quality of the latter depends on the quality of the former. The metamorphoses of brain manifest, measure, limit, enrich, and color thought. Brain tissue, including both quantity and quality, correlates mental power. The brain is manufactured from the blood; its quantity and quality are determined by the quantity

and quality of its blood supply. Blood is made from food ; but it may be lost by careless hemorrhage, or poisoned by deficient elimination. When frequently and largely lost or poisoned, as I have too frequent occasion to know it often is, it becomes impoverished, — anemic. Then the brain suffers, and mental power is lost. The steps are few and direct, from frequent loss of blood, impoverished blood, and abnormal brain and nerve metamorphosis, to loss of mental force and nerve disease. Ignorance or carelessness leads to anemic blood, and that to an anemic mind. As the blood, so the brain ; as the brain, so the mind.

The cases which have hitherto been presented illustrate some of the evils which the reproductive system is apt to receive in consequence of obvious derangement of its growth and functions. But it may, and often does, happen that the catamenia are normally performed, and that the reproductive system is fairly made up during the educational period. Then force is withdrawn from the

brain and nerves and ganglia. These are dwarfed or checked or arrested in their development. In the process of waste and repair, of destructive and constructive metamorphosis, by which brains as well as bones are built up and consolidated, education often leaves insufficient margin for growth. Income derived from air, food, and sleep, which should largely, may only moderately exceed expenditure upon study and work, and so leave but little surplus for growth in any direction; or, what more commonly occurs, the income which the brain receives is all spent upon study, and little or none upon its development, while that which the nutritive and reproductive systems receive is retained by them, and devoted to their own growth. When the school makes the same steady demand for force from girls who are approaching puberty, ignoring Nature's periodical demands, that it does from boys, who are not called upon for an equal effort, there must be failure somewhere. Generally either the reproductive

system or the nervous system suffers. We have looked at several instances of the former sort of failure ; let us now examine some of the latter.

Miss F—— was about twenty years old when she completed her technical education. She inherited a nervous diathesis as well as a large dower of intellectual and æsthetic graces. She was a good student, and conscientiously devoted all her time, with the exception of ordinary vacations, to the labor of her education. She made herself mistress of several languages, and accomplished in many ways. The catamenial function appeared normally, and, with the exception of occasional slight attacks of menorrhagia, was normally performed during the whole period of her education. She got on without any sort of serious illness. There were few belonging to my clientele who required less professional advice for the same period than she. With the ending of her school life, when she should have been in good trim and well equipped, physically as well as intel-

lectually, for life's work, there commenced, without obvious cause, a long period of invalidism. It would be tedious to the reader, and useless for our present purpose, to detail the history and describe the protean shapes of her sufferings. With the exception of small breasts, the reproductive system was well developed. Repeated and careful examinations failed to detect any derangement of the uterine mechanism. Her symptoms all pointed to the nervous system as the *fons et origo mali*. First general debility, that concealed but ubiquitous leader of innumerable armies of weakness and ill, laid siege to her, and captured her. Then came insomnia, that worried her nights for month after month, and made her beg for opium, alcohol, chloral, bromides, any thing that would bring sleep. Neuralgia in every conceivable form tormented her, most frequently in her back, but often, also, in her head, sometimes in her sciatic nerves, sometimes setting up a tic douloureux, sometimes causing a fearful dysmenorrhœa and fre-

quently making her head ache for days together. At other times hysteria got hold of her, and made her fancy herself the victim of strange diseases. Mental effort of the slightest character distressed her, and she could not bear physical exercise of any amount. This condition, or rather these varying conditions, continued for some years. She followed a careful and systematic regimen, and was rewarded by a slow and gradual return of health and strength, when a sudden accident killed her, and terminated her struggle with weakness and pain.

Words fail to convey the lesson of this case to others with any thing like the force that the observation of it conveyed its moral to those about Miss F——, and especially to the physician who watched her career through her educational life, and saw it lead to its logical conclusion of invalidism and thence towards recovery, till life ended. When she finished school, as the phrase goes, she was considered to be well. The principal of any seminary or head of any college,

judging by her looks alone, would not have hesitated to call her rosy and strong. At that time the symptoms of failure which began to appear were called signs of previous overwork. This was true, but not so much in the sense of overwork as of erroneously-arranged work. While a student, she wrought continuously, — just as much during each catamenial week as at other times. As a consequence, in her metamorphosis of tissue, repair did little more than make up waste. There were constant demands of force for constant growth of the system generally, equally constant demands of force for the labor of education, and periodical demands of force for a periodical function. The regimen she followed did not permit all these demands to be satisfied, and the failure fell on the nervous system. She accomplished intellectually a good deal, but not more than she might have done, and retained her health, had the order of her education been a physiological one. It was not Latin, French, German, mathematics, or

philosophy that undermined her nerves ; nor was it because of any natural inferiority to boys that she failed ; nor because she undertook to master what women have no right to learn : she lost her health simply because she undertook to do her work in a boy's way and not in a girl's way.

Let us learn the lesson of one more case. These details may be tedious ; but the justification of their presence here are the importance of the subject they illustrate and elucidate, and the necessity of acquiring a belief of the truth of the facts of female education.

Miss G—— worked her way through New-England primary, grammar, and high schools to a Western college, which she entered with credit to herself, and from which she graduated, confessedly its first scholar, leading the male and female youth alike. All that need be told of her career is that she worked as a student, continuously and perseveringly, through the years of her first critical epoch, and for a few years after it, without any

sort of regard to the periodical type of her organization. It never appeared that she studied excessively in other respects, or that her system was weakened while in college by fevers or other sickness. Not a great while after graduation, she began to show signs of failure, and some years later died under the writer's care. A post-mortem examination was made, which disclosed no disease in any part of the body, except in the brain, where the microscope revealed commencing degeneration.

This was called an instance of death from over-work. Like the preceding case, it was not so much the result of over-work as of un-physiological work. She was unable to make a good brain, that could stand the wear and tear of life, and a good reproductive system that should serve the race, at the same time that she was continuously spending her force in intellectual labor. Nature asked for a periodical remission, and did not get it. And so Miss G— died, not because she had mastered the

wasps of Aristophanes and the *Mécanique Céleste*, not because she had made the acquaintance of Kant and Kölliker, and ventured to explore the anatomy of flowers and the secrets of chemistry, but because, while pursuing these studies, while doing all this work, she steadily ignored her woman's make. Believing that woman can do what man can, for she held that faith, she strove with noble but ignorant bravery to compass man's intellectual attainment in a man's way, and died in the effort. If she had aimed at the same goal, disregarding masculine and following feminine methods, she would be alive now, a grand example of female culture, attainment, and power.

These seven clinical observations are sufficient to illustrate the fact that our modern methods of education do not give the female organization a fair chance, but that they check development, and invite weakness. It would be easy to multiply such observations, from the writer's own notes alone, and, by doing so, to swell this essay into a

portly volume ; but the reader is spared the needless infliction. Other observers have noticed similar facts, and have urgently called attention to them.

Dr. Fisher, in a recent excellent monograph on insanity, says, "A few examples of injury from *continued* study will show how mental strain affects the health of young girls particularly. Every physician could, no doubt, furnish many similar ones."

"Miss A—— graduated with honor at the normal school after several years of close study, much of the time out of school ; never attended balls or parties ; sank into a low state of health at once with depression. Was very absurdly allowed to marry while in this state, and soon after became violently insane, and is likely to remain so."

"Miss A—— graduated at the grammar school, not only first, but *perfect*, and at once entered the normal school ; was very ambitious to sustain her reputation, and studied hard out of school ; was slow to learn, but had a retentive memory ; could seldom be

induced to go to parties, and, when she did go, studied while dressing, and on the way; was assigned extra tasks at school, because she performed them so well; was a *fine healthy girl in appearance*, but broke down permanently at end of second year, and is now a victim of hysteria and depression."

"Miss C——, of a nervous organization, and quick to learn; her health suffered in normal school, so that her physician predicted insanity if her studies were not discontinued. She persevered, however, and is now an inmate of a hospital, with hysteria and depression."

"A certain proportion of girls are predisposed to mental or nervous derangement. The same girls are apt to be quick, brilliant, ambitious, and persistent at study, and need not stimulation, but repression. For the sake of a temporary reputation for scholarship, they risk their health at the *most susceptible period* of their lives, and break down *after the excitement of school-life has passed away*. For *sexual reasons* they cannot compete with boys,

whose out-door habits still further increase the difference in their favor. If it was a question of school-teachers instead of school-girls, the list would be long of young women whose health of mind has become bankrupt by a *continuation* of the mental strain commenced at school. Any method of relief in our school-system to these over-susceptible minds should be welcomed, even at the cost of the intellectual supremacy of woman in the next generation." *

The fact which Dr. Fisher alludes to, that many girls break down not during but *after* the excitement of school or college life, is an important one, and is apt to be overlooked. The process by which the development of the reproductive system is arrested, or degeneration of brain and nerve-tissue set a going, is an insidious one. At its beginning, and for a long time after it is well on in its progress, it would not be recognized by the superficial observer. A class of girls might, and often

* Plain Talk about Insanity. By T. W. Fisher, M.D.
Boston. Pp. 23, 24.

do, graduate from our schools, higher seminaries, and colleges, that appear to be well and strong at the time of their graduation, but whose development has already been checked, and whose health is on the verge of giving way. Their teachers have known nothing of the amenorrhœa, menorrhagia, dysmenorrhœa, or leucorrhœa which the pupils have sedulously concealed and disregarded; and the cunning devices of dress have covered up all external evidences of defect; and so, on graduation day, they are pointed out by their instructors to admiring committees as rosy specimens of both physical and intellectual education. A closer inspection by competent experts would reveal the secret weakness which the labor of life that they are about to enter upon too late discloses.

The testimony of Dr. Anstie of London, as to the gravity of the evils incurred by the sort of erroneous education we are considering, is decided and valuable. He says, "For, be it remembered, the epoch of sexual development is one in which an enormous addition

is being made to the expenditure of vital energy ; besides the continuous processes of growth of the tissues and organs generally, the sexual apparatus, with its nervous supply, is making *by its development heavy demands* upon the nutritive powers of the organism ; and it is scarcely possible but that portions of the nervous centres, not directly connected with it, should proportionally suffer in their nutrition, probably through defective blood supply. When we add to this the abnormal strain that is being put on the brain, in many cases, by a forcing plan of mental education, we shall perceive a source not merely of exhaustive expenditure of nervous power, but of secondary irritation of centres like the medulla oblongata that are probably already somewhat lowered in power of vital resistance, and proportionably *irritable.*" * A little farther on, Dr. Anstie adds, " But I confess, that, with me, the result of close attention given to the pathology of neuralgia has been the ever-

* Neuralgia, and the Diseases that resemble it. By Francis E. Anstie, M.D. Pp. 122. English ed.

growing conviction, that, next to the influence of neurotic inheritance, there is no such frequently powerful factor in the construction of the neuralgic habit as mental warp of a certain kind, the product of an unwise education." In another place, speaking of the liability of the brain to suffer from an unwise education, and referring to the sexual development that we are discussing in these pages, he makes the following statement, which no intelligent physician will deny, and which it would be well for all teachers who care for the best education of the girls intrusted to their charge to ponder seriously. "I would also go farther, and express the opinion, that peripheral influences of an extremely powerful and *continuous* kind, where they concur with one of those critical periods of life at which the central nervous system is relatively weak and unstable, can occasionally set going a non-inflammatory centric atrophy, which may localize itself in those nerves upon whose centres the morbidic peripheral influence is perpetually pouring in. Even such influences as the psy-

chical and emotional, be it remembered, must be considered peripheral."* The brain of Miss G——, whose case was related a few pages back, is a clinical illustration of the accuracy of this opinion.

Dr. Weir Mitchell, one of our most eminent American physiologists, has recently borne most emphatic testimony to the evils we have pointed out: "Worst of all," he says, "to my mind, most destructive in every way, is the American view of female education. The time taken for the more serious instruction of girls extends to the age of eighteen, and rarely over this. During these years, they are undergoing such organic development as renders them remarkably sensitive." . . . "To show more precisely how the growing girl is injured by the causes just mentioned" (forced and continued study at the sexual epoch) "would carry me upon subjects unfit for full discussion in these pages; but no thoughtful reader can be much at a loss as to my meaning." . . . "To-day the American woman is,

* *Op. cit.*, p. 160.

to speak plainly, physically unfit for her duties as woman, and is, perhaps, of all civilized females, the least qualified to undertake those weightier tasks which tax so heavily the nervous system of man. She is not fairly up to what Nature asks from her as wife and mother. How will she sustain herself under the pressure of those yet more exacting duties which now-a-days she is eager to share with the man? ” *

In our schools it is the ambitious and conscientious girls, those who have in them the stuff of which the noblest women are made, that suffer, not the romping or lazy sort; and thus our modern ways of education provide for the “non-survival of the fittest.” A speaker told an audience of women at Wesleyan Hall not long ago, that he once attended the examination of a Western college, where a girl beat the boys in unravelling the intricacies of Juvenal. He did not report the consumption of blood and wear of brain tissue that in her college way of study correlated

* Wear and Tear. By S. Weir Mitchell, M.D.

her Latin, or hint at the possibility of arrested development. Girls of bloodless skins and intellectual faces may be seen any day, by those who desire the spectacle, among the scholars of our high and normal schools, — faces that crown, and skins that cover, curving spines, which should be straight, and neuralgic nerves that should know no pain. Later on, when marriage and maternity overtake these girls, and they “live laborious days” in a sense not intended by Milton’s line, they bend and break beneath the labor, like loaded grain before a storm, and bear little fruit again. A training that yields this result is neither fair to the girls nor to the race.

Let us quote the authority of such an acute and sagacious observer as Dr. Maudsley, in support of the physiological and pathological views that have been here presented. Referring to the physiological condition and phenomena of the first critical epoch, he says, “In the great mental revolution caused by the development of the sexual system at puberty, we have the most striking example of the

intimate and essential sympathy between the brain, as a mental organ, and other organs of the body. The change of character at this period is not by any means *limited to the appearance of the sexual feelings*, and their sympathetic ideas, but, when traced to its ultimate reach, will be found to extend to the highest feelings of mankind, social, moral, and even religious." * He points out the fact that it is very easy by improper training and forced work, during this susceptible period, to turn a physiological into a pathological state. "The great mental revolution which occurs at puberty may go beyond its physiological limits in some instances, and become pathological." "The time of this mental revolution is at best a trying period for youth." "The monthly activity of the ovaries, which marks the advent of puberty in women, has a notable effect upon the mind and body; wherefore it may become an important cause of mental and physical derangement." †

* Body and Mind. By Henry Maudsley, M.D. Lond. p. 31.

† Op. cit., p. 87.

With regard to the physiological effects of arrested development of the reproductive apparatus in women, Dr. Maudsley uses the following plain and emphatic language: "The forms and habits of mutilated men approach those of women; and women, whose ovaries and uterus remain for some cause in a state of complete inaction, approach the forms and habits of men. It is said, too, that, in hermaphrodites, the mental character, like the physical, participates equally in that of both sexes. While woman preserves her sex, she will necessarily be feebler than man, and, having her special bodily and mental characters, will have, to a certain extent, her own sphere of activity; where she has become thoroughly masculine in nature, or hermaphrodite in mind, — when, in fact, she has pretty well divested herself of her sex, — then she may take his ground, and do his work; but she will have lost her feminine attractions, and probably also her chief feminine functions." *

* *Op. cit.*, p. 32.

It has been reserved for our age and country, by its methods of female education, to demonstrate that it is possible in some cases to divest a woman of her chief feminine functions; in others, to produce grave and even fatal disease of the brain and nervous system; in others, to engender torturing derangements and imperfections of the reproductive apparatus that embitter a lifetime. Such, we know, is not the object of a liberal female education. Such is not the consummation which the progress of the age demands. Fortunately, it is only necessary to point out and prove the existence of such erroneous methods and evil results to have them avoided. That they can be avoided, and that woman can have a liberal education that shall develop all her powers, without mutilation or disease, up to the loftiest ideal of womanhood, is alike the teaching of physiology and the hope of the race.

In concluding this part of our subject, it is well to remember the statement made at the beginning of our discussion, to the fol-

lowing effect, viz., that it is not asserted here, that improper methods of study and a disregard of the reproductive apparatus and its functions, during the educational life of girls, are the *sole* causes of female diseases; neither is it asserted that *all* the female graduates of our schools and colleges are pathological specimens. But it is asserted that the number of these graduates who have been permanently disabled to a greater or less degree, or fatally injured, by these causes, is such as to excite the *gravest alarm*, and to demand the serious attention of the community.

The preceding physiological and pathological data naturally open the way to a consideration of the co-education of the sexes.