

anatomy of the process. It is unquestionably true that in certain rare cases, usually occurring in the midst of an epidemic, death occurs before the development of any material lesion perceptible to the eye, but in those cases where the system is overwhelmed by the introduction of the poison, the microscope reveals, as Hecker¹ has shown, a cloudy swelling of most of the constituent parts of the organs, fatty degeneration and even disintegration of the tissues.

In conclusion, while we have not hesitated to offer a few criticisms suggested by a careful perusal of the volume, we are nevertheless fully aware that we have ventured in some instances on debatable ground, and we have not failed to recognize the ability and fairness with which statements not in harmony with those which we have advanced are supported by the author. But we earnestly feel that in accepting the task of reviewing a book of this character we are conscientiously bound to offer such suggestions and criticisms as may at least lead to a careful revision—possibly correction—of certain portions of the work. It is because the volume is one of unusual merit that we have devoted so much space to its consideration. For some time past no work has appeared which could fairly claim to represent the advanced school of English obstetrics. It is only reasonable to assume that this work will for many years occupy this position. Its scope is extensive, embracing not only the physiology and pathology of gestation and parturition, but also a full description of the disorders of the puerperal state, and the care of the newborn child. It is eminently rich in illustrations, not old, worn-out pictures which have descended from one text-book to another, but original drawings, or reproductions of large plates, including among others that admirable series by Prof. Schultze, which now appear for the first time in this form. The style is neither dull nor didactic, but possesses peculiar freshness and vigour. As Prescott and Motley have transformed histories from a mere recital of facts—a collection of dates—to glowing, living, reproductions of long-past ages, so too of late certain medical authors have proved that even the dry details of disease can be vivified, and the mind startled into an appreciation of old facts by their being presented in a new and vital form. This charm the work we are considering possesses, and this, conjoined with its real and absolute merits as a reliable and comprehensive work on obstetrics, will make its perusal not a task but a satisfactory pleasure to many who have awaited the publication of such a system of midwifery. W. F. J.

ART. XXI.—*Sex in Education, or A Fair Chance for the Girls.* By EDWARD H. CLARKE, M.D., Member of the Massachusetts Medical Society; Fellow of American Academy of Arts and Sciences; late Prof. of Materia Medica in Harvard College, etc. 16mo. pp. 181. Boston: James R. Osgood & Co., 1873.

THIS little volume is a reproduction and enlargement of a lecture delivered before the New England Women's Club, in Boston, about a year ago. We are not surprised to learn from the author's preface that it

¹ Hecker, Monatschrift f. Geburtskunde, B 29, p. 321.
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excited at the time much discussion. Indisputable as we believe to be the physiological premises laid down, logical as are the inferences drawn, and consonant as are the cases adduced with the observation of nearly every physician, the conclusions reached are too diametrically opposed to the claims and wishes of a certain movement of the day, not to provoke vigorous attack. The very unanswerableness of the argument naturally adds to the wrath of those whose darling theories it so utterly overthrows. That this book, containing so much matter in so small compass, will convert the more radical advocates of extreme "women's rights" views, we have no expectation. What we do confidently expect, however, is that it will help many a good and intelligent woman to a better understanding of her own nature, especially in its distinctive traits. Once let such women learn the facts here so clearly set forth, and two very weighty results may reasonably be looked for: first, a better appreciation of woman's dignity and responsibility, with a disposition to exult in and glorify her womanhood, rather than to ignore, belittle, or deplore it, a realization of the truth that her ideal excellence lies not in her likeness to man but in her unlikeness; second, an understanding of the prevalent mistakes in the modern education of girls, with all their terrible consequences, and a knowledge of the means towards prevention.

The exposure here made of the grievous faults in our ordinary education of girls, though not provoking quite so much bitterness of retort as does the broad and general demonstration of sexual unlikeness, is yet certain to meet much hostile criticism. It is mortifying to us all, and especially to the teachers themselves, many of whom represent the highest culture of the time, to be told that we have been and still are pursuing a course of educational discipline which from its influence on posterity might not unjustly be termed murderous. And we may here remark that it is no sufficient answer to Dr. Clarke's views and observations, to say that some intelligent persons have failed to perceive any ill results from that sort of female education which is here opposed. The positive testimony of such a man as our author is not to be refuted by any amount of merely negative testimony. We should not forget, moreover, that the generally intelligent and judicious observance of the ordinary laws of health in some of our higher academies and colleges for girls, might be expected to lessen or to postpone for a time the penalties sure to follow infringement of the special laws of sex. True wisdom surely dictates alike to teachers and parents, that education, in the future at least, shall conform to, rather than defy, all physiological rules. For the errors of the past, for which the present and the coming generation are paying such bitter penalties, we have no right to blame teachers only. All educated people, and perhaps our profession especially, are accountable for this grievous blundering.

The modern educational mistake, according to our author, consists in employing for girls the identical methods used for, and perhaps well adapted to, boys. Errors there are affecting the two sexes alike, but these do not come so especially within the purpose of the work before us. The facts to which Dr. Clarke directs attention as having been most harmfully ignored, are, that during her school days the girl is passing through the most critical change of her life, and that, in developing womanhood and establishing a new function, the vital powers are severely taxed. Notwithstanding this fact, as much or even greater mental labour is performed by the girl as by her brother, whose pubescence occurs with scarce any disturbance or additional expenditure of vitality. Again, the fact that for a

time during each month the girl experiences a great, and at that time, unaccustomed, drain upon her vitality, has not been allowed to lighten her tasks a particle. It is this total disregard of the laws of her being that renders the educational methods of the day so calamitous to the American girl and to posterity.

Dr. Clarke emphatically proclaims the non-existence of any question of superiority and inferiority between the sexes. It is not needful to assign to them different studies, but simply that they pursue them by different methods. Let the girl learn all that the boy learns, but let her learn in a girl's way and not a boy's. The fullest and most harmonious development should be for each sex the aim of education. To secure this, Nature must be recognized and respected, not ignored and contemned. "Educate a man for manhood, and a woman for womanhood," is the apothegm by which Dr. Clarke sums up his views.

After some such general expression of his opinions, Dr. Clarke proceeds to a clear and forcible exposition of the physiological principles which have a bearing upon education. The human organism, he remarks, may be regarded as made up of three systems, the nutritive, the nervous, and the reproductive. The first two are identical in man and woman; the last is widely different.

"Woman, in the interest of the race, is dowered with a set of organs peculiar to herself, whose complexity, delicacy, sympathies, and force are among the marvels of creation. If properly nurtured and cared for, they are a source of strength and power to her. If neglected and mismanaged, they retaliate upon their possessor with weakness and disease as well of the mind as of the body." (p. 33.)

In childhood and old age the differences of sex are comparatively slight. The change from childhood to womanhood, amounting as it does to a complete physical and moral revolution, attended with rapid growth of important organs and the establishment of a new function, occurs or should occur during the very same years in which the tasks of the school-room are powerfully stimulating the brain to growth and molecular activity. It is obviously true that a rapid development of different systems at one time cannot go on without making very heavy demands upon the vitality, and without great danger of some portion of the organism failing to receive its needed nutrition. The growth and activity of the reproductive organs cannot be postponed to a more convenient season. If delayed somewhat, by diversion of vital power, it is at great risk of permanent imperfection. The proper performance of the menstrual function, especially at its beginning, requires almost the undivided energies of the body. It is in every respect of the highest importance to the whole future life of the girl that the habit, so to speak, of perfectly normal menstruation should be formed at the outset. This, it is obvious, requires not merely the appropriation of sufficient vital force to insure the natural evolution of the organs, but a monthly intermission or diminution of activity in other systems.

Imperfect development of the reproductive system, moreover, means imperfection elsewhere; for we are so made that all the different parts of our being act and react upon one another. True education is that which produces a symmetrical and harmonious development of the whole wonderful compound of mind and body. Education which is unsymmetrical and imperfect affects, too, not the individual alone, but posterity.

All growth and all activity, bodily, mental, and moral, depend upon molecular change. When a muscle is used, cells die, are removed and

replaced from the blood by new ones. When we think or feel, nerve-cells in the brain suffer the same process. The one essential or criterion of healthy or physiological life is, the deposition from the blood in every part of the body of sufficient material for new cells to maintain growth and to repair waste, and the simultaneous removal of effete matter. If this twofold work be imperfect in any organ, arrest of development, or imperfect action, or structural degeneration must follow. To the perfection of the work are necessary rest, nutriment, and excretion. If time is not allowed for repair of waste, or if the blood does not provide enough cell-material, or remove from the organs and from itself dead matter, beathful activity cannot long continue. Menstruation when excessive robs the system of blood needed for nutrition, and when deficient fails to remove effete cells.

From these physiological considerations the author proceeds, in a chapter headed "Chiefly Clinical," to show how the rules of health are violated in the education of girls, and in some forms of women's labour. Without at all claiming for unwise educational methods the sole responsibility for the delicacy, weakness, and sterility of American women, Dr. Clarke believes such connection to be very frequent. Throughout the middle and upper classes of our society we find among women little vigour and elasticity, little power of endurance, a strong tendency to neuralgic, hysteric, and other nervous troubles, almost universal menstrual derangement, with a very serious loss of the power to bear children, and to suckle them. So great is the last-named deviation from health as to point almost to the extinction of maternity in our native women, before many years.

In the schools, seminaries, and colleges for girls in the country, no heed whatever seems to be paid to the physiological laws which pertain to sex. Not only is the amount of study usually more than should be required of young persons still growing, but the method is one of rigid unvarying regularity. No account is taken of those periods when nature needs all the available power for the performance of a new and arduous function. Day after day the pupil must work with her brain, and stand, and walk, and exercise, just as if periodicity had no place in her system. One result of this attempt to ignore natural laws, which Dr. Clarke has often observed, is menorrhagia. Instead of resting both body and mind for a few days, the poor girl is studying day and night, and standing at her recitations. The very lassitude from which she suffers compels severer brain-toil, lest she should fall behind her comrades. Hence the nerve-force which should give tonicity to the uterine capillaries is consumed in the cerebral cells, and exhausting hemorrhage occurs. This of course places the system in a still worse position for the next period. But there is no provision made in the school regimen for periodical rest. If forced to be idle, the hours lost must be made up at any cost, lest the pupil should feel disgraced and humiliated. Practically, this terrible routine is maintained till the health is so unmistakably broken down as to compel removal from school. In other cases amenorrhœa results, either from the inability fully to establish the function, or as a sequel to excessive hemorrhages, and arrested development, poisoned blood, and multiform ill-health follow. Not only is there often a palpably incomplete growth of the reproductive organs, but even a deficient manifestation of the distinctive traits and characters of womanhood. This undeveloped sexuality is, however, sometimes accompanied by pretty good general health, and is then not generally recognized as a result of mismanaged training.

Another class of cases noted by Dr. Clarke among women educated at the higher female schools is one in which, unlike the preceding, the sexual system receives its proper share of vital force, but at the expense of the nervous. There not being enough force properly to carry on growth, sexual development, and mental activity together, in these cases it is the nervous system that fails to receive its needed nutrition. Headache, insomnia, neuralgia, hysteria, chorea, imbecility, and insanity are among the results.

The evils due to masculine methods in female education are aggravated by the fact that this ignoring of the feminine peculiarities is almost as prevalent at the pupil's own home. Late hours and social dissipations, after and even during school years, are allowed with little reference to the physical condition.

Dr. Clarke has presented in this chapter the records of a number of his cases, selected to illustrate the connection between female ill-health and educational methods. Of course we cannot expect that such connection shall be mathematically demonstrated; and those who uphold existing methods can deny its existence. But we believe the unprejudiced reader will recognize in these cases most impressive warnings against the attempt to ignore and defy natural laws.

Dr. Clarke has supported his views by very pertinent quotations from Drs. Anstie, Maudsley, Nathan Allen, T. W. Fisher [Plain Talk about Insanity], and S. Weir Mitchell. His own summing up of the results of female education is too good not to be quoted.

"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." (p. 116.)

For the next chapter of Dr. Clarke's little book, entitled "Coeducation," it is probable that we are indebted to recent movements looking towards the admission of female students into the colleges and universities hitherto devoted to the instruction of young men. The sense in which the word is at present most used, and in which it meets the author's opposition, is that implying identity of method as well as personal association, and the attainment of the same ends. Identical coeducation is and must be a violation of the physiological principles just illustrated. Boys are capable of, and best educated by, continuous and regular activity. Girls require for their best and healthful development periodical rest. Persistence is the rule or method of one sex, and periodicity that of the other. We have seen the harm done by allowing girls associated together to study according to masculine methods, even though all suffer equally under the same interruptions. We can easily see how much the mistake must be aggravated by bringing the girls into close contact and hourly competition with boys, who suffer no periodical disturbance and need no remission. Yet, in spite of the most obvious physiological objections, this very form of coedu-

cation is just now clamored for by many misguided women and their male followers.

That another kind of coeducation may be a really good thing, Dr. Clarke is prepared to admit. Social nearness and companionship, even in pursuit of the same studies, may have wholesome influences, provided each sex studies after its own manner. But the moment coeducation becomes identical, the girls suffer not only from the radical unfitness of the male method to their constitution, but also from the too exciting stimulus to over-work which is found in the emulation sure to arise between the sexes.

"The unconscious fires that have their seat deep down in the recesses of the sexual organization will flame up through every tissue, permeate every vessel, buru every nerve, flash from the eye, tingle in the brain, and work the whole machine at highest pressure. There need not be, and generally will not be, any low or sensual desire in all this elemental action. It is only making youth work over the tasks of sober study with the wasting force of intense passion." (p. 135.)

The result is a diversion of vital forces needed by the reproductive system, from this system to the brain. The tendency towards sterility thus produced is again referred to by our author. That an influence in this direction is exercised by inordinate cerebral activity is regarded as well established. Especially is it true of the female sex, owing to the greater complexity of the reproductive mechanism in woman. The tendency, as has been pointed out by several writers and already verified by statistics to an alarming extent, is to throw the future of our country into the wombs, not of our most cultured and intellectual women, but of the coarse, the ignorant, and the natives of foreign lands. The continuance and growth of this tendency can be checked in one way only—by educating the future wives of our people in accordance with physiological laws. Culture can be and should be acquired, not by the sacrifice of health and activity in any part of the system, but with and by a symmetrical and healthy growth. What is needed, says Dr. Clarke, is "not an identical education, or an identical coeducation of the sexes, but a special and appropriate education that shall produce a just and harmonious development of every part." Then and only then will the refining influences of culture pass as a heritage from generation to generation.

Although the time during which identical coeducation has been tried in some Western colleges has been too short to produce more than the first fruits, Dr. Clarke believes that the experiment already begins to exhibit its natural results. Some of the college officers, in reporting good effects, have evidently taken much more thought of other things than of the health of the girl graduates. Nor has their observation extended to the after-life of the female students. Some other observers have testified that the experiment was "intellectually a success, physically a failure." The author's own practice brought him in contact with several graduates, and in all he believes their ailments traceable to the college regimen.

As to the kind of coeducation before referred to as unobjectionable—that which is in its methods not "identical" but "special and appropriate"—the heavy expense required to adapt existing institutions to the new, double system of instruction, amounts at present to a practical prohibition. No attempt at compromise, by adopting a system not precisely fitted for either sex, should be for a moment thought of. The duty nearest at hand is to so far modify the order of study, discipline, diet, and exercise, in our schools and colleges, as to make it conform to physiological requirements,

both general and sexual. Ceasing to make the boy's school the model for all, a separate education, which shall be special and appropriate, can be obtained without extraordinary expenditures.

The precise order of school life best adapted to favour the harmonious development of the female organism in all its parts, can of course be fully settled only by judicious experiment founded on the observation of physiological laws. Dr. Clarke thinks it would be wise to assume at the outset that four or five hours daily is as much study as should be required of a girl from fourteen to eighteen years old; and that absolute rest, or diminished labour, should always be enforced for a few days every month. These periodical remissions, too, should not be allowed to necessitate extra work or loss of standing.

Our author mentions in this connection the instructive fact that a certain employer of women in Boston compels each one to take a monthly vacation of three days, and that, financially as well as morally, he has his reward. In England a recent act of Parliament limits the hours of daily labour for women to a period less than for men.

When we remember the closeness of connection and sympathy between mind and body, and between the brain, or the mind's instrument, and all other organs, and that all are nourished by one blood and vivified by one nervous fluid; and when we reflect upon the magnitude and importance of the female reproductive system, we cannot but wonder at the blindness which has so long practically ignored difference of sex in American education. Even now, in spite of what should seem, when once stated, the plainest teachings of physiology and of common sense, we have among us a clique of men and women by no means destitute of intellectual activity, who not only maintain old error, but loudly demand, not identical coeducation alone, but identical co-work, for woman with man. The mere idea of sex is an offence to them. They proclaim equality with an angry vehemence which will recognize no differences. Instead of magnifying the unlikeness of the sexes, and exulting in the traits which distinguish woman, they seem to be secretly ashamed of womanhood. Perfectly able to perceive the differences between men, fitting one for this sphere or occupation and another for that, they shut their eyes to the much greater difference of sex, and in place of seeking to adapt social life and occupation to the natural endowments of each, they sweepingly deny all distinction, and expressly defy and trample upon all habits and customs founded thereon.

We are not sure but that—as is hinted by Dr. Clarke—the want of respect for and appreciation of their own nature, which we find in many of our so-called “strong-minded women,” is itself a sad and striking illustration of ill-directed education. Educated in the same way as boys, allowed and encouraged wholly to ignore their special qualities, they grew up as much like men as much-abused Nature would let them. A vague sense of dissatisfaction with the result, partly disappointment at not becoming wholly men, partly the unconscious protest of their suppressed womanhood, leads to a restless striving after equality. The functions which periodically impair the power of labour are resented as a curse and a drawback. It is not unnatural or unlikely that a persistent diversion of vital force from sexual development and function should, to a certain extent, unsex the woman who from youth to middle age has steadily repressed femininity. That such a one should fail to share, and even deny the existence of, natural womanly feelings and instincts, is surely not very strange. Nor

is it strange that, oppressed with the feeling that, somehow, her own career is a failure, she should be disposed to attack existing arrangements rather wildly.

Dr. Clarke devotes a closing chapter to the "European Way." In this, and in some paragraphs of the earlier chapters, he refers to the magnificent physical development of women in Oriental countries and among the European peasantry. This, however, he found accompanied with an utter lack of intellectual development. General physical and special sexual functions were at their maximum, while mental activity was at a minimum. The error is one diametrically opposed to that common among us. The observations of a lady, travelling in a country no more remote than Nova Scotia, are also cited, as to the wonderful health and great physical development of the children everywhere met. She saw large assemblages of children at certain celebrations, and was filled with amazement at the general robustness and the "quiet, sturdy, self-possessed expression of countenance." The women, too, were observed to be large, straight, and healthy; and the only cause which seemed wholly to explain the phenomena was the general absence of schools!

But it is not alone among the untought peasantry of other lands that fine physiques are found. Nor do we wish to obtain for American women robustness at the sacrifice of intelligence. Among the wealthy and aristocratic classes of Great Britain and Germany are to be found almost ideal representatives of "perfect woman, nobly planned," equally fitted to adorn society and to form radiant centres of happy homes. Believing that the secret between the almost uniform vigour of foreign, and the equally uniform debility of the American, women of culture, lies in the observance or neglect of natural laws, Dr. Clarke sought for information concerning the training of girls abroad. From the nature of the subject detailed statements were not easily obtainable. From an eminent German physician and from two German ladies, however, particulars were obtained as to the management of growing girls, which fully confirm and illustrate the views derived by the author from physiological considerations. Three points in German education of girls were elicited. First, as a rule, girls are removed from school at the appearance of the catamenia, and thenceforward instructed at home and by private tutors. Second, by immemorial tradition among mothers, the closest supervision is maintained during the menstrual flow. The girl is watched and guarded, obliged to refrain from study, from late hours, excitement, and all but the gentlest exercise; and if delicate is kept in bed three days. Third, school girls are never allowed to go to parties. Pleasant recreation is encouraged, but not heated rooms, late hours, and extravagant dress. One of the correspondents, a lady of high position, who had also lived in the United States, speaks of the early decay of female health and beauty with us, and attributes it to the "recklessness" manifested in the care of girls. She says that German women, as a rule, are as strong and healthy after bearing many children as in youth, and even more so.

Dr. Clarke closes his brief but most valuable work by reiterating his belief that the "loftiest heights of intellectual and spiritual vision and force" are attainable by each sex, and power to be gained in the climbing, if only each will pursue its own proper method.

We cannot leave the book before us without expressing our satisfaction that such a work has been written. It has long been needed; but perhaps would not earlier have commanded attention. Now it is indeed a word

in due season and most fitly spoken. We cannot but hope that the public mind is prepared to receive the wise counsels given. The time has surely gone by when feminine debility was counted as a womanly charm. Could the maxims here uttered be practically applied to the education of even a single generation, the dark clouds that now lower around the future would be broken by gleams of hope and light.

B. L. R.

ART. XXII.—*Leçons Cliniques sur les Maladies des Femmes.* Par T. GALLARD. Médecin de l'Hôpital de la Pitié, Officier de la Légion d'Honneur, etc. Avec 94 figures intercalées dans le texte. pp. 792. Paris, 1873.

Clinical Lectures on Diseases of Females. By T. GALLARD.

THIS work will undoubtedly be the means of introducing its author to medical readers outside of his own country. A frequent contributor to French journals, the writer of several articles in the later volumes of the *Dictionnaire Pratique*, and the author of many pamphlets and works of minor importance, he has written nothing, so far as we know, except the article "Uterus" in Costello's Cyclopædia of Practical Surgery, likely to meet the eye of the profession at large. In the work before us he challenges our attention from his official position in a Parisian hospital, and as a labourer in a field already so well worked by his countrymen, Nonat, Aran, and Courty.

In mentioning these well-known authors we do not intend to do Dr. Gallard the injustice of instituting a comparison between his work and theirs. Where aim and scope are so different there can be no fair comparison, and their works are methodical and complete treatises, while this is a simple collection of clinical lectures, covering but a portion of the ground—too illustrative to be concise, too clinical to be methodical—sketching with a free and sometimes discursive hand; it is a volume, none the less on these accounts, interesting to read or instructive to study.

Before examining any particular part of the work, we will say that the spirit of the whole is excellent. That is, it presents those leading characteristics which are to a work what tone, energy, and honesty of purpose are to the man. We find evidence of this healthy action in the preface, in the remarks upon the true relation of the special pursuit of any branch of the profession to the science of medicine as a whole. He justly condemns the course of those who confine themselves exclusively to the study of the diseases of a single organ, and become so absorbed that they finish by ignoring all the rest, and urges his readers to be "first, and above all, physicians—physicians in the broadest sense of the word;" afterwards they may be specialists as they will, but he hopes to see disappear from medicine the specialty which consists of a monopoly of diseases of females by a limited number of persons.

Another instance of this we find in his marked preference for simple instruments and means of treatment. Thus, in directing the mode of making intra-uterine injections, he prefers an elastic catheter and an ordinary syringe, both inexpensive and found everywhere, to double or treble current catheters, or any complicated instrument whatever; and takes