

## PART IV.

### CO-EDUCATION.

*"Pistoc.* Where, then, should I take my place ?

*1st Bacch.* Near myself, that, with a she wit, a he wit may  
be reclining at our repast." — BACCHIDES OF PLAUTUS.

"The woman's-rights movement, with its conventions, its speech-makings, its crudities, and eccentricities, is nevertheless a part of a healthful and necessary movement of the human race towards progress." — HARRIET BEECHER STOWE.

GUIDED by the laws of development which we have found physiology to teach, and warned by the punishments, in the shape of weakness and disease, which we have shown their infringement to bring about, and of which our present methods of female education furnish innumerable examples, it is not difficult to discern certain physiological principles that limit and control the education, and, consequently, the co-education of our

youth. These principles we have learned to be, three for the two sexes in common, and one for the peculiarities of the female sex. The three common to both, the three to which both are subjected, and for which wise methods of education will provide in the case of both, are, 1st, a sufficient supply of appropriate nutriment. This of course includes good air and good water and sufficient warmth, as much as bread and butter; oxygen and sunlight, as much as meat. 2d, Mental and physical work and regimen so apportioned, that repair shall exceed waste, and a margin be left for development. This includes out-of-door exercise and appropriate ways of dressing, as much as the hours of study, and the number and sort of studies. 3d, Sufficient sleep. This includes the best time for sleeping, as well as the proper number of hours for sleep. It excludes the "murdering of sleep," by late hours of study and the crowding of studies, as much as by wine or tea or dissipation. All these guide and limit the education of the two

sexes very much alike. The principle or condition peculiar to the female sex is the management of the catamenial function, which, from the age of fourteen to nineteen, includes the building of the reproductive apparatus. This imposes upon women, and especially upon the young woman, a great care, a corresponding duty, and compensating privileges. There is only a feeble counterpart to it in the male organization ; and, in his moral constitution, there cannot be found the fine instincts and quick perceptions that have their root in this mechanism, and correlate its functions. This lends to her development and to all her work a rythmical or periodical order, which must be recognized and obeyed. “ In this recognition of the chronometry of organic process, there is unquestionably great promise for the future ; for it is plain that the observance of time in the motions of organic molecules is as certain and universal, if not as exact, as that of the heavenly bodies.” \* Periodicity characterizes the female organization,

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\* *Body and Mind.* Op. cit., p. 178.

and develops feminine force. Persistence characterizes the male organization, and develops masculine force. Education will draw the best out of each by adjusting its methods to the periodicity of one and the persistence of the other.

Before going farther, it is essential to acquire a definite notion of what is meant, or, at least, of what we mean in this discussion, by the term co-education. Following its etymology, *con-educare*, it signifies to draw out together, or to unite in education ; and this union refers to the time and place, rather than to the methods and kinds of education. In this sense any school or college may utilize its buildings, apparatus, and instructors to give appropriate education to the two sexes as well as to different ages of the same sex. This is juxtaposition in education. When the Massachusetts Institute of Technology teaches one class of young men chemistry, and another class engineering, in the same building and at the same time, it co-eduates those two classes. In this sense it is possible that many

advantages might be obtained from the co-education of the sexes, that would more than counterbalance the evils of crowding large numbers of them together. This sort of co-education does not exclude appropriate classification, nor compel the two sexes to follow the same methods or the same regimen.

Another signification of co-education, and, as we apprehend, the one in which it is commonly used, includes time, place, government, methods, studies, and regimen. This is identical co-education. This means, that boys and girls shall be taught the same things, at the same time, in the same place, by the same faculty, with the same methods, and under the same regimen. This admits age and proficiency, but not sex, as a factor in classification. It is against the co-education of the sexes, in this sense of identical co-education, that physiology protests ; and it is this identity of education, the prominent characteristic of our American school-system, that has produced the evils described in the clinical part of this essay, and that threatens to push the

degeneration of the female sex still farther on. In these pages, co-education of the sexes is used in its common acceptation of identical co-education.

Let us look for a moment at what identical co-education is. The law has, or had, a maxim, that a man and his wife are one, and that the one is the man. Modern American education has a maxim, that boys' schools and girls' schools are one, and that the one is the boys' school. Schools have been arranged, accordingly, to meet the requirements of the masculine organization. Studies have been selected that experience has proved to be appropriate to a boy's intellectual development, and a regimen adopted, while pursuing them, appropriate to his physical development. His school and college life, his methods of study, recitations, exercises, and recreations, are ordered upon the supposition, that, barring disease or infirmity, punctual attendance upon the hours of recitation, and upon all other duties in their season and order, may be required of him continuously, in

spite of ennui, inclement weather, or fatigue ; that there is no week in the month, or day in the week, or hour in the day, when it is a physical necessity to relieve him from standing or from studying,—from physical effort or mental labor ; that the chapel-bell may safely call him to morning prayer from New Year to Christmas, with the assurance, that, if the going does not add to his stock of piety, it will not diminish his stock of health ; that he may be sent to the gymnasium and the examination-hall, to the theatres of physical and intellectual display at any time,—in short, that he develops health and strength, blood and nerve, intellect and life, by a regular, uninterrupted, and sustained course of work. And all this is justified both by experience and physiology.

Obedient to the American educational maxim, that boys' schools and girls' schools are one, and that the one is the boys' school, the female schools have copied the methods which have grown out of the requirements of the male organization. Schools for girls have

been modelled after schools for boys. Were it not for differences of dress and figure, it would be impossible, even for an expert, after visiting a high school for boys and one for girls, to tell which was arranged for the male and which for the female organization. Our girls' schools, whether public or private, have imposed upon their pupils a boy's regimen; and it is now proposed, in some quarters, to carry this principle still farther, by burdening girls, after they leave school, with a quadrennium of masculine college regimen. And so girls are to learn the alphabet in college, as they have learned it in the grammar-school, just as boys do. This is grounded upon the supposition that sustained regularity of action and attendance may be as safely required of a girl as of a boy; that there is no physical necessity for periodically relieving her from walking, standing, reciting, or studying; that the chapel-bell may call her, as well as him, to a daily morning walk, with a standing prayer at the end of it, regardless of the danger that such exercises, by deranging the tides of her

organization, may add to her piety at the expense of her blood ; that she may work her brain over mathematics, botany, chemistry, German, and the like, with equal and sustained force on every day of the month, and so safely divert blood from the reproductive apparatus to the head ; in short, that she, like her brother, develops health and strength, blood and nerve, intellect and life, by a regular, uninterrupted, and sustained course of work. All this is not justified, either by experience or physiology. The gardener may plant, if he choose, the lily and the rose, the oak and the vine, within the same enclosure ; let the same soil nourish them, the same air visit them, and the same sunshine warm and cheer them ; still, he trains each of them with a separate art, warding from each its peculiar dangers, developing within each its peculiar powers, and teaching each to put forth to the utmost its divine and peculiar gifts of strength and beauty. Girls lose health, strength, blood, and nerve, by a regimen that ignores the periodical tides and reproductive appa-

ratus of their organization. The mothers and instructors, the homes and schools, of our country's daughters, would profit by occasionally reading the old Levitical law. The race has not yet quite outgrown the physiology of Moses.

Co-education, then, signifies in common acceptation identical co-education. This identity of training is what many at the present day seem to be praying for and working for. Appropriate education of the two sexes, carried as far as possible, is a consummation most devoutly to be desired; identical education of the two sexes is a crime before God and humanity, that physiology protests against, and that experience weeps over. Because the education of boys has met with tolerable success, hitherto,—but only tolerable it must be confessed,—in developing them into men, there are those who would make girls grow into women by the same process. Because a gardener has nursed an acorn till it grew into an oak, they would have him cradle a grape in the same soil and way, and make

it a vine. Identical education, or identical co-education, of the sexes defrauds one sex or the other, or perhaps both. It defies the Roman maxim, which physiology has fully justified, *mens sana in corpore sano*. The sustained regimen, regular recitation, erect posture, daily walk, persistent exercise, and uninterrupted labor that toughens a boy, and makes a man of him, can only be partially applied to a girl. The regimen of intermittance, periodicity of exercise and rest, work three-fourths of each month, and remission, if not abstinence, the other fourth, physiological interchange of the erect and reclining posture, care of the reproductive system that is the cradle of the race, all this, that toughens a girl and makes a woman of her, will emasculate a lad. A combination of the two methods of education, a compromise between them, would probably yield an average result, excluding the best of both. It would give a fair chance neither to a boy nor a girl. Of all compromises, such a physiological one is the worst. It cultivates mediocrity, and cheats

the future of its rightful legacy of lofty manhood and womanhood. It emasculates boys, stunts girls; makes semi-eunuchs of one sex, and agenes of the other.

The error which has led to the identical education of the two sexes, and which prophesies their identical co-education in colleges and universities, is not confined to technical education. It permeates society. It is found in the home, the workshop, the factory, and in all the ramifications of social life. The identity of boys and girls, of men and women, is practically asserted out of the school as much as in it, and it is theoretically proclaimed from the pulpit and the rostrum. Woman seems to be looking up to man and his development, as the goal and ideal of womanhood. The new gospel of female development glorifies what she possesses in common with him, and tramples under her feet, as a source of weakness and badge of inferiority, the mechanism and functions peculiar to herself. In consequence of this widespread error, largely the result of physio-

logical ignorance, girls are almost universally trained in masculine methods of living and working as well as of studying. The notion is practically found everywhere, that boys and girls are one, and that the boys make the one. Girls, young ladies, to use the polite phrase, who are about leaving or have left school for society, dissipation, or self-culture, rarely permit any of Nature's periodical demands to interfere with their morning calls, or evening promenades, or midnight dancing, or sober study. Even the home draws the sacred mantle of modesty so closely over the reproductive function as not only to cover but to smother it. Sisters imitate brothers in persistent work at all times. Female clerks in stores strive to emulate the males by unremitting labor, seeking to develop feminine force by masculine methods. Female operatives of all sorts, in factories and elsewhere, labor in the same way; and, when the day is done, are as likely to dance half the night, regardless of any pressure upon them of a peculiar function, as their

fashionable sisters in the polite world. All unite in pushing the hateful thing out of sight and out of mind ; and all are punished by similar weakness, degeneration, and disease.

There are two reasons why female operatives of all sorts are likely to suffer less, and actually do suffer less, from such persistent work, than female students ; why Jane in the factory can work more steadily with the loom, than Jane in college with the dictionary ; why the girl who makes the bed can safely work more steadily the whole year through, than her little mistress of sixteen who goes to school. The first reason is, that the female operative, of whatever sort, has, as a rule, passed through the first critical epoch of woman's life : she has got fairly by it. In her case, as a rule, unfortunately there are too many exceptions to it, the cata-menia have been established ; the function is in good running order ; the reproductive apparatus — the engine within an engine — has been constructed, and she will

not be called upon to furnish force for building it again. The female student, on the contrary, has got these tasks before her, and must perform them while getting her education ; for the period of female sexual development coincides with the educational period. The same five years of life must be given to both tasks. After the function is normally established, and the apparatus made, woman can labor mentally or physically, or both, with very much greater persistence and intensity, than during the age of development. She still retains the type of periodicity ; and her best work, both as to quality and amount, is accomplished when the order of her labor partakes of the rhythmic order of her constitution. Still the fact remains, that she can do more than before ; her fibre has acquired toughness ; the system is consolidated ; its fountains are less easily stirred. It should be mentioned in this connection, what has been previously adverted to, that the toughness and power of after life are largely in proportion to the normality of sex-

ual development. If there is error then, the organization never fully recovers. This is an additional motive for a strict physiological regimen during a girl's student life, and, just so far, an argument against the identical co-education of the sexes. The second reason why female operatives are less likely to suffer, and actually do suffer less, than school-girls, from persistent work straight through the year, is because the former work their brains less. To use the language of Herbert Spencer, "That antagonism between body and brain which we see in those, who, pushing brain-activity to an extreme, enfeeble their bodies," \* does not often exist in female operatives, any more than in male. On the contrary, they belong to the class of those who, in the words of the same author, by "pushing bodily activity to an extreme, make their brains inert." \* Hence they have stronger bodies, a reproductive apparatus more normally constructed, and a catamenial function less readily disturbed by effort, than

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\* *The Study of Sociology*, by Herbert Spencer, chap. 13.

their student sisters, who are not only younger than they, but are trained to push "brain-activity to an extreme." Give girls a fair chance for physical development at school, and they will be able in after life, with reasonable care of themselves, to answer the demands that may be made upon them.

The identical education of the sexes has borne the fruit which we have pointed out. Their identical co-education will intensify the evils of separate identical education; for it will introduce the element of emulation, and it will introduce this element in its strongest form. It is easy to frame a theoretical emulation, in which results only are compared and tested, that would be healthy and invigorating; but such theoretical competition of the sexes is not at all the sort of steady, untiring, day-after-day competition that identical co-education implies. It is one thing to put up a goal a long way off,—five or six months or three or four years distant,—and tell boys and girls, each in their own way, to strive for it, and quite a different thing to

put up the same goal, at the same distance, and oblige each sex to run their race for it side by side on the same road, in daily competition with each other, and with equal expenditure of force at all times. Identical co-education is racing in the latter way. The inevitable results of it have been shown in some of the cases we have narrated. The trial of it on a larger scale would only yield a larger number of similar degenerations, weaknesses, and sacrifices of noble lives. Put a boy and girl together upon the same course of study, with the same lofty ideal before them, and hold up to their eyes the daily incitements of comparative progress, and there will be awakened within them a stimulus unknown before, and that separate study does not excite. 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, burn 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. Of course such strenuous labor will yield brilliant, though temporary, results. The fire is kept alive by the waste of the system, and soon burns up its source. The first sex to suffer in this exhilarating and costly competition must be, as experience shows it is, the one that has the largest amount of force in readiness for immediate call ; and this is the female sex. At the age of development, Nature mobilizes the forces of a girl's organization for the purpose of establishing a function that shall endure for a generation, and for constructing an apparatus that shall cradle and nurse a race. These mobilized forces, which, at the technical educational period, the girl possesses and controls largely in excess of the boy, under the passionate stimulus of identical co-education, are turned from their divinely-appointed field of operations, to the region of

brain activity. The result is a most brilliant show of cerebral pyrotechnics, and degenerations that we have described.

That undue and disproportionate brain activity exerts a sterilizing influence upon both sexes is alike a doctrine of physiology, and an induction from experience. And both physiology and experience also teach that this influence is more potent upon the female than upon the male. The explanation of the latter fact — of the greater aptitude of the female organization to become thus modified by excessive brain activity — is probably to be found in the larger size, more complicated relations, and more important functions, of the female reproductive apparatus. This delicate and complex mechanism is liable to be aborted or deranged by the withdrawal of force that is needed for its construction and maintenance. It is, perhaps, idle to speculate upon the prospective evil that would accrue to the human race, should such an organic modification, introduced by abnormal education, be pushed to

its ultimate limit. But inasmuch as the subject is not only germane to our inquiry, but has attracted the attention of a recent writer, whose bold and philosophic speculations, clothed in forcible language, have startled the best thought of the age, it may be well to quote him briefly on this point. Referring to the fact, that, in our modern civilization, the cultivated classes have smaller families than the uncultivated ones, he says, "If the superior sections and specimens of humanity are to lose, relatively, their procreative power in virtue of, and in proportion to, that superiority, how is culture or progress to be propagated so as to benefit the species as a whole, and how are those gradually amended organizations from which we hope so much to be secured? If, indeed, it were ignorance, stupidity, and destitution, instead of mental and moral development, that were the *sterilizing* influences, then the improvement of the race would go on swimmingly, and in an ever-accelerating ratio. But since the conditions are exactly reversed, how

should not an exactly opposite direction be pursued? How should the race *not* deteriorate, when those who morally and physically are fitted to perpetuate it are (relatively), by a law of physiology, those least likely to do so?" \* The answer to Mr. Greg's inquiry is obvious. If the culture of the race moves on into the future in the same rut and by the same methods that limit and direct it now; if the education of the sexes remains identical, instead of being appropriate and special; and especially if the intense and passionate stimulus of the identical co-education of the sexes is added to their identical education,—then the sterilizing influence of such a training, acting with tenfold more force upon the female than upon the male, will go on, and the race will be propagated from its inferior classes.†

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\* Enigmas of Life. Op. cit., by W. R. Greg, p. 142.

† It is a fact not to be lost sight of, says Dr. J. C. Toner of Washington, that the proportion between the number of American children under fifteen years of age, and the number of American women between the child-bearing ages of fifteen and fifty, is declining steadily. In 1830, there were to every 1,000 marriageable women, 1,952 children under fifteen years

The stream of life that is to flow into the future will be Celtic rather than American: it will come from the collieries, and not from the peerage. Fortunately, the reverse of this picture is equally possible. The race holds its destinies in its own hands. The highest wisdom will secure the survival and propagation of the fittest. Physiology teaches that this result, the attainment of which our hopes prophecy, is to be secured, not by an identical education, or an identical co-education of the sexes, but by *a special and appropriate education, that shall produce a just and harmonious development of every part.*

Let one remark be made here. It has been asserted that the chief reason why the higher

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of age. Ten years later, there were 1,863, or 89 less children to every thousand women than in 1830. In 1850, this number had declined to 1,720; in 1860, to 1,666; and in 1870, to 1,568. The total decline in the forty years was 384, or about 20 per cent of the whole proportional number in 1830, a generation ago. The United-States census of 1870 shows that there is, in the city of New York, but one child under fifteen years of age, to each thousand nubile women, when there ought to be three; and the same is true of our other large cities.—*The Nation*, Aug. 28, 1873, p. 145.

and educated classes have smaller families than the lower and uneducated is, that the former criminally prevent or destroy increase. The pulpit,\* as well as the medical press, has cried out against this enormity. That a disposition to do this thing exists, and is often carried into effect, is not to be denied, and cannot be too strongly condemned. On the other hand, it should be proclaimed, to the credit and honor of our cultivated women, and as a reproach to the identical education of the sexes, that many of them bear in silence the accusation of self-tampering, who are denied the oft-prayed-for trial, blessing, and responsibility of offspring. As a matter of personal experience, my advice has been much more frequently and earnestly sought by those of our best classes who desired to know how to obtain, than by those who wished to escape, the offices of maternity.

The experiment of the identical co-education of the sexes has been set on foot by some of our Western colleges. It has not yet

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\* Vid. a pamphlet by the Rev. Dr. Todd.

been tried long enough to show much more than its first fruits, viz., its results while the students are in college ; and of these the only obvious ones are increased emulation, and intellectual development and attainments. The defects of the reproductive mechanism, and the friction of its action, are not exhibited there ; nor is there time or opportunity in college for the evils which these defects entail to be exhibited. President Magoun of Iowa College tells us, that, in the institution over which he presides, "Forty-two young men and fifty-three young ladies have pursued college courses ;" and adds, " Nothing needs to be said as to the control of the two sexes in the college. The young ladies are placed under the supervision of a lady principal and assistant as to deportment, and every thing besides recitations (in which they are under the supervision of the same professors and other teachers with the young men, reciting with them) ; and one simple rule as to social intercourse governs every thing. The moral and religious influences

attending the arrangement have been most happy." \* From this it is evident that Iowa College is trying the identical co-education of the sexes ; and the president reports the happy moral and religious results of the experiment, but leaves us ignorant of its physiological results. It may never have occurred to him, that a class of a hundred young ladies might graduate from Iowa College or Antioch College or Michigan University, whose average health during their college course had appeared to the president and faculty as good as that of their male classmates who had made equal intellectual progress with them, upon whom no scandal had dropped its venom, who might be presented to the public on Commencement Day as specimens of as good health as their uneducated sisters, with roses in their cheeks as natural as those in their hands, the major part of whom might, notwithstanding all this, have physical defects that a physiologist could easily discover, and

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\* The New Englander, July, 1873. Art., Iowa College.

that would produce, sooner or later, more or less of the sad results we have previously described. A philanthropist and an intelligent observer, who has for a long time taken an active part in promoting the best education of the sexes, and who still holds some sort of official connection with a college occupied with identical co-education, told the writer a few months ago, that he had endeavored to trace the post-college history of the female graduates of the institution he was interested in. His object was to ascertain how their physique behaved under the stress,—the wear and tear of woman's work in life. The conclusion that resulted from his inquiry he formulated in the statement, that "the co-education of the sexes is intellectually a success, physically a failure." Another gentleman, more closely connected with a similar institution of education than the person just referred to, has arrived at a similar conclusion. Only a few female graduates of colleges have consulted the writer professionally All sought his advice two, three, or

more years after graduation ; and, in all, the difficulties under which they labored could be distinctly traced to their college order of life and study, that is, to identical co-education. If physicians who are living in the neighborhood of the present residences of these graduates have been consulted by them in the same proportion with him, the inference is inevitable, that the ratio of invalidism among female college graduates is greater than even among the graduates of our common, high, and normal schools. All such observations as these, however, are only of value, at present, as indications of the drift of identical co-education, not as proofs of its physical fruits, or of their influence on mental force. Two or three generations, at least, of the female college graduates of this sort of co-education must come and go before any sufficient idea can be formed of the harvest it will yield. The physiologist dreads to see the costly experiment tried. The urgent reformer, who cares less for human suffering and human life than for the

trial of his theories, will regard the experiment with equanimity if not with complacency.

If, then, the identical co-education of the sexes is condemned both by physiology and experience, may it not be that their *special and appropriate co-education* would yield a better result than their special and appropriate *separate education*? This is a most important question, and one difficult to resolve. The discussion of it must be referred to those who are engaged in the practical work of instruction, and the decision will rest with experience. Physiology advocates, as we have seen, the special and appropriate education of the sexes, and has only a single word to utter with regard to simple co-education, or juxtaposition in education.

That word is with regard to the common belief in the danger of improprieties and scandal as a part of co-education. There is some danger in this respect; but not a serious or unavoidable one. Doubtless there would be occasional lapses in a double-sexed college;

and so there are outside of schoolhouses and seminaries of learning. Even the church and the clergy are not exempt from reproach in such things. There are sects, professing to commingle religion and love, who illustrate the dangers of juxtaposition even in things holy. "No physiologist can well doubt that the holy kiss of love in such cases owes all its warmth to the sexual feeling which consciously or unconsciously inspires it, or that the mystical union of the sexes lies very close to a union that is nowise mystical, when it does not lead to madness."\* There is less, or certainly no more danger in having the sexes unite at the repasts of knowledge, than, as Plautus bluntly puts it, having he wits and she wits recline at the repasts of fashion. Isolation is more likely to breed prurience than commingling to provoke indulgence. The virtue of the cloister and the cell scarcely deserves the name. A girl has her honor in her own keeping. If she can be trusted with

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\* *Body and Mind.* Op. cit., p. 85.

boys and men at the lecture-room and in church, she can be trusted with them at school and in college. Jean Paul says, "To insure modesty, I would advise the education of the sexes together; for two boys will preserve twelve girls, or two girls twelve boys, innocent amidst winks, jokes, and improprieties, merely by that instinctive sense which is the fore-runner of matured modesty. But I will guarantee nothing in a school where girls are alone together, and still less when boys are." A certain amount of *juxta-position* is an advantage to each sex. More than a certain amount is an evil to both. Instinct and common sense can be safely left to draw the line of demarcation. At the same time it is well to remember that *juxtaposition* may be carried too far. Temptations enough beset the young, without adding to them. Let learning and purity go hand in hand.

There are two considerations appertaining to this subject, which, although they do not belong to the physiology of the matter, deserve to be mentioned in this connection.

One amounts to a practical prohibition, for the present at least, of the experiment of the special and appropriate co-education of the sexes ; and the other is an inherent difficulty in the experiment itself. The former can be removed whenever those who heartily believe in the success of the experiment choose to get rid of it ; and the latter by patient and intelligent effort.

The present practical prohibition of the experiment is the poverty of our colleges. Identical co-education can be easily tried with the existing organization of collegiate instruction. This has been tried, and is still going on in separate and double-sexed schools of all sorts, and has failed. Special and appropriate co-education requires in many ways, not in all, re-arrangement of the organization of instruction ; and this will cost money and a good deal of it. Harvard College, for example, rich as it is supposed to be, whose banner, to use Mr. Higginson's illustration, is the red flag that the bulls of female reform are just now pitching into,—Harvard College could not under-

take the task of special and appropriate co-education, in such a way as to give the two sexes a fair chance, which means the *best* chance, and the only chance it ought to give or will ever give, without an endowment, additional to its present resources, of from one to two millions of dollars; and it probably would require the larger rather than the smaller sum. And this I say advisedly. By which I mean, not with the advice and consent of the president and fellows of the college, but as an opinion founded on nearly twenty years' personal acquaintance, as an instructor in one of the departments of the university, with the organization of instruction in it, and upon the demands which physiology teaches the special and appropriate education of girls would make upon it. To make boys half-girls, and girls half-boys, can never be the legitimate function of any college. But such a result, the natural child of identical co-education, is sure to follow the training of a college that has not the pecuniary means to prevent it. This obstacle is of

course a removable one. It is only necessary for those who wish to get it out of the way to put their hands in their pockets, and produce a couple of millions. The offer of such a sum, conditioned upon the liberal education of women, might influence even a body as soulless as the corporation of Harvard College is sometimes represented to be.

The inherent difficulty in the experiment of special and appropriate co-education is the difficulty of adjusting, in the same institution, the methods of instruction to the physiological needs of each sex; to the persistent type of one, and the periodical type of the other; to the demand for a margin in metamorphosis of tissue, beyond what study causes, for general growth in one sex, and for a larger margin in the other sex, that shall permit not only general growth, but also the construction of the reproductive apparatus. This difficulty can only be removed by patient and intelligent effort. The first step in the direction of removing it is to see plainly what errors or dangers lie in

the way. These, or some of them, we have endeavored to point out. ‘Nothing is so conducive to a right appreciation of the truth as a right appreciation of the error by which it is surrounded.’\* When we have acquired a belief of the facts concerning the identical education, the identical co-education, the appropriate education, and the appropriate co-education of the sexes, we shall be in a condition to draw just conclusions from them.

The intimate connection of mind and brain, the correlation of mental power and cerebral metamorphosis, explains and justifies the physiologist’s demand, that in the education of girls, as well as of boys, the machinery and methods of instruction shall be carefully adjusted to their organization. If it were possible, they should be adjusted to the organization of each individual. None doubt the importance of age, acquirement,

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\* *Use of the Ophthalmoscope.* By T. C. Allbutt. London P. 5.

idiosyncrasy, and probable career in life, as factors in classification. Sex goes deeper than any or all of these. To neglect this is to neglect the chief factor of the problem. Rightly interpreted and followed, it will yield the grandest results. Disregarded, it will balk the best methods of teaching and the genius of the best teachers. Sex is not concerned with studies as such. These, for any thing that appears to the contrary physiologically, may be the same for the intellectual development of females as of males; but, as we have seen, it is largely concerned about an appropriate way of pursuing them. Girls will have a fair chance, and women the largest freedom and greatest power, now that legal hinderances are removed, and all bars let down, when they are taught to develop and are willing to respect their own organization. How to bring about this development and insure this respect, in a double-sexed college, is one of the problems of co-education.

It does not come within the scope of this

essay to speculate upon the ways — the regimen, methods of instruction, and other details of college life, — by which the inherent difficulties of co-education may be obviated. Here tentative and judicious experiment is better than speculation. It would seem to be the part of wisdom, however, to make the simplest and least costly experiment first; that is, to discard the identical separate education of girls as boys, and to ascertain what their appropriate separate education is, and what it will accomplish. Aided by the light of such an experiment, it would be comparatively easy to solve the more difficult problem of the appropriate co-education of the sexes.

It may be well to mention two or three details, which are so important that no system of *appropriate* female education, separate or mixed, can neglect them. They have been implied throughout the whole of the present discussion, but not distinctly enunciated. One is, that during the period of rapid development, that is, from fourteen

to eighteen,\* a girl should not study as many hours a day as a boy. "In most of our schools," says a distinguished physiological authority previously quoted, "the hours are too many for both boys and girls. From a quarter of nine or nine, until half-past two, is with us (Philadelphia schools for girls) the common schooltime in private seminaries. The usual recess is twenty minutes or half an hour, and it is not filled by enforced exercise. In certain schools,—would it were the rule,—ten minutes' recess is given after every hour. To these hours, we must add the time spent in study out of school. This, for some reason, nearly always exceeds the time stated by teachers to be necessary; and most girls between the age of thirteen and seventeen thus expend two or three hours.

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\* Some physiologists consider that the period of growth extends to a later age than this. Dr. Anstie fixes the limit at twenty five. He says, "The central nervous system is more slow in reaching its fullest development; and the brain, especially, is many years later in acquiring its maximum of organic consistency and functional power." — *Neuralgia, Op. cit.*, by F. E. ANSTIE, p. 20.

Does any physician believe that it is good for a growing girl to be so occupied seven or eight hours a day? or that it is right for her to use her brains as long a time as the mechanic employs his muscles? But this is only a part of the evil. The multiplicity of studies, the number of teachers,—each eager to get the most he can out of his pupil,—the severer drill of our day, and the greater intensity of application demanded, produce effects on the growing brain, which, in a vast number of cases, can be only disastrous. Even in girls of from fourteen to eighteen, such as crowd the normal school in Philadelphia, this sort of tension and this variety of study occasion an amount of ill-health which is sadly familiar to many physicians.” \*

Experience teaches that a healthy and growing boy may spend six hours of force daily upon his studies, and leave sufficient margin for physical growth. A girl cannot spend more than four, or, in occasional in-

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\* *Wear and Tear.* Op. cit., p. 33-4.

stances, five hours of force daily upon her studies, and leave sufficient margin for the general physical growth that she must make in common with a boy, and also for constructing a reproductive apparatus. If she puts as much force into her brain education as a boy, the brain or the special apparatus will suffer. Appropriate education and appropriate co-education must adjust their methods and regimen to this law.

Another detail is, that, during every fourth week, there should be a remission, and sometimes an intermission, of both study and exercise. Some individuals require, at that time, a complete intermission from mental and physical effort for a single day; others for two or three days; others require only a remission, and can do half work safely for two or three days, and their usual work after that. The diminished labor, which shall give Nature an opportunity to accomplish her special periodical task and growth, is a physiological necessity for all, however robust they may seem to be. The apportionment

of study and exercise to individual needs cannot be decided by general rules, nor can the decision of it be safely left to the pupil's caprice or ambition. Each case must be decided upon its own merits. The organization of studies and instruction must be flexible enough to admit of the periodical and temporary absence of each pupil, without loss of rank, or necessity of making up work, from recitation, and exercise of all sorts. The periodical type of woman's way of work must be harmonized with the persistent type of man's way of work in any successful plan of co-education.

The keen eye and rapid hand of gain, of what Jouffroy calls self-interest well understood, is sometimes quicker than the brain and will of philanthropy to discern and inaugurate reform. An illustration of this statement, and a practical recognition of the physiological method of woman's work, lately came under my observation. There is an establishment in Boston, owned and carried on by a man, in which ten or a dozen girls are

constantly employed. Each of them is given and required to take a vacation of three days every fourth week. It is scarcely necessary to say that their sanitary condition is exceptionally good, and that the aggregate yearly amount of work which the owner obtains is greater than when persistent attendance and labor was required. I have never heard of any female school, public or private, in which any such plan has been adopted ; nor is it likely that any similar plan will be adopted so long as the community entertain the conviction that a boy's education and a girl's education should be the same, and that the same means the boy's. What is known in England as the Ten-hour Act, which Mr. Mundella and Sir John Lubbock have recently carried through Parliament, is a step in a similar direction. It is an act providing for the special protection of women against over-work. It does not recognize, and probably was not intended to recognize, the periodical type of woman's organization. It is founded on the fact, however, which law

has been so slow to acknowledge, that the male and female organization are not identical.\*

This is not the place for the discussion of these details, and therefore we will not dwell upon them. Our object is rather to show

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\* It is a curious commentary on the present aspect of the "woman question" to see many who honestly advocate the elevation and enfranchisement of woman, oppose any movement or law that recognizes Nature's fundamental distinction of sex. There are those who insist upon the traditional fallacy that man and woman are identical, and that the identity is confined to the man, with the energy of infatuation. It appears from the Spectator, that Mr. and Mrs. Fawcett strongly object to the Ten-hour Act, on the ground that it discriminates unfairly against women as compared with men. Upon this the Spectator justly remarks, that the true question for an objector to the bill to consider is not one of abstract principle, but this: "Is the restraint proposed so great as really to diminish the average productiveness of woman's labor, or, by *increasing its efficacy*, to maintain its level, or even improve it in spite of the hours lost? What is the length of labor beyond which an average woman's constitution is overtaxed and deteriorated, and within which, therefore, the law ought to keep them in spite of their relations, and sometimes in spite of themselves?" — *Vid. Spectator*, London, June 14, 1873.

good and imperative reason why they should be discussed by others ; to show how faulty and pregnant of ill the education of American girls has been and is, and to demonstrate the truth, that the progress and development of the race depend upon the appropriate, and not upon the identical education of the sexes. Little good will be done in this direction, however, by any advice or argument, by whatever facts supported, or by whatever authority presented, unless the women of our country are themselves convinced of the evils that they have been educated into, and out of which they are determined to educate their daughters. They must breed in them the lofty spirit Wallenstein bade his be of :—

“Leave now the puny wish, the girlish feeling,  
Oh, thrust it far behind thee : Give thou proof  
Thou’rt the daughter of the Mighty,—his  
Who where he moves creates the wonderful.  
Meet and disarm necessity by choice.”

SCHILLER : *The Piccolomini*, act iii. 8. (*Coleridge’s Translation.*)