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Emotional Prodigality

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or plate of new dentine (or secondary dentine, as it is commonly called), the tubular and inter-tubular substance of which is continuous with that of the older tissue, and thus the tubes of the two parts are continuous, although at the point of junction they are often marked by a slight dilatation."

S. James A. Salter, in his "Dental Pathology and Surgery," New York, 1875, says, "Considering secondary dentine as applicable to all the after-formations of dentine by which the pulp-cavity is diminished or obliterated, I would subdivide it into dentine of repair, dentine exerescence, and osteo-dentine. I first suggested the arrangement in the 'Guy's Hospital Reports' for 1853. Osteo-dentine and dentine exerescence are not infrequently seen in teeth that are worn, and exhibit dentine of repair. Dentine of repair, however, always forms upon that portion of the pulp-cavity next to the lesion, and is adherent and in direct structural continuity with the primary dentine, whereas osteo-dentine and dentine exerescence occur almost always first towards the extremity of the root, and the former is frequently quite detached from the remainder of the dentine."

Mr. Salter asserts against Tomes (p. 68), that "the circumstance of age, *per se*, is really not efficient for the production of secondary dentine; and the fact that the teeth which exhibit secondary dentine are usually from aged subjects is merely accidental, and dependent upon the fact that it is in them that the teeth are most worn. Dentine exerescences are little nodules of secondary dentine, occasionally found attached to the interior of the pulp-cavities of teeth which may be otherwise healthy, unassociated with injury or other disease. Osteo-dentine is a form of secondary dentine in which the tissue combines the characters both of bone and ivory. It is developed by the general conversion and intrinsic calcification of the several tissues of the pulp. It is usually vascular; it is frequently arranged in systems around vessels, like the Haversian systems in bone, and it sometimes contains true lacunæ."

(To be continued.)

EMOTIONAL PRODIGALITY.

BY C. FAYETTE TAYLOR, M.D., NEW YORK.

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WHEN the New York Odontological Society honored me with an invitation to read a paper before it on the subject of "Necrosis," I think I may assume that they did not intend to restrict me to any beaten track of thought or research; for, if they desired a *résumé* of our present knowledge of the morbid process denominated necrosis,



there are many gentlemen connected with this society well able, by ability, education, and special research, to treat the subject exhaustively in its technical aspects. So I shall assume that in naming the subject they intended to make only a general suggestion of a theme, and would be quite satisfied to leave the particular line of thought to my own choosing.

Under this assumption I have determined to present some views in regard to the deleterious effects upon the bodily development and health of civilized communities of early and excessive mental activity, and to show, as I think I can, that to this cause we must look for a far larger amount of injury to special organs as well as to the frame as a whole, than we have been accustomed to do. I am quite aware that it is no new thing to attribute bodily injury to mental overwork in young and old, and the evil habits of society are constantly heavily charged with many of our ills. But the fault lies in too broad generalizations and too few intimations, even, of the specific direction from whence the evil charged has come. Hence important facts, which society acknowledges as general truths, produce small effect in changing the course of events. People go on as before, not because they do not now know, as a general fact, that mental overwork is injurious, but because they have not been informed in regard to the way in which it is injurious, and have little definite knowledge of methods for avoiding what they do not see clearly is to be especially avoided. Knowledge concerning the mind is like all other knowledge, it must be definite before it is capable of practical application. So that it often happens that persons who are perfectly aware that they are suffering in bodily health from mental overwork, in their anxiety to correct the evil, and in their ignorance in regard to its source, often take courses calculated to increase, rather than diminish, the mental strain from which they suffer.

In the first place, the mind, as a whole, may be said to be made up of several distinct parts or attributes. Some of these attributes may be active while others are at rest, and they all have very different and very independent and distinct relations to, and influence over, the bodily functions. For instance, one of the most common errors is the supposition that thinking, as distinguished from other mental activities, is the source of injury when one's health suffers from excessive mental strain; whereas mere thinking, disassociated from other mental phenomena, is one of the least likely to be in excess of the individual capacity to bear, and the least exhausting in any degree. In fact, it is unquestionably true that an active, well-trained *thinking* capacity imparts positive strength to the bodily powers, increasing both health and longevity. It isn't the *thinking* which breaks people down, but it is an excess—often an unnecessary

excess—of other mental activities which works the bodily injury; and by “other mental activities” I would especially include the *emotions* as the most exhausting of all mental attributes. It is the emotion which so often accompanies thought which tires and exhausts the frame when it is supposed to be the thinking which does the injury.

A well-known professor of theology, who had several times broken down from mental overwork, once told me that he had noticed that while recovering, after a period of rest, he would arrive at a point at which he could go on with his purely intellectual work with perfect ease and facility when he could not listen to a sermon, the emotions being then brought into play, without being completely overcome and physically prostrated by it. And what is true in the case of this theological professor is true with us all,—we are not likely to be injured by purely intellectual work. It is only when the emotions are excited that the excessive drain on the bodily powers begins, to any injurious degree. This statement is confirmed by the well-known fact that cool and well-regulated dispositions are those which, as a rule, last the longest; men of even temperaments, or those who have disciplined themselves to habits of uniformity and equanimity, are those who do the largest amount of intellectual work, and do it with the greatest ease. But excitable temperaments, those who easily become aroused and who find it difficult or impossible to subjugate their emotions, are the persons who can do the least intellectual labor, and who suffer the most bodily harm from mental activity, when in excess. The fact is, what and how much we do is of much less concern than the way we do it. The calm and placid man can go on forever, like the smoothly-flowing river, with his intellectual labors, while the emotional person is exhausted by his emotions even before he begins to think. We see this difference well enough in men; we see the different amounts of mental as well as bodily labor which they can do, varying according to the nervous waste going on through their emotional activities, rather than measured by actual thinking. But the contrast becomes stronger when we observe the mental operations of women. Characterized as a sex with less manifestation of independent thinking, whether from a feebler endowment of reasoning powers, or whether because the intellect is so habitually subordinated to simple feeling, it is not necessary to discuss. But it is certain that the women of civilized communities are more emotional than are those of less favored regions, or else my observation has been at fault. While education in men makes them self-controlling, steady, deliberate, calculating, thinking out every problem, the intellectual being the preponderating force, the so-called “higher education” for women seems to produce

the contrary effect on them. I am willing to admit and believe that it is not the fact of being educated which produces contrary effects in men and women, but the different ways in which men and women are educated. Still, it holds true that while men are calmed, women are excited by the education they receive. The emotions in savage men are the ruling forces, while they are subordinated to the intellect in the educated man. But the woman who has been put through the process deemed necessary to acquire the "higher education" is nervous, excitable, and in every way more dominated by her emotions than the savage woman is. Or, if the contrast is not so extreme as this, she certainly does lack that equipoise which is the characteristic of highly-educated men. In my capacity of surgeon I have frequent occasion to observe how different classes of women act under corresponding circumstances. My experience is such that I do not want a so-called highly-educated woman to take care of a case of hip-joint disease, for instance. For patience, for reliability, for real judgment in carrying out directions, for self-control, give me the little woman who has not been "educated" too much, and whose only ambition is to be a good wife and mother. She can be trusted to keep cool under trying circumstances; she does not have the backache; she does not tear herself to pieces with imaginary troubles nor insist on taking only emotional views of every incident of life. Her reason has not been put under the dominant influence of unmixed feeling, intensified by the process through which she obtained what is called her education. Hence her head is cool and her judgment clear. Such women are capable of being the mothers of men. But modern communities have too few of the even tempered, such as I have just described. Civilization is not an unmixed good, it carries penalties as well as compensations in its train.

It should not be lost sight of that women are emotional as a class of human beings, and there are many things incident to civilization which tend to increase to extraordinary proportions the emotional characteristics which pertain to them by virtue of their sex. The æsthetic form of emotion is so ready to be made prominent, and is so pleasing in its legitimate expressions, that some form of emotional exercise very easily becomes the principal feature of female education, so that the first we know, unless, happily, we are continually on the watch, the girl whom we send to school is increasing the intensity of her feelings much faster than she increases her stock of knowledge. I am not, at this time, discussing how this can be changed. I only desire to call attention to facts which must be familiar to every one. Thus tendencies endowed by nature, which would only harmonize her being to her position and destiny under favoring conditions, become exaggerated by inheritance and intensi-

fied by the education of the schools and the atmosphere of society, till the woman of our modern civilization becomes the bundle of nerves which she is, almost incapable of reasoning under the tyranny of paramount emotion, and some of them wholly incapable of becoming the mothers of rightly organized children. So the children are born many of them with big heads and little bodies and almost no digestion at all, but whether born feeble or vigorous they are ushered into an atmosphere of an intensely emotional character. Whatever may be the stimuli to intellectual activity, there are ten or a hundredfold more agencies which act on the emotions alone. It is to the fact that children are brought up in a hot-bed of emotional excitements to which I wish to call your attention. It is sufficiently deleterious to incite mental activity prematurely; but to prematurely and unduly excite emotional manifestations is tenfold more hurtful. It is just here that there seems to be the densest ignorance. Children are made to minister to adult morbid craving for emotional excitation by having their own emotions brought prematurely and excessively into action, just as if their powers of endurance were unlimited in this direction. People, and especially the female portion of society, do not stop to reflect that all the fondling which children (American children, I more especially mean) receive is not for the children's, but for their own sakes. Children are literally made to become little actors; but their fond relatives are not content with an hour or two a day, which is considered sufficient for adult actors, but they are kept going from morning until night. In my large practice among children I am certain that scores are literally killed by the excessive amount of emotional excitement which they are forced to endure. And much of it is, when we properly analyze it, from a purely selfish source. All this hugging and kissing and talking to them is to excite responses of the same emotional nature in the child for the pleasure and gratification of the parents and friends. There is really no thought that it is for the child's good. They are not content without securing some response, some prattle that shall be considered pretty, some embrace that betokens warmth of feeling, some witty saying that shall show smartness and sentiment, some act which shall thrill the family audience with delight. In fact, our children are made the means of filling us with thrill after thrill of delight through their responses to the emotional manifestations which we purposely and for our own selfish pleasure excite within them. But at how great a cost! It does not better the matter that people are not generally aware that it is their own and not always the child's pleasure which they seek in the excessive fondling which I am deprecating. Because they do not recognize the purely selfish character of the motive which makes children act day by day for the pleasure

of the family is the reason that it is done; and it is the reason also, I may say, that I think it my duty to raise a warning voice against the pernicious practice, at some risk of denunciation, I am very certain. For it is a delicate thing to trench on the private ground of personal feeling and dispute with a mother how much and in what way she may love her child. But I hold that there is not a relation in life which may not be criticised in the right spirit, nor is there one which ought to be left to blind instinct or unreasoning impulse. Even maternal love may be a purely animal feeling, and when exercised without reason it may become an engine of cruelty and even death. Many such cases I have seen; one illustration will suffice for all. A mother brings her little child to me for a disease which is curable if immediately attended to, but fatal if appropriate treatment is delayed. I explain it all to her complete understanding. She sees that it may be cured, for she sees others like it which have been cured. She also understands that the chances are against its recovery, because she meets others in sorry straits who have neglected or delayed. But she will not leave it. There are those who can remain,—an aunt, an older sister, a faithful nurse. All to no purpose. The mother has, perhaps, a younger child at home, and cannot herself remain, and so the sick one must go home to die, or, what is far worse, to endure years of agonizing suffering, and then to live a short, decrepit life, with all bright hopes blotted out forever. This is what unreasoning animal affection may do, and what it is continually doing, to my certain knowledge. Another child, a beautiful girl, lives in its grandfather's family. Of parents and grandparents, of uncles, aunts, cousins and friends there are seventeen. It is the only grandchild, and the household draws a certain large portion of its daily emotional pleasures from this babe. It continually passes from lap to lap and from lip to lip, not allowed ever to go without returning some pretty prattle for the urging and caressing which she receives from morning until night. What wonder is it that evening finds her tired, peevish, excitable, and wholly exhausted? And when disease attacks her it finds weak resistance in a frame already enfeebled, at the tender age of four, by an overwrought brain. In this case I could manage the mother, with whom I came in personal contact. But she found it impossible to make the other members of the family let the child alone, and she was actually obliged, under my advice, to imprison herself in a room with locked doors to keep her sickly child from continuing to be the plaything of the family.

Now, what is the result of the system of child-management which keeps the young mind in continual excited tension?

There is a law of human force which proclaims that for every atom

used in one direction there is an equivalent atom wanting in some other direction. How can there be a well-developed body in a child whose brain is kept excited and in whom a waste of force is going on far beyond the means of supply, except by drawing it from other directions? Thus the brain is supplied, in part, at the expense of the body; that is, the body is starved to support the brain, excited by the mind into unnatural and premature activity. And the worst of it is that there are no proper compensations. On the contrary, a condition of preternatural emotional preponderance is established as the inveterate habit of life. Hence the so-called "nervous" invalids, which exist in all civilized communities and are especially abundant in this country: persons who are frightened at any sudden noise, and whom the sight of a mouse throws into a cold perspiration. No matter how sensible they may be in calmer moments, their reason is dethroned and subordinated by the superior influence of easily excited emotions. Such are the persons whose flabby muscles and nerveless frames are only surpassed as a phenomenal fact by the amount of pain they can bear and still exist. Such persons are the products of civilization,—of that civilization which does not seek for and find the causes of its abortive products and endeavor to so arrange the checks and balances supplied by intelligence that the race shall not deteriorate through preventable causes. For the causes are largely preventable, and preventive means are daily used among those who are better informed on the subject. But there should be greater precautions used against the overaction of the brains of children, and it should be better comprehended that the overaction comes, for the most part, from the direction of the emotions. My professional life is spent, for the most part, in attending to children, and I have ample opportunities to see the evil effect on the bodily development of overwrought emotions. Feebleness, asymmetry, excitability, premature arrest of growth, are some of them. So that populations of cities, which come under the influence of more things which tend to excite emotion, become less and less in size until, it is said, that cities would cease to be if it were not for the constant influx of persons who were reared in the country, and so escape some of the body-dwarfing influences to which the children of large centers are so much subjected. The extent to which the influences under consideration go no one would imagine, perhaps, unless he were in actual contact with large numbers of children.

I may say that at least two-thirds of all lateral distortions of the spinal column are directly traceable to mental overaction, mainly, if not entirely, of an emotional origin. There can be no doubt that this is the fact, because not less than three-fifths of those of them who consult me in the earlier stages recover without any other

treatment than a careful abstaining from whatever excites undue emotions in the subject of the distortion.

One little incident occurred a number of years ago, which may serve to fix the moral in your minds if I should relate it. Being in Wilmington, Delaware, at the time, I was consulted by a lady concerning her daughter, who had begun to give evidence of curvature of the spine. She was a good-sized child of about twelve, and I sought in vain, for some time, to find a cause for the weakness of the muscles which allowed the bending of her spinal column. Her lessons did not seem to be too much for her, her exercise was regular and sufficient, her food was proper, and, altogether, she seemed to be well managed. Still, there was an expression of fatigue in her face, and, though her rapid growth was exhausting her somewhat, as is always the case, that alone did not seem sufficient to cause the spinal muscles to give way and the spinal column to bend out of its proper direction. So I inquired particularly in regard to any outside influences which might tend to excite the child's emotions; but such inquiries were met by prompt denials. The mother was an unusually intelligent woman and seemed to comprehend the subject better than most. Two days afterwards, this mother returned to say that perhaps she had found the source of the child's loss of power,—for she was often nerveless and languid. She said that this girl was an especial favorite of her husband's mother, and that it was her custom to pay her grandmother a visit twice every week; she added that, now that her attention had been called to the subject by my inquiries, she remembered that her daughter invariably came home from those visits tired, nervous, easy to cry, and she was always glad to get her off to bed as soon as possible, and even the next morning there were often traces of the nervous excitement which she showed more especially the night before. Her grandmother, the lady said, was a very intellectual woman, and the child looked forward to her bi-weekly visits with great anticipations, but if I thought they had anything to do with the curvature she would stop them at once. I replied that I had no doubt but that they had, and they were accordingly put an end to. In other respects no change was made in her course of life. Three months later I was in the neighborhood, when the child was brought to me, this time perfectly straight. Ceasing to visit her grandmother had cured a curvature of the spine: cured it by preventing the bi-weekly exhaustion through excessive emotional excitement; thus muscular tone was restored. As before remarked, growth, especially rapid growth, is an exhausting process, and it is of the greatest moment that the process of natural growth should not be interfered with by unusual demands made on the nervous forces at the same time. Indeed, I think there is even more danger

to the health in excessive mental strain during the period of rapid growth at the age of puberty than in childhood even. This is especially true in regard to girls. Their growth is generally more rapid than it is in the other sex. They pass through a stage of physical development in one or two years which boys require five or six to perfect. There is a correspondingly greater danger of overtaxing girls at this age. If we add to the natural bodily growth the development of the sexual functions, the important changes which take place in advancing from girlhood into womanhood, all accomplished within a short period of time, and each one a special tax on the vital powers, we can better comprehend how the human female is subjected to great and special causes of nervous exhaustion of a perfectly normal character at this period of her life. In fact, all human beings, at this time, pass through what may be called a vulnerable period,—pass through safely enough when the circumstances surrounding them are favorable, but not without damage when their vulnerability, at this time of life, is not comprehended and guarded against. So severe are the demands made upon us at this time, so completely absorbed are our nervous energies in the work of bodily growth and the development of special functions, that, under natural conditions, the action of the brain is somewhat retarded, and we find, between the ages of twelve and fourteen or fifteen, varying in different individuals, a well-defined period of mental sluggishness. Girls and boys at that age are said to be "green," which means that they are employed, absorbed, as they ought to be, in the more important acts of becoming men and women, and that, for the time, there is but little left for mental activities. This is nature's method. Let them alone and they will grow into full-sized men and women. Their frames will be strong and well-knit, their muscles firm, their organs of digestion and assimilation sound, and their functions vigorous and healthy. After the growth has been completed and the functions established, there is a rest and a respite. The mental faculties now wake up, there is more abundant material to feed the brain, now that there is less call in other directions, and we have the pleasant spectacle of a "sound mind in a sound body."

But what are the facts regarding modern and, especially, American civilized children? I speak still more especially of girls, because they are affected more by elements which disturb the natural order of things than boys are, though boys do not escape unharmed, by any means. Cunningly devised means for exciting feeling only, begun at the cradle, are continued through child-life up to the very verge of womanhood. The æsthetic alone, or almost alone, seems to be the sole idea of female mental existence. Thus they arrive at twelve or fourteen and on the threshold of the most important period

of existence, utterly unfitted for passing through it. Excitable, with wide-open eyes and ears for every sight and sound which can excite feeling, rapid and intense in mental activity, with thin limbs, narrow chest, and ungainly back, we meet these twelve-year-old products of civilization going to school with an average of thirteen books under their feeble arms, for I have found by actual count that thirteen is the average number of studies which they "take" nowadays. Do they study them? Undoubtedly, for the sake of being at the head of the class, or of not being at the foot, or to recite them or to *say* they study them, etc. But you will find almost invariably some emotional motive connected with the education of girls, as now conducted, in the majority of instances. Now, what is the girl's chance for perfect development under such adverse conditions as those which I have briefly pointed out? The chance is poor indeed, and the result is deplorable. With the mind thus forced to an unnatural activity, the emotions strained up to the highest tension, at such an important period, what chance has the body to attain a perfect growth or the various functions to be properly developed? Hence we see that generation after generation becomes smaller and smaller, until nature ceases to reproduce its own, and new blood has to be brought in to keep the race from dying out. Take a walk on the avenue of a Sunday afternoon and witness the large proportion of diminutive men and women which we shall meet. Then tell me if I have overdrawn the picture.

Now, whatever premature and excessive mental activity does in dwarfing the bodily growth and in enfeebling the functions in general, it effects, perhaps, even more the impairment of different organs and the curtailing of their special functions. There are very few well-formed bodies among our young women. The impression which an examination of the person gives is that they have been starved. And starved they literally are. The major part of the nourishment, which they could digest and assimilate, has gone to keep up the constant, excessive expenditure through the brain and nervous system, leaving an inadequate supply for the bodily growth and development. There is always a limit to human endurance at every period of life. Even with adults, the man who thinks much must be content to work less. He cannot do both in equal measure at the same time. Or if he works severely with his muscles he must be satisfied with less rapidity in his mental operations. The body is equally starved, whether, like the Australian bushman, from insufficiency of food, or like the Laplander, whose food is converted into fuel to keep up the animal heat; or like overworked children in some factory centers, whose bodies are dwarfed because all the food they eat is used to support their labor, and they have no vital remainder whereby

growth may be effected; or as in the case of the overwrought brains of our "civilized" children, which absorb an undue share of the vital forces, and thus the body is left to starve. Hence ill shapes and distortions. Hence want of symmetry as to the trunk, and disproportion in the extremities. Hence weak muscles and indigestion. Hence teeth imperfect in development, dentine soft, enamel defective and easily penetrated. Hence decay.

One who is not accustomed to examine the persons of large numbers of people can have no idea of the varying characters of bodily deficiencies and imperfections which he will meet without attracting the notice of the ordinary observer. I have a patient now with one leg two inches longer than the other; and a difference of one inch in the lengths of the lower extremities is a relatively common occurrence. So of every portion of the body. It is seldom even tolerably perfect among the higher classes. And I have no doubt that the cause of these imperfections lies more in the diversion of the nutrition which should feed the bodily growth, from its proper direction, in consequence of emotional excitation, than any other cause which acts on the members of civilized communities. But, of course, there are exceptions to this rule as there are to every other; that is, there seem to be exceptions, but they are of such a character as to prove the rule. We see persons with poor apologies for bodies, but with excellent teeth; while we also see persons with sound, strong bodies with defective teeth. When the nutritive supply is inadequate, accident determines which particular organ shall suffer most and which shall be comparatively well nourished. When any organ *may* suffer it is pretty certain that some one eventually *will* suffer. I repeat that those who seldom or never have occasion to examine the whole person can scarcely appreciate in what varied forms the results of the bodily starvation which I have pointed out in this paper may assume. I continually see persons with one-half of the trunk, perhaps, tolerably well formed, while the other half is defective in various particulars; not as the result of regular and recognized causes tending to produce a distortion of the spinal column, for instance, but as the result of imperfect growth and development alone. When an acorn is dropped on the steep, rugged hill-side, with scanty soil, the washing rains, the winds, the frosts, and the droughts, the tree it produces is blighted and dwarfed compared with its brother oak grown in the fertile valley. But no one can tell which particular branch of the scrubby oak will first decay. So with the starved and shrunken bodies; one cannot tell which organ will weaken and fail before the others. And it does not militate against the indictment which I bring against overworking the young brain by exciting intense emotions, to freely admit that multitudes escape in part or wholly many or all of the evils which others, with feebler

powers of resistance, suffer from. For, after all, human nature is hard to kill, else the race would have been extinct long ages ago. The surgeon's skill, the physician's art, the dentist's wonderful dexterity, may often largely compensate for defective organs and curtailed powers. Sanitary science, also, ventilates our dwellings, gives us baths and household comforts, and inventive genius largely abridges the drain on human muscular strength; so that we find two opposing sets of forces acting in opposite directions on the individuals composing society. One set of forces tends to weaken and abridge human life, while another set tends to strengthen and to lengthen it. My object in this paper has been to call attention to some of the most important and, as I believe, less frequently appreciated of the influences which strongly tend to weaken and destroy life.

I am aware that it has been proposed to correct imperfect bodily development by various expedients, all more or less directly concerning the nutrition, either as medicaments, containing, in larger proportion or in more easily assimilable form than is to be found in ordinary food, some of the elements supposed to be in diminished amounts in the systems of delicate persons; or by a diet of substances containing the desired elements in greater abundance than exists in the ordinary food of the people. And there can be no doubt that something can be done in either direction which will have a good tendency and be calculated to ameliorate some of the worst results of the deteriorating effects of mental exhaustion. But, after all, such proposals must be considered as proceeding from very superficial examination into the causes of bodily imperfection in civilized communities. The Chinese attain a good stature and have perfectly formed teeth on a diet of rice, and the Esquimaux have sound teeth on a diet of blubber. I do not pretend to say that either rice, blubber, or any other diet so imperfect as either must be will produce as good specimens of man, under the same or corresponding circumstances, as a food which contains the assimilable substances in better proportions. But my object is to show that there is something back of the food in the condition of the system which makes it possible for perfect men to be developed under such unfavorable conditions, or for so poor specimens to be so common in civilized communities, with all the advantages which the latter have over the barbarous in selecting food. These indisputable facts cannot be reconciled except by supposing that the greatest factor of all in modifying bodily development lies in that which most distinguishes the civilized from the savage,—the mind. It is here that we must look for most of the modifying influences on the bodily powers, and it is here where our remedies must be applied if we would see an average of bodily perfection in civilized society.

If I have succeeded, in any measure at all commensurate with the magnitude of the subject, in impressing your minds with its importance, I shall be well paid for the trouble.

PROTRUSION OF THE LOWER JAW.—A CASE IN PRACTICE.

BY THOMAS WARDLE, M.D., D.D.S., PHILADELPHIA.

A CASE of this character, presented before the New York Odontological Society by Dr. George S. Allan, was reported in the February number of the *DENTAL COSMOS*. In the discussion which followed Dr. Francis asked, "Would you treat a case like that in a child fourteen or fifteen years of age?" To which Dr. Allan responded, "I would not advise the process in any case over twelve years of age, but up to that age I would advise it."

To throw some light upon the question thus started the following case is reported, as having special value from the fact that it has stood the test of time.

In 1864, Miss J. R., aged nineteen, presented the deformity illustrated in Fig. 1. At the urgent solicitation of the parents of the young lady I consented, though with some doubts as to my success, to attempt its correction. The central incisors had been filled from their cutting edges with gold, but they were unfit to be retained in the mouth longer than during the correction. As the arch of the upper teeth was much less than that of the lower, the outer cusps of all the latter were outside of the former, necessitating an expansion of the arch of the upper jaw as well as a reduction of the protrusion. To accomplish the first object a self-acting plate was designed, illustrated in Fig. 2. The plate, which was of gold, was made to fit the arch of the mouth as for an upper denture. To this were soldered two posts of platinized gold, set opposite the palatal faces of the bicuspid teeth and about three-eighths of an inch distant from them, their lower ends being on a line with the cusps of the teeth to be acted upon. At right angles with these were soldered oval tubes, closed at their palatal

FIG. 1.



