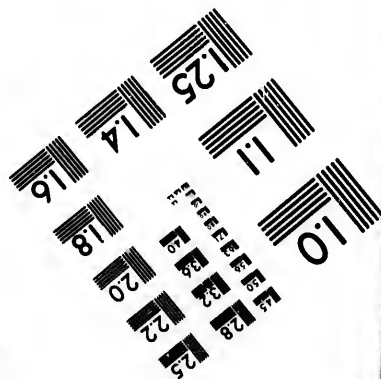
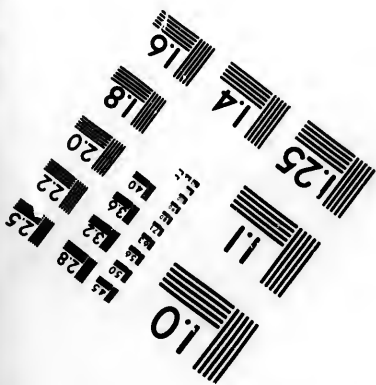
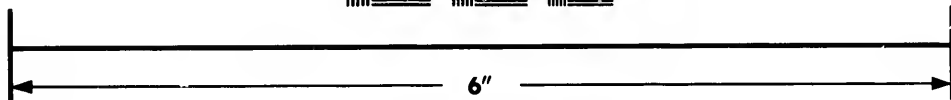
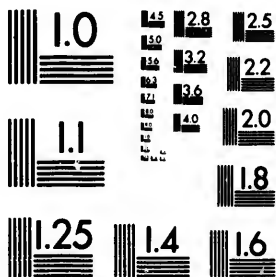


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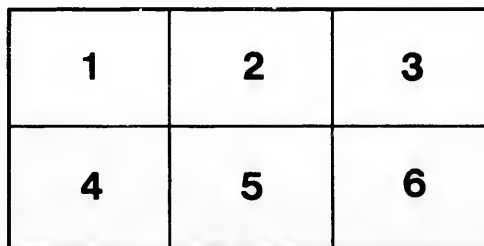
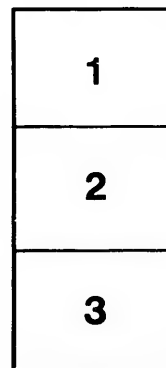
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PAPER V.

BY DR. DANIEL CLARK,

Medical Superintendent of the Asylum for the Insane, Toronto.

Toronto:

PRINTED AT WARWICK & SONS, 26 & 28 FRONT ST. WEST

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PAPER V.—BRAIN STUFFING AND FORCING.

BY DR. DANIEL CLARK, MEDICAL SUPERINTENDENT OF THE ASYLUM FOR THE INSANE, TORONTO.

Mr. Chairman, Ladies and Gentlemen :

It is not my intention to inflict an elaborate essay on this Association. My object will be attained by giving hints to enlist your attention ; by summarizing facts which are accumulating daily, and by simply stating conclusions which are forcing themselves with saddening emphasis upon the sensible educator, the physician and the social reformer of to-day. Much has been written on the best methods to educate children from a metaphysical and purely mental standpoint, but it is only within the last few years that the warning voice of the physiologist has been heard on behalf of suffering childhood. So far he has been as a voice crying in the wilderness, and ridicule has pointed at him its long, gaunt finger of scorn, charging him with being a mere alarmist or a hobby rider. The voice of the scorner is now being hushed. He meets an ever increasing throng of nervous invalids ; he sees a change in the physical condition of the young since his school days ; as a tax-payer he spends \$700,000 annually to maintain the defective classes in this Province, and to-day one person in every 320 persons in Ontario is insane. This is a startling catalogue. Were I to add to this list the weakling, who is a chronic drunkard ; the moral imbecile, who is a chronic criminal ; the habitual vagrant, with limited intellect, who is a life-long tramp ; and trace the existence of such classes to vicious conditions of society and to ignorance of Nature's laws in their operations on our social systems, my statement would be complete.

Let me, however, confine myself to a consideration of the brain in relation to modern education and to the results which flow therefrom.

I start by making this statement : the more highly organized brain will bear mental strain better than will the more simple nervous center of the ignorant, if the building-up process have been in accordance with the laws of health.

It is also a fact that the educated insane recover, as a rule, more readily and in proportionately larger numbers than do the ignorant. I do not refer here to mere culture, but to that standard of knowledge and wisdom which is possessed by an average all-around man, who, although intelligent and well-informed, may never have studied within the walls of a college,

nor prided himself in having a university degree. Many self-made men are truly educated, and have more capacious brains and fertile minds than have many a graduate who has had the high opportunity of a scholastic training. I classify the educated by the standard of healthy brain work and mental scope. The operations of the mind are bounded by capacity of the organ, and we can no more elicit mental operations of a great power from a defective or limited brain than can a musician bring eight octaves of music out of a six octave instrument.

It is not, I repeat, the more highly organized brain which suffers the most in the mental struggle for mastery in the school; it is the weak organization, which breaks down first in the abnormal effort to keep up to an unreasonable demand made upon it. There is as much difference in brains as there is between iron and steel, and to attempt to manifest the elasticity of the former to the same extent as may be done with safety to the latter is only to show the weakness of the material and its lack of spring to regain its former position. To attempt to work up a 15 horse-power engine to that of a 25 horse-power engine means ruin to the machine by extra pressure, wear and tear. Applying this principle of mechanics to the equally mechanical brain, which is only a working organ of the mind, and we are demanding of it in its chemical, vital and physical operations more than nature intended it to do. The uniformity of standard of work for every brain means the same demand on brain dynamics, irrespective of capacity. You might as well expect to be able to put a quart of water into a pint measure, as to attempt to cram into or eliminate from any brain more knowledge or mentality than its capability will allow.

The attempt to get out of a Clyde horse the swiftness which is in a thoroughbred racer would be extremely ridiculous. On the other hand, to put the same load upon a swift runner which is put upon a draft horse would be equally futile. Each excels according to its kind and capacity. So to expect uniformity, capacity and mental power equally in any two human brains is very absurd to any one who has given the matter even ordinary consideration. There never have been, nor are there now, any two of the sons and daughters of Adam counterparts of one another in physical conformation or mental construction, and no two can bear worry, emotion and general fighting against all the untoward circumstances of life in exactly the same ratio. This is a truism which is of daily experience in all our lives. Yet in the face of this appeal to ourselves we

senselessly, sinfully, unpatriotically, force the juvenile brain beyond its strength in our schools and colleges in order to produce automatic prodigies of learning in youth, and—too often—also produce insane patients or imbecile nonentities in adult life. At best, it means the thrusting out into the battle of life tens of thousands of young people whose life "gumption" has been used up, and to whom is left a legacy of crippled energies and curtailed possibilities. When a common standard of education is needed for all kinds and conditions of mind, then is it evident the more limited working power must suffer in the struggle towards the unattainable. What is easy of accomplishment in one scholar may be almost impossible in his next neighbour in the class. Hence the benefit of options in the advanced studies. Each student can take those subjects which are in line of his aptitudes and likings. This is quite a different thing, however, from forcing a mind forward by an undue effort to keep all its powers up to their full tension in all directions. Let me repeat what I have already said in an Essay on "*Health and Education.*"

"As a result, the reserves of nature are called upon at the expense of growth, brain nutrition, and the building up processes. All minds put forth energies in one direction more than another. Here our individual differences come in. None of us are formed in the same mental mould. Even our potentialities vary, but are interdependent upon one another. They have a community of interests and draw resources from one another. This being the case, it is evident that the pushing forward of all the faculties at once, irrespective of natural bias and aptitudes, means a dwarfage of individual leaning because of the dissipation of reserve energies. Let me repeat. The educator looks at the mind development alone as evidence of his skill and assiduity. The physician looks upon both body and mind as objects of care, and endeavours to keep both under healthful conditions. The educator thinks that the mind in each individual has possibilities and potentialities almost unlimited if pushed to the test. The physician knows that each person has powers of growth and development beyond which such cannot go, by any amount of mental training. No forcing can go beyond the brain capacity, and that at its weakest point. This is especially true, when hereditary tendencies are taken into account. We have at our disposal only a certain amount of energy. It is transferable to some extent, and if used in one direction it is lost in another. This law is seen in operation in animal life as well as in mind phenomena. Exhausted muscular force means to some extent mental loss; violent emotion, or sudden physical shock means in some degree muscular and organic enfeeblement. To a large extent this duality co-relates with one another. This being the case, it is evident that undue forcing in any one direction affects the whole organism.

"This mind organ is delicate, simple, and easily impressed. It can be operated upon or it can be used as an instrument to involve all mind

action. In other words, it may receive impressions, or it may inherently manifest mental power. It may merely be filled with easily acquired knowledge, which may be the work of others, or it may give out its own energizing creations. In the former class of impressions it is only receptive, which is merely an appeal to memory; in the latter, is exercised in mental dynamics, and brings into being new ideas and native conceptions. To imbibe as a sponge gives no energy and no strength, but to grow as a tree gives power by virtue of the exercise of its increasing activity. Not only so, but this energizing entity increases the volume and stability of the organ, as physical exercise increases muscular tone and fibre. Inertia means debility, for

‘Labor i life.
Tis the still water faileth.’

“On the other hand early precocity mostly means adult enfeeblement. It is taxing the future by unduly straining the brain, from which it seldom recovers, and as a result we have a languid organ and a stunted intellect. Those who educate scout this idea, because their handiwork is best seen in forced effort and juvenile automatic memorizing. These prodigies of learning astonish trustees and parents and redound to the teachers’ credit. Those who teach believe that there is an unlimited capacity for thinking in all directions in every person. All the mental powers are pushed on all sides without respect to weak points.

“It is self-evident that to merely cultivate memory is one thing and to evolve thinking is quite another. Cramming means mere remembrance, and may be indulged in with no more originality than are the chatterings of a parrot. This system carried to extremes gives mental dyspepsia, because there is not sufficient intellectual energy to assimilate the pabulum provided. Memory has its function, but to put mere recollection in the place of education is to dwarf all originality of thought for want of mental development. The good memory is the means of carrying off all the prizes at competitive examinations, yet the best average mind will eclipsed such in life’s struggles for the mastery. There are, no doubt, a great many of our educated people who depend largely on remembered learning, and that many self-made men are distinguished by virtue of inherent power to originate. The great are not mere receptive machines; they put their talents out to usury; they are not merely recording instruments, but add to the common stock of knowledge by exploring new fields and by giving their experiences and discoveries to the world. Were it not for these pioneers we would still be floundering in the slough of barbarism.

(Vide “Education in relation to Health, by Dr. D. Clark.”)

We have the two extremes of danger. On the one hand the brain inertia, which means loose organization, and which is too often called “mental laziness,” in which extra effort means using up the limited reserves of such feeble intellects. On the other hand we have the active mind and brain, which need to be checked in their mettlesome ambition to go ahead. Such a constitution will go at headlong speed in its race for

knowledge, until it falls helpless by the way from sheer congenital I could give a long and sad recital of cases brought to me by parent of young people who came voluntarily in whose histories, shattered nerves, low vitality and fagged mental energies could be traced directly the deplorable effects of over study, and of an unduly forced education. The nervous headaches, the sleeplessness, the loss of appetite, the low-spiritedness, the lack of energy, the hot and throbbing temples, the temporary impairment of vision, (which causes two lines on the page of a book to blur into one), the partial loss of the usual facility to memorize, the lack of power to concentrate on one study, the night sweats, the panorama of dreams instead of the natural and profound sleep of childhood, the muscular twitchings and unusual thirst, and the morbid fancies, are only a few of the symptoms of many of those afflicted with the epidemic of over study. We see what is the cause of all this physical disturbance, from one fact alone, namely,—unless permanent injury is already done—these signals of distress and danger disappear during vacation. I have seen the symptoms intermittently moderate and subside during the rest of Saturday or Sunday, unless the victim is burdened with heavy tasks on these days also. The writer knows whereof he affirms in this respect.

Christian and moral precepts and duties can be taught on Sundays to week day scholars without injury and it may be with much profit, but to ask young children to distinguish themselves by memorizing Biblical biography, geography and topography, in addition to week-day lessons, is a system fraught with mind-destroying peril. It is now bearing its evil fruits in our country. It is not "malice aforethought" which prompts this pressure, it is gross ignorance, which sees only evidence of good work in phenomenal children, who are mentally old men and women in their childhood.

The teacher—poor fellow—often says to me: "I know what you say is true, but were I not to push my scholars to the utmost of their ability, by means of this hot-house growth, I would be condemned as producing no evidence of my diligence and capacity to teach. I must push forward, as rapidly as possible, all my scholars from one form to another. I must prepare as many as I can for the High Schools and Collegiate Institutes. These in turn compete with one another as to how many from each can matriculate in our several Universities and carry off scholarships. These glory in the machine-made scholars sent up in shoals from these centres of education."

The teachers are not altogether to blame. The system is at fault. There will be no redress nor relief to the tender and immature brains of the rising generation until public opinion is educated to such a point as to demand a check being put upon this deleterious system of cramming and pushing beyond natural demands.

In the higher schools there are added from year to year new studies to the great catalogue already in existence. There is no knowing where this craze of hobby riders will end. In the meantime the coming race is being sacrificed to lack of judgment and discretion.

Let the next book issued to the public by our educators be for the use of teachers and parents, and let it show that secret vices and public school high pressure in the education of our youths are sapping the foundations of the Christian nations of to-day, by insidious approaches into the brain world of our womanhood and manhood. Some apologetic and ardent school teachers say to me that the children are as healthy looking and robust as they were in our young days, or even in the times of our fathers. The testimony of those best qualified to judge is not in accord with this view. Take for granted, however, that on the surface this appears to be the case with the majority of children, yet, such apologists do not know or seem to forget, that the general muscular health of an individual may be comparatively good, and at the same time the nervous and mental systems may be mere wrecks. The automatic life of the body may exist in its usual vigor when the organ of the mind is diseased or, at least, out of tune. The majority of the chronic insane eat well, sleep well, and are in prime physical order, but who can doubt their deplorable mental condition? In the same way the scholar may give little evidence of the deterioration of organic life, especially the muscular, while, at the same time, the mind in its operations is daily throwing out signals of distress, to which no heed is given until serious injury is done and it is too late to mend. The warnings are not heeded in the foolish competitive race for scholastic supremacy, until a general breaking up takes place and this great evil is seen in permanent brain disease. The majority of children thus sacrificed show failure of bodily health, but much mischief is done to them when apparent health exists. The brain is a long-suffering instrument, and—like the stomach—will endure much ill-usage before it shows any disability. When patience no longer becomes a virtue, it gives up the struggle and capitulates to the invader of its wonderful domain. Mind must of necessity suffer with it,

as—in this life at least—they are a duality for, as Shakespeare puts it in King Lear :

“For we are not ourselves, when Nature being overcome,
Compels the mind to suffer with the body.”

If this is not so, what means all these refuges in educated Christendom for the insane, the idiotic, the feeble-minded—in short, the great and ever increasing army of defectives? The like was never known before in the history of our race, and means its utter extinction, as the same inexorable law has done when operating among the nations of antiquity. There is great significance in the fact that nervous diseases have increased a thousand fold within the last half century. I have in my library volume upon volume, devoted solely to the study of these diseases. Under the name of *neurasthenia* or *nerve-weakness* or *nerve-starvation*, a legion of modern brain and general nerve troubles are indicated. They crop up from childhood to old age in all classes of the community, but especially in those to whom life has been a fierce struggle, and who gallop through the world and trot into the grave.

“The mill of God grinds slowly,
But it grinds exceeding small.”

I am glad to know that in many of our schools, especially in the cities, industrial work, calisthenics and kindergarten, are being introduced during school hours into the child-life and youthful recreations of more adult age. This is a step in the right direction, thanks to the persevering efforts of our physicians and the intelligent teachers, who are educating the people in respect to their duty to the young. Other malign influences, such as bad sanitation, troubles, drunkenness, fast living, in all their phases, are among potent causes. After making all allowance for hereditary possibilities based upon their existence among parents, and which lead to a downward tendency in their progeny, a large balance yet remains which is directly traceable to over-pressure of juvenile brains, and which is sapping the mentality of our people. It is a grand thing for Christendom that it is a law of Nature to fight against the invasion of disease, and to seek to come back to healthy conditions.

Dr. Y. S. Clouston, Medical Superintendent of Morningside Asylum, Edinburgh, says in *The Journal of Mental Science*, April, 1882 :

“I cannot help adverting to the absurd and unphysiological theories of education which are sometimes taught, and which we as medical men should combat with all our might. The old plan of attending to the

acquisitive and mnemonic faculties of brain alone in education is now fortunately giving way. The theory of any education worth the name should be to bring the whole organism to such perfection as it is capable of, and to train the brain power in accordance with its capacity, most carefully avoiding any overstraining of weak points; and an apparently strong point in the brain capacity of a young child may in reality be its weakest point from hyperactivity of one part. I have known a child with an extraordinary memory at eight, who at fifteen could scarcely remember anything at all. Then, as the age of puberty approaches, one would imagine, to hear some scholastic *doctrinaires* talk, that it was the right thing to set ourselves by every means to assimilate the mental faculties and acquirements of the two sexes, to fight against nature's laws as hard as possible, and to turn out physically hermaphrodite specimens of humanity by making our young men and women alike in all respects, to make our girls pundits and doctors, and our young men mere examination passers.

"Some educationists go on the theory that there is an unlimited capacity in every individual brain for education to any extent in any direction you like, and that after you have strained the power of the mental medium to its utmost there is plenty of energy left for growth nutrition and reproduction. Nothing is more certain than that every brain has at starting just a certain potentiality of education in one direction and of power generally, and that it is far better not to exhaust that potentiality, and that if too great calls are made in any one direction it will withdraw energy from some other portion of the organ. These persons forget that the brain, though it has multiform functions, yet has a solidarity and interdependence through which no portion of it can be injured or exhausted without in some way interfering with the functions of other portions. To say that any one man could have the biceps of a blacksmith, the reasoning powers of a Darwin, the poetic feeling of a Tennyson, the procreative power of a Solomon, and the longevity of a Parr, is simply to state a physiological absurdity. No prudent engineer sets its safety valve at the point above which the boiler will burst, and no good architect puts weight on his beam just up to the calculation above which it will break. Nature generally provides infinitely more reserve power than the most cautious engineer or architect, but the brain in its work should not be strained up to its full capacity except on extreme emergencies. Especially do these principles apply if we have transmitted weakness in any function or part of the organ; and what child is born in a civilized country without inheriting brain weakness of some sort?"

Dr. Butler, late superintendent of the Hartford Retreat, says in one of his reports:

"Over three thousand cases of insanity have now come under my direct observation and care. In a large proportion of those whose histories I could obtain, I have found that the remote and predisposing causes of insanity could be traced to malign influences on childhood. The neglect of physical training, and the imperfect physical development which follows from this neglect, are strikingly evident in many of our female patients. The various causes which are reported to me as the sources of

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disease, and which are classified in the tables under the head of "ill health," "undue mental effort," "domestic unhappiness," etc., may very frequently be traced in their primary influences to the one cause of a want of physical stamina. We press the training of the mind by all possible hours of study in and out of school, and by the added stimulus of emulation, while we neglect the training of the body in di-regard of that mysterious but absolute law of sympathy which compels the debility of the latter to cripple the action of the former. My own observation leads me to think this error will be found to exist more frequently with parents than with the more intelligent and advanced of our teachers; and its pernicious tendencies are beginning to be better appreciated."

"Prof. N. J. Bystroff has examined 7,478 boys and girls in the St. Petersburg schools during the last five years, and found headache in 868, that is 11½ per cent. He states that the percentage of headaches increases almost in a direct progression with the age of the children, as well as with the number of hours occupied by them for mental labour; thus, while headache occurred in only 5 per cent. of the children aged eight, it attacked 28 to 40 per cent. of the pupils aged from fourteen to eighteen. The author argues that an essential cause of obstinate headache in school children is the excessive mental strain enforced by the present educational programme, which leaves out of consideration the peculiarities of the child's nature and the elementary principles of scientific hygiene. The over-strain brings about an increased irritability of the brain and consecutive disturbances in the cerebral circulation. Prof. Bystroff emphatically insists on the imperative necessity of permanently admitting medical men to conferences of school boards."—(*British Medical Journal*.)

The above is a warning voice from far off Russia by one of its distinguished scientists.

"We hide our defectives, our demented, and our pauper infirm in havens of refuge out of our sight. Had we not these retreats and all our mentally and physically afflicted were allowed to drift about in the community as in former times, these ever-present evils and evidences of national depreciation would frighten us. We would study more than we do the laws of health, and how best to develop and maintain moral, intellectual and national supremacy.

"Look at the ever increasing demands for hospitals, asylums for insane and imbeciles, schools for feeble-minded, retreats for nervous complaints, almshouses for human wrecks, prisons for chronic and congenital vagabonds, and then say if a vicious system of sanitation, of customs, of habits, and of education has not something to do with this state of things. This is not the Jeremiad of the pessimist: rather it is the story of a danger signal to which we would do well to take heed. The great restorer of brain power is profound sleep, and plenty of it to the school-going child. It stores the vital battery with mental energy. The child wants a dreamless forgetfulness to fully recuperate from its daily exhaustion. This is a physiological axiom. It is also forgotten that much depends upon the kind of exercise a scholar takes. Work of some kind is better than none, but it is not invigorating like play or some kind of amusement or enjoy-

ment. These are mental tonics which have no equivalents. The boy will soon tire or weary sawing wood or weeding flower-beds; but let him play fox and hounds, or football, and his energy is almost tireless. The girl sees no pleasure in practising on a piano at her lessons, or washing dishes in the kitchen, but let her dance from evening till morning, or roam the woods at a picnic, or go a boating, and her endurance is a matter of astonishment. Pleasure goes with the exercise, thus it is nature's stimulant and invigorator. When such boys and girls are approaching adolescence it is well to find out their natural bent of mind, and having done so, to lead the superabundant energy in the direction of well-liked and well-directed technical, professional, or mechanical pursuits. This is the critical time when a proper choice of occupation may mean pleasure in its pursuit, or a life-long drudgery in unnatural and unpalatable employment. Brain work is needful and healthful. It is a law of nature that activity is necessary to health, but it must be exercised in accordance with the laws of health. We are violating rightful conditions. Over-pressure, undue anxiety, violent passion, worry without needful rest and fresh air, always mean a premature wearing out of the machine. A brain under such disadvantages is heavily handicapped in the hot race of life.

"Education should be conducted somewhat as follows, viz. :—

- "1. No teaching beyond object lessons up to six years of age.
- "2. Object lessons with reading and writing up to nine years of age.
- "3. Reading, writing and arithmetic, in its four primary divisions, and geography up to twelve years of age.
- "4. The preceding, with primary arithmetic, history and grammar up to fifteen years of age.
- "5. From this age such studies as will assist the girl in feminine duties and the boy to some definite employment or profession.
- "6. No studies in the evening until after fifteen years of age.
- "7. Three hours daily of school time up to nine years of age, four hours to twelve, and six hours until fifteen years of age.
- "8. After fifteen years of age studies to be intermingled with congenial and useful mechanical work. This to apply to both sexes."—(Dr. D. Clark's *Health in relation to Education*.)

