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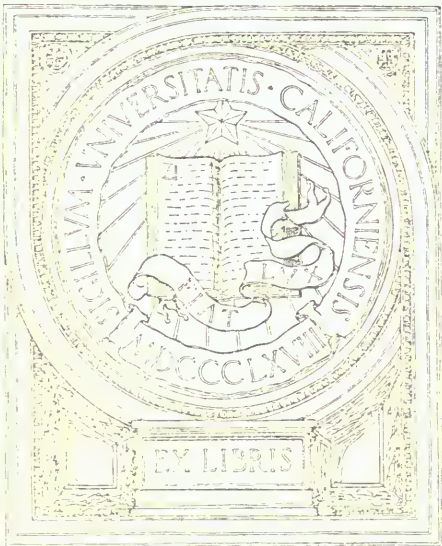
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Physical Culture in Amherst College.

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PHYSICAL CULTURE

IN

AMHERST COLLEGE.

BY

NATHAN ALLEN, M. D.

PREPARED BY THE REQUEST OF THE TRUSTEES.

LOWELL, MASS:
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1869.

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PHYSICAL CULTURE IN AMHERST COLLEGE.*

I. ITS INTRODUCTION.

Amherst College is very much indebted for the establishment of the department of Physical Culture to the deep interest and personal labors of its President. At his inauguration in 1854, several pages of his discourse were occupied in showing the important relations that exist between the mind and the body:—that both should always be exercised in harmony with each other, and that no course of education was complete without devoting special attention to secure a good development and healthy state of the physical system. In his first report to the Trustees in 1855, upon the condition of the Institution, he says, “no one thing has demanded more of my anxious attention than *the health of the students*. The waning of the physical energies in the midway of the College course is almost the rule rather than the exception among us, and cases of complete breaking down are painfully numerous.”

And in his report for 1856, he says, — “the breaking down of the health of the students, especially in the spring of the year, which is exceedingly common, involving the necessity of leaving college in many instances, and crippling the energies and destroying the prospects of not a few who remain, is in my opinion wholly unnecessary.

*The Trustees of Amherst College, in their annual report of 1855, reported to the De. Nat. Coll. Assoc. a paper, by the author, on the “Beneficial Effects of a System of Physical Culture, a statement of the influence of the German system.”

THE AUTHOR, LOWELL, MASS.

(Presented at the annual meeting of the Board of Education, 1857.)

if proper measures could be adopted to prevent it." He suggested that some lectures upon the subject should be obtained from distinguished medical gentlemen, and accordingly Dr. Morrill Wyman, of Cambridge, was employed, who, in the spring of 1857, gave two lectures before the students upon the laws of health.

In President Stearns' Report to the Trustees for 1859, the health of the students again constituted a prominent topic. He says, "time and experience have convinced me of an imperious demand, in the circumstances of an academic life, for immediate and efficient action on this subject: many of our students come from farms, mechanic shops, and other active occupations, to the hard study and sedentary habits of college. Physical exercise is neglected, the laws of health are violated, the protests and exhortations of instructors and other friends are unheeded. The once active student soon becomes physically indolent, his mental powers become dulled, his movements and appearance indicate physical deterioration; — he makes occasionally spasmodic efforts to regain his former elasticity by exercise, but by finding discomfort more than advantage from it, he eschews exertion and becomes more inert than ever.

"By the time the Junior year is reached, many students have broken down their health, and every year some lives are sacrificed. Physical training is not the only means of preventing this result, but it is among the most prominent of them. If it could be regularly conducted, — if a moderate amount of physical exercise could be secured as a general thing to every student daily, I have a deep conviction, founded on close observation and experience, that not only would lives and health be preserved, but animation and cheerfulness, and a higher order of efficient study and intellectual life would be secured. It will be for the consideration of this Board, whether, for the encouragement of this sort of exercise, the time has not come, when efficient

measures should be taken for the erection of a Gymnasium, and the procuring of its proper appointments. It is a settled conviction, in my own mind, that only by a certain amount of regular exercise, together with attention to other laws of health, can that listlessness and dullness and inefficiency which is so hostile to good scholarship and so common among students, be overcome."

In concluding his remarks the President stated, that two of the most promising students in the Senior class had just deceased, whose deaths had probably been occasioned by violating the laws of health in college; and other students were fast breaking down their constitutions, and paving the way to follow them. The statement of these facts had at the time an impressive effect, and served to favor immediate action in the matter. The Trustees chose a committee, consisting of the President, Dr. N. Allen, H. Edwards, Esq., and Col. A. H. Bullock, to take the subject into consideration, who reported at once, that it was expedient to erect a suitable building for a Gymnasium; and, provided a certain amount could be raised by subscription, they recommended that an equal amount be appropriated for that purpose from the treasury of the Corporation. This report was accepted by the Board, and a committee was appointed, consisting of Hon. J. B. Woods, Prof. W. S. Clark, Hon. S. Williston and the President, with full powers to collect funds, procure plans, select a location for the building, and to make contracts for the erection and completion of the same. In obtaining subscriptions, and as a member of the building committee, Prof. W. S. Clark, with his accustomed energy, performed efficient and successful service.

The place selected for the site of the building was east of the Grove, and directly north of East College. It was built of Pelham granite, two stories high, fifty by seventy-two feet; and though the committee exceeded their first plan in the size of the building, still, if twenty feet more

had been added to its length, the edifice would have been better proportioned and afforded more ample accommodations. It is very desirable that this addition shall yet be made, as the wants of this department render it necessary. Upon the completion of the building, the name of "Barrett Gymnasium" was given to it, from Dr. Benjamin Barrett, of Northampton, who had contributed liberally towards its erection. Since that time, this same gentleman has put in, at his own expense, a gallery at the west end of the hall, and also paid a part of the annual expenses for repairs, improvements, &c., &c. It is now hoped that some generous-minded individual may be found who will liberally endow this professorship of Hygiene and Physical Education, thereby placing it upon an independent foundation.

As this department was new, and from its peculiar character might encounter more difficulties than usual, on account of which its teacher might desire advice and counsel, it was thought best by the Trustees to have a Gymnasium Committee. President Stearns, Drs. E. Alden and N. Allen were therefore appointed such committee in 1860 and 1861. Since that time, the President and Dr. Allen have served every year, with the addition to the committee in different years of Dr. Benjamin Barrett, Rev. William P. Paine, D. D., and Rev. L. Sabin, D. D.

II. ITS PLAN.

In his Annual Report for 1860, the President said, "one of the prominent subjects requiring attention at the present meeting of this Board is the Gymnasium. The Building Committee will report its cost, and the measures taken by them to secure its erection; also what will be needed for its apparatus and other appointments. The Faculty are of the opinion that its exercises should be conducted in some such manner as the following: 1st—The

main object shall be not to secure feats of agility and strength, or even powerful muscle, but to keep in good health the whole body. 2d—That all the students, (unless there should be exceptional cases) shall be required to attend on its exercises for half an hour, designated for the purpose at least four days in the week. 3d—That the instructor shall assign to each individual such exercises as may be best adapted to him, taking special care to prevent the ambitious from violent action and all extremes, endeavoring to work the whole body and not over-work any part of it. 4th—That while it may not be expedient to mark the gradation of attainment as in the intellectual branches, yet regularity, attention and docility should be carefully noted so as to have its proper weight in the deportment column of the student's general position. 5th—That some time shall be allowed out of study hours for those volunteer exercises which different men, according to their tastes may elect for recreation, and particularly that the bowling alleys be not given up to promiscuous use, but be allotted at regular hours to those who wish to make use of them.—all these voluntary exercises, of whatever kind, to be conducted under the supervision of the Gymnasium instructor. 6th—That the building shall always be closed before dark, that no light shall be used in it, and no smoking or irregularities of any kind shall be allowed in it. 7th—That the instructor (if a suitable person should be employed) ought to be a member of the Faculty, and give in to it his marks and occasional accounts, and receive directions, as other officers of the college are accustomed to do. It must be obvious," he adds, "from this general view, that a teacher of very high qualifications will be demanded. With such a teacher we may be almost sure of success: with an inferior man our failure need not be foretold.

"What we need is a professorship which shall extend over the entire department of physical education. 1st—The

officer should be a skillful gymnast, capable of conducting his classes, by example as well as precept, through all the exercises which the best training would require them to perform. 2nd — He should have a good medical education, with sufficient knowledge of disease, if not to manage severe cases, yet to know whether a student is sick or well, obeying the laws of health or breaking them, and, as a wise friend, to caution him, advise him and put him on the track towards physical vigor. 3rd — That he should have such knowledge of elocution as would enable him to teach those movements of the body, lungs and vocal organs which are essential to graceful and effective oratory. Elocution is properly a branch of gymnastics, and the highest degree of health, to say nothing of good manners and good speaking, can hardly be secured without it or a substitute for it. This officer, while having charge of gymnastics, would naturally teach physiology as far as might be necessary for all practical purposes, including the laws of health and the physical part of oratory : and as he would be much with the students, and would be likely to have great influence over them, he ought to be a man of cultivated tastes and manners. — a man of honorable sentiments and correct principles, having high aims and a Christian spirit. Such a man, with such a work as I have now marked out successfully pursued, would be an incalculable advantage to the College and to mankind. We should not only have the honor of being the first institution in the country which has ever sustained such a professorship, but we should probably save to the world a vast amount of physical and mental power which would otherwise be wasted, and further the great ends of education, *which are to make men.*"

At this same meeting of the Trustees, a Report was received from the Building Committee on the Gymnasium, appointed in August, 1859, which, with the preceding remarks of the President, was carefully considered by the

Board, and referred to a committee consisting of Dr. N. Allen, Rev. Dr. Paine and Hon. S. Williston. The Report of this committee approved the doings of the Building Committee, notwithstanding they had enlarged the original plan of the Gymnasium, and considerably exceeded the expenses first contemplated. It states that the structure first planned would not have conformed with the other college edifices, and would not have been adequate in size and accommodations to meet all the wants of such a department. It recommended further appropriation to complete the building, and to equip it at once with all the necessary apparatus. It also recommended the following general plan, which was unanimously adopted:

TO ESTABLISH A DEPARTMENT OF PHYSICAL CULTURE IN THIS COLLEGE; and that the duties of its Professor shall be:

1st. To take charge of the Gymnasium, and give instruction to the students in Gymnastics.

2nd. To take a general oversight of the health of the students, and to give such instruction on the subject as may be deemed expedient, according to the general plan stated by the President in his Report, and under the direction of the Faculty, like all the other studies.

3rd. To teach elocution so far as it is connected with physical training.

4th. He shall give lectures from time to time upon Hygiene, Physical Culture, and other topics pertaining to the laws of life and health, including some general knowledge of Anatomy and Physiology.

5th. The individual appointed to have charge of this department shall be a thoroughly educated physician, and, like other teachers and professors, shall be a member of the College Faculty. It is distinctly understood, that *the health*

of the students shall at all times be an object of his special watch, care and counsel.

The title or name of the Professorship in this department having come under consideration by the Board, it was moved by Dr. Allen, (and the vote unanimously adopted,) that the style of this Professorship shall be "*The Professor of Hygiene and Physical Education.*"

It was the intention of the Trustees to incorporate these exercises into the regular curriculum of college studies, and make it obligatory upon all students to attend upon them as much as on instruction in Mathematics or the classics. It should be observed, that nearly all Gymnasias connected with literary institutions, both in Europe and America, had failed to accomplish the results intended or expected, because no system of exercises was adopted in harmony with the laws of the body, nor did the character given them correspond to their importance, or to require that daily regular training, which was accorded to mental acquisitions. In the present instance, instead of leaving the thing to take care of itself,—for students to exercise or not, at their option or convenience, without any guide, system or instruction,—the Trustees determined at the outset to place the enterprise in the position which its importance and success demanded. To accomplish this object, two things were deemed indispensable: 1st—The *living teacher*—one thoroughly acquainted with the structure and functions of the body, with a knowledge of the laws of Hygiene:—and 2dly, this physical training must be made a part of the regular exercises of the Institution, and must be stamped with the same importance, authority, rewards and sanctions as are accorded to the other branches of study.

With this feature in the history of Physical Culture, as connected with large literary Institutions, Amherst College, we believe, takes the lead. In fact, it is the first instance in the whole history of modern education where the claims

of the body, its proper development and healthy training, have been placed upon the same platform, and the same importance attached to them as to any other branch of study or mental acquirement.

Great expectations were once raised from the establishment in this country of manual labor schools, and some of them attracted for a time large numbers of scholars, and enjoyed apparently great prosperity. But the experiment proved of short duration. They all failed and were given up, principally for two reasons: 1st—The pecuniary results, which were held out as a leading motive, were not found practically to correspond to the anticipations created or promises made; and 2dly, neither the work undertaken nor the employments pursued were of a character to interest properly the mind, and thus exert that beneficial influence upon the health which was desirable. They were not calculated to develop harmoniously all parts of the body, and create a pleasurable excitement in the exercise itself. And it is questionable whether any kind of work or employment suitable for a large body of young scholars to pursue together can be found, that will be remunerative, and, at the same time, productive of health and agreeable excitement. In this department, at Amherst, we have, in addition to its physical exercises, the services of a well-educated and skillful physician, who is the appointed supervisor of the health of the Institution.—whose duty it is to forewarn students collectively and individually of the first symptoms or appearance of disease, and whom they may feel at perfect liberty to consult in respect to all manner of weaknesses and complaints. Then, besides these physical exercises and the more public lectures on hygiene and health, this physician will have familiar talks with students just entering college upon the character and danger of habits of dissipation generally, and of private vice in particular, to which young men congregated together are peculiarly exposed.

III. ITS HISTORY.

At the meeting of the Board of Trustees, August 6th, 1860. John W. Hooker, M. D., of New Haven, Ct., was appointed professor in this department. Dr. Hooker was a graduate of Yale College, and had spent some years in Europe in completing his medical education. He had given special attention to physical training, and, being himself a skillful gymnast, possessed qualities that eminently fitted him for starting such an enterprise. But before the close of the year his health failed, and he resigned his position, and died in about two years afterwards.

Dr. Hooker, during his short residence here, made an excellent beginning in this department, by creating much interest among the students in matters of Hygiene and Physical Education, as well as in reducing the gymnastic exercises to regular system and order. On account of the martial spirit that everywhere prevailed at that time, the attention and co-operation of students were more readily secured. The urgent calls of our country for young men to volunteer as soldiers for the war raging at a distance, and the music of the "Fife and Drum," heard in almost every town and village at home, were peculiarly calculated in those times to inspire students with a fondness for physical exercises, and military drills. Such was the demand in this direction, that Col. Luke Lyman, of Northampton, distinguished as a drill-master, was employed, in the Spring of 1861, to give instruction and training to students in military tactics and exercises.

At the annual meeting of the Trustees, August 8th, 1861, Edward Hitchcock, M. D., a graduate of the College and of the Medical School of Harvard University, bearing a most-honored name, and possessing many qualities admirably fitting him for this charge, was appointed professor in this department. And in his first report to the Trustees,

Dr. Hitchcock remarks: "I am agreeably surprised that the interest has been kept up during the year in this department, as it certainly has. And I speak from knowledge on the subject when I say, that there is no more disposition to evade the duties of this department than there is of any other exercise of college. I have always insisted upon order and obedience to rules. I have had but little difficulty in securing them. During a portion of the exercises, I urge upon the captains the necessity of introducing playful exercises, such as running in grotesque attitudes, singing college songs, &c. Sometimes this may seem boisterous and undignified, but it seems desirable to me that a portion of the animal spirits should be worked off inside the stone walls of the gymnasium, under the eye of a college officer, rather than out of doors, rendering night hideous; and in no instance has the captain found the slightest difficulty in bringing his men into line at the word of command."

At the close of the third year, the Professor in his report says: "In regard to the success of physical exercises in the Gymnasium, as at present carried on, I can only reiterate what was stated in my report one year ago, and this is that the plan originally proposed works admirably. The novelty passes off by the end of the first six months, and then the students regard the principal exercise in the same light as they do any other college duties. And I feel confident of the truth of the statement when I say, that a required exercise in the gymnasium is no more irksome to the students than is a required duty in any of the literary and scientific departments of college." In July, 1864, the Professor says in his report to the Trustees: "The past year's experience shows that this department is being rapidly established upon a permanent and systematic basis." It may be proper to explain more in detail, how and in what way these exercises are conducted from day to day in the Gymnasium. The leading design is, that all the muscles of the body shall be

brought into exercise in harmony with the laws that govern their natural action, and in a manner to promote the greatest possible amount of health. It is the practice of classes to perform some exercises together in concert, and they generally occupy one half-hour in the forenoon for this purpose ; sometimes sections of a class will go through certain exercises, one right after another, and then again here and there individuals will be seen trying their agility and strength upon some parts of the apparatus.

Each class has a uniform of its own, and forming together in a line, in the lower room, marches in regular order into the upper hall under its respective captain, frequently singing a lively song : the roll is then called by the Professor, absences and deportment marked ; the members of the class then dividing into sections, and obtaining their dumb bells, Indian clubs or wands, take their places in the central portions of the hall, where they go through with an almost endless variety of evolutions, assuming every position of the legs, arms and body possible. It is intended by the kind and variety of movement to exercise every muscle of the body in a manner to afford pleasure, not fatigue, and under such circumstances as to keep up an increasing interest to the close of every performance. These movements are made sometimes with great rapidity, and at other times very slowly, and then again interchanged from one kind to another, so that they shall not tire, and are performed apparently with remarkable ease and zest.

A writer in one of the popular newspapers of the day, after referring to the regular performances, gives the following amusing description of these miscellaneous exercises : "And now," says he, "they lay down their clubs or dumb bells and perform a variety of genuflexions and prostrations on the floor, with more than Mahommedan zeal, or down on all-fours, play at leap-frog, and put themselves in every conceivable and inconceivable attitude, till in spite of them-

selves every man is in a roar of laughter. Then breaking up into smaller squads, or every man on his own hook, they chase each other along the parallel bars and horizontal ladders; run up and down inclined planes; bound over horses from spring-boards; turn somersets on springs; mount up to the roof on a series of parallel spring-bars as if by magic; and by magic come down again unhurt, and when they have gone through with all these evolutions and others too numerous to mention, (not all in every half-hour, of course, but always enough to touch every muscle in the most hidden recesses of the frame, and to call forth a gush of life and joy from the darkest and deepest fountains of the soul.) — after all this apparent medley of confusion, enough to distract almost as much as it amuses the looker-on, they are brought up standing at the expiration of the half-hour, like the singers at the end of our old-fashioned fugue tunes, and sent away to their meals or to their studies, as the case may be, with an appetite to relish, and a stomach to digest without difficulty or danger classics or mathematics, physics or metaphysics, beef-steak or roast pig, mince pies or plum-pudding." On Wednesdays and Saturdays, the regular exercises are omitted, partly to give to the officers of classes, as well as individuals, an opportunity to perfect themselves in gymnastics, but more especially because those days in college are generally appropriated to miscellaneous duties, and the afternoons particularly to recreation, reading, work, business, &c.

The question has often been asked, what kind of gymnastics is best? This depends on the object sought. If it is intended to make acrobats, pugilists, gladiators, or persons distinguished for physical strength or particular feats of agility, then it requires long training of certain muscles and distinct parts of the body, together with great care in the kind and quantity of food.

Again, if certain parts or organs of the body are weak or diseased, and the hygienic influences of exercise are sought

to restore strength and health, in this case, particular muscles must be exercised in just such a manner, and to just such an extent as may be directed by a skillful physician. This is what has been denominated the *movement cure*, and has met with great success, both in Europe and in our own country.

But in an Institution where a large body of students require daily exercise, with as little exposure and loss of time as possible, the lighter gymnastics as here practiced are undoubtedly best adapted to effect the object intended. It is surprising what a great number and variety of exercises are here devised and practiced, amounting in the course of the year to some five hundred. The design is, that all the muscles of the body should be exercised in a manner to equalize best the circulation of the blood.—to expand the lungs.—to aid the stomach in the digestion of food.—to strengthen the joints, develop all parts of the body in harmony with the most efficient action of the brain. Thus not only agility and strength of the limbs are acquired, but the vital forces of the system—fed from their natural sources of nutrition, absorption and respiration—are most abundantly supplied. The true course pointed out for physical exercise is, imitate the natural action of the muscles, or, in other words, follow the laws of nature in bringing the system into the highest state of physical health compatible with mental exercise. If there is danger of injury from any source in this system, it will arise either from the too rapid movements of the muscles, or from excessive exhaustion of the system. Both these extremes should be carefully watched and guarded against. In some quarters an attempt has been made to draw a broad line of distinction between what are denominated on the one hand *the light gymnastics*, and on the other *the heavy*, and to create prejudices in the community against one class or the other. Such a distinction is entirely unnecessary. There is plenty of room for both classes; one

kind may be better adapted to certain purposes than the other: and again for other purposes they should go together.

As an evidence that the public has been greatly interested in this department, the number of visitors present from time to time is a pretty good index. At first no count was kept; but from September 1st, 1866, to the close of the college year in July, 1867, there were present at these exercises 5,958 persons as visitors, and from September, 1867, to July 10th, 1868, the number was 4,798, more than one-fourth of whom were ladies; and the average number of visitors present at each exercise was over ten for both years.

The newspaper press generally, and the Springfield Republican in particular, has always manifested great interest in this department,—speaking of it in the most commendatory terms. From many such notices we must, for the want of room, make only one quotation, from a correspondent in the *Congregational Journal* of October 23rd, 1862, published at Concord, N. H.: “No description,” says this writer, “of the gymnastic manœuvres can give any idea of them: they are such as call into action every ligament, joint and muscle of the body, the whole frame,—not the least the chest and the lungs. No snail-like movement is tolerated. All their motions are as quick and regular as those of the well-disciplined soldier; they march, run, hop, jump; their legs and arms swing back and forth; the dumb iron bell they throw over head and shoulders with quick regularity; they run up long ladders with folded hands, their feet doing all the work; they swing, climb, hop, jump from place to place, from pole to pole like squirrels, and all done in perfect order, under the command of company officers.

“Now what is the effect of these gymnastic exercises on the students? Good and only good, on body, mind, manners and character. They are greatly promotive of health. This is evident from the general appearance of the students,

Their countenances are ruddy, their persons erect, their step quick and elastic, their manners easy, their gait gentlemanly, all their motions indicate healthfulness and cheerfulness. Casting my eye over the assembled college on several occasions, I was struck with the apparent joyousness of the students. No sad countenances were visible.

“The gymnastic exercises greatly promote the good order and morals of the students. Their animal spirits work off by the correct movements of the gymnasium. They are indisposed to the unmanly and often mischievous doings of students too frequent in our colleges. A citizen of the town assures me, that the amount of injury done to the college and other buildings in the village is almost nothing since the opening of the gymnasium, compared with what it was before. No less advantageous, probably, is the gymnasium to the *mental* progress of the students. They come from the gymnastic exercises to their studies with healthful bodies, clear minds and cheerful spirits. The ‘blues,’ those most formidable enemies of successful study, assail them not. All is bright and promising, all hopeful. Time will undoubtedly show that no one adjunct, no one department of college, will conduce more to the noble object for which the Institution was founded, than the Gymnasium.”

When the subject was first agitated in respect to introducing into college gymnastic exercises, there were various prejudices and objections to such a course. One of the original objections to the establishment of a gymnasium — and it still exists to some extent — is the danger of some serious harm or injury befalling those engaged in such exercises. But such accidents very seldom occur in the regular practice of gymnastics. It should be remembered, that the more one exercises in this way the better command of his limbs and body he obtains, and therefore is less likely to meet with injuries. During the eight years since the establishment of this department there have been quite a number

of bruises and sprains, one broken limb and one dislocated joint, but no really serious or permanent injury. Considering the great number and variety of exercises and the extraordinary exposures in the performance of daring feats,—that over six hundred students have taken a part in these exercises, and most of them, for a time, entirely inexperienced, the accidents have certainly been very few in number and slight in character. And those that have taken place occurred generally out of the regular exercises, for the want of care, or on account of some physical weakness of the individual injured. It is stated on good authority, that the accidents arising in ball-playing,—practiced only a few weeks each year,—are four times larger than those from gymnastics.

Another objection to the introduction of such exercises was drawn from the fact, that, in one sense, all the students were to be compelled to engage in them the same as in any other branch of study or general college exercise. This was something new. It was pretended that the Trustees and Faculty of the College had no direct control over the bodies of students, and had no business to direct when and how they should use their limbs. The plan proposed here of introducing gymnastics and making it compulsory upon all students to take part in them, was a new and advanced position in respect to a class of exercises or duties to which no members of a college or large literary institution in our country had ever been obliged to conform. It was apprehended by some that opposition to this course might be found, or a question of discipline between the Government of the Institution and its members might arise upon the ground of right or propriety of *compulsory* exercise. But fortunately no trouble or difficulty of this kind or even the shade of any has ever arisen from such source. The students have always promptly and cheerfully responded to all demands made upon them in this direction. It is now the opinion of

the Professor as well as the general sense of the students, we understand, that they would rather dispense with any other department or college exercise than that of Hygiene and Physical Education. To no other task, exercise or duty connected with college studies and requisitions do students now more readily repair, or so heartily engage in as those of the gymnasium.

But there is one feature in this department that deserves careful consideration, and which is here introduced by two quotations from the annual reports of the Professor to the Trustees. In 1865, he says, "I experience some trouble in being obliged to give excuses to new students on account of direction or request from parents or physicians,—many of whom know nothing of our exercises except that they are styled "gymnastics," and hence infer that they are of the severer form of labor, such as formerly were always connected with gymnasia. The students themselves who apply for these excuses are generally of the effeminate class, or the decidedly lazy ones."

In 1868 the Professor says, "I ought to speak upon one point, for fear that it might seem a weakness in the system unless fully understood. I am obliged to be more liberal in granting excuses for absences than are the officers of other departments. One reason is, because no idea of rank is attached to excellent and faithful performance at the gymnasium. Another reason is, our exercises in this department were established for recreation and exercise, so that extra work, such as wood-sawing, coal-carrying, other extra labor, &c., seem to be equivalent to an occasional exercise. Hence one who is well acquainted with the size of a class might often wonder at the proportion of their numbers present at an exercise. I am, however, careful that these excuses shall be given only occasionally, and that no one student shall be in the way of obtaining excuses as a regular habit." It is possible that there may sometimes be found a young

student possessing a constitutional weakness or nervous idiosyncrasy who should be excused from gymnastic exercises at the request of his parents or physician; but such cases will seldom occur; and then instead of being sent to college, such students should rather find a home in some invalid's retreat, or be placed under the *movement cure* for treatment.

In respect to the other topic referred to, it is, perhaps, the weakest point, and the source of greatest danger connected with this department. And the more excuses are granted on such grounds or expedients, the greater is the danger. Let a little choring, or work, or business, or a walk displace these regular gymnastic exercises to any great extent, and it constitutes a very weak point—an entering wedge, which if constantly, persistently and successfully applied, would break down this whole department. In the first place the students themselves, as a body, should make it a conscientious duty, and should allow no incidental work or trifling consideration to interfere with their constant attendance upon these exercises. An examination of the table showing the number of absences in the different classes from these exercises, does not speak well for the higher classes,—that the absences should increase with each class,—so that those of the Senior class are almost twice as many as those of the Freshman class.

While the Professor should pursue a most wise and judicious course in granting excuses, his general rule in the matter, if not resembling in fixedness the laws of the Medes and Persians, should certainly partake much of the Roman character. Something may be done by the other teachers in the Institution to sustain in this respect the Professor of Gymnastics, and to create the right kind of public sentiment upon this subject; and in our opinion it should be a serious question with the Faculty of the College why improvement or excellence in performance here should not count in rank

or attainment as well as in any other branch of study. If punctuality and deportment are favorably considered, why not improvement and excellence? Why not put this department upon a par in every respect with the others in the Institution?

IV. ITS RESULTS.

When the erection of a Gymnasium was first agitated, and even for some time after gymnastics were introduced, it was said by some persons that the whole thing was an experiment; that after the novelty was over the interest would soon subside, and the enterprise would prove a failure. It is now eight years since this department was established, — eight different classes, numbering in all over six hundred students, have taken part in its exercises, and four classes have enjoyed its benefits throughout their whole collegiate course. What then has been the effect of these upon the health of the students, as well as upon the sanitary condition of the Institution? This may be exhibited in a variety of ways.

1st. There has been a decided improvement in the very countenances and general physique of students. Instead of the pale, sickly and sallow complexion once very commonly seen, with an occasional lean, care-worn and haggard look, we now witness very generally, fresh, ruddy and healthy countenances, indicative of a higher degree of vitality, and that the vital currents, enriched by nutrition and oxygen, have a free and equal circulation throughout the whole system. This change is so marked as to attract the attention of the casual observer, and has been commented upon by those formerly attending Commencements or other public occasions here, as exhibiting a striking difference between the personal appearance of students at those times, and that at the present day. This fact is also corroborated by the testimony of boarding house keepers,—some who have been

here twenty years or more.—who say that the students now have a more *regular* and *natural* appetite than formerly, manifested not so much in the quantity or quality consumed, as in a better relish for plain, substantial and wholesome food. There is certainly the promise of a more harmonious development of the whole system.—a better commingling of all the temperaments in the physical organization of the students now than formerly.

2nd. In the use of the limbs and the body.—in the physical movements and conduct of students generally, there has been, we think, decided improvement. Once the awkwardness of manner and the ungraceful bearing of scholars were matters of common remark, and such characteristics not unfrequently followed them through life. This resulted not so much from the want of early training and instruction on this subject, as from the formation of bad habits in study, and the long continued neglect of proper exercise. It was frequently exhibited in stiffness of the joints, a clumsy use of the limbs, in round shoulders and a stooping posture, and sometimes by a countenance set, stern and almost devoid of expression. Now gymnastics, when properly practiced, are calculated to produce in this respect, a surprising effect upon the use of all parts of the body, as well as upon its development. They give not only agility and strength to all the muscles, but a quick and ready control of them, thereby begetting an easy and graceful carriage of the person. In other words, they tend to bring out the most important elements of a polished manner in the natural and dignified carriage of the body, in the easy and graceful movements of all the limbs, together with those expressions of countenance and those gestures which constitute the highest style of eloquence, whether in conversation or public speaking. And what gives this physical culture so much advantage and heightens its power is the fact, that the mind, whose discipline is co-ordinate, is conscious of this power.—conscious

that it can direct, control and command every muscle or part of the body at its own will.

3rd. The practice of gymnastics *in concert* is calculated to beget personal sympathy, cheerfulness and buoyancy of spirits. The fact that a large body of students go through with precisely the same exercises together, at the same time and under the same general influences,— and these exercises continued for years,— creates a peculiar kind of sympathy, of interest and affection. In some respects it resembles the common practice of large companies eating and drinking together as expressive of their mutual good-will and friendship. It brings a whole class upon one common level, and in personal contact in such a variety of ways, that it tends to bind its members together by the strongest sympathies and bonds of fellowship. Exercises that would be monotonous and burdensome to the individual performed alone, when practiced by a large company, create the greatest interest and even enthusiasm. There is also a strong tendency at such times to mix in with these exercises no small amount of amusement and occasionally real fun: the odd, the grotesque and comical, producing bursts of enthusiasm or shouts of laughter. All this with improved circulation, digestion and respiration must, in the very nature of things, produce cheerfulness, hopefulness and buoyancy of spirits, expelling from the mind all despondency, melancholy, and “the blues.”

4th. We come now to consider what has been the effect more directly upon the health of the students, and the sanitary condition of the Institution. It is needless to state how many students formerly impaired or broke down their constitutions for want of sufficient exercise, or from irregular or excessive hours of study, or from some improper habits, or for want of suitable attention to diet, sleep or some other physical law. Perhaps the effects of violated law were not always visible at the time, and did not apparently impede

the college course, but the seeds *were here sown* which afterwards brought on disease and premature death, or crippled the energies and limited the usefulness through after life. This may still happen; but with such exercise and instruction as can now be obtained it is not near so likely to occur. Besides, where the vitality of the system is kept up by regular muscular exercise, to an even healthy state, it is one of the strongest safeguards against disease; and then when any organ or portion of the body is affected, nature is more powerful to throw off the attack. In a community thus trained and instructed the more common complaints, such as colds, headaches, sore throats, feverish attacks, will seldom occur, and the diseases to which scholars are peculiarly liable, such as dyspepsia, neuralgia and consumption stand a far less chance of finding victims. Any skillful and experienced physician will testify at once, that such a community is possessed of a wonderful power to prevent as well as throw off disease. The common proverbs, "*a stitch in time saves nine*," and "*an ounce of prevention is worth a pound of cure*," are not more truthful than the statement here made of the remarkable exemption from disease of a community trained and educated as above described.

5th. A comparison of the present health of students with what it was ten or fifteen years ago, shows a surprising improvement. It is rare now for any student to break down suddenly in his health, or to be compelled to leave college on this account. In 1855-6-7 and 8 such cases were common, as may be seen by referring to the statements of President Stearns in the opening of this paper; and the truth of the statements is moreover confirmed by others personally conversant here for twenty or thirty years. As no record was formerly kept of the amount of sickness from year to year, or of the number of students leaving college on account of illness, no exact comparison on these points in figures can be instituted. But the experience and obser-

vation of those who have been on the ground a long time must bear decided testimony to a greatly improved state of health among the students over that of former times; and as for those who once were members of the Institution, and return here on public occasions, they cannot fail to see a great improvement in this respect.

6th. But the evidence of improved health does not rest wholly upon individual opinions or upon loose comparisons. Since 1861, a register has been carefully kept of the kind and amount of sickness in college, an analysis of which presents some striking facts. No student is placed upon the sick list, unless he is detained two consecutive days from the usual exercises of the Institution. The number of students reported sick ranges in the course of the year from twenty-five to sixty, showing a far greater amount of sickness in some years than others, which depends very much on the fact, whether some epidemic prevailed, or whether the year as a whole, either on account of the weather or from some other cause, was not generally unhealthy. If allowance is made for this extra sickness in two of the years out of the eight, the register shows that the actual amount of sickness in college has diminished in these eight years more than *one-third*. That is, in the year just closed, there were only *two-thirds* as much sickness as in 1861, the year when gymnastics were introduced.

Again, the average number of students sick each year of these eight was thirty-eight, and the average number present in college was two hundred and twenty-four, showing that there were one hundred and eighty-six students on an average each year who did not experience two days' sickness at any one time. The register reports forty-one different diseases or complaints to account for this sickness, and a careful inspection of the list shows a remarkable exemption from what are considered generally the more violent and dangerous diseases. Most of the complaints were of

a common class that might occur in any community; and the number which naturally would grow out of the usual exposures of college students is very small. In fact there are scarcely any diseases reported as connected with the stomach and the brain, organs which are, in some respects, the most likely to become deranged by the sedentary habits of student life.

7th. But the most marked evidence of improved health is found in the diminished sickness of every class each year after entering college. In a table giving the amount of sickness arranged by classes, it seems there has been for these eight years on an average *more than three times* as much sickness in the *Freshman* Class as in the *Senior* Class. It may be said that the students upon first entering college do not know so well how to take care of themselves as they do in the third and fourth years; or that some students who come here feeble and sickly, leave the institution early, so that the vigorous and more healthy alone remain. This may account in part for the change, but only for a small part of it. For some students who now enter college with slender constitutions encounter considerable sickness the first year, but afterwards improve in health, and in the third and fourth years are comparatively well. And the number now leaving college during the first and second years, on account of ill-health is very small. Then again, if we compare the sickness or health of a class all the way through college now, with that of one ten or fifteen years ago, a surprising difference will be found; if the sickness did not then increase or keep up through the whole course, it certainly did not diminish so much in the second and third years and almost entirely cease in the fourth, as is the case now.

8th. There is still another class of facts very important in their bearing, though their value can not be fully exhibited at present. These are properly denominated *vital statistics*, and consist of nine items to each student, taken

twice the first year and once each year afterwards. Every student upon entering college is examined upon these points, namely; his age, weight, height, girth of chest, girth of arm and forearm, capacity of lungs, power of expiration, and a simple test of muscular strength. These points, making about three thousand distinct items each year, are carefully recorded in a ledger, and in the course of time will become very valuable, when comparisons can be instituted between results recorded here at different periods, and similar results obtained in other Institutions and elsewhere. This is comparatively a new field of inquiry, and when sufficient statistics are gathered, it will lead to the establishment of some very important facts,—such as the size and strength of particular limbs and muscles as increased by exercise, and also of the capacity and power of the lungs as affected by the same means. They will help to settle or throw some light upon what is the normal standard of students of the same age as it respects the several points given in these vital statistics, and then what are the best means or kinds of exercise to bring or keep them up to this standard.

As far as these statistics are already collected, they present some curious and instructive facts. The average age of all the students for these eight years has been 21.723 years; Seniors 23.048, Juniors 22.329, Sophomores 21.241, and Freshmen 20.275. The average weight of all has been 139.485 pounds; Seniors 145.921, Juniors 139.999, Sophomores 139.979, and Freshmen 132.041. The average height has been 5.651 feet; Seniors 5.634, Juniors 5.656, Sophomores 5.664 and Freshmen 5.651. In these two last items, (weight and height,) there was a decided gain to each class all the way through college, and they will compare favorably with other statistics collected upon these points. Quetelet, who has devoted more attention to this subject than any other writer, gives the average weight of an adult male 136.993 pounds, and the average height 5.333 feet.

Dr. Gould, who examined a large number of students in the Junior and Senior Classes at Harvard University and Yale College, together with some members of the professional schools, reports their average height 5.666 feet, and average weight 139,700 pounds. A. Maclaren, who has charge of the Gymnasium connected with the Oxford University, England, reports of the first one hundred names on his book as they arrived at the University, their average height 5.825 feet, and average weight 132,970 pounds.

A careful inspection of the Table giving the vital statistics of each class as it entered Amherst College, and then in its senior year, shows a decided enlargement of the arm at both points of measurement, and also of the girth of the chest, together with a marked increase in the capacity and power of the lungs. It is surprising what a change in several of these particulars some individuals have undergone in their college course. Instead of dwelling farther upon this part of the subject, the reader is referred to some facts and tables at the close of this paper.

There is still another very important consideration, viz: has the standard of scholarship in college been raised by means of gymnastics? As the system of marking or mode of exhibiting this standard was changed a few years since, an exact comparison in figures cannot here be instituted; but it is the decided opinion of the Registrar, (the College Officer who has charge of these statistics,) that there "has been an elevation of rank within the past few years." It may be that some individuals in a class formerly reached as high scholarship as any now do; but the *aggregate* scholarship of a whole class, we are confident, is higher now than it once was, and, to say the least, is much easier obtained, with fewer hours of study, and less loss of health and life.

V. ITS ADVANTAGES.

After having recounted in the preceding pages so many beneficial results of gymnastics, it may seem almost superfluous to point out any further advantages, but there are some which have not yet been noticed, the value of which will be better seen and appreciated by way of comparison with other kinds of exercise. 1st — How can the student find, with so little loss of time and all the requisite materials at command, other exercises equal in every respect to these, where, at all seasons, he is protected in his person from the storms and the cold, and his character shielded so much from temptation to bad habits as well as from immoral influences.

2nd. In attempting to carry out the motto, "*mens sana in corpore sano.*" preference should always be given to those exercises in early life, which serve not only to keep the body sound at the time, but will help to lay such foundations as will afterwards tend most effectually to keep it so and improve it. Now no kind of gymnastics or physical exercises whatever is so well calculated to do this as those under discussion. As they are designed to exercise every muscle in the human body, and to produce a harmonious development of the whole system, we may reasonably expect that they will ward off local weaknesses, or abnormal developments. The more evenly balanced is the organization, or the more perfect the harmony in the temperaments, the sounder is the constitution, and the better is the general health. And what is there so important to the professional man as a well-balanced constitution or uniformly good health? What multitudes fail for the want of them! Neither genius, talent nor learning can make up for them.

3rd. Again, there is another advantage from such exercises by way of creating *self-reliance* or *availability of power*. It is frequently found in public life that neither

brilliant talents nor great learning achieve success so often or so much as a ready skill, tact or aptness to use one's resources. The same is true from a physical point of view. It is not the mere possession of good health or sound constitution, however advantageous these may be, so much as the knowledge and control over the physical system obtained by years of gymnastic exercises, that gives that real *self-reliance* — that true *self-possession* which sustains one under all circumstances and emergencies. In order to apply knowledge and mental power most successfully on all occasions, there must be combined with it a strong feeling of *self-reliance*, the outgrowth of a healthy, well-trained and evenly-balanced physical system. The full force of this statement can be appreciated only by those who have had experience in public life, and passed through changes that are not uncommon at the present day.

4th. There is another advantage from these exercises worthy of notice, that is in preventing vicious and irregular habits. While no system of gymnastics alone can be expected to break up settled habits of dissipation, such as intemperance, licentiousness, and the excessive use of tobacco or any other stimulant, still, combined with other good influences, they have a direct tendency to forestall or arrest such practices by giving a safe vent to the animal spirits, by regularity of physical exercise, by improving the general health, and producing a more normal condition of the brain. But there is a vice, (nameless here,) more terrible in its effects, both physical and mental, upon the student, than either of the above, and over which gymnastic exercises have great influence. In fact, it is the testimony of the highest medical authorities, that regular and tolerably severe gymnastic exercise is not only the most effective means of preventing or checking this vice, but is really the best curative agent. And it is a gratifying fact that we can add the testimony of

the Professor in this department, that gymnastics have been working to a like result in this Institution.

5th. It is found that a *regular system of gymnastics* operates in a variety of ways as a powerful auxiliary of discipline ; that it answers as a kind of safety valve to let off in an indirect way that excess of animal spirits which is characteristic of some young men, and which not unfrequently leads them into trouble or conflict with authority. Again it serves with others as a kind of regulator to the system, exercising certain parts of it to such an extent as to produce weariness and fatigue, so that the individual seeks repose ; and with another class it tends to remove any unnatural or innate weakness of the frame, and by such improvements serves to equalize and regulate all the forces of nature. Thus such a system of gymnastics sets up *a standard of law for self-government* ; for it is based upon those great laws of *life and health* which are a part of the will and government of God in this world, as much as the ten commandments. No by-laws or code of ethics established by any human teacher or institution can compare in authority or final appeal to those *great natural, primal laws* engraved upon our constitutions by the Creator. It will be seen at once *what a power* the instructor has over the conscience and reason of a student thus trained. There are, it is well known, in every institution various misdemeanors and overt acts, which may not come under any formal rule, with plausible excuses for the same ; but here, in the laws of our own being, we have always at hand a standard of appeal. It is based upon that sacred injunction, "do thyself no harm." Every well-informed teacher, and especially one versed in the laws of physiology, will see almost intuitively the great importance and convenience of having such a standard of law for *private* as well as *public* discipline. Said President Felton to the writer, shortly before his decease, referring to the gymnastics at Amherst which he had just witnessed :

“ Such a system of physical exercises thoroughly understood and applied by the members of Harvard University, would aid me in the matter of discipline in that Institution more than anything else.” We are here authorized to state, that the Faculty of Amherst College have found great assistance in government from this source; — that since the introduction of this department, the cases requiring discipline have been far less numerous, and more easily managed, than formerly.

6th. Within a few years great interest has arisen with reference to physical exercises, partly on the score of amusement and recreation, but more for the sake of sanitary advantages. Few of these exercises are new, but a fresh interest in many quarters has been kindled up in their behalf. The following list comprises most of them: walking, horseback riding, skating, cricket and croquet playing, gymnastics and calisthenics, base-ball, foot-ball, boating, &c. Now no two of these exercises are precisely alike: they all have their peculiarities, calling into exercise different classes of muscles, and exerting diverse influences upon the system. The great objection to some of these exercises is, that they call into practice only a few muscles, and that over and over again. Others do not have that physiological influence upon the brain, nor produce that pleasurable excitement in the mind that is desirable. In fact it is found difficult to keep up the interest in many of them for months or years, without resorting to collateral aids, such as set games, bets, or a species of gambling.

Walking, the oldest of all exercises and the most extensively practiced, has many advantages — calling into play a large part of the muscles; — requires no expense, — is pursued in the open air; — and, when one has leisure, pleasant company and objects or attractions sufficient to interest the mind, no better physical exercise can be found.

Horse-back riding and skating may be reckoned among the most delightful exercises ; but then these, to say nothing of the expense, can be enjoyed only at particular seasons of the year or in certain kinds of weather ; and, to be rendered really pleasant and profitable, one must have company of the *right stamp*. These exercises are admirably fitted for individuals or small companies in pursuit of pleasure or health, or to resort to occasionally, but could never be practiced regularly and systematically by a large body of students.

In pleasant weather children and young ladies can find no better physical exercise than in cricket and croquet playing, but, when congregated in school or in seminary, calisthenics afford in these places the best kind of exercise for them. It is an encouraging fact that more and more attention is being devoted to such training both in the School and in the Family. Base Ball.—always popular and formerly practiced somewhat extensively.—has of late years come into great favor, and may be considered almost a national game. The effects of this exercise as a whole upon the system are decidedly beneficial. It is peculiarly calculated to call into practice nearly all the muscles of the limbs, as well as most of those of the trunk. The *manner* in which all parts of the body are called into action, affording a constant change of muscle, and variety in the rapidity of movement are very conducive to the promotion of both health and strength. But when this game is played with great zeal, there may be danger, in the too rapid and long continued exercise of running and violent efforts at striking the ball, of producing an injurious effect upon the heart and lungs, 1st, by increasing the circulation of the blood to an unnatural extent, and, 2nd, by causing a congested state of both these organs. If there should happen to be any constitutional weakness or abnormal formation here, the injurious effect and the danger would be still greater. There is also

an objection to this kind of exercise from the intense and general excitement sometimes created by competition, and again by resorts to wagers or bets. The sanitary effect is entirely lost sight of in the strife for victory. As this game can be carried on only in pleasant weather, and requires extensive grounds where the numbers are large, it is not at all well suited to the wants of an Institution whose members require daily exercise throughout the year.

The only remaining exercise that can properly claim attention is that of Boating. Just at the present time this is creating very great interest both on the part of the public as well as of some of our literary institutions. While, on the one hand there are great advantages, physical and mental, arising from this kind of exercise, on the other there are evils of a most serious character. In order to ascertain its real hygienic or sanitary effects it becomes necessary to examine the physiological changes it produces. There are two styles or modes of rowing, and where long training has been had the effect is marked in the difference of physical development. One mode increases particularly the muscles of the arms, shoulders and chest, while the other enlarges more the muscles of the legs, hips and back. By the former style, the rowers bend the back, bow the head forwards, and raise the shoulders, making a long, sweeping stroke without dipping the oar very deep into the water. But by the other mode, the back is more erect, the feet are firmly braced, the rower resting upon the oar, partly, does the work more with his legs, hips and back. Sometimes these two styles of rowing are blended together, and the development of muscle is more equal. In either case a powerful strain comes upon the back and chest, exerting a great influence over the functions of respiration and circulation. This effect is well described in the following quotation from the *London Lancet* of January, 1868: "the action of rowing interferes more

directly with the respiratory process than almost any other exercise. In running,—which, however, is equally liable to injurious excess,—it is within the power of the voluntary muscles to regulate the rate of the respiratory movements; and it is well known that a well-expanded chest and rhythmic breathing greatly diminish the disturbing effects of exercise upon the heart and lungs. But in rowing the chest is nearly always fixed, and the respiratory movements are only possible in the short interval of rest at the termination of the stroke. As the racing pace is forty strokes per minute, the rate of respiration is doubled, and the act itself, being necessarily shortened, is reduced to a mere involuntary gasp. Under these circumstances the lungs become rapidly congested and the heart seriously oppressed. It involves a draught on the muscular, and we should add, nervous and respiratory powers of those engaged in it more or less injurious to their future health, some temporarily, others permanently.”

Mr. Skey, one of the most eminent surgeons in Great Britain, in an article discussing this subject, in the *London Times*, 1867, referring to the condition of the crews at the termination of the races as he had witnessed it, describes it thus: “the men look utterly exhausted. Their white and sunken features and palid lips show serious congestion of the heart and lungs, and the air of weakness and lassitude makes it a marvel how such great exertion should have been so nobly undergone. We have repeatedly seen the after effects, spitting of blood, congested lungs, and weakness of the heart and great vessels from over distention of their walls; and we are therefore of the opinion, that some restrictions should be put upon the candidates for boating honors, and that the regulations for training should be based upon scientific principles rather than the crude dogmas of a blind experience.” Dr. Hope, one of the most distinguished

writers upon diseases of the heart, gives it as a settled opinion, that "hard exercise in rowing" is one of the most prominent causes of heart disease.

There can be but one opinion on the part of the medical profession in our own country as well as in Great Britain, as to the injurious effect of *boat-racing* upon the constitution and health. If the exercise could be practiced moderately or upon scientific principles, the profession, we presume, would be equally agreed that its sanitary effects were decidedly beneficial. Here is the difficulty:—can its practice be kept within proper bounds, or be conducted upon right principles, where especially large numbers of young men are concerned, representing different localities, communities and institutions? But the welfare of *the body* is not alone endangered:—what can be said respecting the exposure of regular habits and good morals of young men on too many public occasions growing out of boating and *boat racing*? Let the public accounts given us by the press answer. As this exercise is now conducted, and is likely to be, is it becoming scholars and educated men to engage in it, or wise for our public institutions to encourage it?

VI. ITS IMPORTANCE.

That there is a most intimate and necessary connection between the improvement of the mind and the culture of the body all will admit. It is now pretty well established by the highest authorities in medical science, that the brain is, in some sense, the organ of the mind,—that all mental manifestations in this world depend very much upon the size and quality of the brain, and the various agencies affecting its functions. If, therefore, all intellectual culture is not only dependent upon, but, in a great measure, controlled and limited by certain physical conditions, it is of the highest

importance in the course of a liberal education, to understand what these conditions are, and to be able to turn them to the best possible account. And it is not alone the relations which the brain itself sustains to the mind that are important, but those are equally so, in some respects, which it bears to other parts of the body. For instance, it is well known, that the mind is sometimes greatly affected by the state of the stomach, the liver and the digestive organs generally. In fact there can scarcely be a diseased or abnormal condition of any organ in the human system that will not have some influence upon the mind. Now while the primary object of gymnastics is to facilitate, in the highest degree, mental culture for the time being, they tend also, when properly conducted, to prevent disease by checking or removing in their incipient stages those weaknesses or predispositions which, if neglected, will inevitably terminate in sickness of some kind. And to do this most successfully every part or organ of the body must receive its due proportion of exercise, and that too not only in harmony with the laws that govern its own functions but with the laws and functions of every other part or organ of the system. For it is in this way that the greatest measure of health as well as of strength and longevity are secured.

The human body in its normal or most healthy state, may be compared to a perfect machine, made up of a great variety of parts, each part performing its own work, doing just so much and no more, and not interfering with the exercise of others, so that the wear and tear will come upon all parts of the machinery alike. The lungs, the heart, and the stomach, &c., have each a specific work to do, which requires a certain amount of exercise of not only the muscles immediately connected with these organs, but of the muscles more or less, in all other parts of the system. For illustration, in order that the lungs should become well developed and

receive healthy exercise, it is indispensable that the muscles about the chest and shoulders be properly trained, no less than those of the arms and the legs.

There are several modes or kinds of exercise in popular use, which however otherwise allowable, are open to this objection, viz., that they develop and strengthen mainly the extreme portions of the body. Health and strength are not synonymous terms. A person may have great strength in his limbs or in certain muscles about the body, but really not have good health. It is altogether a mistaken idea to suppose, that physical exercises have for their sole object the attainment of strength. There are other tissues and organs in the human system besides the muscular; and, the healthy action of the lungs and the stomach is far more important than great strength in the arms, legs, or the back. It is here, in this general exercise of all the muscles and parts of the body, that the system of gymnastics advocated in this paper has its great excellence. It aims to produce just that development of the human system upon which good health is permanently based, described by a distinguished writer as follows:—“health is the uniform and regular performance of all the functions of the body, arising from the harmonious action of all its parts,—a physical condition implying that all are sound, well-fitting and well-matched. Some minds do not look far enough into life to see this distinction, or to value it if seen; they fix their eyes longingly upon *strength*—upon strength *now*, and seemingly care not for the power to work long, to work well, to work successfully hereafter, which is *Health*.”

There is another, a higher and more commanding position from which this subject may be viewed:—it is in the light of *stewardship*—of accountability to God for all the gifts, the powers and talents that He has entrusted to our care. These bodies, however we may pamper or abuse them,

are not *our own*. They are a sacred trust from the Almighty, for the use and improvement of which we shall individually be held responsible in the great day of accounts no less than for mental talents and acquirements. When the inter-depenent relations of body and mind are considered in their true light with reference to the *life eternal*, it is scarcely possible to overstate or overestimate the *importance of physical culture*.

APPENDIX.

Statistics in the Department of Physical Education and Hygiene
in Amherst College, extending from September, 1861, to September,
1869 :

VITAL STATISTICS — EIGHT YEARS.

CLASSES.	AGE, in years and decimals.	HEIGHT, in feet and decimals.	WEIGHT, in pounds and decimals.	CHEST GIRTH, in inches and decimals.	CHEST CIRCUMFERENCE, in cubic inches and decimals.	ARM GIRTH, in inches and decimals.	TEST OF MUSCULAR STRENGTH.
Seniors, - - - - -	23.048	5.634	145.921	36.772	258,872	11.708	11.360
Juniors, - - - - -	22.329	5.656	139.666	35.929	248,200	11.758	10.853
Sophomores, - - -	21.241	5.664	139.979	35.974	261,004	11.588	9.982
Freshmen, - - - -	20.275	5.651	132.041	35.904	239,288	11.396	8.851
Averages, - - - - -	21.723	5.651	139.485	36.141	259,841	11.612	10.261

STATISTICS OF DISABILITIES — EIGHT YEARS.

CLASSES.	Average number of College students.	Average number in each class.	Average number of disabled men in each class.	Proportion of disabled men in each class.	Proportional num- ber of disabled men to all College.	Average number of men on the sick list.	Average number of days lost by disabled men.	Number of days lost to study averaged upon all College.
Seniors, - - - - -	224	48.500	6.925	18.379, 11%	1.45th			
Juniors, - - - - -		52.375	8.571	16.366, 9.49%	1.28th	8,250	11,756	2,211
Sophomores, - - -		61.250	12.142	19.805, 9.43%	1.48th			
Freshmen, - - - -		61.875	11.375	18.383, 9.23%	1.49th			
Averages, - - - - -		56.000	10.174					

FORMS OF DISABILITY AND THE NUMBER OF CASES,
FOR EIGHT YEARS.

Colds and Pneumonia,	88	Intermittent Fever,	5
Mumps,	20	Liver Complaint,	6
Mechanical Injury,	38	Skin Disease,	1
Boils,	23	Nervous Irritability,	1
Meningitis, (partly of a moral character)	20	Sciatica,	2
Diphtheria,	16	Face-ache,	2
General Debility,	10	Abscess,	4
Bilious Fever,	10	Pleurisy,	1
Typhoid Fever,	16	Jaundice,	2
Gastric Irritation,	9	Vacation Excess,	2
Intestinal Irritation,	6	Ivy Poison,	2
Dysentery,	5	Cholera Morbus,	1
Sore Eyes,	9	Neuralgia,	3
Quinsy and Sore Throat,	15	Camp Fever,	1
Teeth,	6	Ulcer,	1
Colic,	5	Constipation,	1
Diarrhea,	4	Piles,	1
Chicken Pox,	1	Swelled Face,	2
Headache,	1	Fistula,	1
Scrofulous Tumor,	1	Doubtful,	1

TESTIMONY IN FAVOR OF THE GYMNASIUM.

AMHERST COLLEGE, June 14th, 1865.

The Class of 1865, having completed its studies in Amherst College, desires to express its high appreciation of the physical culture which it has received under the direction of Prof. Hitchcock. As this class is the first one in College which has enjoyed through its whole course this physical training, some expression of opinion seems quite proper. There have been ninety-two different students connected with the class, fifty-five of which now graduate; eight have died,—two with consumption, and six in the Army from wounds or disease. There is no one of the graduating class but could pass a complete examination for life insurance or admission into the United States Army. From a thorough trial of four years' course of training, we can fairly judge of the system here adopted. Our exercises have been conducted in a well-furnished gymnasium, and always under

the direction of the Professor in this department. We have found the required attendance — a part of the system — not at all objectionable, and, what at first in the exercise was a little embarrassing or unpleasant, soon became a positive pleasure. The simultaneous participation of many persons in the same exercises has contributed a lively zest to them, when otherwise they would have proved dull and uninteresting. These exercises have been so varied in character as to be adapted both to the strongest and the weakest student, conducing alike to health, strength and grace of action. The half-hour required for exercise has proved the golden mean between length and brevity of time for this purpose, and has never been considered lost by us, as our health at the close of our college course testifies to the inestimable value of this training. We are confident, if this matter of exercise had been left a voluntary thing, many of our class, who are now strong and healthy, would have yielded to the diseases incident to student life, while others, who were weak and slender boys on entering college, are now strong and vigorous men. Cases of protracted illness have been almost unknown among us, and large numbers in the class have not been detained by illness from a single college duty. Believing that a strong body is the best bulwark to a sound mind — that strong muscles and well-developed limbs are powerful aids to the brain, — and being indebted very much for these results in our case to the physical training we have received in Amherst College, — we give this voluntary testimony to the value of the system of gymnastics here adopted.

E. P. FROST,)
 M. K. PYSKO,) *Committee,*
 A. H. HOWLAND,)

AMHERST COLLEGE, May 7th, 1869.

DR. NATHAN ALLEN:

Dear Sir, —

The Senior Class learn through Prof. Hitchcock that you would be gratified to receive an expression of our opinion as to the value of our gymnasium exercises after a four years' experience. It gives us great pleasure to send you a copy of the resolutions adopted *unanimously* by the class as follows:

"Whereas, We, the members of the class of 1869, Amherst College, have been under gymnasium drill for the past four years,

and knowing that an expression of our opinion of it is desired, therefore

“*Resolved*, That the daily required exercise, as at present conducted by Prof. Edward Hitchcock, by the happy union of pleasure and exercise is exactly suited to our needs, giving us strength and vigor for our other duties, and developing a more manly *physique*. Therefore,

“*Resolved*, That we convey to the friends of the gymnasium our hearty thanks for its foundation and support.”

You will not understand of course, when we say “exactly suited,” that we consider that the gymnastic system is brought to perfection. We refer to the union of exercise and pleasure, which contributes so much to make *everything* pleasant, and which we do not think can be changed for anything better.

With great respect,

ALVAH B. KITTREDGE,	}	<i>Committee.</i>
JOSEPH B. SEABURY,		
GEO. M. GAGE,		

TESTIMONY OF STUDENTS.

Numerous testimonials from this source might be obtained, but only two cases will here be stated, of students coming to college from city life, who experienced great changes — one in his *moral* character, and the other in his *physical* condition — by means of this Department. The first says, in a letter to Dr. Hitchcock: “As my college course draws to a close, I owe it to you to state how completely my opinion has changed in reference to your department in college. I came here, you remember, from the city, with certain *dilutante* and delicate-handed notions, which led me to look with some contempt upon the gymnasium, though I was soon obliged to submit to its salutary authority. *For this I can never be too grateful.* . . . I have reason to believe that the melancholy which always clouded my intellectual and religious life, would still shut out the cheerful health and sunshine I now enjoy, had it not been for the beneficial effects of the physical exercises in your department, combined with your kind and faithful treatment.”

The other student referred to writes as follows: "When I came to Amherst College, my physical condition could not be called good. My limbs were slender,—my flesh was thin; I feared trouble from my lungs, and not infrequently had spells of sickness of different kinds. Since my connection with college, I have been almost constantly well, and, when I have been otherwise, I have generally been able to trace my illness to some violation of the laws of health. This change I ascribe mainly to gymnastic training. During my first year, my arms increased in size two inches, and my chest three inches. I have exercised more than most students, and so perhaps but few of them could show so great gain, but my exercise has never interfered in the least with my studies. . . . The general health of college students is not only better during their college course, but it has uniformly improved, so much so that there is a marked difference in the very appearance of the classes as they advance in standing. The round shoulders, lank limbs and listless motions of the lower classes are in striking contrast with the erect carriage, robust frame and vigorous action which, as a rule, are exhibited by those who have been in college two or three years. Of course, there are some well-developed physiques among the Freshmen, and some who are far from being muscular among the Seniors; but generally the fact is as stated above."

REGULATIONS FOR THE USE OF THE GYMNASIUM AND BOWLING ALLEYS.

The Gymnasium is open for exercise from sunrise until evening prayer time, excepting the hour for dinner.

1. No person is allowed to use the Parallel Bars, the Rack Bars, the Ladders, or the Incline Board, without slippers.

2. During the regular class exercise, no member of the class will be admitted to it without his complete uniform; and each student will keep his position in the ranks during the whole exercise.

3. Persons not connected with college, even if invited by one of its members, cannot be allowed to exercise in any part of the building, without special permission from the Professor, and no person, not a member of the college, can at any time use any of the apparatus, or an alley, to the exclusion of any member of college.

4. A party after using an alley for one game, must give way, if others are waiting for their turn.

5. It is forbidden to throw the balls on the alleys, or indulge in any but the legitimate game. The balls must never be sent from East to West except in the gutters made for the purpose.

6. It is also forbidden to smoke, or spit on the floors, or litter them; to use improper language, or indulge in violent or boisterous conduct.

7. Each person, after using any piece of the movable apparatus, will at once, in an orderly way, return it to its proper place.

8. Persons wantonly or carelessly injuring the building or any of its apparatus, will be held strictly accountable therefor.

MOTTO OF THE BARRETT GYMNASIUM.

“Such are the dominating powers with which we, and we alone, are gifted! I say gifted, for the surpassing organization was no work of ours. It is He that hath made us; not we ourselves. This frame is a temporary trust, for the uses of which we are responsible to the Maker.

“Oh! you who possess it in the supple vigor of lusty youth, think well what it is that He has committed to your keeping. Waste not its energies; dull them not by sloth; spoil them not by pleasures! The supreme work of creation has been accomplished that you might possess a body—the soul erect—of all animal bodies the most free, and for what? for the service of the soul.

“Strive to realize the conditions of the possession of this wondrous structure. Think what it may become,—the Temple of the Holy Spirit! Defile it not. Seek, rather to adorn it with all meek and becoming gifts, with that fair furniture, moral and intellectual, which it is your inestimable privilege to acquire through the teachings and examples and ministrations of this Seat of Sound Learning and Religious Education.”—[*Prof. Owen, British Museum, London.*]

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