A RATIONAL SYSTEM OF PHYSICAL TRAINING.

THERE are three axioms to which physical education must conform: first, the best exercise is that which reaches the largest number and does most for the weakest men; second, the best exercise is that which makes the hardest work attractive; third, the best exercise is that which most successfully co-ordinates body, mind, and will. Developing giants, lowering records, winning races, and knocking out opponents are doubtless interesting things to do; but they are no part of that physical education which the college aims to give to its students.

Students who participate in those contests in which the maximum of muscular development and physical endurance is essential to success are martyrs to the cause of physical education. They acquire greater physical development than a student needs to carry on his college studies to the best advantage, and they form habits which oblige them to keep up, after graduation, more exercise than is consistent with engrossing professional pursuits. The influence and example of such severe training as a university crew undergoes are valuable in keeping up the athletic tone of an institution and in setting the pace for the average student to follow. But the greater physical benefit comes, not to the eight who row the great race, but to the thirty or forty who train with them, and who row only in class races or do not race at all. The college professor looks on the highly-trained athlete as Emerson looked on the monk:

> "I like a church; I like a cowl;
> I love a prophet of the soul.
> And on my heart monastic aisles
> Fall like sweet strains or pensive smiles:
> Yet not for all his faith can see
> Would I that cowlèd churchman be."

Intercollegiate athletics cannot be made the basis of physical education, because they reach only a small fraction of the col-

lege; they do too much for the strongest and almost nothing for the weakest, whereas our first axiom demands that physical education shall reach all and shall do most for the weakest men.

The second axiom declares that the best exercise is that which makes the hardest work attractive. The elaborately-devised drill, adapted to bring each muscle into play by a specially-provided movement, set to music and stimulated by the hope of a prize at the end, is a favorite form of physical education in colleges to-day. Now this does very well for schools and voluntary classes in Christian Associations, but it is too childish, too mechanical, too monotonous and dead, permanently to interest and attract the college student. College students do not enjoy pulling first one muscle and then another, like so many puppet players performing upon themselves. They hate it, and make light of it, and shirk it in every way they can. Such systems fall short of the requirements of our second axiom.

Our third axiom is that the best exercise is that which most successfully co-ordinates body, mind, and will. The Sargent system aims to do this. By showing on a chart where a man stands in comparison with other men, by giving him a hand-book in which the remedy for his deficiencies is pointed out, and by thus awakening an interest in his own symmetrical development, this system, to a certain extent, unites mind, will, and body in physical development. Yet this union is in great measure artificial, unnatural, and unreal. The system emanates from the office rather than from the floor of the gymnasium. As a basis of statistical tabulation it is ideal. But college boys are very different beings from statisticians; and they cannot all be made to take that interest in the fine points of anthropometry which, according to the theory of this system, they ought to take.

Each of these systems has its merits, and a wise institution will borrow features from them all. In Bowdoin College every student is measured, and receives a chart in which his line is drawn and a hand-book in which exercises for making up his defects are prescribed according to the Sargent system. Each class prepares a drill for the annual athletic exhibition, and we maintain a ball nine, a football team, and a boat crew. Our main reliance, however, for physical education is upon athletic

exercises under the immediate instruction, direction, and control of the director of the gymnasium. The Freshmen receive sufficient military drill to give them erect form and graceful bearing, and to enable the class to be directed in their subsequent work by military orders. Club-swinging is taught during the remainder of the year, as this is found to be an exercise in which a class can be most effectively brought to act in unity, and in which students take enough interest to keep it up afterwards. By the end of the Freshman year the members of the class are able to stand erect, to obey orders, to keep time, and to endure without fatigue or injury a half-hour of vigorous exercise. During the first half of the Sophomore year the class is taught the elements of wrestling. The members practice the catches, holds, and breaks at the word of command, and thus acquire, in addition to the exercise, so much of the science of wrestling as would be given in a first course of private lessons. During the last half of the year the same is done in boxing. The students practice the blows and guards, and learn the elements of self-defence. At the end of the period of exercise a space of a minute or two is allowed for boxing or wrestling matches between the pairs who have been practicing together. In the Junior year fencing with single sticks, and in the Senior year fencing with foils and masks, are taught in the same manner.

Let us test this system by our three axioms. First, it reaches every student and does most for those who are least developed. These exercises are required of all. Every student is required to come to the gymnasium, to change his clothes, and to exercise in this way half an hour a day during four days in each week from November to March. The weakest men are required to do as much of this work as the strongest, and thus greater exertion is asked from the weaker; though for supplementary work on the apparatus the classes are divided into three squads on the basis of their strength as ascertained by physical examination. In wrestling, boxing, and fencing there is no opportunity to shirk; for each man has an opponent to keep him at his work, in addition to the general oversight of the director.

This kind of exercise also fulfills the requirement of our second axiom. It is hard work; the students like it and enter

into it with all their might. It takes advantage of young men's natural fondness for athletic contests, and enlists their athletic spirit. At the same time it does this under such control and in such moderation that the evils of excessive competition are excluded. Before this system was introduced, the enforcement of physical exercise ranked with the enforcement of attendance at church and chapel as one of the three thorns in our official flesh. Since then we have had no more difficulty in getting students to take exercise than in getting them to eat their meals. To be sure, the requirement is supported by adequate recognition in our educational curriculum. The work in the gymnasium counts as one full study for the winter term; and one thirteenth of a student's rank for the college course is based upon the regularity and fidelity with which he does the work in this department. Still we rely chiefly, for getting the work done, upon the interest and enthusiasm that it awakens in the young men themselves. The spirit in which the work in the gymnasium is done resembles rather the freedom with which they pursue an elective that they like, than the slavishness with which they set about a prescribed study that they hate.

This system also meets our third requirement; it co-ordinates body, mind, and will in exercise. Wrestling, boxing, and fencing exercise every muscle of the body, expand the lungs, quicken circulation, and stimulate perspiration; yet they do this in such a way that the student is in happy and healthy unconsciousness of it at the time. The development of his body is not presented to his mind as an external and abstract end to be attained; nor is it at every moment dependent upon an act of volition directed to that specific object. Body, mind, and will are united in doing a definite thing. The muscles themselves are thereby effectively developed; and quickness of eye, steadiness of nerve, resoluteness of will, together with such mental and moral qualities as coolness, courage, promptness, and decision, are thrown in. Physical strength, thus subjected to quick perception and prompt execution, is worth infinitely more than the same amount of mere muscle piled up on the back of a listless mind and a flabby will. The end of physical education is not the manufacture of mere muscle. It is the development of a body, strong

to support, prompt to obey, and efficient to execute, the thought and purpose of the man.

The following table shows the relation between physical development and scholarship in the 153 graduates of Bowdoin College in the classes from 1886 to 1890. The director of the gymnasium has divided them into three equal divisions of 51 each, on the basis of proficiency in athletics. The first division includes the members of the college baseball and football teams, members of the college crews, and winners of first prizes in field-day contests during these years. The second division includes members of second nines and elevens, members of class crews, and contestants who failed to win a first prize. The third includes those who took no part in athletic sports. I have divided the same 153 men into three equal divisions of 51 each, on the basis of their scholarship as recorded in the rank books of the college. The first division includes the strong, clear, thorough scholars. The second includes the average scholars. The third includes those who were either dull or lazy, and those who carried away nothing of value from their college course except such contagious germs of wisdom as they could not help bearing with them. By arranging the athletic divisions in horizontal lines and the scholarship divisions in vertical lines, I have shown how each division in athletics is distributed among the three divisions in scholarship, and how each division in scholarship is distributed among the three divisions in athletics.

		Scholarship.			
		I.	II.	III.	Total.
Athletics.	I.	21	15	15	51
	II.	18	20	13	51
	III.	12	16	23	51
	Total.	51	51	51	153

This table shows that rank in scholarship tends to coincide with rank in physical development. The most frequent coinci-

dence is that of third-class scholarship with third-class athletic ability, which occurs 23 times. Next in frequency is the union of first-class scholarship with first-class athletic ability, which occurs 21 times. The rarest combination of all is that of first-class scholarship with third-class athletic ability.

To infer from this table that athletic ability is related to scholarship as cause to effect would be unwarranted. These 21 first-class scholars who are also first-class athletes would have stood just as high in scholarship if there had been no intercollegiate contests in which to display their athletic prowess. But the table does show conclusively that excellent physical development, which is an indispensable condition of success in athletics, is also a favorable condition of success in scholarship. It explodes the popular fallacy that the development of the scholar's mind and that of his body are in inverse proportion, and shows that they stand in closest correlation.

The awards of the Smyth mathematical prize in Bowdoin College for the past six classes present a remarkable, if not a representative, phenomenon. This prize of $300 is based on a course in mathematics extending over two years, and is the most important college prize. Of six consecutive recipients of this prize, the first was the winner of the quarter-mile run; the second was the pitcher of the college baseball nine; the third was the most brilliant performer on the trapeze; the fourth was a man of good physical development without special athletic attainments; the fifth was the catcher of the college baseball nine and the best general athlete in college; the sixth is a candidate for a position on the college boat crew, and will next year be a member of the football eleven.

We know that every intellectual act is accompanied and conditioned by molecular changes in the cells and fibers of the nervous system, and is ultimately dependent upon the quantity and quality of blood that supports this activity of nerve and brain. We know, too, that the combined influence of a trying climate and of the strain involved in adjustment to new, complex, and rapidly-changing industrial, economic, and social conditions is overdrawing the vitality and nervous energy of our people at a rapid and ruinous rate. This strain falls most heavily upon the

professional and mercantile classes into which our students are very largely drawn. It is the duty of the college to send out its graduates physically equipped to stand this strain themselves, and to hand down to their offspring constitutions as good and strong as their own. This duty is now recognized in theory. Every college is compelled to build a gymnasium, and to throw it open during a portion of the day. This is, in itself, a step forward. No college in New England would dare to offer its students to-day such miserable facilities and such inefficient instruction as Harvard offered its students only 12 years ago.

Yet, after all, many of our colleges are only playing with the problem. There is no definite requirement, no specific program, no academic recognition of physical education. Physical education is of sufficient importance to receive the same intelligent and business-like consideration that is given to the other departments in a college. The building must be constructed with a view to the precise use that is to be made of it. The director must be a man of collegiate and medical training, proficient himself in physical exercises and able to impart enthusiasm for them to others, and endowed with something of the military capacity to command and manage men. A man who combines these qualities and attainments should have the same academic standing and remuneration as the heads of other departments. Then the work required of the students should be as systematic and dignified, in proportion to its amount, as that in other departments.

Leave physical education entirely to the whims and caprices of the students, and extravagance and excess must be expected. Leave it entirely to the toleration of an indifferent faculty, and what wonder that the exercises become either a bore or a farce! Enlist the enthusiasm of the student under the guidance of an interested faculty, combine the ardor of youth with the wisdom of maturity, and, at an annual expense of not more than $12.50 for each student in a college of average size, it is perfectly possible to maintain a course in physical education which will give to every student who is not hopelessly handicapped by heredity or dissipation, a sound and healthy body to be the support of a vigorous intellect and the instrument of a resolute will.

WILLIAM DEWITT HYDE.

THE NEW NORTH-WEST.

EXACTLY three hundred years after Columbus discovered the new world, Captain Gray entered the mouth of the Columbia River and laid the foundation of our claim to the territory out of which the States of Oregon, Washington, and Idaho have been formed. His discovery was followed in 1804–5 by the expedition of Lewis and Clark and by the establishment of several trading posts; and as early as 1830 emigrants from the western States were making their way over the mountains into Oregon. When the Boston shipmaster sailed into the mouth of the great river of the West, less was known of the western half of this continent than was known of "Darkest Africa" before Stanley first penetrated it. It was one unbroken waste, one vast wilderness, apparently forever doomed to the solitude of nature. In less than a century a marvelous transformation has been wrought. Civilization reigns instead of barbarism; peace, law, and order prevail in place of violence, strife, and perpetual warfare; a productive country filled with thrifty, intelligent, civilized communities has taken the place of a barren region occupied only by a few savage tribes.

The progress of the best civilization has always been westward. The story of its march across the Alleghany Mountains and the vast slopes and rolling prairies of the West to the western shores of the continent forms one of the most interesting chapters in our history. What were the motives which induced the early pioneers to leave comfortable homes, to turn their backs upon civilization, and to march two thousand miles through a wilderness to find an abode on the Pacific coast? The discovery of gold is not sufficient to account for the movement, although it contributed to swell it and to hasten the settlement of California. The immigration to Oregon began long before Sutter's discovery. The prospect of cheap land does not account for it; land was cheap everywhere. The principal inducements