SOME ASPECTS OF ATHLETICS AND GYMNASTICS AT HOME AND ABROAD.

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By Edward Mussey Hartwell, Ph. D., M. D., Director of Physical Training in the Public Schools of Boston, Mass.

[*Reprinted from the Proceedings of the American Institute of Instruction, at the Annual Meeting, July, 1891.*]

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Mr. President, Ladies, and Gentlemen: I am to speak to you this evening concerning "Some Aspects of Athletics and Gymnastics, at Home and Abroad." I shall consider some of the more salient peculiarities of school games and school gymnastics, as they are practised to-day in England, Germany, and Sweden. For the purpose of giving fuller and clearer effect to my descriptions of schools, play-grounds, gymnasia, and forms of exercise, I shall supplement my remarks by exhibiting to you a series of lantern-views, which have recently been prepared to illustrate this subject.

Before entering upon the discussion of specific forms of athletic and gymnastic exercise, I beg to invite your attention to a consideration, in a very general way, of the nature and effects of exercise and of the most typical national systems of physical training.

According to modern physiology, the human body is an aggregation of a vast number of individual cells which differ from one another in lineage, form, and function. These individuals are so grouped with

relation to one another in our various organs, that the body as a whole is to be considered as a communal structure, a sort of federal union of tissues and organs. Again, the body as a whole is a machine in which the potential energy of organized material is transformed into the work which we see manifested in motion, animal heat, and the chemical actions involved in nutritive, secretory, and excretory processes. It is estimated that the tissue-changes, of which an adult human body weighing one hundred and forty pounds is normally the seat, involve the transformation of more than a ton of material in the course of a year. Muscular activity is one of the chief agents in promoting tissue-changes in all the bodily organs and in determining the normal growth and development of the organism as a whole.

Broadly speaking, the skeletal muscles and the skeleton constitute the working or executive machinery of the bodily organism. The most obvious result of orderly and well regulated exercise is seen in the normal growth and development of the executive machinery itself. In this connection, it is well to recall the all-important fact that none of the skeletal muscles is a simple organ. Every skeletal muscle is made up of two conjoined mechanisms: a contractile, executive mechanism, the muscle proper, and a stimulating, regulative mechanism consisting of nerve fibres and gray matter nerve cells. In other words, the executive machinery of the body is indissolubly bound to the nervous system and is animated and governed by it. The muscular and nervous tissues have been well termed the "master tissues." In this sense nervous tissue may be characterized as "the

masterful tissue." All other tissues, omitting the indifferent and supportive tissues, such as bone and cartilage, may be classed under the head of "tissues of digestion" or "tissues of excretion"—which are the terms used by the English physiologist, Michael Foster, who points out that "the whole of the rest of the body is engaged (1) in so preparing the raw food, and so bringing it to the nervous and muscular tissues, that they may build it up into their own substance with the least trouble; and (2) in receiving the waste matters which arise in muscular and nervous tissues, and preparing them for rapid and easy ejection from the body."

The muscular system has, then, two sets of servants, its purveyors and its scavengers. The former prepare and serve the master tissues with food-materials, and the latter clear away the refuse matters which result from the chemical and mechanical processes by which the functional activity of the executive machinery is signalized. The digestive and assimilative organs and the arterial section of the organs of circulation and respiration belong to the first class; and the venous section of the circulatory and respiratory organs, the perspiratory, and the urinary organs constitute the second. The purveyor and scavenger tissues serve each other as well as the master tissues, it may be remarked, and are, like the muscles, controlled by the Archaeus of the body, if we may so denominate the nervous system.

Next to the movements due to muscular action, the most direct and obvious effects of exercise are increased circulation and ventilation of the blood. The effect of exercise upon the processes of digestion,

sanguification, and excretion is an indirect one; those processes being modified, so far as muscular activity is concerned, by the changes wrought by it in the volume, distribution, or character of the general blood-stream. But the most important effect of muscular exercise, though it is usually overlooked, is to be found in the structural and functional improvement of the nervous system, or rather so much of it as is concerned in the regulation and control of the skeletal muscles. Lack of time forbids my undertaking to fully elucidate this point, though there is abundant and most conclusive evidence that the brain, spinal cord, and nerves depend, for their structural integrity and functional power, very largely upon the normal working of their executive end organs, the skeletal muscles.

The effects of exercise upon a single muscle are chiefly two. On the one hand, there results a general condition which may be termed the heightened health of the neuro-muscular machine, which state of health involves the attainment and maintenance of a normal degree of size, strength, and working power in its structural parts; and, on the other hand, a more complex and special effect, viz.,—the acquisition or organization by its neural parts of proper habits as regards the origination, transmission, and regulation of stimuli. The ends of exercise may be characterized, then, as the promotion of health and the acquisition of correct habits of action. The first is a hygienic end, while the second is a distinctly educational end. It matters not whether we consider a single muscle, which admits of only a single limited motion, or a group of muscles, or the communal structure we call

the human body, or a class of school-children, or a foot-ball team, or a regiment of soldiers. The ends of exercise in each case are the same and can only be attained by a combination of hygienic and educational measures.

The main field of education is the nervous system, and the principles of all forms of physical training, however various and divergent their special ends may be, are based upon the power of the nervous system to receive impressions and register them or their effects; in other words, upon its ability to memorize the part it has played in acquired movements, and on occasion to recall and revive such movements.

It is coming to be clearly recognized that the function of our public and preparatory schools and colleges is not to fit their scholars to engage as specialists in either intellectual, commercial, or industrial pursuits. The same rule holds good as to the kind, or rather degree, of physical training which should be aimed at in our schools and colleges. It is not their business to train up ball-players, carpenters, clerks, or professionals of any kind. General bodily training is the kind demanded; but training so general that it is vaguely, or spasmodically, or half-heartedly carried out, or worse still, that is left to run itself in accordance with the whim or frenzy of the persons to be trained, will surely and deservedly fall short of success. Intelligence, system, organization, funds, and patience are just as indispensable in physical training as in the training of engineers, musicians, or philologians.

Pastimes, out-of-door sports, and systematic gymnastics are the forms of exercise which yield the best

results in the physical training of school children and college students. The plays of the kindergarten, the athletic sports to which British and American youth are so devoted, and the systematic gymnastics of the Swedes and Germans have all developed from one germ, from healthful play, that is; the vital energy of this germ is found in the ineradicable impulse of all healthy children to play.

In the athletic sports of young men, we see the fullest expression of the play instinct. The essential difference between athletics and gymnastics is one of aim. The aim of athletics, unless of the illegitimate professional sort, is pleasurable activity for the sake of recreation or rivalry; that of gymnastics is discipline or training for pleasure, health, and skill. We have but to compare the aims, methods, and results of these two departments of exercise and to call to mind the characteristics of the nations which have affected athletics on the one hand and gymnastics on the other, to perceive that gymnastics are more highly developed and present more features of educational value. Gymnastics, as compared with athletics, are more comprehensive in their aims, more formal, elaborate, and systematic in their methods, and are productive of more solid and considerable results.

I have no disposition to disparage athletic sports. I would that they were more general and better regulated than they are in our country. I believe that they are valuable as a means of recreation; that they conduce to bodily growth and improvement; and that their moral effects are of great value, since athletic sports call for self-subordination, public spirit, and co-operative effort and serve to reveal the dominant

characteristics and tendencies, as regards the temper, disposition, and force of will of those who engage in them. But they bear so indelibly the marks of their childish origin, they are so narrow and vain-glorious in their aims, so crude and unspecialized as to their methods, as to render them inadequate for the purposes of a thorough-going and broad system of bodily education. It is well to promote them and it is becoming increasingly necessary to regulate them; but it is unwise and short-sighted to consider them as constituting anything more than a single stage in the best bodily training.

Gymnastics have been most popular and general among the most highly trained nations, such as the Greeks of old and the Germans of to-day. The most athletic, and at the same time one of the most ill-trained, of modern nations, is the British. I mean simply this: that an Englishman believes, and acts on the belief, that one comes to do a thing right by doing it, and not by first learning to do it right and then doing it; whereas the Germans and Swedes leave little or nothing to the rule of thumb, not even in bodily education.

It seems to me that the most representative and typical forms of physical training are five in number and may be styled: (1) the Grecian; (2) the Mediaeval or Knightly; (3) the British; (4) the German; and (5) the Ling or Swedish.

In speaking of the most general features of the five types or national systems under review, it will be convenient to use the terms *agonistic*, *gymnastic*, and *athletic*, which are derived from Grecian usage. An ἀγών [*agōn*] meant originally an assembly; then, an

assembly to witness a contest of some sort. For instance, the Olympic games were gymnic *agones*, being so called because the *agonists* and *antagonists* were γυμνοί [gymnoi] or naked. The prizes given to victorious *agonists* were termed ἄθλα [athla], and the term *athlete* came to be used to designate a winner, or contestant; later, an *athlete*, in the worst sense of the word, was a prize-fighter governed by professional and mercenary ends. A *gymnast* was a trainer primarily, especially after the agonistic games had become systematized and regulated.

Greek physical training was, then, *agonistic*, during the period of its growth, when its main purpose was to afford sport or pastime; it was *gymnastic*, during the period of its best estate, about the time of Pericles, when its aims were distinctly educational and ethical; and it became *athletic* in the worst sense of the word, during the decadence of the institutions and independent life of the Greeks, when a spirit of mercenary self-seeking and brutal professionalism dominated both gymnasts and athletes.

Using these words in the sense indicated above, we should term the martial exercises and games of the ancient Gauls and Romans agonistic. Out of these sports and exercises, were developed the physical training of the young page and squire and the chivalric tournaments and justs, to which the knights of Italy, France, Germany, Britain, and Scandinavia were so devoted in feudal times. That training and those contests were partly agonistic and partly athletic in their nature. The same terms may be applied to British sports. They were agonistic and have become chiefly athletic within the last seventy-five or one hun-

dred years. Athleticism is the dominant note in all British physical training, which has but little of pedagogical aim or method in it and is even less deserving of being called gymnastic than was the mediaeval sort of physical training. German turning is somewhat agonistic in character, though its aims and methods are gymnastic, in the main. No modern system of physical training so well deserves to be styled gymnastic as does the Swedish system, which has scarcely enough of the athletic element in it. In the Swedish gymnastics, moreover, we find a high place accorded to medical gymnastics. Indeed, excepting the Grecian, no system of medical gymnastics worthy the name is to be found outside of Swedish gymnastics.

For our present purpose, we may take the Grecian and British systems of bodily training as affording the most typical expression of the gymnastic and the athletic idea respectively. Although differing widely in most respects, these two systems are alike in being devoid of any admixture of elements acquired through imitation or borrowing. British sports reflect more fully, perhaps, than any modern system of physical training, the national spirit of their devotees. They are the necessary inherited pastimes of a manly, vigorous, self-sufficient folk ; and have never fully outgrown or lost their primitive, not to say pagan, characteristics. They have been followed largely for their own sake and have suffered but slight modification through the influence of innovating educators and thinkers, presenting, in this respect, a marked contrast to German turning and Swedish gymnastics, which, though they bear the impress of national feeling, have been developed chiefly of set purpose on the part of their

promoters, either as a means for national regeneration or as a remedy for over-refinement and the deteriorating effects of sedentary and urban life. Such modifications as are inevitable in British sports are due mostly to efforts to make them more social and general, in short more truly popular. Then, too, the English climate is singularly favorable for the pursuit of athletic sports. The summer is so cool and the winter is usually so mild, in England, that there are comparatively few days in the year, when one may not, if he will, engage in out-of-door games of some sort. Indeed, the climate, more than most climates, acts as an incentive or provocative to active exercise. Muscular activity is more conducive to comfort than is quiescence or loafing, in most varieties of English weather. Riding is always in season. Foot-ball is practicable, not only throughout the autumn and winter,—in ordinary winters,—but also far into the spring. Rowing may be practised during more than three quarters of the year. Cricket, being dependent on the state of the turf, is little played but in the spring and summer.

The English public schools are peculiarly adapted to serve as nurseries of the national pastimes. The oldest of them, Winchester and Eton, were originally ecclesiastical foundations and have served, in a measure, as models for most of the later foundation schools, which as a class have departed less widely from their mediaeval prototypes than have the secondary schools on the continent. In England, the public schools, which are boarding schools for boys from 10 or 12 to 19 years of age, enjoy a practical monopoly of secondary education. On the continent, if we except the French

Lycées, high class boarding schools for boys are the exception. Moreover, the continental standard of intellectual training is higher and the methods of instruction more exacting and severe, so that pupils in a German, Swiss, or Scandinavian *Gymnasium*, or in a French *Lycée*, have much less freedom and leisure than the boys at Eton, Winchester, or Rugby, where the half-holidays average three a week. Force of public opinion generally, and often the rules of the school, oblige the English boy to take part in the school games. Owing to the combined influence of tradition, public opinion, and the peculiar organization of the schools and universities, which set the tone in the athletic world, British interest in British sports, by reason of its universality, intensity, and intelligence, stands alone. Though teachers and governing boards are sympathetic and helpful as a rule, British athletics, as an institution, have been shaped chiefly by successive generations of boys and "Old Boys," as public-school graduates are wont to be called. It is doubtful if school and college athletics will ever be properly managed in this country, before a generation of teachers, presidents, and trustees shall arise, who have enjoyed the advantages of athletic training in their youth.

As regards length of days, British sports come next to the Grecian games. The tournaments and justs of the Middle Ages lasted scarcely 400 years; German turning took its rise in the last quarter of the last century; Swedish gymnastics have not reached their ninetieth birthday; but the history of the Grecian games extends over nearly 1400 years, from the days of Homer till 394 A. D., the date assigned to the last celebration of the Olympic games.

In the breadth and sanity of its aim, in the magnitude of its proportions, and the completeness of its development as a national institution, in the perfection of its organization, in the splendor and solemnity of its festivals, in its many-sided and abiding influence, as well as in the length of its history and the brilliancy of its record, the physical training of the Greeks has no parallel. Its history forms a coherent whole, presenting well marked phases of growth, culmination, and decay and reflecting at every stage the spirit of the nation. Athletic contests entered into the worship of Greek gods and heroes, and the lapse of time was reckoned in Olympiads to mark the recurrence of the principal sacred games. Gymnastics were assigned an enlarged and honorable place in the training, both for peace and war, of every free-born boy and youth. The codes of Lycurgus and Solon provided for the organization and regulation of bodily training; and the management of it, during its best estate, afforded positions of honor and emolument to distinguished and ambitious men. It furnished themes for poets, philosophers, and historians. Sculptors and painters sought the palaestra and gymnasium for their fairest models, and even the greatest of Greek physicians thought it no condescension to study and adopt exercises and procedures which had been originated by paedotribes and gymnasts.

The principal exercises taught in the palaestra and the gymnasium were: running, leaping, wrestling, throwing the discus, hurling the spear, boxing, and the pancration, a combination of boxing and wrestling. Various games of ball were in vogue, and much attention was paid to swimming and bathing. The

Greek training was severe, that of candidates for the Olympic games lasting for ten months. It was mostly conducted in the open air, often under a blazing sun. In their practice exercises and in their matches, the athletes were naked. They were oiled and sanded before their exercise and scraped with a strigil, shampooed, and bathed after it. Their dietary was also carefully regulated; so, too, were their hours of sleep and practice. In none other of our five national systems of exercise, has "training" been carried to so high a pitch or been so well ordered, as it was among the Greeks. So far as I know, no especial attention was paid to dietetic rules by the contestants in either knightly or popular games in the Middle Ages; and "training," in the sense in which it is employed by those who are addicted to British sports, has practically no followers in Germany or Scandinavia, outside the ranks of professional acrobats and Anglomaniacs.

But the Greek gymnasium was much more than an aggregation of wrestling pits, running tracks, exercise halls, and bathing establishments, surrounded by colonnades and shady walks. The Athenian gymnasia were clubs and schools as well, provided with lecture halls and quiet nooks, to which the young men and elders of the city resorted for instruction and social intercourse. It is noteworthy that, even among the Greeks, the word palaestra came to mean a school; and that the most highly educated of modern peoples, the Germans, designate the highest of their secondary schools by the term *gymnasium*. The French word *Lycée*, derived from Lyceum the name of the gymnasium in which Socrates and Aristotle taught philosophy, is used in the same sense as the

German *gymnasium*. Antisthenes, the founder of the Cynic school of philosophy, taught in the Kynosarges gymnasium. The masters in art and science, the world over, are content to be styled academicians, in memory of the Academy of Plato, which was one of the public gymnasia of Athens.

No modern nation has been or is likely to be leavened with the Greek leaven. The Grecian type of physical training has never been reproduced. It must ever remain unique, for the same reasons that forbid us to look for the rise of a new Sparta or a second Athens. Of modern forms of physical training, the Swedish and the German have more of the broad, idealizing, pedagogical spirit that characterized Greek gymnastics, than has the British. Each of these national systems of physical training presents an interesting and instructive field for study, especially as each of them has exerted and still exerts a marked influence upon the minds of those who are concerned about the bodily education of American youth. It is well to remember, however, that British athletics have been created by the British boy, who has forced his masters to grant him place and time for his sports, sometimes at the expense of the school programme; while the school and military gymnastics, which enter into the training of the Swedes and Germans, have been devised by the teaching class and imposed as school tasks upon the taught. Naturally enough, the American boy, in school and college, is more emulous of his British cousin, than of his more remote kindred, the Teutonic or Scandinavian pedagogue.

We come now to a closer consideration of some of the more striking features of athletics and gymnastics,

as they are practised in England, Germany and Sweden. I will not detain you with any detailed comparison between Swedish and German school gymnastics, as I shall have occasion, in my remarks upon the lantern views which follow, to note the differences which characterize British, German, and Swedish methods and usage. I have said nothing of American systems of physical training, for the reason that as yet no comprehensive native system of American gymnastics and athletics has been evolved. There are numerous partial and inchoate schemes; but none of them is likely to supplant or supersede any of the modern national systems of which I have spoken. The American system, when it comes, will probably be an eclectic system, combining the athletic element found in British and American sports, the pedagogical principles and procedures of the Swedish school gymnastics, and certain features peculiar to the popular gymnastics of the Germans.

A large number of lantern-slides were then shown, for the purpose of setting forth the essential differences between athletic sports and school gymnastics.

By means of views, taken from antique statues and vase-paintings, attention was called to the type of men produced by Greek athletics and gymnastics. Modern types were illustrated by means of group-pictures of English, French, and German school boys. Eton and Rugby being chosen as representative English schools, some of their peculiarities as to organization and management were noted; the facilities afforded their pupils for engaging in cricket, foot-ball, rackets, fives, swimming, and rowing were described; and their most striking features illustrated by views of

grounds, buildings, and players. Rowing, as being one of the most characteristic of British sports, received especial attention from the speaker, who made use of a full series of instantaneous views of aquatic sports at Oxford and Cambridge. Views of German and Swedish schools, gymnasts, gymnasia, gymnastic exercises and apparatus followed; and the two systems of training were contrasted.

In conclusion, views of several of the most typical of American college gymnasia were shown. Attention was called to the fact that American educational authorities had attempted but little and accomplished less, toward building up a genuine system of physical education based on sound pedagogical principles and the best experience; although they had shown much zeal and not a little extravagance, especially among the colleges, in erecting buildings and laying out grounds for athletic and gymnastic purposes. It was also stated that the most expensive and best planned gymnasia in the world, for the use of girls and women, are to be found in America. The teaching in the best of the gymnasia for women is in the hands, either of Swedes, or of those who have adopted Swedish methods. Just at this juncture, the women's colleges and the public schools of Boston, Chicago, Cleveland, and Kansas City are clearly in the lead of the schools and colleges for men, as regards the adoption of sound and successful methods of instruction in physical training. There is a crying need, from the primary school to the university, for genuine teaching in this department. Given well-trained and well-paid teachers, and the questions pertaining to brick and mortar and machinery will take care of themselves.