

# Physiology and Anatomy are Destiny!?: Brains, Bodies and Exercise in Nineteenth Century American Thought

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*Lilian Welsh and Dudley Allen Sargent: Exemplars of a "Tightly Gendered World"*

In 1924, Lilian Welsh ended thirty years as Professor of Anatomy, Physiology, and Physical Training at Goucher College. In 1924, Dudley Allen Sargent, five years retired from his position as Director of the Gymnasium at Harvard University, passed away. Although their careers had spanned the same decades, they had been markedly dissimilar. Vastly different, too, had been the "gendered" world in which Welsh and Sargent attained their majority. In 1879, as each was entering upon a career in higher education Francis Parkman (a man whose health was so delicate he was forced to suspend scholarship for several years after a 1858 trip to Paris had failed to provide the hoped for medical relief) proclaimed the nineteenth century to be "the riddle of history." The reason was the vexed status of "the whole question of the relations of men to women." The purpose of Parkman's *North American Review* article was to argue vehemently against female suffrage: And to this end, he invoked deeply held contemporary convictions. A "greater strength," firmer muscles, and "stearner spirit" impelled men to action, war, the chase; but "rounded outline and softer muscles of the physical frame" destined women for entirely different ends. Arguing "The Other Side of the Woman Question," Julia Ward Howe, Thomas Wentworth Higginson, Lucy Stone, Elizabeth Cady Stranton, and Wendell Phillips all took Parkman to task. "Woman," Phillips insisted, "is man's equal, though unlike him."<sup>1</sup>

The year that Parkman wrote words, American higher education was already embarking on new directions, with the founding of Johns Hopkins University in 1876. In the decades following the Civil War, colleges increased in number and size; perhaps more significantly, the research university emerged, offering to young men expanding opportunities to prepare themselves for a variety of careers. Women, on the other hand, were obliged to wage a continuing struggle

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1. Francis Parkman, "The Woman Question," *North American Review*, 128 (1879), 303-321; Wendell Phillips, "The Other Side of the Woman Question," *ibid.*, 440.

to gain acceptance in institutions of higher learning. Even when this was attained, many fields of study—and consequently careers—remained substantially male preserves.<sup>2</sup> Welsh and Sargent were a part of the ongoing drama.

Sargent graduated from Yale's medical school in 1878, several years before American medical education could begin to match the more rigorous and scientifically-based training available in Germany or the German-speaking universities of Austria and Switzerland. After graduating in 1889 from the Women's Medical College of Pennsylvania, Welsh studied histology and bacteriology at the University of Zurich for a year and a half. Sargent became a major figure in the new field of physical education, serving twice as President of the American Association for the Advancement of Physical Education (1890-94 and 1899-1901). Welsh was singularly uninvolved with the AAAP.<sup>3</sup> Sargent had been interested in gymnastics since boyhood. In the early 1870s, before either physical training or athletics had become an integral part of the collegiate experience, he was employed as instructor of gymnastics at Bowdoin College. By the time he ended his career, "physical education" had become an established part of the curriculum (for women as well as for men): And intercollegiate athletics were such a "domineering" feature of higher education that those who objected to "professional" sports on campus had long since acknowledged that efforts to reform these programs were largely futile. Monuments to "Saturday's heroes" in the form of football stadia (which frequently commemorated war dead) dotted the countryside, and men who represented their colleges in football, crew and other sports formed a campus elite.<sup>4</sup>

Athletic opportunities for college women, by contrast, were exceedingly limited. With few exceptions, they were of the "intramural" type. In 1924, the year that Welsh retired, Agnes Wayman's article "Women's Athletics: All

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2. The literature on the history of higher education in the United States is extensive. In addition to works which deal with one institution (as for example, Abbot L. Lowell, Samuel E. Morrison, and Le Baron R. Briggs, *The History of Harvard College* [Cambridge, MA: Harvard Crimson, 1928]), there are numerous general works, of which Lawrence R. Veyssey, *The Emergence of the American University* (Chicago: University of Chicago Press, 1965) remains especially useful. For relevant information about the "student culture," Frederick Rudolph, *The American College and University* (New York: Alfred A. Knopf, 1962) and Oscar Handlin and Mary F. Handlin, *The American College and American Culture* (New York: McGraw-Hill, 1970) are worth consulting. Helen Lefkowitz Horowitz, *Alma Mater: Design and Experience in the Women's Colleges from Their Nineteenth-Century Beginnings to the 1930s* (New York: Alfred A. Knopf, 1984) to those akin to a "case study" approach, as for example, Roberta Frankfort, *Collegiate Women: Domesticity and Careers in Turn-of-the-Century America* (New York: New York University Press, 1977). More generally, see: Barbara M. Solomon, *In the Company of Educated Women: A History of Women and Higher Education in America* (New Haven: Yale University Press, 1985).

3. Ledyard W. Sargent (Ed.), *Dudley Allen Sargent: An Autobiography* (Philadelphia: Lea and Febiger, 1927) [Reprinted as part of the Brown Reprints "Health, Physical Education and Recreation Series," Roger K. Burke (Consulting Editor)]; Fred Leonard, *A Guide to the History of Physical Education* (Philadelphia: Lea and Febiger, 1923); Lilian Welsh, *Fifty Years of Women's Education in the United States*. Bulletin of Goucher College, New Series 11, Vol. 10, No. 6 (June 1923); Edward T. James (Ed.), *Notable American Women: A Bibliographical Dictionary*, Vol. 3 (Cambridge, MA: The Belknap Press, 1971), 567-568.

4. The literature which deals with the history of intercollegiate athletics is now considerable. See for example, John A. Lucas and Ronald A. Smith, *Saga of American Sport* (Philadelphia: Lea and Febiger, 1978), especially chapters 12, 13 and 14, for a useful overview. There are also a few useful investigations of a single institution (or a small number of institutions)—but there is much need for more carefully detailed analyses. See, Ronald A. Smith, *Sports and Freedom: The Rise of Big-Time College Athletics* (New York: Oxford University Press, 1988); Patrick B. Miller, "Athletes in Academe: College Sports and American Culture, 1850-1920," unpublished Ph.D. Dissertation, University of California, Berkeley, 1987.

Uses-No Abuses” aptly conveyed the ideologies of the powerful Committee on Women’s Athletics of the American Physical Education Association and the Women’s Division of the National Amateur Athletic Federation, which the CWA leaders labored assiduously to support and influence. Rejecting the “ideals and standards” that had come to dominate men’s athletics, Wayman and her colleagues eschewed these “Roman Spectacles,” opposed intercollegiate and interscholastic competition for women and girls, and advocated broad-based programs for large numbers rather than elite programs for the few.<sup>5</sup>

It had been Sargent’s intent to specialize in children’s and women’s diseases and diseases of the nervous system. Upon leaving Yale, he went to New York to study with noted authorities Abraham Jacobi, Paul Mund, and Edward Seguin. His work with Seguin, Sargent stated, convinced him of the importance of physical activity for human development. This led to the “Hygienic Institute and School of Physical Culture”-and friendship with former Harvard athlete William Blaikie, a New York lawyer and exercise enthusiast who became the second President of the AAPE. Welsh graduated from the State Normal School at Millersville, Pennsylvania in 1875; she then taught there and at her former high school, becoming principal of the latter in 1881. It had been her desire to teach physiological chemistry, but she found upon her return from Zurich-as did other aspiring women-that females were not welcome in the male-dominated world of science.<sup>6</sup> She subsequently entered private practice with Dr. Mary Sherwood, whom she had met in Zurich, and the two directed Baltimore’s Evening Dispensary for Working Girls and Women. In 1894, Welsh began her thirty year tenure at the Women’s College of Baltimore (Goucher College).<sup>7</sup>

At Harvard, Sargent gave physical examinations to students, prescribed exercises to correct their “defects,” and lectured on hygiene, anthropometry and related topics. He also designed various “developing appliances” (machines rather like modern weight training equipment) for strengthening different parts of the body. Deeply involved in the anthropometry movement which swept America in the late 1800s, he constructed and sold innumerable charts for recording data and tables of “ideal” measurements. When he sought to patent his gymnasium equipment, Sargent incurred the censure of members of the AAPE and Harvard authorities, who maintained that a professional man should not engage in such entrepreneurial ventures.<sup>8</sup> The Sanatory Gym-

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5. For the best overview of the Committee on Women’s Athletics, see: Joan S. Hult, “The Governance of Athletics for Girls and Women: Leadership by Women Physical Educators, 1899-1949,” *Research Quarterly for Exercise and Sport Centennial Issue*, (1985), 64-77.

6. Ledyard Sargent, *Dudley Allen Sargent*, especially chapters 17-19.

7. Welsh, *Fifty Years of Women’s Education*; idem, *Reminiscences of Thirty Years in Baltimore* (Baltimore: The Norman Remington Co., 1925), 114-129. For women’s struggles to gain access to scientific professions, see: Margaret W. Rossiter, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore: Johns Hopkins University Press, 1982). For experiences in medicine, where women were also confronted by exclusionary tactics, see Gloria Moldow, *Women Doctors in Gilded-Age Washington: Race, Gender, and Professionalization* (Urbana: University of Illinois Press, 1987).

8. Bruce L. Bennett, “Dudley A. Sargent: A Man for All Seasons,” *Quest*, 29 (Winter 1979), 33-45; *Proceedings of the American Association for the Advancement of Physical Education, Boston, 1891* (Ithaca: NY: Andrus and Church, 1891) especially 22-24; James H. McCurdy, “A Study of the Characteristics of Physical Training in the Public Schools of the United States,” *American Physical Education Review*, 10 (1905), 202-213.



The Triceps Machine

FROM: "Making Our Girls Able Bodied," *New York Herald*, 11 May 1890

nasium, which he opened in 1881, became the Sargent Normal School of Physical Education. It and the Harvard Summer School, which Sargent also directed, produced a large number of the early physical training teachers (substantially women) who were employed in the growing college and high school programs. It counted among those who had taken the Summer School Course in Physical Training: Booker T. Washington (Tuskegee Normal Institute); R. Tait McKenzie, M.D. (then Director of Physical Training at McGill University); Delphine Hanna, M.D. (Director of the Women's Gymnasium at Oberlin College), Isabel Ballentine (Director of Physical Training at Vassar College), and other notable contemporaries.<sup>9</sup> At Goucher, Welsh gave physical examinations, lectured on hygiene, and instructed students majoring in biology in "animal physiology." She was responsible for overseeing the work of the Instructors who taught gymnastics and sports, and also the college infirmary. Welsh apparently had neither aptitude for-nor interest in-physical activities, for she related that she had not been engaged to "teach gymnastic movements to girls"-nor could she have done so even if this had been her desire.<sup>10</sup>

Although their professional responsibilities were in some ways similar (e.g., examining students, lecturing on hygiene, and overseeing the work of their departments), their academic training-and especially the cultural values which defined the accepted roles for males and females-confronted Sargent and Welsh with quite different possibilities and limitations. Their "gendered" world was deeply influenced by socially-constructed conceptions of the human body; and these conceptions, in turn, were incorporated into attitudes regarding exercise, physical education, and sport. *The body*-quite literally-was used to forcefully and unremittingly demarcate and reinforce the categories "woman" and "man." Such binary constructions, ably discussed by Jordanova, Shortland, Smith-Rosenberg, Vertinsky, Atkinson, and others,<sup>11</sup> made "masculinity" more powerful by its contrast with "femininity."

It would be misleading, however, to argue that everything that related to

9. Typescript list of names on stationary headed, Hemenway Gymnasium, Harvard University. (In Harvard University Archives.)

10. Welsh, *Reminiscences*, 115-116. Welsh related that her professor of physiology at the Women's Medical College of Pennsylvania, Dr. Frances Emily White, who had taught Dr. Alice Hall and Dr. Mary Mitchell (both of whom preceded Welsh at Coucher) has "lamented the fact that three of her students were wasting their talents and their medical education in teaching gymnastic movements to girls."

11. Ludmila J. Jordanova, "Natural Facts: A Historical Perspective on Science and Sexuality," in Carol P. McCormack and Marilyn Strathern (Eds.), *Nature, Culture and Gender* (Cambridge: Cambridge University Press, 1980) chapter 3; Jordanova, *Sexual Visions: Images of Gender in Science and Medicine Between the Eighteenth and Twentieth Centuries* (Madison: WI: University of Wisconsin Press, 1989); Michael Shortland, "Bodies of History: Some Problems and Perspectives," *History of Science*, 24 (1986), 303-326; Carroll Smith-Rosenberg, *Disorderly Conduct: Visions of Gender in Victorian America* (New York: Oxford University Press, 1985), especially 245-290. Patricia Vertinsky, "Body Shapes: The Role of the Medical Establishment in Informing Female Exercise and Physical Education in Nineteenth Century North America," in James A. Mangan and Roberta J. Park (Eds.), *From "Fair Sex" to Feminism: Sport and the Socialization of Women in the Industrial and Post-Industrial Eras* (London: Frank Cass, 1987) chapter 11; idem, "Exercise, Physical Capability, and the Eternally Wounded Woman in Late Nineteenth America," *Journal of Sport History*, 14 (Spring 1987), 7-27; Paul Atkinson, "The Feminist Physique: Physical Education and the Medicalization of Women's Education," in Mangan and Park, *From "Fair Sex" to Feminism*, chapter 2. Also Martha H. Verbrugge, *Able-Bodied Womanhood: Personal Health and Social Change in Nineteenth Century Boston* (New York: Oxford University Press, 1988); Kathleen E. McCrone, *Playing the Game: Sport and the Physical Emancipation of English Women, 1890-1914* (Lexington: The University Press of Kentucky, 1988) especially chapter 7.

masculinity and femininity in turn-of-the-century America could be easily compartmentalized; or that all members of society were in full agreement on these matters. Many of the ideologies of the age, and fundamental assumptions regarding the human body, were applied to both sexes. However, the contexts in which these were articulated were considerably different. It is the contexts which most concern us here.

There is no escaping the fact that many Americans (at least educated, middle-class Americans) were troubled about "masculinity." The essays in Elizabeth H. Pleck and Joseph H. Pleck's *The American Man* and Joe Dubbert's *A Man's Place: Masculinity in Transition* set forth many of the major themes. The ravages of the Civil War and new currents of a Social Darwinistic nature deepened anxieties to which Emerson, Holmes and others had already given voice. Organizations like the Boy Scouts and intercollegiate (and inter-scholastic) athletics, in particular, provided major arenas in which cultural values associated with American masculinity could be-quite literally-acted out. By the 1880s, as Donald Mrozek and James Whorton have shown, a new image of the male body was on the ascendent.<sup>12</sup> This active, vigorous mesomorphic icon provided the primary template from which most interpretations of what it was "to be a man" were derived. The situation regarding "woman" was substantially different.

*"Physiology and Anatomy Are Destiny" : Brains, Bodies and Exercise:*

In the 1870s) as Welsh and Sargent embarked upon their careers, women had no voice in national elections and little voice in anything that mattered beyond the "sphere" of home and family. The "learned professions" were substantially, if not wholly, closed to them. In particular, a debate raged over whether higher education was physiologically injurious to women and, consequently, a threat to "the race." *The Nation* proclaimed in 1870: "The admission of women to our colleges and universities is, if not the most important educational problem yet to be solved, at least the most clamorous for an immediate solution. It hangs closely together with the question of female suffrage. . . ." The prevailing view held that women were not capable of the same intellectual tasks as "their more robust brothers." If they overtaxed their brains, women were liable to serious anatomical and physiological disturbances. Moreover, even if it should be proven that women could endure the same intellectual demands, there would be no purpose since "the diverse work" for which each sex was destined was so different.<sup>13</sup>

In 1873, as Welsh was beginning her normal school studies, Edward Hammond Clarke's *Sex in Education; Or a Fair Chance for Girls* galvanized support for such views, launching an acrimonious debate which lasted for more than

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12. Elizabeth H. Pleck and Joseph H. Pleck, *The American Man* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1980); Joe L. Dubbert *A Man's Place: Masculinity in Transition* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1979); Donald J. Mrozek, *Sport and American Mentality: 1880-1910* (Knoxville: University of Tennessee Press., 1983); James C. Whorton, *Crusaders for Fitness: The History of American Health Reformers* (Princeton, NJ: Princeton University Press, 1982).

13. "The Sexes in Colleges," *The Nation*, 3 March 1870: 134-135; See also: "Vassar College," *The Nation*, (19 May 1870), 315-317.

a quarter of a century. An 1841 graduate of Harvard College, Clarke's studies had been interrupted due to ill health. He received the medical degree in 1846, and was appointed Professor of *materia medica* at his *alma mater* in 1855—a post he held until 1872. His medical specialty was diseases of the eyes and nerves. The small book (reprinted seventeen times) became the standard-bearer for those who argued that women were incapable of serious intellectual achievement because they were regularly incapacitated as a consequence of menstruation.<sup>14</sup>

Clarke drew selectively from the “vital force” and “conservation of energy” theories which were popular at mid-century. His conclusion—“physiology condemns the identical and pleads for the appropriate education of the sexes, so that boys may become men, and girls women”—was the predetermined conviction with which he undertook his subject. The generally-accepted belief that the human organism was not constituted to do two things at the same time was used to buttress his assertion that a girl's physiology—particularly during the onset of menstruation—incapacitated her for “brain work.” (As we will see in a later section, it was also believed that too much “brain-work” was inimical to males.) Females also could be harmed by too much *physical* activity. “Both muscular and brain labor must be remitted enough to yield sufficient force for the work of [menstruation],” Clarke declared. His views were shared by such influential contemporaries as the fashionable Philadelphia physician Silas Weir Mitchell, who had already raised the same specter in *Wear and Tear, or Hints for the Overworked* (1871), and the neurologist Dr. William A. Hammond, author of such works as *Sexual Impotence in the Male* (1883).<sup>15</sup> (Hammond, Mitchell, and Clarke were all associate editors of *The Journal of Nervous and Mental Disease*, founded in 1873.)

Clarke's book elicited immediate criticisms. The best-known became the thirteen papers which made up *Sex and Education: A Reply to E.H. Clarke's "Sex in Education"* (1874), edited by Julia Ward Howe. It was “the dissimilarity of their physical training,” Howe insisted, not intellectual activity, which caused whatever ill-health and uterine displacement women might suffer. When parents gave “girls a chance through athletic sports and unrestricted exercise in the open air,” women attained a “remarkable robustness.” The whole topic, she believed, needed careful study, not polemical diatribes.<sup>16</sup> Contributor Thomas Wentworth Higginson (a Harvard classmate of Clarke and a staunch supporter

14. Vertinsky's analyses of these arguments are especially insightful. See also: Vertinsky, *The Eternally Wounded Woman: Women, Doctors and Exercise in the Late Nineteenth Century* (Manchester: Manchester University Press, 1990); Edward Hammond Clarke, *Sex in Education; Or A Fair Chance for the Girls* (Boston and New York: Houghton, Mifflin and Co., 1879); *Dictionary of American Biography*, S.V. “Clarke, Edward Hammond.”

15. Clarke, *Sex in Education*; See also the excellent analyses provided by Cynthia E. Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge, MA: Harvard University Press, 1989); Silas Weir Mitchell, *Wear and Tear, or Hints for the Overworked*, 5th ed. (Philadelphia: J. B. Lippincott Co., 1891). Mitchell reiterated the same concerns in *Fat and Blood, and How to Make Them* (Philadelphia: J. B. Lippincott and Co., 1897). When patients were unable to take exercise voluntarily, *massage* and *passive exercise* should be used. William A. Hammond, *Sexual Impotence in the Male* (New York: Bermingham and Co., 1883).

16. Julia Ward Howe (Ed.), *Sex and Education: A Reply to Dr. E. H. Clarke's: "Sex in Education"* (Boston: Roberts Brothers, 1874), 27-29.

since the 1850s of both exercise and greater opportunities for women), accused Clarke of having “entered on his inquiry in the spirit of an advocate, not a judge.” It was not surprising, Higginson intimated, that Clarke had called upon Hammond and the British physician Henry Maudsley (both opponents of higher education for women). He had selectively and artfully chosen bits of information from John Dalton’s and William Carpenter’s textbooks of human physiology; moreover, his sweeping assertions were based on only seven cases. Neither Clarke “nor any physiologist opposed to coeducation,” Higginson remarked, had been willing to acknowledge any of the facts which *supported* the benefits of education for women.<sup>17</sup>

*Women’s Education and Women’s Health*, published in 1874, was another of the many retorts which quickly appeared. Subtitled *Chiefly in Reply to “Sex in Education,”* it was written by George F. Comfort (Dean of the College of Fine Arts at Syracuse University) and Dr. Anna Manning Comfort. Anna Manning had graduated first in her class from the New York Medical College for Women in 1865. She then combined a successful medical practice with lecturing on medical topics and advocacy of equal treatment for women. Drawing upon an array of authoritative sources, she declared: “the general reader will . . . be greatly misled by Dr. Clarke.” Many of his passages were “marked by a singularly inexact, or indeed inaccurate use of scientific language.” Women often did have unequal muscular development and impaired health, Dr. Comfort acknowledged, but largely because prevailing attitudes limited the amount of exercise deemed appropriate for them. Contrary to Clarke’s dire predictions, young ladies who graduated from schools where attention was given to anatomy, physiology, hygiene and exercise were “superior in physical strength and agility.” They were *not* harmed by intellectual tasks or unsexed. Indeed, higher education was beneficial for women. The authors expressed a hope that Clarke’s book would lead the way to a re-examination of the “errors of our present system.”<sup>18</sup> In the end, such a re-examination occurred, but not without a protracted struggle.

Far greater numbers of articulate and influential Gilded Age Americans supported than rejected the views which Clarke had espoused. S. Weir Mitchell, an advocate of complete rest for women who suffered from various “nervous complaints,” acknowledged that society was now demanding that women “have opened to them the higher grades of instruction.” Yet he looked with foreboding upon “the horrible system of coeducation of the sexes.” Students in women’s colleges, Mitchell asserted, should be checked regularly

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17. See for example, Higginson’s “Barbarism and Civilization,” *Atlantic Monthly*, 7 (1861), 57-61. The “Galatea Collection,” which Higginson gave to the Boston Public Library, contained titles like *Negotiations Between the American and National Woman Suffrage Associations in Regard to Union*. (Galatea was a nymph in Greek fable. Ivory statue made by Pygmalion.); Howe, *Sex and Education*, 32-51. (Higginson’s remarks had first appeared in the November 8 and 15, 1873 *Woman’s Journal*.)

18. George F. Comfort and Anna M. Comfort, *Woman’s Education and Woman’s Health: Chiefly in Reply to “Sex in Education,”* (Syracuse: Thomas W. Durston and Co., 1874) vi-xii; 13-17, 23-25; 65-68; 154-155. *Dictionary of National Biography*, s.v. “Comfort, Anna Manning”; *ibid.*, “Comfort, George F.”

by a physician. Although many colleges for women had established “machinery and organization for the care of the physical and mental health of students,” he did not consider the work to be very satisfactory. There were “constant goads” to study and to be active even at times when girls were “unfit to use their brains” (i.e., during menstruation).<sup>19</sup> Quite a different view was expressed by Dr. Mary Putnam Jacobi, whose essay “The Question of Rest for Women During Menstruation” (written in response to the question “Do Women Require Mental and Bodily Rest During Menstruation?”) won Harvard’s 1876 Boylston Prize.<sup>20</sup>

In 1868, against intense objections from the male faculty of the École de Médecine, Jacobi had entered the Paris institution. After graduating with honors, she returned to the United States and began an active private practice. She also engaged in hospital work, lectured extensively, and wrote numerous scientific papers. To prepare for her essay, Jacobi had collected information from two hundred and forty-six women. From these responses—and from the best extant medical literature—she concluded that vigor during childhood, the amount of exercise taken during (and after leaving) school, and a thorough mental education were among the most important contributors to freedom from menstrual pain. There was nothing in the nature of menstruation which made it necessary for otherwise healthy, well-nourished women to rest.<sup>21</sup> *The Journal of Nervous and Mental Disease* gave Jacobi’s 200-page monograph a glowing review, citing its thoroughness, the use of extensive statistical evidence, and her familiarity with important scientific and medical works. The reviewer could find little to disagree with except Jacobi’s contention that women’s “motor apparatus” was not inferior to that of the male and that women were not inherently intellectually inferior!<sup>22</sup>

Delivering in 1923 the newly-established Goucher College Lecture which bore her name, Lilian Welsh recalled that Clarke’s *Sex in Education* had “added plenty of fuel to fires” that were already burning. She then summarized the major arguments that Clarke and his contemporaries had used, showing how easily “science” had been manipulated to reinforce established dogma. To prove the mental inferiority of women, physicians, physiologists, anthropologists, and psychologists had weighed brains, measured the grey matter of the cerebrum, and examined the microscopic structures of the cortex and the arteries leading to the brain. As it was known that the red corpuscles carried oxygen, the conclusion had been drawn that since “the red corpuscles in a millimeter of male blood . . . [were] five million compared to four million five

19. Silas Weir Mitchell, *Lectures on Diseases of the Nervous System, Especially in Women* (Philadelphia: Lea Brothers and Co., 1885). 13-15; passim.

20. Mary Putnam Jacobi, *The Question of Rest for Women During Menstruation* (New York: G. P. Putnam’s Sons, 1877).

21. *Ibid.*; *Dictionary of National Biography*, s.v. “Mary Putnam Jacobi”; Edward T. James (*Ed.*), *Notable American Women: A Bibliographical Dictionary* (Cambridge, MA: Belknap Press of Harvard University Press, 1971), 263-265.

22. S.H.S., Review of “The Question of Rest for Women During Menstruation,” *Journal of Nervous and Mental Disease*, 2 (1877), 757-768.

hundred thousand in the female," it would not be worthwhile to cultivate whatever intelligence a woman had. This notion, Welsh recalled, had become so entrenched that "even children knew it."<sup>23</sup>

Possibly because the focus of her address was women's education, Welsh made no mention of the fact Victorians also had been exceedingly anxious about the capabilities of males. The reviewer of Jacobi's Boylston Prize Essay had noted in passing that men also "broke down" from "long uninterrupted hours" of study and work.<sup>24</sup> In 1869, the American physician George Beard had coined the term "neurasthenia," which soon embraced a host of ill-defined complaints ranging from "cerebral irritation" to tenderness of the vertebrae, headaches, chorea, hysteria, agoraphobia, prolapsus uteri, and much more. Men as well as women could become victims. They worked too hard, ate the wrong foods, and eschewed the vigorous out-of-door pursuits which had made the English (women as well as men) robust and healthy.<sup>25</sup> "Brain-toil," he believed, could be better endured by British than American men. A decade later, Beard compared the "English and American Physique," declaring that *physique* (the outer reflection of "inner" conditions) and character were "of special interest to students of the nervous system." Indeed, "the strength of [a] nation," he stated, "is the strength of the thighs rather than of the brain."<sup>26</sup> For the remainder of the century, commentators would equivocate on the question: Was the vitality of American males improving or declining? And which was the more important for a man, a strong *body* or a strong *brain*?

Anthony Rotundo has identified "three ideals of manhood" which were held up to middle-class men in nineteenth century America, especially in the North: Masculine Achiever; Christian Gentleman; Masculine Primitive (which emphasized "vigor and strength of body" as well as "vigor and strength of personality"). Both the Masculine Achiever and the Masculine Primitive were to be recognized by their propensity for "strong, aggressive action."<sup>27</sup> Although intelligence and sharp wits were important qualities for defining what it was to be a *man*, muscular, well-formed bodies were so appealing to Victorians that they were repeatedly invoked in a variety of contexts, the most prominent becoming the athletic arena. Looking back at his own and other young men's athletic accomplishments during the 1860s,

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23. Lilian Welsh, *Fifty Years of Women's Education*, 10-11.

24. S.H.S., Review of "The Question of Rest," 758, 766.

25. See, Charles E. Rosenberg, "The Place of George M. Beard in Nineteenth Century Psychiatry," *Bulletin of the History of Medicine*, 36 (1962), 245-259.

26. George M. Beard, "English and American Physique," *North American Review*, 130 (1880), 588-603. A reviewer of Beard's *American Nervousness: Its Causes and Consequences* (New York: G. P. Putnam's Sons, 1881) observed that Beard's name gave weight to the contention that the "modern American white man is in his physique, at least, inferior to his European progenitors," but faulted Beard for being vague and unscientific, "Reviews and Bibliographical Notices," *Journal of Nervous and Mental Disease*, 8 (1881), 773-777.

27. E. Anthony Rotundo, "Learning About Manhood: Gender Ideals and the Middle-Class Family in Nineteenth Century America," in James A. Mangan and James Walvin (Eds.), *Manliness and Morality: Middle-Class Masculinity in Britain and America, 1800-1940* (New York: St. Martin's Press, 1987), 41, passim; Dubbert, *A Man's Place*, especially chapters 4, 5 and 6. See also: Joseph F. Kett, *Rites of Passage: Adolescence in America 1790 to the Present* (New York: Basic Books, Inc., 1977).

James D'Wolf Lovett described the intense pleasure that "Boston Boys" had derived from sports like baseball and rowing and in Stewart's Gymnasium in Boylston Hall. Lovett included photographs Henry K. Bushnell's "back-development" (hanging from the horizontal bar), the bare-chested 1868 Harvard Varsity Crew, and other contemporary athletes in similar brawny poses.<sup>28</sup>

Yet, in 1872, there were many who still asked "Are Americans Less Healthy Than Europeans?" and answered "yes." Few American men, author G. S. Young contended, engaged in rowing, cricket, or other sports which had given the Englishman health and good physique: or in the vigorous gymnastics of the German Turner. In Europe, women (especially of the peasant and artisan classes) were also robust and strong; but in America they were pale and weak. They married too young, wore corsets too early, and shunned exercise. Even educated European women were healthy and vigorous, thanks to the emphases which Continentals placed on gymnastics and the English gave to out-of-door activities. Parents should send not only sons, but daughters, to the gymnasium, Young asserted, and encourage girls to skate, swim, and row "just as boys" so that American women might "be as remarkable for their perfection of physique as those of other lands."<sup>29</sup> In less than a quarter century, his wish would be at least partially fulfilled. By the 1890s, physical training had become a well-established part of the curriculum at Wellesley, Bryn Mawr, Goucher and other women's colleges, where young women engaged in prescribed gymnastic exercises and rowed, played tennis, basketball, and other games.<sup>30</sup> At the state universities of the Mid and Far West similar programs had also begun to appear.<sup>31</sup>

According to numerous contemporaries, females were not the only ones who suffered as a result of too much "brain-work." Males also could be afflicted, even if not indicted by the monthly occurrence of menstruation. *The Journal of Nervous and Mental Disease*, reviewing Hammond's *Sexual Impotence in the Male* (1883), asserted that nothing was "so destructive to the happiness of the average man as the loss of his virile powers." Prominent among Hammond's treatments were absolute rest, baths, douches, exercise, and proper diet.<sup>32</sup> The same review section related that Dr. Samuel Gross (*Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs*, 1883) had found that "inflammation of the prostatic urethra bears the same relation to the spinal reflexes of the male that inflammation of

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28. James D'Wolf Lovett, *Old Boston Boys and the Games They Played* (Boston: Privately Printed at the Riverside Press, 1907), passim.

29. G. S. Young, "Are Americans Less Healthy Than Europeans?," *Galaxy*, 14 (1872), 630-639.

30. Association of Collegiate Alumnae. Special Committee. *Health Statistics of Women College Graduates*. Annie G. Howes, Chairman (Boston: Wright and Potter Printing Co., 1885), especially pp. 19-78.

31. Helen R. Olin, *The Women of A State University: An Illustration of the Working of Coeducation in the Middle West* (New York: G. P. Putnam's Sons, 1909), chapter 6; Nancy Struna and Mary Lou Remley, "Physical Education for Women at the University of Wisconsin, 1863-1913: A Half Century of Progress," *Canadian Journal of History of Sport and Physical Education*, 4 (1973), 8-26.

32. William A. Hammond, *Sexual Impotence in the Male* (New York: Bermingham and Co., 1883); W. J. M., Review of *Sexual Impotence in the Male*, *Journal of Nervous and Mental Disease*, 10 (1883), 649-651.

the uterus bears to allied disorders of the female." This fact, the reviewer observed, had not been previously noticed by other writers.<sup>33</sup>

Dr. Horatio C. Wood, Clinical Professor of Nervous Diseases at the University of Pennsylvania, believed that the amount of pressure that was "put upon an ambitious boy at most . . . higher institutions of learning" was so great that "some young men break down at once," dying of consumption, nervous disorders, and other diseases. When the brain was taxed, it became flushed with blood. Exercise drew the blood to the muscles, thereby relieving the brain: "Oxidation goes on most strongly in the muscles," Wood stated, aiding "in purifying the blood and in equalizing the proportionate amounts of the fluid in different portions of the body." Taken in excess, however, exercise could be harmful. This was demonstrated, by the "large proportion of professional athletes [who] die early of lung and heart disease." Moreover, without due attention to "balance," men could become either "brain monsters" or "muscle monsters," as was seen in some athletes.<sup>34</sup>

Yale's Eugene Richards thought that the demands of modern life could "sap the physical strength of our young men, and thus impair their characters." Athletic clubs and intercollegiate athletics provided an essential good by developing "men full of force and energy." But, Richards cautioned, young men must have "body-brain" work—that is, the right combination of muscular and nervous expenditure to develop strength of body and vitality of mind and character.<sup>35</sup> Such "balance" was repeatedly stressed. According to John Stuart Blackie's *On Self-Culture: Intellectual, Physical, and Moral* (New York edition, 1874), "merely physical energies in man have a strong tendency to run riot" when not controlled by the Will. It was necessary, therefore, to achieve the proper balance among all parts of the body, as well as between the body and the mind. As did Richards and Blackie, many Victorian commentators believed inner balance was somehow reflected by the symmetry of a man's body. Sargent repeatedly insisted that athletics could never bring about the symmetrical development of the body that it was possible to achieve through calisthenics, gymnastics, and the use of "developing appliances." What was needed was a combination of German gymnastics, English sports, and French calisthenics, "all regulated, systematized, and adapted to [American] . . . needs and institutions."<sup>36</sup>

Charles Woodhull Eaton, M.D. also thought that weak muscles or too much brainwork could adversely affect males. In a rambling account entitled *Things*

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33. Samuel W. Gross, *A Practical Treatise on Impotence, Sterility, and Allied Disorders of Male Sexual Organs* (Philadelphia: Henry C. Lea's Son and Co., 1883). W. J. M., Review of "A Practical Treatise on Impotence," *Journal of Nervous and Mental Disease*, 10 (1883), 651-653. See also, J. S. Jewell, "Influence of the Present Civilization in the Production of Nervous and Mental Disorders," *Journal of Nervous and Mental Disease*, 8 (1881), 1-24.

34. Horatio C. Wood, *Brain-Work and Overwork* (Philadelphia: Blakiston, Son and Co., 1882), 70, 86, 93, passim.

35. Eugene L. Richards, "College Athletics and Physical Development," *Popular Science Monthly*, 32 (1888), 721-732.

36. John Stuart Blackie, *On Self-Culture: Intellectual, Physical, and Moral* (New York: Scribner, Armstrong, and Co., 1874), 70-71; Dudley A. Sargent, "Physical Training," *The Sanitarian*, 12 (1884), 189-206; idem., "Physical Education in Colleges," *North American Review*, 136 (1883), 166-180.

*Young Men Should Know. A Manual of the Anatomy, Physiology, and Hygiene of the Sexual System . . .* (1884), Eaton stated that when the balance between the “physical” and the “mental” was upset, young men were likely to suffer a variety of complaints. “Every hour of study” consumed a portion of a man’s “muscular and vital force.” Would there then be enough “phosphates and carbohydrates of lime for his bones-or phosphorous for his brain?” What would be the effect on his reproductive organs? The foundation upon which all success in life depended was *physical balance!* And this, in turn, was a matter of what Eaton called “a normal reproductive apparatus.” The “three independent pillars of character” (brain, body, and self-control) were all impaired when a man did not bother to build up “the citadel” (his physique). A man might inherit a delicate body; this was no disgrace. But failure to *train* his body was! Eaton contrasted the man of “procreative power . . . [and] Knightly spirit within the physical citadel” to the man who was “a weak, useless, lying, cowardly bundle of vileness.” The latter could be early identified by his “slim, pale, squeezed-lemon” appearance, “a skin of velvet,” a preference for neckties and cologne, and other effeminate qualities. Eaton even made the extravagant claim that he would rather men have “the itch” and “an outer covering of scabs” over a “sturdy genuine good-hearted manhood” than be such a man.<sup>37</sup> Drawing voluminously from William Blaikie’s *How to Get Strong and How to Stay So* (1879), Blackie’s *On Self-Culture*, Sargent, and other contemporary sources, Eaton proposed physical culture as a useful antidote for numerous disorders. Extracting verbatim from Archibald MacLaren, Director of the Oxford Gymnasium, he declared: “Our embodied idea of energy, activity, and strength is the soldier.” It was the responsibility of college gymnasiums and athletics to achieve similar ends by turning “flat-chested, spindle-shanked boys” into courageous, well-formed men. How beneficial it was, he proclaimed, that the YMCA and the colleges had instituted gymnastic work and athletics.<sup>38</sup>

The athletic contests, to which Lovett and others referred, had been initiated by American students in the 1850s. By the 1880s, these had become so extensive, popular, and costly that college officials were forced to acknowledge the need for institutional control. The vast majority of men and boys who engaged in them were doubtless motivated by enjoyment, excitement, opportunities to test themselves against other males, and the prestige and tangible rewards which college (and high school) varsity athletics could bestow upon participants. Many may have been prompted by the desire to build-and display-muscular, shapely bodies; and some may have entered into athletics in a desire to improve their health. It is doubtful, however, that the vast majority of young men troubled themselves with issues like “body-brain work” and “symmetry of development.” These were matters which attracted

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37. Charles Woodhull Eaton, *Things Young Men Should Know. A Manual of Anatomy, Physiology and Hygiene of the Sexual System, Its Disorders, and Their Treatment, Mechanical, Medicinal. and Through General Physical Culture* (Des Moines: Miller, Girton and Watters, 1884), 122-128, 216.

38. *Ibid.*

the attention of physicians, college authorities, some advocates of physical culture, and possibly men who realized that their own athletic potentials fell short of the prowess they admired in others. When colleges and universities ultimately decided that intercollegiate agonistic contests were on campus to stay—and that no amount of tinkering would change their semi-professional nature—it was typically the rhetoric of health, the link between sound bodies and brains, and character development—not the appeal which athletics had for students, alumni, and the general public—that was used to legitimize their presence. The new field of physical education, likewise, stressed contributions to health, development of the nervous and muscular systems, and similar “scientific” rationales to substantiate its claims to a place in the formal curriculum.<sup>39</sup>

Whereas athletics had preceded physical training for males at most institutions, physical training for females owes its initiation at Bryn Mawr, Goucher, the University of Michigan, University of Wisconsin, and elsewhere in substantial measure to issues which Clarke had raised in *Sex in Education*. Even before Elizabeth Cady Stanton and other supporters of women’s rights in 1848 had declared their views, and the publication in 1856 of Catharine Beecher’s popular *Physiology and Calisthenics for Schools and Families*, some Americans had endorsed opportunities for women to strengthen their bodies through exercise, play and games.<sup>40</sup> It is generally agreed, however, that the initiation of physical education at Vassar College in the 1860s—and the appointments of Dr. Alida C. Avery as Professor of Physiology and Hygiene and Ms. Delia C. Woods as Instructor of Physical Training—launched the movement to make physical education a part of the formal curriculum for women.<sup>41</sup> Girls and women were to be provided with exercise sufficient to strengthen them for “brain work,” but not so strenuous as to interfere with other physiological systems, notably the reproductive. For the remainder of the nineteenth and well into the twentieth century the issue of how much and what kind of physical activity was appropriate for females was debated.

In 1874, Professor Edward Orton had compared the health of Vassar students with that of students at Amherst College (where Edward Hitchcock headed the nation’s earliest Department of Physical Culture), finding the young women to be fully as healthy as the young men. “It will not hurt any human being to

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39. See for example, Ronald A. Smith, “Preludes to the NCAA: Early Failures of Faculty Intercollegiate Athletic Control,” *Research Quarterly for Exercise and Sport*, 54 (1983), 372-382; Roberta J. Park, “Healthy, Moral and Strong: Education and Athletics in Nineteenth-Century America,” in Kathryn Grover (Ed.), *Fitness in American Culture: Images of Health, Sport, and the Body, 1830-1940* (Amherst, MA: The University of Massachusetts Press, 1989), 123-169; Park, “Physiologists, Physicians, and Physical Educators: Nineteenth Century Biology and Exercise-Hygienic and Educative,” *Journal of Sport History*, 14 (1987), 28-60.

40. See, Roberta J. Park, “‘Embodied Selves’: The Rise and Development of Concern for Physical Education, Active Games and Recreation for American Women, 1776-1865,” *Journal of Sport History*, 5 (1978), 5-41. At age 67, Stanton was still ready to advocate exercise for girls and women. She was one of three contributors to “The Health of American Women,” *North American Review*, 131 (1882), 510-517. The other two contributors were Diocletian Lewis and James Read Chadwick.

41. See, Richard A. Swanson and Betty Spears, *History of Physical Activity and Sport in the United States* (Dubuque, IA: William C. Brown, 1978), 123-128.

think,” Orton held. “It is not brain work that gives headaches but want of it.”<sup>42</sup> When the Association of Collegiate Alumnae was founded in 1882, the first subjects that it took up for investigation were physical education, hygiene, sanitation, and eugenics.<sup>43</sup> Much as Dr. John Morgan had collected information from men who had rowed in the Oxford-Cambridge Boat Race between 1829 and 1869 to test the allegation that oarsmen died younger than men who had not been athletes, the ACA inquired into the health of women who had graduated from twelve institutions of higher learning. With the aid of the Massachusetts Bureau of Statistics of Labor, answers from 705 respondents were compiled. The data supported the contention that neither higher education nor co-education was harmful to women and that it did not “ruin” future mothers.<sup>44</sup> In addition to information about eating and sleeping habits, whether the respondent found rest necessary during the menstrual period, etc., the questionnaire inquired about exercise habits. Those who stated they exercised six or more hours per week reported their health to be “excellent or good” more often than those who exercised only two hours per week.<sup>45</sup>

In 1893 the City of Chicago hosted the World’s Columbian Exposition. This massive undertaking included meetings of many professional and special interest groups, one of which was a World’s Congress of Representative Women—the third such international gathering since the 1870s. Addressing conferees on “The History, Aims and Methods of the Association of Collegiate Alumnae,” Secretary Marion Talbot reminded listeners: “From the outset, the association has laid special stress on the necessity of a sound physical basis for mental growth.” The first paper presented before the Association had been on “Physical Education.”<sup>46</sup> That same year the Gilchrist Trustees sent five women teachers to the United States to study educational practices in women’s colleges and girls’ high schools. Sara Burstall, Mistress of the North London Collegiate School for Girls, produced a comprehensive report (which contained an insightful chapter on “Physical Education”) as a result of her tour. Noting that physical education was a recent development in America—and not “as advanced as in England”—Burstall was struck by what she called “a comparative absence of free games” for women in the open air. It would be advisable, she thought, if games were encouraged more.<sup>47</sup>

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42. Cited in Welsh, *Fifty Years of Women’s Education*, 11.

43. Marion Talbot, *The Education of Women* (Chicago: University of Chicago Press, 1910), 205, passim.

44. John Edward Morgan, *University Oars, Being a Critical Inquiry Into the After Health of Men Who Rowed in the Oxford and Cambridge Boat Race From the Year 1829 to 1869, Based on Personal Experiences of the Rowers Themselves* (London: Macmillan and Co., 1873); *Health Statistics of Women College Graduates*, 61-78. Those institutions reporting were: Vassar, Wellesley, Smith, Boston University, Syracuse University, Cornell University, Oberlin, Massachusetts Institute of Technology, University of Michigan, University of Wisconsin, University of Nebraska.

45. *Health Statistics of Women College Graduates*, 26, 67.

46. Marion Talbot, “The History, Aims, and Methods of the Association of Collegiate Alumnae,” in May W. Sewall (Ed.), *The Worlds Congress of Representative Women*, vol. 2 (Chicago: Rand, McNally and Co., 1894) 784-796.

47. Sara A. Burstall, *The Education of Girls in the United States* (London: Swan, Sonnenschein and Co., 1894), 159-160, passim.

*The Biomedical Background to the Use of Function—and Form—for Defining Gender*

Detailed information regarding the gross structures of the body had been available for centuries, yet, according to recent work by Londa Scheibinger, anatomists had not made distinctions between the male and the female skeleton until the 1700s, when their focus turned increasingly to such differences. “If sex differences could be found in the skeleton, then sexual identity would no longer . . . be a matter of organs attached to the body,” as the ancients had believed, sexuality would penetrate every fiber, and Nature would have confirmed a somatic basis for social, economic, and political distinctions.<sup>48</sup> What began in the eighteenth century reached major proportions in the nineteenth. By the 1870s, biology (a term which first appeared in the literature in 1802)<sup>49</sup> had become a vast field of study embracing a complex—and bewildering—assortment of specialties. For every new discovery in “the life sciences,” a host of popular interpretations ensued. Analyzing the literary career of authoress George Eliot, Sally Shuttleworth has pointed to how frequently Victorians looked to biology for a source of authority and legitimation: “The development of their social theories went hand in hand with that of their physiology.”<sup>50</sup> Ideas about the human body, its potential and its weaknesses, Mary Douglas has powerfully argued, “correspond uncannily well with ideas . . . about the potential and weakness of society.” Bodily control, then “is an expression of social control,” defining age, class, refinement, race, gender and more.<sup>51</sup>

What views did Americans—at least middle-class, educated Americans who were the producers and consumers of so much of the literature that was circulated—hold of their world? Robert Wiebe has depicted American society in the late 1800s as one moving from certainties legitimated by traditional values to uncertainties brought about by urbanization, industrialization, immigration, and intense challenges to the “orderly universe” of established religion. A search for “continuity and predictability in a world of endless change” was a dominant theme which cut across a multitude of concerns between 1870 and 1920.<sup>52</sup> While men spoke of power (their own and that of the nation), they remained anxious about their vulnerability in business, their social standing, their health, and their future. Women, too, might be anxious, but men had more to lose—status already attained. Woman’s struggle was to gain status. The

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48. Londa Schiebinger, *The Mind Has No Sex?: Women in the Origins of Modern Science* (Cambridge, MA: Harvard University Press, 1989), especially chapter 7.

49. William Coleman, *Biology in the Nineteenth Century: Problems of Form, Function, and Transformation* (Cambridge: Cambridge University Press, 1977), 1.

50. Sally Shuttleworth, *George Eliot and Nineteenth Century Science: The Make Believe of A Beginning* (Cambridge: Cambridge University Press, 1984), 6; passim. (George Eliot was the pseudonym for the English novelist Mary Ann Evans—1819-1880—who married the philosopher, critic, and popularizer of physiology George Lewes, [1818-1878].)

51. Mary Douglas, *Natural Symbols: Explorations in Cosmology* (New York: Pantheon Books, 1982) xiv; 70-71; G. S. Rousseau and Roy Porter (Eds.), *The Ferment of Knowledge: Studies in the Historiography of Eighteenth Century Science* (Cambridge: Cambridge University Press, 1980), 224.

52. Robert H. Wiebe, *The Search for Order, 1877-1920* (New York: Hill and Wang, 1967) xiv, passim.

rhetoric of biological science and “embodiment” underscored many of the apprehensions.

Cutting incisively through complexities, William Coleman has identified three major thrusts of nineteenth century biology. Anatomists, histologists, and embryologists studied appearance and structure-*form*. Physiologists studied *function*—“vital processes” like circulation, digestion, and respiration. Evolutionists studied the development of species.<sup>53</sup> Reproduction (which combined “function” and “evolution,” and gave forceful expression to differences of biological sex) became a major preoccupation in the 1870s, and was closely allied with anxieties about “racial decline.” In addition to its scientific importance to fields like morphology, interest in “form” was also associated with anthropometry (both scientifically and in a capricious manner) and with the *pseudo-science* of physiognomy (the “art” of discerning character from outward appearance). Interest in exercise, athletics, and muscularity was variously interwoven with each of these. Dr. Joseph Simms, for example, included commentary about the famous strongman George Windship in *Physiognomy Illustrated; or, Nature’s Revelations of Character*.<sup>54</sup> Whereas the use of “function” usually obliged the speaker to draw upon *metaphor* to make a point, the use of “form” could be more direct.

In the 1830s, Claude Bernard had demonstrated the glycogenic (animal starch producing) function of the liver. Before mid-century, the nucleated cell as the fundamental unit of organization of living things had been established by Schwann, Virchow, and other members in the German scientific community. Gustav Magnus’ discovery that arterial blood contains more oxygen than does venous blood opened the way to discoveries that the tissues and cells (rather than the lungs, as Lavoisier had proposed) were the site of the production of animal heat (energy). The role of the autonomic nervous system in heat loss and conservation was explicated; and studies of motor coordination by Flourens and others extended knowledge of the sensory-motor division of the nerves.<sup>55</sup> Yet, the brain (and its corollary “mind”) remained largely *terra incognita*.

The “conservation of energy” theory was closely associated with conceptions of the chemical processes by which animal heat was generated. In the late 1860s, the British chemist Edward Frankland, using the analogy of a steam engine’s “piston and cylinder,” asserted: “Muscle is only a machine for the transformation of heat into motion; both are subject to wear and tear, and require renewal.”<sup>56</sup> The term—and the concept—became widely employed. S. Weir Mitchell, for example, titled his 1871 treatise on the nervous system

53. Coleman, *Biology in the Nineteenth Century*, 14-15.

54. Joseph Simms, *Physiognomy Illustrated; Or Nature’s Revelations of Character. Descriptions of the Mental, Moral, and Volitive Dispositions of Mankind, As Manifested in the Human Form and Countenance*, 9th ed. (New York: Murray Hill Publishing Co., 1889).

55. Coleman, *Biology in the Nineteenth Century*, chapter 6. See also, Frederic L. Holmes, *Claude Bernard and Animal Chemistry: The Emergence of A Scientist* (Cambridge, MA: Harvard University Press, 1974); Edwin Clarke and L. S. Jacyna, *Nineteenth Century Origins of Neuroscientific Concepts* (Berkeley, CA: University of California Press, 1987).

56. Quoted in Coleman, *Biology in the Nineteenth Century*, 134-135.

*Wear and Tear, or Hints for the Overworked.* Wear was the result of normal use; tear resulted from over-use! As we have seen, although women were most susceptible, males were not immune to “tear” and a variety of nervous disorders (e.g., epilepsy, habit chorea, motor ataxia) which this could bring on. Men who were “sensitive,” over-studious, or spent too much time “in-doors” were most apt to be afflicted. Sedentary work, therefore, must be balanced with proper exercise. It was only because some men still led out-door lives, keeping up their “pristine force and energy,” Weir held, that the nation had been able to progress. He reiterated his earlier warnings about excessive mental and physical work in *Lectures on Diseases of the Nervous System* (1883, the subtitle of which fully expressed its primary focus—“*Especially in Women.*”<sup>57</sup>

A physician of considerable reputation (who never received the university position he desired), Mitchell’s ideas were gained from clinical experiences with patients rather than from experimental studies such as Austin Flint, Jr. (in America) and F. W. Pavy (in Britain) conducted on the famous pedestrian Edward Payson Weston in an effort to clarify what chemical processes were involved in energy production.<sup>58</sup> The controversy over whether energy was produced by chemical transformations taking place in the tissues, or whether energy was derived directly from food, remained unsettled until the early 1900s. Although the precise mechanisms remained unknown, it was generally agreed “that the manifest activities of the organism” (e.g., locomotion, digestion, glandular secretion) required “abundant energy for their execution.” It was also assumed that each individual possessed a pre-determined, fixed amount of energy or “vital force.” As a class, women had less than men and were, therefore, more liable to be adversely affected by either too much physical or too much “brain” work. The “vital force” and “conservation of energy” theories, so nicely analyzed in Cynthia Russett’s *Sexual Science: The Victorian Construction of Womanhood*,<sup>59</sup> were repeatedly invoked in debates over whether women should be admitted to higher education.

*Form*, so tightly linked with *function* in biological thought, entered into the higher education controversy in a number of interesting ways. One was the link that was forged between cranial capacity, brain size, and assumptions about intelligence. In the “heyday” of craniometry and craniology (ca. 1840-1890), elaborate efforts were made to equate size and shape of the skull and brain with race and sex. Because of their smaller brains, women were deemed inferior to men: And colored races inferior to Anglo-Teutonic races. Arnold Henry Guyot’s *Physical Geography* (1866), for example, located the Apollo Belvedere (representing the Anglo-European) at the apex of “The Races of Man.” In J. C. Nott and G. R. Gliddon’s *Races of the Earth* (1868), a unilinear scale placed a

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57. S[ilas] Weir Mitchell, *Wear and Tear, or Hints for the Overworked*, 5th ed. (Philadelphia: J. B. Lippincott Co., 1891), especially pp. 5-21; idem, *Lectures on Diseases of the Nervous System*, 13-17, 160-166.

58. Austin Flint, Jr., *On the Physiological Effects of Severe and Protracted Muscular Exercise; With Special Reference to Its Influence Upon the Excretion of Nitrogen* (New York: D. Appleton and Co., 1871); idem, *On the Source of Muscular Power, Arguments and Conclusions Drawn From Observations Upon the Human Subject, Under Conditions of Rest and of Muscular Exercise* (New York: D. Appleton and Co., 1878).

59. See, Russett, *Sexual Science*, especially chapter 4.

skull labeled “Greek” above those of a creole Negro and a young chimpanzee. The head of the Apollo Belvedere was used to depict the outward appearance of the “Greek” skull<sup>60</sup> in much the same manner that the full statue of the vigorous young god, naked except for fig leaf and the *chlamys* over his left arm, repeatedly appeared in Victorian art and sporting manuals.

*The Body as “Icon” for Gender: Athletics for Men, Modest Exercise for Women*

It is evident that male and female bodies are anatomically different; but differences in *body conformation* are “less marked in *homo sapiens* than in many other animals.” It has also been shown that with appropriate training many women can exceed (some greatly) the physical performances of the “average” man.<sup>61</sup> Such assertions would have been anathema to Victorians. In the latter decades of the nineteenth century, anthropometry incorporated several of the assumptions that craniometry had earlier espoused. S. M. Bradley, for example, stipulated that the “law of proportion” dictated that the lower half of a man’s body should be 618.03 cm and the upper half 381.97 cm—substantially the proportions of the Apollo Belvedere. Astronomer Richard A. Proctor’s *Strength: How to Get Strong and Keep Strong* (New York edition, 1889) featured Apollo as the frontispiece. A frail child who became captain of the boating club at St. John’s College, Cambridge, Proctor used an oarsman from Blaikie’s *How to Get Strong and Stay So* and a relief of Theseus (King of Athens and a celebrated hero of antiquity) to illustrate, improper and proper muscular development of the chest.<sup>62</sup> Lloyd Bryce’s “Plea for Sport,” which appeared in the 1879 *North American Review*, was filled with paeans to “the games of ancient Greece” and their analogue, the “plays of modern English boys.” Concerned about a physical decline among “the cultivated minds” of the United States, he urged every educational establishment to foster games and out-door exercises to “enlarge and strengthen the various muscles of the trunk, neck, arms, and lungs” and “develop a vigorous *physique*.” More forthright than many of his contemporaries, Bryce explicitly distinguished between two different “classes” of men: those who led, and the masses. The former learned executive skills from participation in sports; the latter learned to follow. Men who were physically vigorous (always “victorious in the end”) were able to “assert and maintain their rights after a more manly fashion” than the weak, who often resorted to “chicanery and duplicity” to achieve their goals.<sup>63</sup>

60. The discussions in Stephen Jay Gould, *The Mismeasure of Man* (New York: W. W. Norton and Co., 1981) are particularly useful, especially chapters 2, 3 and 4.

61. See, Christine L. Wells, *Women, Sport, and Performance: A Physiological Perspective* (Champaign, IL: Human Kinetics Publishers, Inc., 1985), 3, *passim*.

62. Richard A. Proctor, *Strength: How to Get Strong and Keep Strong, With Chapters on Rowing and Swimming, Fat, Age, and Waist* (London: Longmans, Green, and Co., 1889), 30-31; S. Messenger Bradley, *The Relationship of Anatomy to the Fine Arts: A Lecture Delivered in the Royal Institution* (Manchester: John Heywood, 1880[?]).

63. Lloyd S. Bryce, “A Plea for Sport,” *North American Review*, 128 (1879), 511-525. In addition to paeans to Greek athletics and muscular Christianity, Bryce included references to Austin Flint and “elementary facts of physiology” (p. 520).

Philadelphia's J. William White, physician, sportsman and representative of the genteel Gilded Age tradition, also drew upon sources ranging from the Greek gymnasium and Panhellenic Games to English public school and university sport, from John Beddoe's paper on "The Stature and Bulk of Man in the British Isles," Mogan's study of men who had rowed in the University Boat Race between 1829 and 1869, the German research physiologist DuBois-Reymond's assertion (endlessly repeated in the late 1800s) that physical exercise influenced "the nerve-centers" as much-if not more-than muscle, and Eugene Richards' declaration that the muscular system and brain were "developed by reciprocal action." Careful study of weight, height, circumference of chest, size of legs, forearms, etc., White declared, could reveal a great deal about a man's general condition and also his nature. He urged all college authorities to initiate a system of physical education such as existed at Oxford, Harvard and the University of Pennsylvania to bring men nearer to the desired "symmetrical" standard.<sup>64</sup>

Since mid-century, numerous commentators had insisted that the varied sports of the English public schools and the gymnastic regimens of the German Turnverein produced healthier, more shapely men than could be found in America. Exercise enthusiast William Blaikie agreed. American boys were "undersized . . . with scarcely any promise of manhood." Observe college seniors, he declared: "A few, *the athletes*, will be well developed"; in fact, "*better really than they need be*," but not developed "symmetrically." (If a choice was necessary, overdevelopment was better than underdevelopment). Chapter two of *How To Get Strong and How To Stay So* (1879), titled "Half-Built Boys," included drawings of two oarsmen whose chests were "flat and slab-sided, almost hollow" because they had not exercised all parts of the body equally.<sup>65</sup> (This issue had been raised in Archibald MacLaren's 1865 *A System of Physical Education* and his popular 1866 book on athletic training, from which Blaikie surely borrowed.)<sup>66</sup> Such men were prone to illness and, even worse, "entail on [their] children defects and tendencies" which their offspring might otherwise have been spared.<sup>67</sup>

Blaikie drove the point home even more forcefully in "Great Men's Bodies," a section he added to the second edition. Ranging from Socrates to Oliver Cromwell, Peter the Great, Lincoln, William Gladstone and other notables, Blaikie concluded that the vast majority of men who had made significant contributions to the world were those who were robust and possessed of good physiques. Whereas the first edition of *How to Get Strong and Stay So* had been dedicated to Archibald MacLaren, the 1898 edition was dedicated to William Ewart Gladstone (former Prime Minister of Britain), whom Blaikie described

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64. J. William White, "A Physician's View of Exercise and Athletics," *Lippincott's Magazine*, 39 (1887), 1031-1033.

65. William Blaikie, *How to Get Strong and How to Stay So* (New York: Harper and Brothers Publishers, 1879), chapter 2, especially pp. 36-37. Blaikie also referred to Mitchell's *Wear and Tear*, MacLaren's *Physical Education*, and Sargent's work.

66. Archibald MacLaren, *Training in Theory and Practice* (London: Macmillan and Co., 1866).

67. Blaikie, *How to Get Strong*, 21.

as “of lofty Christian character, and pre-imminent abilities.” While leading “the richest nation in the world save one,” Gladstone had always devoted one hour a day to using gymnastic appliances, walking, and other exercise.<sup>68</sup> Blaikie’s choice of statesman and orator Gladstone is interesting and, not insignificant. The antebellum American college had used “Greek and Latin grammar and mathematics . . . under the banner of ‘mental discipline’ to instill in young men strength of character.” *Manliness*, Laurence Veysey points out, “meant power: the kind of power that one gained by diligent wrestling with Greek grammar,” It was important that this power” be demonstrated in *action*.<sup>69</sup> By the 1870s, a decided switch had occurred from cerebral and linguistic agonistic to physical agonistic activity.

Not only did athletes have powerful bodies and well-defined musculature, their feats on field, water and cinder path graphically and unambiguously demonstrated their prowess. Trackmen, oarsmen, and other competitors were endlessly depicted in poses which emphasized body display. Words like “sturdy,” “massive,” “stalwart,” and “muscular” appeared about as frequently as did words like “sand,” “courage,” and “obedience” to describe such men.<sup>70</sup> In 1890, Middleburg College President C. B. Hulbert, echoed Charles Woodhull Eaton’s “knightly” vision: “*Men* are in demand. . . . *Viri*, plumed knights with swords upon their thighs . . . men of independent and profound thought, of rational determined purpose, and of executive force.”<sup>71</sup> Where might such qualities be manifest? In politics and business. In military campaigns. In collegiate verbal agonistic endeavors (i.e., *debate*). But most profoundly in the athletic arenas of the rapidly expanding colleges, where the fascination with muscular bodies was linked with the late nineteenth century desire for the *concrete* rather than the abstract and for unambiguous victory.

Men like Eugene Sandow capitalized on the Victorian fascination with the mesomorphic male. So did Bernarr Macfadden, dedicated “fitness” enthusiast and aficionado of his own sculptured body. Macfadden never tired of telling his readers that he was a “weak, sickly child” who became “a complete physical wreck” at sixteen. Fearing that “the health and strength of manhood” would never be his, he so improved his body by athletics and gymnasium work that by 1893, Macfadden felt he could claim that he had defeated every welterweight wrestler of any importance. (His portrayals of the female form, in poses which stressed strength, vitality, and a moderate proficiency in athletic events, brought censure from Anthony Comstock and the Society for the Suppression of Vice.)<sup>72</sup>

68. Blaikie called the former prime minister “The greatest Englishman since Cromwell.” *How to Get Strong and How to Stay So, By William Blaikie With Numerous Portraits*, New and Enlarged Edition (New York: Harper and Brothers Publishers, 1899), especially chapter 12.

69. Veysey, *Emergence of the American University*, 28-29.

70. Walter Camp was but one of many writers who repeatedly used “sand,” “courage,” “obedience,” and similar terms to describe football players. See, Walter Camp and Lorin F. Deland, *Football* (Boston: Houghton, Mifflin and Co., 1896), 41-42, 48.

71. Cited in Veysey, *Emergence of the American University*, 28.

72. Macfadden’s *Physical Culture* magazine was filled with pictures of himself in a variety of classical poses. See, “The Editor’s Personal Experiences,” *Physical Culture*, 2 (1899), 232-238. Jan Todd, “Bernarr Macfadden:

Yet the whole matter of muscular physiques was complex. Beneath outer appearances, men could be vulnerable. Frank Lydston, Professor of Surgical Disease of the Genito-Urinary Organs at Chicago Medical College, could not decide whether the “modern Samson” was the embodiment of vigor and anatomical perfection or a supremely sculptured shell in which dangerous weaknesses lurked. Having first praised Sandow’s muscular body, Lydston declared: “the probable disastrous effects of a continuance of his work involves degeneracy of the blood vessels . . . dilatation of the heart and trouble with the coronary and minute cerebral arteries. . . . The lungs will lose their elasticity and emphysema will supervene.” These were hardly the images which *Sandow’s Magazine*, with its illustrations of “Practical Anatomy,” and advertisements for James J. Corbett’s “Physical Culture” and P. von Boeckmann’s “Breathing Gymnastics,” sought to convey.<sup>73</sup> From the pages of countless books, treatises and manuals, deltoid, pectoral, and other muscles regaled the reader. The frontispiece of John Boyle O’Reilly’s *Athletics and Manly Sports* (1890) was “The Boxer”—a statue adorned only with fig leaf and moustache, looking rather like a Gaelic Apollo Belvedere.<sup>74</sup> Theodore Knauff’s *Athletics for Physical Culture* (1894) included photographs depicting three generations of “the Turner system” in bathing trunks with flexed elbows and prominent biceps. (A rendition of one of Sargent’s “athletes” was on the cover.) Knauff’s was one of a small, but not insignificant, number of turn-of-the-century athletic manuals which included commentary on the benefits of exercise for women.<sup>75</sup>

Edwin Checkley, who eschewed “modern methods” of training athletes, included a chapter for women in his *Natural Method of Physical Training* (1890). A photograph of the nicely muscled Mr. Checkley, in abbreviated trunks, opened the little manual. Even E. B. Warman, author of numerous physical training manuals for men, included dumbbell and club-swinging exercises for women. A photograph which accompanied *Physical Training or Cure of the Body* (1889) depicted the aged Warman in gymnasium costume holding two enormous exercise clubs. Professor (!) D. L. Dodd’s *Physical Culture for Home and School: Scientific and Practical* (1890) offered to “put into the hands of every man, woman, and child” an inexpensive “healing balm” in the form of dumbbells and the “health exerciser,” which Dowd had designed and offered for sale. Liberally illustrated with drawings of a scantily-costumed male figure developing abdominal, upper arm, and other muscle groups, it contained no illustrations of females. Yet “Health Lifts,” pulley machines, “the quarter circle” and other exercise appliances were also advocated for women. In 1890, the *New York Herald* sent an artist and reporter to the Berkeley Ladies Club to interview Dr. Mary Taylor Bissell and Miss D. M. Elliott, the Club’s

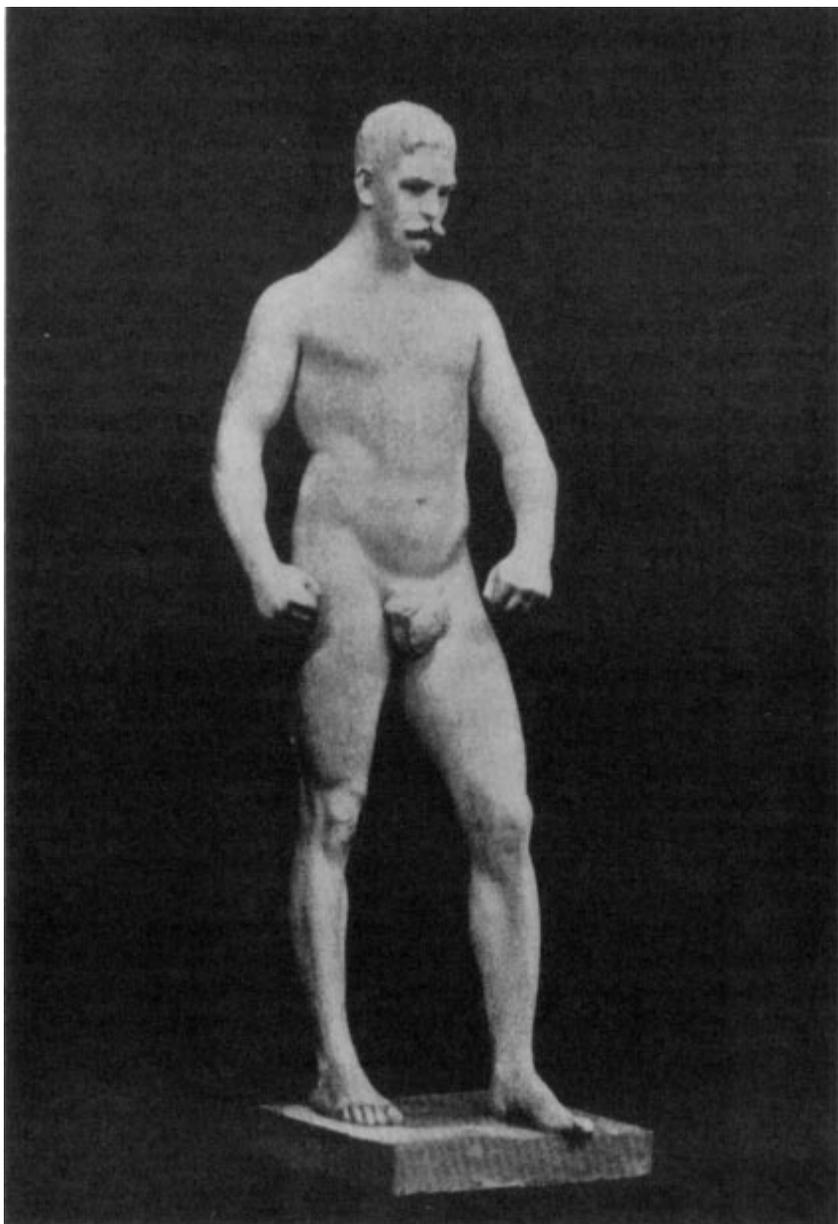
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Reformer of Feminine Form,” *Journal of Sport History*, 14 (1987), 61-75.

73. Frank Lydston, “Muscle Building As Illustrated By the Modern Sampson, Sandow,” *Journal of the American Medical Association* 21(16 September 1893) 419-422. See for example, *Sandow’s Magazine*, 1 (March 1903), 32 and advertisements.

74. John Boyle O’Reilly, *Athletics and Manly Sports* (Boston: Pilot Publishing Co., 1890).

75. Theodore C. Knauff, *Athletics for Physical Culture* (New York: J. Selwin Tait and Sons, 1894) facing p. 58, chapter 22.



“The Boxer”

FROM: John Boyle O'Reilly, *Athletics and Manly Sports*. Boston: Pilot Publishing Co., 1890.

exercise instructor. Upon joining, each young woman received a medical and anthropometric examination from Bissell. From this information a program of exercises was devised. Claiming "the word 'athlete' may now be either masculine or feminine in gender," the headline proclaimed an "Evolution of American's Feminine Biceps." (In deference to Victorian sensibilities, the young women were swathed from throat to ankle in appropriate gymnasium jacket, bloomers, and stockings.)<sup>76</sup>

So widespread was the interest that one could find declarations of the benefits of exercise everywhere. The *New York Journal*, reporting on preparations for the 1897 Harvard-Yale boat race, stated that there were "scores of men of magnificent physique" at the two colleges. In the gymnasia, rowing machines were "kept warm morning till night" as captains worked their men at the "stationary boats, every day in the week but Sunday." From now on, the article continued, it would be "a test of the survival of the fittest" until one crew "drags the colors of its rival back to its trophy hall." So intense had interinstitutional agonistic rivalries become that Sargent found little difficulty instituting "Inter-collegiate Strength Tests" in 1897. That same year, the *Providence Sunday Telegram* reported: "A Very College Samson-Godfrey of Bowdoin Beats Out Harvard and Yale Strong Men-How He Trains." A picture of the muscular Mr. Godfrey accompanied the article.<sup>77</sup>

While most commentators preferred to revel in accolades, Naval Surgeon Henry G. Beyer (M.D. and Ph.D. in biology from Johns Hopkins University) was more objective. Having conducted anthropometric and functional tests on athletes at the United States Naval Academy from 1892 to 1894 (and gathered comparable data from Yale and Amherst), Beyer stated in the *American Journal of the Medical Sciences*: "We cannot escape coming to the conclusion that the much-vaunted benefits derived from athletic as well as gymnastic exercise . . . exist for the most part in the minds of physical trainers, and perhaps in personal feelings of those who have taken such exercises. . . . Science, unfortunately for some, requires proof; opinions may content themselves with faith." Rowing, he reported, appeared to provide the best all-around exercise (gymnastics somewhat less so, and football the least). In response to the widespread contention that the man who engaged in athletics was benefiting the race by producing stronger, more healthy children, Beyer insisted that "the results of Nature's work on mankind are not so easily influenced as to be educated away by an afternoon's practice at foot-ball."<sup>78</sup>

The conclusions which Beyer drew from his data were far more cautious than

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76. Edwin Checkley, *A Natural Method of Physical Training* (Brooklyn, NY: William C. Bryant and Co., 1890); E. B. Warman, *Warman's Physical Training or the Care of the Body* (Chicago: A. G. Spalding and Bros., 1889); D. L. Dowd, *Physical Culture for Home and School: Scientific and Practical* (New York: Fowler and Wells Co., 1890), 4, passim; "Making Our Girls Able Bodied," *New York Herald*, 11 May 1890.

77. "Snap Shots of the Strong Men of Harvard's Ancient Rival," *New York Journal*, 21 March 1897; "Intercollegiate Strength Tests," *American Physical Education Review*, 2 (1897), 216-220. See also, Dudley A. Sargent, "Strength Tests and the Strong Men of Harvard," *American Physical Education Review*, 2 (1897), 108-109. "A Very College Samson," *Providence Sunday Telegraph*, 5 December 1897.

78. Henry G. Beyer, "Foot-Ball and the Physique of Its Devotees From the Point of View of Physical Training," *American Journal of the Medical Sciences*, 108 (1894), 76-87.

was often the case in the “body measurement” craze that swept America in the late 1800s. Within physical education, anthropometry became the *pseudo-science* par excellence. Having claimed much for their programs of systematic exercise, professionals were obliged to demonstrate results. Few easily administered functional tests existed; but measuring bodies took little specialized training or equipment. Three or four dozen body parts might be measured and recorded. Statistical “averages” of these were then computed; and charts were prepared which purportedly represented the “ideal” form. So popular had anthropometry become following the Civil War that the American Statistical Association’s “A Preliminary Report on Anthropometry in the United States” (1893) could include over one hundred citations of recent works by American biologists, physicians, anthropologists, artists, and physical educators.<sup>79</sup>

In 1887, *Scribner’s Magazine* published Sargent’s article on the physical proportions of the “typical” American male. This was illustrated with numerous pen and ink drawings taken from photographs. A lengthy report of the measurements of athletes (lavishly illustrated) followed, as did an unillustrated report on the “typical” American woman. For athletes, due consideration was given to body-builds conducive to success in various sports (e.g., distance runners were lean and ectomesomorphic; wrestlers and footballers were massive and mesomorphic).<sup>80</sup> When a decade later *Scribner’s* published *Athletic Sports* as one of its Out of Door Library series, “Physical Proportions of the Typical Man” and “Physical Characteristics of the Athlete” were reprinted to accompany chapters on golf, tennis, bicycling (including a section for women which included “a Gibson bicycle girl”), surf bathing and hunt clubs.<sup>81</sup> The message was unambiguous, men whose physiques deviated too greatly from the “ideal” simply did not *measure up!*

By the 1890s, it was not at all unusual to find photographs of semi-nude athletes and illustrations of fig-leaf adorned males in a host of books and periodicals. Such representations of the female form were unthinkable-not so much because Victorian sensibilities prohibited portrayals of disrobed women, but because women were to be portrayed as modest and vulnerable. Artist Frederic Leighton’s *Venus Disrobing for the Bath* and *The Bath of Psyche* or J. H. Hasselhorst’s *J. C. G. Lucae and His Assistants Dissecting a Female Cadaver*, as Fraser Harrison and Ludmilla Jordanova have described these icons of assailable females, were one thing. A muscular, scantily-clad woman athlete would have been quite another! Such an intrusion into one of the last bastions of a “man’s world” was hardly to be tolerated.<sup>82</sup>

79. Edward M. Hartwell, “A Preliminary Report on Anthropometry In the United States,” in *Publications of the American Statistical Association*, vol. 3 (Boston: W. J. Schofield, 1893). 554-568. See also, Roberta J. Park, “Science, Service, and the Professionalization of Physical Education: 1885-1905,” *Research Quarterly for Exercise and Sport*, Centennial Issue (1985). 7-20.

80. Dudley A. Sargent, “The Physical Proportions of the Typical Man,” *Scribner’s Magazine*, 2 (1887), 3-17; idem, “The Physical Characteristics of the Athlete,” *Scribner’s Magazine*, 5 (1889), 541-561; idem, “The Physical Development of Women,” *Scribner’s Magazine*, 5 (1889), 172-185.

81. *Athletic Sports* (New York: Charles Scribner’s Sons, 1897), chapters 1 and 2, and pp. 209-218.

82. See, Fraser Harrison, *The Dark Angel: Aspects of Victorian Sexuality* (London: Sheldon Press, 1977), especially chapters 4 and 6; Ludmilla Jordanova, *Sexual Visions: Images of Gender and Medicine Between the*

Some indication of the depth of feeling may be discerned in reactions to two statues which were placed on display at the 1893 World's Columbian Exposition. Sargent had collected anthropometric data from twenty colleges and schools and devised from this composite "averages" of the "typical" American male and female student. He then commissioned sculptor H. H. Kitson to fashion two nudes representing these. The *Chicago Herald* found the young man to be "not too bad," but the statue of the woman, it asserted, would make "believers in feminine loveliness shudder." The thighs were too wide, the back weak, and the proportions otherwise in variance with those of what a "well-formed American woman" should be!<sup>83</sup> The exhibition engendered considerable discussion in the general circulation press; and articles and editorials with such eye-catching titles as "Human Forms Divine," "Perfect Proportions;" and "Muscles in Training" appeared for quite some time. The *Boston Medical and Surgical Journal*, more soberly, deemed the exhibit have been "interesting" but doubted that Sargent had contributed anything of value to science.<sup>84</sup>

Also in 1893, the *New York Journal of Gynecology and Obstetrics* announced that the American public had had its "first opportunity . . . of viewing the adult female form in great numbers and variety and in . . . entire nakedness." *Living pictures*, an entertainment imported from London, appeared in four separate showings in New York. According to the author, only three of the women had figures that an anatomist could look at "without a shudder." (Two of these were partially indicted because they "approached the male type.") Although the American woman was deteriorating physically, the editorial proclaimed, "great perfection [was being] aimed at in the physical development of man." The leaders in this movement, the writer continued, had been "artists and athletes who love the human body on account of its capacity for beauty and prowess." Significantly, in this instance it was the duty of the *gynecologist* (not the physical education teacher) to perfect women's bodies so that they, too, might attain the "bodily proportion . . . of which the ancient Greek was an enduring exemplar."<sup>85</sup>

As Patricia Vertinsky, Carroll Smith-Rosenberg, and others have shown, in the late 1800s physicians actively sought to legitimize their status as arbiters of women's health by becoming custodians of their bodies.<sup>86</sup> Their actions were doubtless partially prompted by tendencies toward "professionalization" in medicine (and other fields), the growth of specialties, and a sense that one needed stake out one's territory. *The American Gynecological and Obstetrical*

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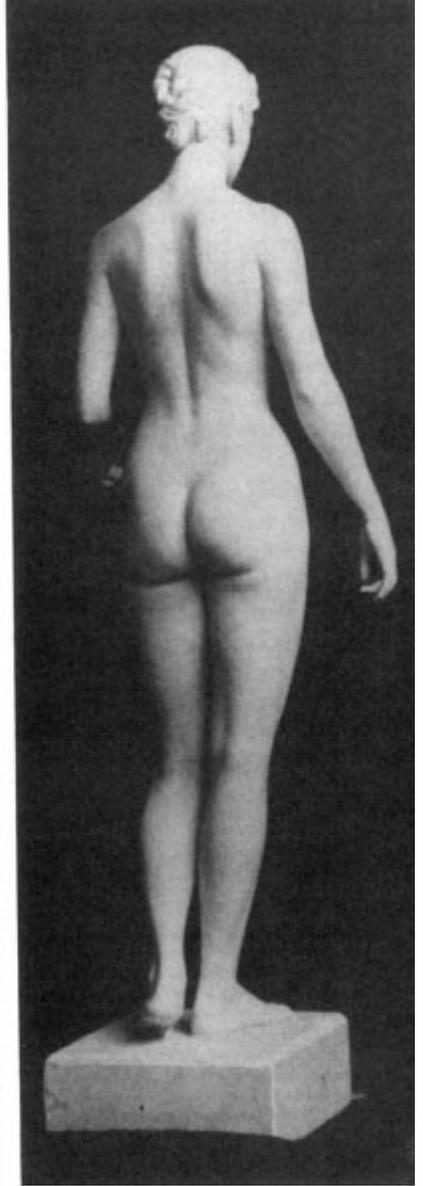
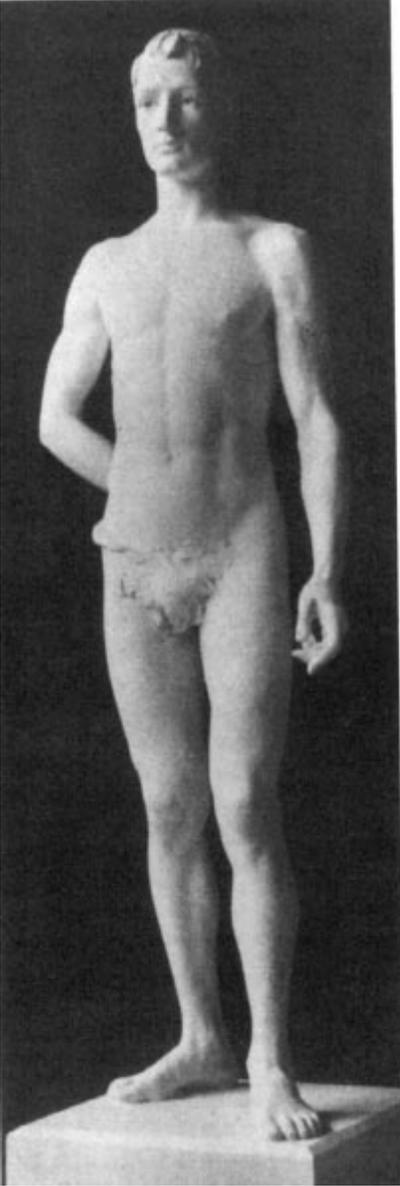
*Eighteenth and Twentieth Centuries* (Madison, WI: University of Wisconsin Press, 1989), 98-101; Richard Jenkins, *The Victorians and Ancient Greece* (Cambridge, MA: Harvard University Press, 1980).

83. "Far From the Ideal: Actual Measurements Disappointing-The American Girl Is Not the Model of Grace She Is Supposed to Be," (A dispatch from the *Chicago Herald*. [Clipping in Walter Magee Scrapbooks, Bancroft Library, University of California].

84. "Anthropometry," *Boston Medical and Surgical Journal*, (1893).

85. "'Living Pictures' Representing the Nude," *New York Journal of Gynecology and Obstetrics*, 5 (1894) 661-664. The same issue carried William J. Gow, "On the Relation of Heart Disease to Menstruation" and Charles Graham Cannady, "The Relation of Tight Lacing to Uterine and Abdominal and Pelvic Disease."

86. Patricia Vertinsky, "Body Shapes"; idem, "Exercise, Physical Capability, and the Eternally Wounded Woman." See also, Atkinson, "The Feminist Physique;" Smith-Rosenberg, *Disorderly Conduct*.



Statue of the Typical American Student  
Male Composite

Statue of the Typical American Student  
Female Composite

(FROM: Pasteboard Photographs, copyrighted in 1893 by D. A. Sargent)

*Journal* and the *New York Journal of Gynecology and Obstetrics* were founded in the 1890s. In addition to more factual articles such as Dr. Eliza M. Mosher's "Habits of Posture A Cause of Deformity and Displacement of the Uterus" and Dr. A. Palmer Dudley's pathognomonic studies of chronic gonorrheal infections, both included continuing pronouncements on the "ills and afflictions" which were women's lot.<sup>87</sup> The repeated harping on this subject had already raised the ire of some. Mrs. Mary A. Livermore, for example, objected to what she called a tyranny over women's bodies, denouncing the "army of gynecologists, who seem desirous to convince women that they possess but one set of organs-and that these are always diseased." She found particularly offensive "the impertinent book of Dr. E. H. Clarke."<sup>88</sup>

In a recently published anthology entitled *Changing Men: New Directions in Research on Men and Masculinity* (1987), Marc Mishkind and co-authors observe that until quite recently scholars have devoted attention to the physical appearance of women but ignored the significant role that physical appearance and body image play for men.<sup>89</sup> However, as we have seen, Victorians were enormously concerned with the bodies of *both* sexes, constantly playing off dialectical tensions in their representations of each. Figure IX of Mrs. E. R. Shepherd's *For Girls: A Special Physiology* (1884) compared the "Perfect Male and Female Figure." Ranging from anatomy, physiology, and menstruation to self-abuse, motherhood, exercise and dress, Mrs. Shepherd stipulated that "a woman's waist should be two-fifths her height"; the "celebrated statue of Venus de Medici" offered the "beau-ideal of female symmetry of form."<sup>90</sup> Mabel Jenness, sister of dress reformer Annie Jenness Miller, contended that the gymnasium and beauty college would turn women into "the stately Venus or the deep-bosomed Juno, the ideal woman of strong physique of the time to come."<sup>91</sup>

Which Venus did Jenness and other commentators mean? Venus de Medici, Venus de Milo, or one of the other Venuses which were popular? "A parochialized Venus de Medici of feminine grace," Martha Banta asserts, "nicely served American gentility as the Beautiful Charmer"; the Venus de Milo, discretely draped, "might see service as the indomitable New Woman."<sup>92</sup> Extending Lois Banner's study of changing conceptions of the "American

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87. Eliza M. Mosher, "Habits of Posture A Cause of Deformity and Displacement of the Uterus," *New York Journal of Gynecology and Obstetrics*, 3 (1894), 962-977; A. Palmer Dudley, "Some Pathognomonic Physical Signs of Chronic Gonorrheal Infection in Women, and Their Value in the Diagnosis of Pelvic Disease," *American Gynecological and Obstetrical Journal*, 12 (1897), 133.

88. Mary A. Livermore, "Recommendatory Letter," in G. L. Austin, *Perils of American Women or A Doctor's Talk With Maiden, Wife, and Mother* (Boston: Lee and Shepard, 1883).

89. Marc E. Mishkind, Judith Rodin, Lisa R. Silberstein and Ruth H. Striegel-Moore, "The Embodiment of Masculinity: Cultural, Psychological, and Behavioral Dimensions," in Michael S. Kimmel (Ed.), *Changing Men: New Directions in Research on Men and Masculinity* (Beverly Hills, CA: Sage Publications, 1987), 37-38. Kimmel makes the important point that women's studies pioneered in gender studies and have been significant for the emerging field "called men's studies" (p. 7).

90. Mrs. E. R. Shepherd, *For Girls: A Special Kinesiology; Being A Supplement to the Study of General Physiology* (New York: Fowler and Wells Co., 1884), 74-76.

91. Mabel Jenness, "Beauty for All: How Women Can Rid Themselves of Ugliness; the Secret to Good Looks-Physical Culture," written for the *Sunday Telegram*, 1889[?]. [In Magee Scrapbooks].

92. Martha Banta, *Imaging the American Woman: Idea and Ideals in Cultural History* (New York: Columbia University Press, 1987), 499-512, 756, passim.

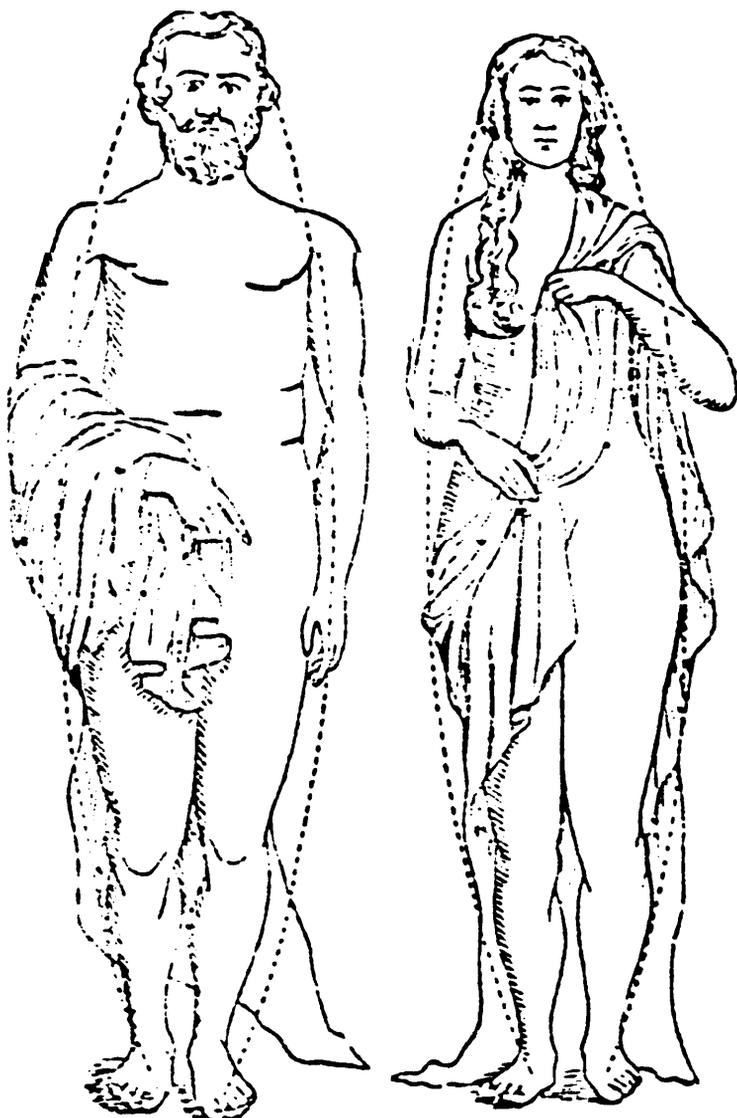


Fig. IX.-Perfect Male and Female Figure

From: Mrs. E. R. Shepherd, *For Girls: A Special Kinesiology*. New York: Fowler and Wells Co., 1884.

beauty” in the nineteenth and early twentieth centuries, Banta has identified no fewer than three dozen ideal “female types” (e.g., American/Columbia/Republic; Beautiful Charmer; Dynamo; Outdoors Pal; Suffragist; Venus; Western Girl). This range was in marked contrast to the considerably more limited number of male “ideal types” which Rotundo and others have described (e.g., outdoorsman, soldier, financier, *athlete*.) Beneath the modest corpulency of a Theodore Roosevelt-and even the massive corpulency of William Howard Taft-there lurked the mesomorphic male: Or so symbolic messages proclaimed.<sup>93</sup>

By the 1890s, the “Gibson Girl” and other lithe and dynamic representations of women were challenging-even though they did not eradicate-the image of the rounded, passive female. While some individuals were enthusiastic about a “New Woman” who could combine vitality, dynamism, and even a certain amount of athletic ability without losing her femininity, others agonized that women were becoming “androgynous, half-boy, half-girl.” The June 25, 1895 *New York World* satirized the type of young woman that higher education was producing.<sup>94</sup> The composite statue displayed at the annual exhibition of the National Sculptor’s Society bore little resemblance to the photographs of sportswomen which appeared in *Outing Magazine*, *The Woman’s Book of Sports* (1901), or similar works which had begun to appear in the 1890s.<sup>95</sup>

#### *Shall Women Become Athletic?: Is There More to be Lost Than Won?*

In the 1870s, Blaikie had lamented that American girls looked “*pale and weak*.” They had narrow bodies, pipe-stem arms, flat chests, and weak arms, largely because schools failed to provide for them. Girls could become “*strong and hearty*,” however, and find their studies no burden if they took sufficient exercise. As had Dr. Clarke, Blaikie used Dr. W. A. Hammond as a reference, but came to quite different conclusions. The variety of sports open to women, he optimistically contended, was “almost as great as to men.” Give all girls exercise for “*as long as [their] school-days last*,” Blaikie declared, and their bodily vigor and strength will increase accordingly.<sup>96</sup> A similar conclusion was reached by Theodore Knauff, who stated that physical training was actually more important for women than for men. He approved of the rowing, golf, swimming, bowling and those sports which had become popular at Wellesley and other colleges, substantially because these improved women’s health and

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93. Ibid.; Lois Banner, *American Beauty* (New York: Alfred A. Knopf, 1983). See, Mrozek, *Sport and American Mentality*, especially 50, 163, 211, 223; Roberta J. Park, “Theodore Roosevelt, Sport Themes and the Politics of Power in American Cartoons.” Paper presented at the Annual Convention of The Association for the Anthropological Study of Play, Arizona State University, 1986.

94. In Banta, *Imaging the American Woman*, 691.

95. “Fourteen Beautiful Women Posed for This Statue. Report of the Annual Exhibition of the National Sculptors Society” (News clipping in Magee Scrapbooks.). See articles like Minna Caroline Smith, “Women As Cyclers,” *Outing*, 6 (1885) 317-321; Ralph D. Paine, “The Bathers of the City,” *Outing*, 46 (1905). 558-569; J. Parnly Paret, *The Woman’s Book of Sports: A Practical Guide to Physical Development and Outdoor Recreation* (New York: D. Appleton and Co., 1901); Theodore C. Knauff, *Athletics for Culture*, chapter 22. Even Beatrice Violet Grenville’s *The Gentlewoman’s Book of sports* (London: Henry and Co., n.d.) conveyed much more robust sentiments.

96. Blaikie, *How to Get Strong*, chapters 3 and 4.

prepared them for motherhood.<sup>97</sup> Writing in the 1890s, Henry W. Slocum, Jr. favored even greater opportunities for women, and considered it unfortunate that custom prevented them from choosing their sports from as large a field as men could. Even in lawn tennis, Slocum observed, women could not attain “the highest success . . . without becoming the subject of ill-natured criticism.”<sup>98</sup> Dr. J. P. Brooks informed an audience gathered at the Sanatory Gymnasium to see a gymnastic and swimming exhibition by both sexes that there was no reason why women could not “be as strong in muscles as boys and men.” He had long believed, Brooks avowed, that the only difference between them “in muscle and brain power ha[d] been occasioned as a result of training.”<sup>99</sup>

The relative insularity of the country club-with its social ambience and “elite” sports-provided some opportunities for the athletically-inclined woman. The Staten Island Cricket and Baseball Club was but one of several such organizations which offered tennis (and sometimes other sports) to females. The first women’s golf championship was held at the Meadowbrook Hunt Club in 1895. The sheltered and carefully controlled college programs which emerged in the last decades of the nineteenth century also provided considerable opportunities. It had been concerns about the inability of females to withstand academic life-not an interest in agonistic spectacles-which had brought physical training to the women’s colleges, and those women who had struggled to secure a place in higher education, as Lilian Welsh pointed out, were well-aware of the obstacles that had been placed in their path. They also knew that leadership in the development of athletic programs belonged to men-who had been doing it longer, and that athletics were perceived as a male domain. When they organized to secure control over women’s athletics, the members of the Committee on Women’s Athletics and the Women’s Division of the National Amateur Athletic Federation surely had the welfare of their students at heart. They were also driven by the belief that unless they staked their own claims they might lose their hard-won faculty positions. Having secured (even if tenuously) a place for themselves in institutions of higher learning, women physical educators went to great lengths to protect their programs. *Their* militancy was thoughtful and calculated; not abrasive and extravagant. They had learned to use the rhetoric of supporters and turn the rhetoric of detractors to their own ends. Caution dictated that women’s sports programs remain carefully controlled and hidden from public view.<sup>100</sup>

Undoubtedly, many young women enjoyed the excitement of sports more

97. Knauff, *Athletics for Physical Culture*.

98. Henry W. Slocum, “Lawn Tennis as a Game for Women,” *Outing*, 14 (1889) 289-300.

99. J. P. Brooks, M.D., “Big Biceps. Exhibition of Athletics at the New Gymnasium.” [In Magee Scrapbooks].

100. Elizabeth C. Barney, “The American Sportswoman,” *Fortnightly Review*, 56 (1894), 263-277; D. Edwards, “Life at the Athletic Clubs,” *Scribner’s Magazine*, 18 (1895), 4-23; Edward S. Martin, “Country Clubs and Hunt Clubs in America,” *Scribner’s Magazine*, 18 (1895) 302-321; Robert Dunn, “The Country Club: A National Expression-Where Woman Is Really Free,” *Outing*, 47 (1905). 160-173; Ellen W. Gerber, Jan Felshin, Pearl Berlin, and Waneen Wyrick, *The American Woman In Sport* (Reading, MA: Addison-Wesley Publishing Co.), chapters 1, 2 and 3. See also: Ellen W. Gerber, “The Controlled Development of Collegiate Sport for Women, 1923-1936,” *Journal of Sport History*, 2 (1975), 1-28; Roberta J. Park, “Sport, Gender and Society in a Transatlantic Victorian Perspective,” in Mangan and Park, *From “Fair Sex” to Feminism*, chapter 3.

than they did the gymnastic and calisthenic routines of the gymnasium. Janice Beran has described the widespread appeal of girls' basketball in Iowa from the 1890s onwards. When field hockey was introduced at Goucher in 1897, over eighty students appeared for the one club that had been planned.<sup>101</sup> Whenever athletics for women were discussed, however, it was health and physical and social development, not competition, that was stressed. Vassar graduate Sophia Richardson Ward told the Association of Collegiate Alumnae in 1896 that tennis, basketball, rowing and other sports had contributed markedly to the physical, intellectual, and moral betterment of college women. Lavina Hart, writing for *Cosmopolitan* in 1901, expressed similar views. She also gave some indication of the enthusiasm that young women at Vassar, Wellesley, Mt. Holyoke, Bryn Mawr, and elsewhere had for basketball, lacrosse, tennis, swimming, cycling, track and even baseball. Even if young women did not exhibit the riotous behaviors which men did, "the triumph of their class and colors was just as dear to them."<sup>102</sup>

Having devoted a considerable portion of "A Girls's College Life" to athletic matters, Hart, like so many of her contemporaries, felt constrained to alert trustees to the need for a course in "House- and Husband-Keeping" so that women could be tutored for their "ultimate profession."<sup>103</sup> Dr. Luther Gulick, early leader of the AAAP, acknowledged in 1901 that women had begun to enter many lines of work that previously had been the exclusive preserve of males. Consequently, they needed both the physical stamina and "teamwork" that games like basketball taught. Sporting enthusiast J. Parmley Paret agreed, informing readers of *The Woman's Book of Sports* (1901) that competition was entirely beneficial. Although the excitement of the contest might initially affect performance, a young woman who stuck to her sport would soon find that "nerves, heart, and brain will have become accustomed to the strain, and that at the critical time, when everything depends on the success of a single play, the nerve will not fail her." Indeed, the "cool head, trained muscles, and vigorous heart action" that competition taught would enable women to meet all kinds of emergencies, from escaping burning buildings to long swims to safety.<sup>104</sup>

Such active heroines had little in common with the frail, almost hysterical, periodically incapacitated creatures that Edward Clarke, Silas Weir Mitchell, T. S. Clouston, and Henry Maudsley had claimed women to be. But even in these last decades of the *twentieth* century, there remain powerful vestiges of the

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101. Janice A. Beran, "Playing to the Right Drummer: Girls' Basketball in Iowa, 1893-1927," *Research Quarterly for Exercise Sport*, Centennial Issue, (1985), 78-85; Anna H. Knipp and Thaddeus P. Thomas, *The History of Goucher College* (Baltimore: Goucher College, 1938), 476.

102. Sophia Ward Richardson, "Tendencies in Athletics for Women in Colleges and Universities," *Popular Science Monthly*, 50 (1897), 517-526; Lavinia Hart, "A Girl's College Life," *Cosmopolitan*, 31 (1901), 188-195.

103. Hart, "Girl's College Life," 193. According to Hart, women's colleges had established not only athletic but debating, literary, dramatic and musical societies after the pattern of such organizations at the men's colleges. They also had their Greek letter and exclusive eating clubs just like the men (p. 192). As late as September 26, 1990 (!) the *Chronicle of Higher Education* reported "Princeton Eating Club Moves to Admit Women," A3. Old values die hard.

104. Luther H. Gulick, "The Psychological Effects of Basketball for Women," in *Basket Ball for Women: Spalding's Athletic Library*, (New York: American Sports Publishing Co., 1901) 11-14; Paret, *Woman's Book of Sports*, chapter 7, especially pp. 117-120.

“form” and “function” discourses which had defined and controlled women’s and men’s lives in the decades following Lee’s surrender at Appomattox. In Ms. America and Mr. Universe contests, in “fitness centers” throughout the land, bodies are used to convey a host of deep-seated cultural beliefs and values. The situation is scarcely different in “scientific” articles about the female athlete, which contribute (even if unintentionally) to perpetuating the inferior status of woman by referencing her performance to some stated or unstated *norm* established on male populations.<sup>105</sup>

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105. See for example, Gary Selden, “Frailty, Thy Name’s Been Changed: What Sports Medicine Is Discovering About Women’s Bodies,” *MS*, 10 (July 1981), 51-53; 96; Jane E. Good and Karl M. Klein, “Women in the Military Academies: U.S. Navy,” *The Physician and Sports Medicine*, 17 (February 1989), 99-106. Although this article places considerable emphasis on the notable achievements which female midshipmen have attained since they first entered Annapolis in 1976, it also states that the men and the women have different “tests and grading scales” which “reflect the physiologic dissimilarities between the two sexes” (p. 101). The point here is not that the male cadets are on the average stronger, faster, etc., on certain tests, or that comparisons of scores are not useful-or appropriate. The point to be made is that old ideas have long lives, and that it is always easy for the mind to extend beyond the specific instance to a whole realm of quantitatively-driven hierarchical social categorizations and evaluations.