
Embodying Normalcy: Anthropometry and the Long Arm of William H. Sheldon's Somatotyping Project

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CATEGORIZATIONS OF THE KIND OF BODY we have can prove to be fateful.¹ They have an enormous influence on how we live our lives, and the value that has been loaded onto corporeal distinctions such as height, weight and body shape or form has a very long history indeed.² For most of this history, at least in the West, the outward aspects of bodies have entailed certain conclusions about the minds (and souls) within them.³ Indeed, the belief that one can read the character of another from their appearance is an historically pervasive phenomenon.⁴ Thus the somatic has provided a point of entry into a larger physical and moral universe.⁵ Where height, girth, and body shape classifications have been tied to specific character traits, those assumptions have often been manifested as peremptory social demands on one's style of public presence and performance.

Not only have we learned to read character and temperament into bodies, we have become accustomed to the idea that the qualification "normal" is needed in all body clas-

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sification schemes. The idea of an average or normal size and shape of person, of course, is less a condition of human nature than a feature of a modernizing society. In many respects it is a nineteenth-century concept that, through statistical revisions, became conflated with historical notions of the ideal body.⁶ While a culture with an ideal body form would expect all members of the population to fall below the ideal, once the concept of average or norm entered European and American culture, a normal body type became an imperative for whole populations. Perceptions of correct taste in body form and function increasingly became modeled around measurements of the norm and were intolerant of departures from a generic, regular appearance.⁷ Those falling below the norm could be identified by their deviant body measurements—sometimes criminalized by their corporeality—and marked as imperfect and unworthy. Thus the imperative of the norm, supplemented by the notions of progress, human perfectibility and a desire to eliminate deviance helped create a dominating hegemonic vision of what a "good," normal human body should look like. It is because the implications of the hegemony of normalcy are so profound, extending into the very heart of cultural production, that the historical activities of configuring and consolidating normalcy around the body merit closer attention.⁸

In this paper I want to examine how normalcy has been bred into ways of seeing, evaluating, and articulating the athletic potential of the body through physiognomic schemes, especially those of American psychologist William Herbert Sheldon (1898-1977). Sheldon promulgated a twentieth-century physiognomy through the categorization of body types and a more sophisticated elaboration of links between body and temperament than that provided by earlier anthropometrists. My discussion will focus upon the historical antecedents and the elaborate nature of Sheldon's detailed scheme of body somatotyping during the 1940s and 1950s which—though fairly rapidly dismissed by most psychologists and later pilloried for its reactionary, racist and eugenicist subtexts—had a strong and lasting influence upon physical education and health professionals and their prescriptions on how the healthy, normal body should look and be trained. Through his somatotypy, suggests Stephen H. Gatlin, Sheldon like other medical holists of his era, including Georges Canguilhem in *On the Normal and the Pathological* (1943)⁹ and Earnest Hooton in *Young Man, You Are Normal* (1945),¹⁰ sought to revitalize an appreciation of the "whole man" and the "normal man."¹¹ Medical holism, note Christopher Lawrence and George Weisz is a tricky concept, but during the inter-war years it was explicitly recognized as a return to traditional notions—modified by the results of contemporary science. In particular, holism served as a style of cultural and political critique of the crises of modern society. To its supporters, the most obvious and practicable approach to the analysis of the total man was through the physique with which he was born, for as Hooton, Professor of Anthropology at Harvard from 1930 until his death in 1954, pointed out "the evidence is piling up around us that what we can see—the body—will guide us most rapidly and unerringly to what we are far more interested to know—the mind, the personality, and the manifestations of the whole composite unity in behavior."¹² It was upon the surface of the body, therefore, that Hooton and his admirer Sheldon placed their trust, unwilling to allow the eye to lose its longstanding diagnostic power to Freud and the ear.¹³

As yet, the full extent and implications of Sheldon's elaborate somatotyping arrangements (building, as we will see, upon traditional categories elaborated since Hippocrates

and large-scale schemes of body measurements and efforts to identify the average, normal or typical man during the nineteenth century)¹⁴ have been little studied, especially his emphasis on the importance of beauty and muscularity in the human physique with its connotations of symmetry, balance and racial and intellectual superiority: "Despite its putative anchorage in psychology, medicine, and statistics, Sheldon's somatotyping project was fundamentally a modernist retooling of the ancient science of physiognomy."¹⁵ This problematized his status as a scientist, as did his deterministic beliefs in eugenics and his reductive reading of constitutionalism.¹⁶ He was considered "whacko" by some of his contemporaries and his work on body-typing was called "a dangerous piece of fascistic pseudo-science" by Kansas physician Robert Holt in a strong letter to *The Nation* in 1950.¹⁷

It is important, therefore, to understand the historical origins of Sheldon's views, how his work reflected the strains of modernist culture, and how it affected subsequent ways of studying—and evaluating—the body's physique and the prediction of performance.¹⁸ Such a perspective promises to be an important key to understanding the continued enforcement of normalcy and constructions of disability around "good" bodies and "bad" bodies where men or women, girls or boys with certain kinds of physiques or disabilities are seen as less attractive, less physically able and less worthy of belonging to home/school/nation/the body politic. It is of particular importance to studies of health and fitness for physicians, physical educators, and others working with the body and its training have come easily to perpetuate a reign of mesomorphic uniformity among children, adults and athletes, sometimes drawing unwarranted equations among body features, temperament and intellect that have placed additional burdens and stigma upon those whose measurements fall within or below the somatoplot basement of Sheldon's hierarchical "palace of bodies."¹⁹

Furthermore, in light of the historical positioning of physical education and the life sciences as sites in which the modern body has been made and remade, it is helpful to reflect upon specific ways in which knowledge claims around the body are permeated by cultural values and yet are also empirically reliable. Sandra Harding has illustrated how knowledge development and the trajectory of disciplinary paradigms "are fully part of their historical era, bearing the fingerprints of these eras and the subsequent ones that practice and maintain them in their cognitive core."²⁰ Michel Foucault's writings in particular have shown how the body is an elaborately coded affair—a place where something—regulating, disciplining, imprinting—is being done to you. He has brought important, and by now well known (and much argued about) insights into how specific constructions of bodies are part of the production of knowledge and distribution of social power, and hence are critical to the study of the constructions of norms and the processes of normalization through disciplinary practices.²¹ Confronted with the power of a prevailing system of expertise, the subject becomes not only easily regulated but self-regulating through the normalizing practices of bio-power, which define the normal in advance, and then proceed to isolate and deal with anomalies resulting from that definition.²² Most recently, Richard Twine, referring to the work of Erving Goffman and Anthony Giddens, has furthered a discussion on the "normalization"—the determining power—of a constellation of knowledges around physiognomy and its periodic revivals and variations, showing how these ideas have lived on to remain central today for our embodied practices and

relations. In some respects, he states, they remain critical to our perceptions of "otherness" for links between appearance and identity are all too often the subtext to many contemporary issues related to self.²³

Anthropometry and the History of Physiognomic Thought

When you observe the visible man with your eyes,
What do you look for? The hidden man.

TAINÉ, *History of English Literature*, 1863

The extensive interest Sheldon was to develop in somatotypy was in many respects an old game—a twentieth-century physiognomy with an ancient lineage. And not surprisingly, the idea of a relationship between temperament and the body has a long and complicated history. Physiognomy is the ancient art or science of judging an interior reality by an external appearance. In the usual sense it is restricted to judging character or capacity by the face, but in practice it applied to passing expressions, bodily form or posture and by analogy to any material object. The persisting interest in physiognomy, suggests John Graham, is within the larger context of the human desire to extract meaning from or assign value to fact: "Once a label is attached to an object then there is a human tendency to accept the sign rather than examine its accuracy."²⁴

From a philosophical or medical view, issues around the interrelation of mind and body have always been a challenge with the awkward questions they pose about determinism and free will, and of national and ethical characters.²⁵ So many conclusions have been drawn about the mind and soul from the external appearances of the human physique states George L. Hersey because "our saints, gods and heroes inhabit these physiques, encouraging certain physiques to be equated with superior mental and spiritual qualities."²⁶ Beauty equals intelligence is a common equation; muscularity and personal agency and power is another. Observations linking disease to certain body types have also spanned centuries, as have attempts to recognize "disease" prone races. Hippocrates early on deemed those with short thick bodies (*habitus apoplecticus*) to be more susceptible to vascular disease and apoplexy; those with long thin bodies (*habitus phthisicus*) as likely victims of respiratory diseases. Galen identified the four bodily humors—blood, yellow bile, phlegm and black bile—as a way to classify people's body type and temperament and link them to predispositions of health and disease.²⁷

It was the Greeks who initially tried to elevate physiognomy to the status of a science with generalized principles and rules, and *Physiognomics*, a pseudo-Aristotelian text was the seminal early work on the subject. That text and others which followed it sought to "infer from bodily signs the character of a particular person though not the character of the whole human race."²⁸ In the hermeneutics of the *Physiognomics*, the fleshy, poorly jointed feet, ankles and legs that signaled weak and cowardly characters were also the feet and ankles typical of women. Well-jointed and sinewy joints were characteristic of men.²⁹ Later in Rome, Cicero built upon Greek ideas by claiming that a person's character was imprinted on his face by nature (not surprisingly continuing an extremely sexist discourse where character types ascribed to women were invariably negative). But early physiognomic discourses in Western culture relied upon verbal description rather than the later "how-to" illustrated manuals guiding one how to read the body through observation and perception.

Interest in Aristotelian physiognomic ideas was revived during the Renaissance through Giambattista della Porta's *De Humana Physionomia* (1586) in which he (like the Greeks) drew relationships between human heads and animals and implied behavioral ones, too. But it was during the seventeenth century, with Descartes, that a rationalist analysis of body form and language developed. Descartes identified the pineal gland as a locus of the passions, and Charles Le Brun, Director of the Academy of Painting and Sculpture at the time of Louis XIV, expanded upon the idea of the legibility of the passions with a series of visual representations of the body using a Cartesian mechanical model of the face with dials, wheels and springs.³⁰ More importantly, as optical demonstration and visualization became central to the processes of enlightening, art began to lend to medicine a repertoire of realist tropes designed to convince the viewer of the truthfulness of unimpeded sight—to show how to read the body from outside in.³¹

When Johann Caspar Lavater devised his famous eighteenth-century system for determining human character traits from physical features, his *Essays on Physiognomy* were as much art criticism as physiognomy and included reproductions of the drawings of many famous artists.³² By holding up visual images as truths (albeit partial) transcending the inadequacies and potential manipulations of human language, his highly popular books aimed at establishing physiognomy as a legitimate discipline with a moral, theological agenda.³³ His copious drawings had a tendency to be all things to all men. They were a fusion of natural science, religion and sensibility, a kind of graphology of character drawing colorful analogies between body and mind.³⁴ Lavater's *Essays on Physiognomy* was a beautiful work, states Hersey, "reinscribing physiognomy as a discourse of the absolute."³⁵ It also underscored the growing confidence in science, displayed in the tangible or quantitative, in physiology, biology, zoology, comparative anatomy and anthropology.³⁶

Lavater also established the notion, which Sheldon was to adopt later, that it was a trained eye that could best divine the physical signs of a person's shape and character and that could reason from external effect to internal faculty with a rational method. One of Lavater's main techniques required the use of silhouettes, form frozen in time, within geometrical groupings or grids to encourage comparisons of difference and to derive "representative" types. It was a reductive image of the body inexorably trapped or imprisoned in a geometrical grid, imitating Greek logic that reality was geometrical and that straight lines indicated what was true.³⁷ His scheme for measuring profiles "prefigured and probably influenced Francis Galton's plan to have every face in Britain diagrammed [and explained] with a very similar triangular isoscope."³⁸

As the science of measuring human bodies matured, Anthropometry became one of a long line of "sciences" during the eighteenth and nineteenth centuries concerned with detailed measuring, comparing, and interpreting variability in parts of the body. These included craniometry, phrenology, physiognomy, and comparative anatomy, all of which shared long-standing beliefs that the body was a window into a host of moral, temperamental, racial or gender characteristics.³⁹ Dutch Surgeon Petrus Camper was "the linchpin in the development of a body calculus" in 1791 with his careful measurements of bone structure of the head and facial angles of "Orangutans," "Negroes," and "Ancient Romans" along with the statue of the Apollo Belvedere. The effect, unintentionally, was to draw a host of correlations between anatomy and intelligence and among race, beauty and goodness.⁴⁰

Phrenology, or as its founder preferred to call it "craniology," was a further attempt to capture the invisible—the logical extension of a quantified physiognomics or calculating "science" of the unseen. Indeed both the scientific and popular expressions of phrenology were conduits for the perpetuation of physiognomy. As developed by Franz Joseph Gall at the end of the eighteenth century and refined by fellow anatomist Johan Gaspar Spurzheim, phrenology proposed that the external shape of the brain could be used to diagnose the internal state of the mental faculties.⁴¹ More than a theory of brain, however, it became an enormously popular set of interrelated ideas—a secular means for assessing a man's place in society and nature. The medical profession, especially, felt that the mysteries of the mind were opening up to them, but it was with the popularization of George Combes's *Elements of Phrenology* (1824) and the *Constitution of Man* (1828)⁴² that phrenology reached a vast and approving audience of middle-class Britons (and Americans) who saw in it a vehicle for self-improvement and a guide to maintain health by learning about and changing themselves in accordance with a system of natural laws.⁴³

During the second half of the nineteenth century, although phrenology suffered a precipitous decline in popularity, related craniometric and physiognomic pursuits continued to seem relevant, particularly in the developing field of racial anthropology where anthropometry came into its own, and in popularizing notions of crime as a disease. (As such, phrenology became more concerned with racial difference and degeneration and was a forerunner of eugenic theories in providing biological explanations for crime and mental illness.⁴⁴ More recently, analysts informed by modern imaging techniques have pointed out that in many respects the phrenologists got it right—it was simply the wrong science at the wrong time.)⁴⁵ Especially prey to the allure of numbers and again going straight to the head, Craniometry received wide attention. Paul Broca, founder of the Anthropological Society of Paris, was central in conducting exhaustive studies of the size of the cranial capacity by filling and weighing thousands of brain cavities with lead shot, and then ranking the measurements by race and gender; white men's brains coming out larger and heavier than women's, poor people's and "lower" races'. When pressed to admit evidence that contradicted such conclusions, Broca surmised that when a white man's brain was smaller than others it must be qualitatively richer and more convoluted.⁴⁶

The popularity of the concept of a "legible" body, born of a growing scientific rationality and awareness of the body as a machine, was a radical departure from earlier physiognomic theory because it focused upon rigorous standardized methods and quantifiable results which were held out as objective and able to eliminate bias and ambiguity. But in many respects it did the opposite by substantiating *a priori* beliefs about class, race and gender and highlighting the growing ambiguity inherent in the emerging term "normal"—normal as a measurable average, or normal as a description of the normative or the ideal (including aesthetic, religious or moral approbation for a perfect form and of disapprobation for anything that deviated from it). Prejudices began to lead through data in a circle back to the same prejudices—an unbeatable system that gained authority because it seemed to arise from meticulous measurement.⁴⁷

Damn Lies and Statistics: Constructing the Normal Body

The normal is what you find but rarely. The normal is the ideal. It is the picture that one fabricates of the average characteristics of men, and to find them all in one single man is hardly to be expected.⁴⁸

SOMERSET MAUGHAM

Whereas Lavater and other eighteenth-century physiognomists were interested in human variation, they did not apply their measurements on a population-wide basis to permit systematic comparisons of the human body across race, nationality and gender. This was to occur in the nineteenth century as statistical societies developed to deal with the organization of industrializing economies and their needs for vital statistics to help regulate populations.⁴⁹ Statistics—first known as political arithmetic—calculated mathematical probabilities to assess uncertainty and to turn inferences into coherent wholes that were increasingly used in demographic interpretations. They encouraged the belief that uncertainty was decreased as the number of observations increased and led to state- and nation-wide surveys of a variety of physical characteristics (as well as continued analogies between body shape and character).⁵⁰ Otto Ammon's survey of 27,000 military recruits in Baden, Germany, for example, examined the shapes of male heads between 1887 and 1894, dividing them into long heads (superior talent, heroic and leadership qualities) and short heads (calculating, complacent, dependent, and with socialist tendencies). It was not a big leap for him to develop the argument that democratic ideas would allow biologically inferior individuals (very short heads?) to vote—presaging the eugenic arguments that came to be closely associated with almost all of the early statisticians.⁵¹

Adolphe Quetelet was among the first statisticians to contribute to a generalized notion of the normal as an imperative and guide to social regulation. He initially applied the law of error used by astronomers in their observations of the stars to plot the normal distribution of human features such as height and girth across a national population.⁵² He then used his belief in the regularity of statistical events to formulate the concept of *l'homme moyen* or the average man who could be treated as the "representative" in society.⁵³ Once the average man served as a common type or standard, notions of normality took on a kind of ideal. As an art lover as well as a statistician, Quetelet sought beauty above all in his representative ideal type. "An individual who combined in his own person all the qualities of the average man," he pointed out, "would represent all which is grand, beautiful and excellent."⁵⁴ Deviations from the mean, however, constituted ugliness in body as well as vice in morals and a state of sickness with regard to the constitution. Thus Quetelet's average (normal) man becomes the standard of beauty, goodness, fitness and ability and the one who deviates from the norm is the disabled, the miscreant, the sick, ugly and misshaped. It was a bad slip on the statistical use of "representative" and an erroneous use of the normal curve which Francis Galton pointed out and Karl Pearson was to correct later with the term "standard deviation," but statistics inexorably helped along the norming and ranking of human anatomy and physiology. They redefined the concept of the ideal in the general population and created the idea of a deviant (non-normed) body shape and form with related character flaws.

Not surprisingly, those seeking to construct a healthy and well-regulated society saw a planned reduction in the numbers of those deviating from the norm as a worthy goal. Early statisticians were almost all eugenicists, identifying non-standard sections of the population for regulation or elimination. Francis Galton, Charles Darwin's cousin, was an ardent leader of the Eugenics movement, which broadly sought to improve society through scientifically controlled breeding.⁵⁵ Suffused with anxiety over fears of degeneration, eugenicists tended to share the general view that social ills such as crime and poverty resulted from defects in heredity, though they in no way blamed unfortunates for their condition. They simply wanted to slow or halt their reproduction in favor of the strong and smart, and tests and measurements were of particular importance in identifying and categorizing specific populations.⁵⁶ In Galton's unpublished Utopian fantasy *Kantsaywhere*—which echoed Plato's *Republic* in many respects—citizens were limited in their reproduction according to quotas determined by their ranking on physical and mental tests.⁵⁷

Unlike Quetelet, Galton seems to have been more interested in the exceptional than the average, expressing in *Hereditary Genius* his belief that exceptional, "natural" abilities ranging across such pursuits as courage and statesmanship, courtesy and artistic expression, and even wrestling and rowing were all the result of inheritance (and, of course, more prevalent among the British than men of other nations).⁵⁸ Visual inspection was crucial to his studies, and men of genius, he observed, tended to be above average in height and weight. Excellence in the activities he personally valued—art, mathematics, football and management—could all be determined by examining physical appearance and setting certain kinds of tests. This led him to posit unique kinds of measurements to establish the relative worth of people and bodies. One of his techniques was to take numerous rapid photographs of perfectly aligned individuals on a single plate of film and from these to divine the "pure" type of the family, the criminal, the consumptive and so on.⁵⁹ Theoretically, by fading the transient features of individuals and accentuating dominant traits, a normative face for whole populations could be discerned.⁶⁰ Galton's composite photographs helped him rank his groups by beauty, health, ability and reproductive potential, and project who was "valid" for marriage, immigration, and most importantly, reproduction. Moving to larger populations he took his anthropological laboratory to the International Exposition of 1884 where for three pence people moved through his assembly line of tests and measures and received their assessments at the end.⁶¹ Ultimately, national catalogues of the physical characteristics of British faces—good, bad and indifferent—were planned including fingerprints and a series of codes for noses, chins and foreheads.⁶²

Galton's efforts to assess criminal types from anthropometric measures were taken to extremes by Italian anthropologist Cesare Lombroso, who is mentioned here not because of the fastidiousness of his measurements (or the long term credibility of his findings) but because of his future influence upon William Sheldon's somatotyping system, the criminal justice system, and eugenics in general. Although "the name of Cesare Lombroso is nowadays invoked as a grim reminder of gruesome error or as a bad joke,"⁶³ in fact Lombroso's brand of criminal anthropology (which boldly demanded a total revision of every contemporary notion of crime and punishment) was extremely influential in the decades leading up to the First World War, becoming the focus, for example, of an international conference held every four years for judges, jurists, and government officials as well

as scientists.⁶⁴ Lombroso sought to discover anatomical differences between criminal types and the insane. More than simply patterns of heredity, criminality and delinquency were, in his thinking, evolutionary—atavistic throwbacks to more primitive beings. He compared criminals with savages, imbeciles with apes, identifying anatomical stigmata as signs to prove his theory. He thus "reinterpreted Galton's undesirables into a well defined class of born criminals whose personalities could be assessed through their physical appearance and behavior"—even by their tattoos, if they had them.⁶⁵ In *L'Uomo Criminale* (1876), on the basis of his anatomical studies of Italian soldiers, he claimed that he could distinguish between the criminal and the "normal" recruit on the basis of certain gross morphological characteristics.⁶⁶ Once extended to prisons, he was able to identify criminality with black hair, "goose ears," low foreheads, prominent jaws, bloodshot eyes and so on. In *Genius and Madness* (1892) he identified the similarities between madmen and geniuses, pairing insanity with early baldness, extreme thinness, and undeveloped sex characteristics. Prostitutes and delinquent women suffered from all the atavistic characteristics of women in general—left-handedness, prehensile feet, sloping foreheads—and much more.⁶⁷ Children with criminal parents could be identified at school by the "precocious development of the body, the lack of symmetry, the smallness of the head," and thus segregated from their better-endowed peers.⁶⁸ The pessimism of Lombroso and anxieties over degeneration, whose signs he read on the bodies of those he measured, was part of the eugenic movement's deepest fear that degeneration of the "better" races had begun in earnest and biological disaster was imminent.

In his analysis of body prescribers, George Hersey pairs Galton and Lombroso as eugenic doomsayers, influencing the terrors of Nazi totalitarian policies, compulsory sterilizations and the Holocaust.⁶⁹ But Galton also took his tests and measurements to the schools, transforming the study of growth and development patterns of children, with his emphasis on normal distribution, the inheritance of height and his invention of important statistical tools such as the regression coefficient and the coefficient of correlation.⁷⁰ It was in the universal and compulsory practices of schooling that the ideal of normal development in the child was formed, including normal physical development based on the techniques of weighing, measuring and assessing. Such techniques solidified the idea that there were biological norms of body shape, height and weight and that deviations were biomedical abnormalities. The term normal thus condensed statistical, social, moral and medical judgments, making normal that which was average, socially desirable, good and virtuous, and healthy.⁷¹

Galton's enthusiasm for measuring and norming students' bodies was matched with equal fervor in the United States in the late nineteenth century, especially in Northeastern schools and colleges. Physiologist Henry Pickering Bowditch, who became the Dean of the Harvard Medical School, compiled and analyzed swaths of growth records of students from Boston public schools over two decades or more, contributing at the same time some useful data to the misogynist debate around accusations that higher education stunted the growth and physical development of girls and women.⁷² In addition to his surveys, Dudley Allen Sargent, the first Director of the Hemenway Gymnasium at Harvard University, was carrying out an even more extensive program of physical measurements of college students. A powerful figure in the budding physical education profession, Sargent measured

(by his account) 10,000 men and women aged seventeen to thirty years from the 1870s on, constructing profiles of the "typical" man and "typical" woman based on fifty different measurements.⁷³ Through his standardized charts (of referenced populations), students could "see at a glance their relation in size, strength, symmetry, and development to the normal standard" and gauge their level of health and fitness accordingly. "Study yourselves," he exhorted, "and most of all note well wherein kind nature meant you to excel."⁷⁴

Within each individual's chart, the ideal body graph would be close to a vertical line. Like the Greeks, Sargent was sure that "the straight line is the physical sign of health and longevity, of perfect structure and harmony of function and a symmetrical development of the whole body."⁷⁵ In an enthusiastic bid to display the symmetry of perfect normalcy to the nation, he commissioned statues of his 50th percentile male and female students for the anthropology building at the 1893 World Columbian International Exposition in Chicago.⁷⁶ Sargent was quite clear that the primary object of his measurement system was to promote the importance of physical training to individual health and bodily efficiency, observing that development of athletes was governed largely by the constitutional bias of the individual as well as the sport in which he was engaged and his level of training.⁷⁷ He was also convinced that doctors, teachers, factory managers, and wardens of prisons and asylums would all find that "a knowledge of the typical proportions of the body are indispensable to the proper performance of their duties."⁷⁸ Here were clear echoes of Lombroso's views that nature had made the experts' tasks relatively simple. Bodies were no longer to be forgotten, assured American criminal anthropologist G. Frank Lydston in 1896.⁷⁹ Reading and measuring bodies with the appropriate apparatus for signs of criminality, unfitness, mental defectiveness, delinquency, feeble-mindedness and more, educators and social welfare specialists increasingly joined the eugenics chorus where "every judgment of abnormality presupposed a definition of what is normal."⁸⁰ Normalcy had become a term of enforcement in a somatic judicial system.⁸¹

What Manner of Man is Here?⁸² Eugenics, Constitutionalism and Lombroso's Continuator

Eugenics is not a panacea that will cure human ills; it is a rather dangerous sword that may turn its edge against those who rely on its strength.

FRANZ BOAS, 1928.

At the heart of these efforts to establish standards of "normalcy" through increasingly sophisticated measurement schemes was the pervasive anxiety at the turn of the century to link problems in society with the weaknesses of individuals—and in turn to identify the weaknesses of individuals with their somatic makeup.⁸³ Firm in the belief that heredity was a primary factor in determining human betterment, eugenics emerged as the perfect biological theory of society in an era that was rapidly accepting notions of scientific management and control. It was a multi-faceted, popular and scientific movement—promising an efficient panacea for a variety of social ills—that enjoyed a particularly robust life in the United States during the first three decades of the twentieth century and that continued in one form or another for years after that.⁸⁴

Within its many strains—for to be a eugenicist meant a variety of things to a myriad of individuals⁸⁵—constitutionalism, with its longstanding holistic ideas about human con-

stitution, body typing schemes, temperament and the hereditary predisposition to disease, revived to play a significant role in further elaborating notions of wholeness and normality through a blend of anthropometrics, genetics, endocrinology, physiology and psychology.⁸⁶ Unique to this phase of American constitutionalism was the high academic status of many of its proponents and the extensive nature of the Carnegie and Rockefeller Foundations' investments, which added luster as well as substantial financial backing to the movement's goals. Ardent constitutionalists such as Earnest Hooton and William Sheldon shared the desire of a number of influential academics and physicians to restore individual and social order and balance at a variety of levels as well as a deep compulsion to explain the phenomena of life through the body.⁸⁷

Firm continuators of the work of Lombroso and his students, Nicole Pende, Giacinto Viola, Achille Di Giovanni, and Sante Naccarati, they were also influenced by Ernst Kretschmer's *Physique and Character*, first published in Germany in 1921.⁸⁸ Kretschmer's ultimate aim was to organize whole populations into state-mandated programs in order to improve German mating practices (a notion about which Sheldon no doubt approved given his orthodox eugenicist views),⁸⁹ but it was his careful delineation of three basic body types, asthenic (lean, narrowly built, flat chest, low weight), athletic (wide shoulders, superb chest, firm stomach and trunk, magnificent legs, and solid long head carried upright on a free neck),⁹⁰ and pyknic (rounded figure, soft broad face, compact fat belly, rounded shoulders, short neck, and thin legs)—and their corresponding temperaments that interested Sheldon the most.⁹¹ These types Kretschmer pointed out were no ideal types—"only those characteristics which become strongly marked in the average values are described as 'typical.'"⁹² Having classified body shapes, Kretschmer then went on to show how manic-depressives were usually of the pyknic variety while schizophrenics were athletics or asthenics.⁹³ In fact he was able to arrange his types in a gradual gradation from psychoses to normality. There was much more—head shapes, skin textures and measures of sexuality—as well as a series of categories of cycloid and schizoid temperaments—and they became the most proximate raw material on which Sheldon would draw in his own work. Yet, while impressed with Kretschmer's insight and observant eye when he visited him for the first time in Germany in 1919, he was less impressed with his tools of quantification and his use of "types."⁹⁴ Sheldon wanted to find a way to quantify the fundamental components that made up each physique, to penetrate beneath surface variations and discover a basic body structure or somatotype that endured through time.

The work of F. W. Benecke, a German pathological anatomist at Marburg in the 1870s and 1880s, was of particular interest for Benecke had expressed a new viewpoint in constitutional studies by measuring internal organs and their variations in size as a way to organize two somatic "types," somewhat similar to Kretschmer's asthenics and pyknics.⁹⁵ Benecke's work was taken up by Di Giovanni at the Padua school of criminal anthropology, and in turn advanced by Viola and Pende. Viola believed this early work to be as important to medicine as the discoveries of Pasteur and critical to emphasizing man as a complete psychosomatic being.⁹⁶ He set to work to develop a morphological index by measuring the trunk of the body and comparing it with the length of the limbs, and one of his pupils, Sante Naccarati, continued his efforts at Columbia University in 1920, calculating the morphological indices of several groups of students and correlating his data with mental traits.⁹⁷

The work of Naccarati and Viola as well as Kretschmer lay the foundation for Sheldon's doctoral dissertation at the University of Chicago, completed in 1925 under the supervision of psychologist L. L. Thurstone. Here he attempted to classify the pictures of 4000 white male students (with European backgrounds) according to Kretschmer's three types and, failing that, began to probe beneath the body's surface for a sense of the origins of different body types within the inner (*endoderm*), middle (*mesoderm*) and outer (*ectoderm*) layers of the embryo.⁹⁸ Thus the basis of his classification of ectomorphs, mesomorphs and endomorphs was begun. It was to be his lifelong task to refine the actual techniques that would disclose a morphogenotype, or fundamentally enduring somatotype to which temperaments could be meaningfully attached.

It was a task, however, which would be made particularly difficult by Sheldon's own personality and professional problems that led to so blight his reputation that there is no comprehensive biography of his life, or even an extensive biographical essay.⁹⁹ While a tireless worker, he evidently did not care for the idea of working for others or even working in a profession. He never bothered to become licensed to practice medicine, never became a full-time academic, and largely rejected publishing his work in scientific journals.¹⁰⁰ Institutionally he was a marginal man, doggedly independent, modest to the extreme in his living habits. In his personal life he had several failed marriages.¹⁰¹ He was by all accounts a difficult character;¹⁰² "an awkward cuss," stated Tanner, "who made enemies with the practiced ease of the true paranoid."¹⁰³

William H. Sheldon: "A Forgotten Giant" or Better Forgotten?¹⁰⁴

Born in 1898, William Herbert Sheldon grew up on a farm in Warwick, Rhode Island, and was inordinately proud of his parent's New England ancestry, including his supposed relation to William James whom he claimed as godfather.¹⁰⁵ From his father he developed a passionate interest in the outdoors and became a keen ornithologist and marksman as well as a collector and taxonomist of early copper American cents (about which he would later publish two fine collector's books). Educated at local schools, he attended Brown University in 1915, but with America's entrance into World War I he was commissioned as a second lieutenant in a machine gun company and demobilized in Europe four years later. With his degree in hand, awarded *in absentia* from Brown, he worked as an oil field scout, a wolf hunter in New Mexico and a high school teacher before earning a master's degree at the University of Colorado and a Ph.D. in psychology from the University of Chicago in 1925. While at Chicago he continued his research with Naccarati who was still at Columbia—a promising partnership cut short by the premature death of his colleague in a car accident in Italy in 1929. He also married for the first time but was soon divorced.¹⁰⁶

Sheldon next decided to enroll in medical school as a way to advance his morphological studies and after completing an internship won a fellowship from the National Council on Religion in Higher Education to visit psychiatrists Kretschmer, Freud, Jung and Adler in Europe and interest them in his body typologies. A grant from Leonard and Dorothy Elmhirst who set up the Dartington Trust allowed him to spend time in England at Dartington Hall, a literary retreat, art colony and general haunt of coterie culture in the 1930s, where he met and befriended Aldous Huxley, Gerald Heard, Christopher and

Margaret Isherwood, and a group of Cambridge intellectuals as well as drafted his first book, *Psychology and the Promethean Will*.¹⁰⁷ "I am writing a book that is myself," he wrote to Dorothy Elmhurst. "The other (a discarded manuscript) would have got me a professorship, but this will get me into heaven. It is a Dartington book!"¹⁰⁸

Sheldon's friendship with Aldous Huxley at Dartington proved to be particularly significant for Huxley quickly grasped the basics of Sheldon's body classifications and used them to effect in many of his writings.¹⁰⁹ Huxley, in fact, wrote an essay directly on Sheldon's work, which appeared in the November issue of *Harper's Magazine* in 1944.¹¹⁰ After all, said Huxley, "what writer in his senses would think of associating the character of Pickwick with the body of Scrooge."¹¹¹ His personal identification with Sheldon's typologies deeply affected him. Writing to a friend in 1945 he confided:

I remain sadly aware that I am not a born novelist. . . . To put the matter physiologically, I am the wrong shape for a storyteller and sympathetic delineator of character with a broad social canvas. The fertile inventors and narrators and genre painters have all been rather burly, genial fellows. Scott looked like a farmer. Balzac and Dumas were florid to the point of fatness. Dickens was athletic. . . . Tolstoy an intellectual moujik. Dostoevsky was physically tough enough to come through imprisonment in Siberia, Conan Doyle was a barrel, Wells is a tub. Dear old Arnold Bennett was a chamber pot on spindly legs and Marcel Proust was the wreck of congenital sleekness. So what chance has an emaciated fellow on stilts? And of course this is no joke. There is a real correlation between shape and mind.¹¹²

In later life, Sheldon was to admit that Huxley was one of the very few people who really understood what he was getting at. Certainly Huxley shared his reactionary beliefs and passions. His patrician social background and hybrid literary and scientific interests made him the ideal defender of Sheldon's take on hereditarianism and reactionary thought.¹¹³

Upon his return from Dartington Hall, Sheldon lectured in religion and psychology at the University of Chicago and began to seek cooperation with physical education departments at the University of Chicago, Oberlin College, the University of Wisconsin and other institutions to collect somatotype photographs as extensions of their posture programs.¹¹⁴ It was at this time that a romantic affair soured, and he was apparently censured for sending a threatening letter to the woman's new husband.¹¹⁵ The story of this misguided action is repeated at length in Lindsay Carter and Barbara Honeyman Heath's 1990 Somatotyping textbook as a major reason for Sheldon's future failures to obtain formal academic posts, though others reported on his mental instability and personal difficulties with other people.¹¹⁶ In turn, Sheldon's associates have suggested that Barbara Honeyman Heath, who was one of his assistants during the 1950s, was likely influenced by her own disappointing romance with him and subsequent professional disagreements over her accusations that he altered photographs in *The Atlas of Men*.¹¹⁷

Sheldon did indeed lack permanent academic positions, but he created numerous opportunities to carry on his work and found a number of supporters to fund it. Between 1938 and 1940 he moved to Harvard University to collaborate with Smith S. Stevens, an experimental psychologist in the psycho-acoustic laboratory, and together they worked on the rationale of his somatotyping method detailed in *The Varieties of Human Physique: An Introduction to Constitutional Psychology* (1940). He dedicated this study to his Harvard

anthropologist supporter, Earnest Hooton, "whose studies in physical anthropology have vitalized constitutional research," though again, as Heath points out, even with as close and well established a collaborator as Hooton, a number of controversies were beginning to develop around various aspects of Sheldon's methodology.¹¹⁸ While in Cambridge Sheldon also met Emil Hard, Director of the Hayden Goodwill Inn School, a residential and vocational training center for delinquent boys, and was invited to move in and study the relationship between physique and temperament of some of the residents. Here he worked closely with Roland Elderkin, a seminary student he had known from Chicago who became his life-long supporter and who carried out and documented much of his casework at the Inn.¹¹⁹

In 1942, having worn thin his welcome at Harvard, Sheldon joined the Air Force as a major in the medical corps and found the opportunity to set up a somatotype project in Texas to predict the flying success of pilots.¹²⁰ While in service he apparently contracted Hodgkin's disease and was retired from the Air Force on a disability pension—allowing him, he said later, the freedom from having to seek academic job security. Once recovered sufficiently to attend to his somatotyping projects he began another short-lived marriage and returned to complete his study of delinquent boys at the Hayden Goodwill Inn. The following year he was invited by one of Hooton's former students, C. Wesley Dupertuis, to become the Director of the Constitution Clinic at Columbia University Medical Center in New York.¹²¹ (Dupertuis had been involved in the measuring of 4000 people at the Chicago World Fair and 10,000 men in a racial study of Ireland for Hooton's Anthropology Department at Harvard.)¹²² Since it was an unpaid position, Sheldon was obliged to seek financial support from Eugene McDermott, Texas oilman and future president and co-founder of Texas Instruments who showed a particular interest in his eugenicist views and work on physique and temperament and created the Biological Humanics Foundation to assist him.

It was at the Constitution Laboratory that Barbara Honeyman¹²³ began her working association with Sheldon. Honeyman was a research secretary in the psychiatric laboratory at Portland until she moved to New York to position herself as "executive secretary" in the Constitution Laboratory, working closely with Sheldon and his projects. Expecting to become a co-author of Sheldon's forthcoming *Atlas of Men* as well as a proposed companion, *Atlas of Women*, Honeyman was involved in photographing and measuring thousands of women in mental institutions and in numerous departments of physical education. She claims to have studied and rated 12,000 somatotype photographs but to have left the Laboratory when asked to "doctor" the data and pictures for Sheldon's forthcoming books.

In spite of her disapproval of his data manipulation, she returned to Portland in 1951 to assist Sheldon on a major project to study relations between physique and disease at University of Oregon's Medical School. The study was supported by a five-year \$100,000 Rockefeller Foundation grant, though even the Rockefeller administrators expressed doubts about how to deal with Sheldon's lone wolf status and lack of interest in administrative matters. They were also concerned about Barbara Honeyman's involvement in light of her reputation in Oregon as "being difficult to get along with."¹²⁴ In some respects Sheldon's ideas were still being well received—especially by empiricists who believed that it was possible to separate the observations and measurements inherent in somatotyping from

the originator and his ideologies.¹²⁵ In June of that same year, *Life Magazine* published an enthusiastic article on aspects of his work entitled "What Manner of Morph Are You?" by Robert Coughlan. "On the basis of his work so far, Dr. Sheldon has shown what Hippocrates tried to do 2,500 years ago; he has shown that character and physique are closely related and that the first, like the second is to a considerable extent, a product of heredity." "If Sheldon is right," Coughlan opined, "his theory may well prove to be as important a tool for the understanding of human behavior as were the discoveries made by Freud." However, he continued, "whatever their merits, Sheldon's theories are not likely to be popular, and they are especially not likely to be popular in this country. Americans like to believe that anybody can do anything. . . . [T]he Sheldon thesis may strike many people as fatalistic and downright undemocratic."¹²⁶

It did. Criticism of his work was mounting, and interest in constitutional medicine and holism was declining. After World War II, the sense of crisis over the ills of modern society that had fostered both cognitive and cultural holism slowly dissipated—to be reborn later in one guise as psychosomatic medicine. Enthusiasm for accurate biotyping techniques that peaked during the 1940s was also waning, eclipsed by a marked increase in interest in psychiatry.¹²⁷ By 1953, the Constitution Laboratory had lost its funding and space in the Columbia Medical Center and two years later Sheldon was asked to leave in light of the controversial racist, chauvinistic and extreme eugenicist views he articulated in *Varieties of Delinquent Youth* (1949) and *Atlas of Men* (1954).¹²⁸ Even his most ardent supporters admitted that *Varieties of Delinquent Youth* was not Sheldon at his best. His increasingly strident eugenic rantings in the years following World War II and the tragic lessons of the Holocaust served to intensify the political and moral objections to his research within the medical and scientific community, and in some respects closed off later discussions of the underpinnings and ramifications of constitutional medicine and hereditarian thought upon the study of the body and within anthropometry.¹²⁹ From having been arguably America's king of the constitutionalists in the 1940s and 1950s Sheldon became marked as the individual who contributed the most to the field's decline. And it was the orthodox eugenicism underpinning his body classification system—the delegation of reproduction and childrearing responsibilities to the best and the brightest, the establishment of a world-wide police force of English-speaking people, and the founding of a religion devoted to serving the biological future—that brought the loudest criticism.¹³⁰

He continued his work informally, while working out of the New York apartment of Dorothy Iselin Paschal and returned to Oregon for some time each year until the project grant expired. When Paschal moved to a house in Cambridge in 1966 it was just a few doors from where William James had once lived. There she made space for Sheldon and his materials and supported his work until his death in 1977 at the age of 78.¹³¹

Physique Is Destiny: Sheldon and His Somatotyping Project

A somatotype is derived from an average of tendencies, and intended as a kind of identification tag, a reflection of the orderly continuum of nature. It gives a person a house or place in a well-standardized taxonomy, which is comprehensive, basic and operational.¹³²

WILLIAM H. SHELDON

William Sheldon's primary contribution to constitutionalism was through the development of somatotyping techniques, and it was hailed as a striking advance over previous systems of classification.¹³³ He introduced his concept of the somatotype in *Varieties of Human Physique* in 1940 by providing a three-dimensional system for describing the human physique with an analogous scheme for the description and classification of the temperament.¹³⁴ Unlike previous systems that classified a total physique as belonging to a certain type, he expressed his system through a three-number rating of the amount of fatness and sphericity (endomorph), muscularity (mesomorph) and ectomorphy (slenderness and linearity) in a single person's physique—always in the same order. To get these ratings he manipulated 17 anthropometric measurements taken from specially posed nude photographs. Within each component there was a ranking of 1 (little) to 7 (a lot) and when all three components were added together the sum of the scores had to be between 9 and 12.¹³⁵ **7-1-1**, for example, represented the most extreme endomorph and the somatotype of **4-4-4** fell at the midpoint of the scale with respect to all three primary components.¹³⁶ In *Varieties of Human Temperament* (1942),¹³⁷ Sheldon went on to correlate each of the three primary physical components with a set of personality traits, and in *Varieties of Delinquent Youth* his analysis of juvenile offenders encouraged the positing of further relationships among body shape, personality and mental illness.¹³⁸

Constitutional psychology, he proposed, was a precise reversal of the Freudian method, since the body—or more precisely a standardized photo of it—was always the starting point to understand how behavior was a function of structure. For Sheldon, temperament was somatotype in action, "the level of personality just above physiological function and below acquired attitudes and beliefs."¹³⁹ From observations of several large groups of subjects he isolated twenty traits for each of his three basic somatic components and arranged them on a Scale of Temperaments, which spelled out expected behaviors for each body type. A type with an endomorphic temperament was called viscerotonic—he was a sociable person, predisposed to eat, and to seek comfort and affection. The mesomorphic temper was somotomic, found in a courageous, active and dynamic person seeking power and dominance, and loving exercise and competition. An ectomorph was cerebrotonic, introverted, inhibited, full of functional complaints, sensitive and sometimes brainy, but generally disliking exercise or physical comfort.¹⁴⁰ Most significant of all, however, Sheldon claimed that the physique components were genetic and thus remained unwaveringly determinants of character, regardless of growth and development. In other words, framed within his morphogenotypes, "physique was destiny."¹⁴¹

The mechanics and illustrations of Sheldon's somatotyping were laid out most fully in the *Atlas of Men* (1954) that contained over 1,175 carefully posed photographs of nearly nude (white Caucasian) men, viewed from the back, front and side. It was from these images and descriptions of the 88 somatotype groups he selected, which Sheldon hoped to make his system available for general use, to allow each individual to "identify the music of his own particular dance of life."¹⁴² And it was from descriptions of each of the somatotype groups that one can see how the athletic body, the mesomorph, emerges as the most heroic, the biologically superior type. Highest ranked among Sheldon's taxonomy of mesomorphs was the somatotype **1-7-2**; "the **1-7-2**, with long-limbed freedom of action, often with tall stature, with rugged power at its maximum and with fast agility, presents something like an incarnation of a heroic ideal."¹⁴³

With the description of the **1-7-2s**, as with most of his other somatotype groups, Sheldon appended a discussion of athletic potential. He pointed out that the **1-7-2**, though mighty, was also vulnerable—the lack of endomorphy presenting a serious handicap to championship athletic performance. The **2-7-2s** and **3-7-2s** were a better bet—they included most of the stalwart and mighty athletes who became famous playing games requiring body contact. Jack Dempsey, Lou Gehrig and Jim Thorpe were **2-7-2s**. **3-7-2** was the prototype of the professional fullback, and **4-7-1** the professional football man of the line guard, tackle or center. Joe Louis was another perfect **3-7-2** with the speed of the big cat and the bulk of the bear.

Once a five or more was reached in the endomorphic category, Sheldon's language darkened:

The **5-2-3** whether in bathing suit or military uniform seems at first glance exactly what he is. Either his arms hang like useless flippers or he is knock-kneed with the lower legs too long for the thighs, or he has a weak face suspended on a long neck or his waist is much too high and his belly too plump. . . . [T]he total impression is that of a somewhat pneumatic muscular incompetence.¹⁴⁴

7-1-2s were bags of jell-o; **7-2-2s** were toothless whales who have invaded female territory. **7-4-1s** were hippopotami that "lay in the water on a hot day at Coney Island when the Dodgers were playing away" and "when found in a mental hospital [were] likely to turn out to be the very life of the place."¹⁴⁵

Similarly, ectomorphic weaklings received faint praise for their lack of athletic abilities. The **1-2-7s** and **1-3-6s** (who, he claimed, were most likely found in mental hospitals) sometimes get involved in athletic ambitions leading to serious frustrations. The **3-3-4** was "unremarkable, pale, frail and pinched. Sometimes they try to be athletes or regular fellows and lose their youth in a hopeless pursuit of muscle culture. . . . [A] generous proportion break down mentally." The **3-3-5s** avoided the beaches and had a posture that "seldom pleases the physical educators." The **4-1-5** was one of the weakest somatotypes. He escapes entirely the danger of athletic and pugilistic ambitions. In fact this somatotype, said Sheldon, gets along better as a female, for women who are **4-1-5s** are inclined to have weak backs, and they do not enjoy playing golf with their husbands.¹⁴⁶

Sheldon's primary intention, of course, was not to correlate size and shape with predictions of athletic performance but to explore the unchangeable link between body and temperament and provide visual evidence of normality and deviance. However, modifications of his classification schemes of the human physique have become increasingly used, in one form or another, to associate the characteristics of physique with success in sport and other kinds of physical performance.¹⁴⁷ Anthropometrical measurements of growing children, long used to monitor normal and abnormal patterns of growth and development, have been extended to the close study of athletes' morphological characteristics and their chances of success in various sports and physical endeavors. "Increasingly," note Carter and Heath in their "bible" of somatotyping, "anthropologists, human biologists, physical educators, sport scientists, and behavioral and social scientists use somatotyping in their search for further understanding of the variation in human physique."¹⁴⁸ To be sure Sheldon's actual somatotypes and techniques have been virtually abandoned as rigid and immutable and have been largely stripped of their putative temperamental and psy-

chiatric associations, but his popular classifications of endomorph, ectomorph and mesomorph¹⁴⁹ have become a part of every health and physical educator's vocabulary, and it is not at all clear whether the mental furnishings and ideological commitments which accompanied his extensive work on physique and temperament has been totally left behind.¹⁵⁰ In his system, the many bodies Sheldon studied clustered around hierarchies ranging from "bad" to "good" (depending on their distance from the center [norm] or the poles of his "somatoplot" scheme), and the equations he drew between body features and proportions, and temperament and intellect, became prescriptions for whole populations.¹⁵¹

Sheldon and the Physical Educators

Just as we can purchase ten dollar suits or hundred dollar suits, so some of us inherit ten dollar organs and others hundred dollar organs.

CHARLES MCCLOY, "Forgotten Objectives of Physical Education"¹⁵²

More recently, physical educators have revived the ancient study of anthropometry . . . to assist in the important health and physical guidance work in schools and social agencies.

THOMAS CURETON, *Springfield College Studies*¹⁵³

Physical educators, who quite naturally had a professional interest in body physique and body measurement, were among the most active and cooperative of Sheldon's supporters, and many were closely associated with somatotype research and the evolution of the somatotype method. Many were eugenicists, for eugenics teaching was widespread at college campuses in biology, physical anthropology, health and hygiene courses and in schools in hygiene and physical education classes.¹⁵⁴ And in many respects, eugenics capitalized on the appeal of science to attract educated professionals to its ranks and physical educators were no different.¹⁵⁵ Part of Sheldon's time at Columbia University, for example, was funded by commissioned work from numerous physical education departments in colleges and universities. "Physical educators were the best ones to work with," said Barbara Honeyman Heath many years later. "They don't squabble among themselves, they're interested in human physique, and they know that there are bodies under those clothes."¹⁵⁶

In their extensive summation of somatotyping studies stemming from Sheldon's work, Carter and Heath show how many prominent physical educators used somatotyping as an important component of their research. At Springfield College, Peter Karpovich, one of the founders of the American College of Sports Medicine, Harrison Clarke (later Research Professor at the University of Oregon) and Thomas Cureton (later at the University of Illinois) all used body typing and somatotyping in their research. Cureton published an early and much cited article in *Research Quarterly* related to body build and athletic performance.¹⁵⁷ He later pointed out that "there should be no keener body build judges than the professional men and women in physical education because human flesh is more valuable than horse flesh and a remarkable amount of useful guidance is possible based upon a careful (somatotype) appraisal by an expert."¹⁵⁸ Indeed, Sheldon's recent studies "summarize in vivid fashion the enormous possibilities for differential education adapted to the varieties of human physique . . . physical educators should be among the first. . . to make widespread application of the facts and implications of modern morphology and the

somatotyping procedures."¹⁵⁹ In his 1945 textbook, *The Application of Measurement to Health and Physical Education*, Harrison Clarke devoted five pages to Sheldon and somatotypes, suggesting that "the future of measurement in physical education will undoubtedly be identified closely with body typing . . . and such typing should more and more become the basis of norms for almost every kind of physical fitness test."¹⁶⁰ Furthermore, he concluded, studies showing the relationship of physical constitution to psychological manifestations indicate that this is a rich area of future study. Karl Wilgoose at Boston University, Charles McCloy and Frank Sills at the University of Iowa¹⁶¹ as well as Frederick Rand Rogers were among the many other leading physical education supporters of somatotyping projects around mid century.¹⁶²

In both his public and private utterances, say Carter and Heath, Sheldon expressed special appreciation for physical educators who readily provided him with much of his photographic data for his extensive analyses. Taking his cue from the Berkeley longitudinal growth study of Harold Jones and Harold Stolz, who had first used posture pictures of physical education students in combination with anthropometric measurements, Sheldon had persuaded departments of physical education in several Midwestern universities to cooperate with him in providing nude posture pictures of incoming students, and he had similar arrangements with East Coast Ivy League women's colleges from whom he obtained thousands of posture photos.¹⁶³ The most famous set of men's posture photos came from the Grant study at Harvard, begun in the 1940s to determine the relationship between masculinity (physically and behaviorally defined) and academic success.¹⁶⁴ Hooton and Sheldon were both involved in this project, and Sheldon capitalized on this photo-taking ritual to add to his somatotyping database both at Harvard and across the country. He thus relied upon the support of physical educators and empathized with an idealistic view of their professional goals, which he saw as "serving the biological future."¹⁶⁵ In a proposed lecture sent to New Zealand physical educator Philip Smithells, who had visited him at the Constitutional Laboratory in Columbia, Sheldon wrote:

The profession of physical education has always seemed to me to be the most religious profession. Their faith is secure, and their worship serene, for they have found the immortal Soul. The soul is the body. Nor do they need to argue or preach about this. Rather they love to exercise it, to make it stalwart and straight, to render it redolent of sweet sweat, in short to save it by mesomorphic exhortation. Physical educators derive an ecstasy from seeing the soul stand straight up.¹⁶⁶

Sheldon apparently believed that physical educators (like constitutionalists) shared his determination to revitalize an appreciation of the "whole man" and the "normal man" through elaborate, albeit reductionist body-typing schemes. Paradoxically, such schemes were inevitably reductionist in that they concerned whole individuals but then divided them into specific types—longs and shorts, endomorphs and ectomorphs, linears and laterals, gall bladder types and ulcer types—all categorized on the basis of one predominant (and not necessarily flattering)¹⁶⁷ set of characteristics.

Inherent in Sheldon's work was a virulent brand of extreme biological determinism that must have been questioned by many of the physical educators he admired.¹⁶⁸ If the body was nature and outside of culture then his attachment to the past and static model of the body was bound to stand uneasily beside more dynamic and functional models of the

body which had gained favor among physical educators since the late nineteenth century with their work on strength development and physical efficiency.¹⁶⁹ His belief that an individual's constitution and its measure, the somatotype, was unchanging throughout life and that physique was unmalleable—abstracted from time and context—would hardly allow the work of the physical education profession much scope in physical development and bodily renovation. Even within constitutionalism there were strains who strongly objected to an over emphasis on heredity at the expense of environmental influences.¹⁷⁰ The permanence issue was acknowledged as a particular problem since physical educators were in a good position to observe changes in somatotypes over time through the potential effects of fitness and training. Their primary interest lay in the relationship between individual physical performance and somatotype (and its possible link to temperament), though many of them were interested to see if they could discern athletic talent at an early age to guide students in appropriate directions. This might delimit student options and motivations, but if the key to athletic ability could be associated with temperament then the profession had plenty of scope to work with. "McCloy," said Heath "went about half way with Sheldon. He could always think of a lot of things that were wrong with somatotypes but he thought it was pretty interesting stuff."¹⁷¹

Other than his deterministic outlook, however, Sheldon's holistic views on the "whole" man, the "normal" man suited a generalist profession which regarded its work as an interdisciplinary endeavor to encourage the use of muscle power as a way to generate brain power. His somatotyping techniques (especially his later modifications with the trunk index method which was an admission of sorts that somatotypes did in fact change over time) offered them an innovative and powerful set of diagnostic tools to continue to scientifically address the relationships between physique and athletic performance begun decades earlier by leading physical educators such as Dudley Allen Sargent. That the days of the generalist were numbered in light of the increasing role and importance of laboratory science and the growth of specialization in the science of movement was a lesson the broader physical education profession was about to learn from Franklin Henry in the 1960s,¹⁷² although when Glenn Olds, president of Springfield College, paid tribute to former colleague Peter Karpovich in 1964, he reiterated how his college remained committed to the study and development of the whole man, body-mind-spirit, and the desire to delve more deeply into "the mystery of man."¹⁷³ (Fortunately, there was no mention of the revelations within the physical education community that Karpovich was himself a bit of a mystery—falsely claiming a medical degree from Russia and feuding so badly with colleague Thomas Cureton that he was taken to court for fudging scientific data in order to deliberately invalidate some of Cureton's key research.)¹⁷⁴

It was in their enthusiasm for the anthropometrically measured "normal" body that the greatest dangers lay, for it was anything but value free. Ancient physiognomic schemes and modern ones, such as Sheldon's somatotyping, bred normalcy into ways of seeing, evaluating and articulating the athletic potential of the body. Formulated in the context of a race, class and gender stratified society, quantitatively defined ideal types or standards have historically been both biased and oppressive.¹⁷⁵ Once incorporated into height and weight tables, charts and assessment techniques, professional entry requirements, fitness and training regimes, and physical education textbooks, such standards can produce what

Foucault calls "normalizing effects," shaping how generations of individuals understand themselves, their bodies and their athletic potential.

Sheldon, of course, saw this as a benefit, not a danger. His hereditarian views focused naturally upon physique as a determining factor not one of potential. He always wanted to be an athlete. As a teenager in New England he had been strongly encouraged to become a baseball player due to his promising throwing and batting talents though all his efforts had gone unrewarded. In later years he declared that a knowledge of somatotyping would have spared him the struggle and disappointment. It would have told him that he lacked the mesomorphic build and corresponding personality to become a successful player. It would have told him that baseball was not his game and freed him from the frustrations (Huxley called it a criminal folly) of fighting his body with a false persona and false ambitions. Pressed to become something other than what one was risked compromising one's sanity—for the borderland between normal and abnormal was reached rather quickly. As he put it, "It is as suppressive to a young cerebrotonic to press him to join in the dance or in the swim ... as it is suppressive to a young somatotonic to make him sit still."¹⁷⁶

Looking Downstream: The Consumption of Somatotyping

What is science? Culture, nature, a little bit of both.

THOMAS GIERYN¹⁷⁷

Nature turns out to be culture all along.

JUDITH BUTLER¹⁷⁸

So whose body is it that is to be the measure of all things?

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"The somatotype story has been lengthy, sometimes stormy, always interesting," states D. F. Roberts,¹⁸⁰ but the popularity of the "science" of somatotyping does not seem to have suffered as a result of Rosenbaum's "exposé" of "The Great Ivy League Nude Posture Photo Scandal," recounted in the 1995 *New York Times Magazine*. His report about stumbling upon thousands and thousands of nude photographs of the best and the brightest from U.S. elite colleges suggested that the "cache" was actually part of a vast eugenic experiment (or dating service) conducted by sinister anthropologists like Earnest Hooton and William Sheldon who were but one step away from the Third Reich's plan for a master race. These "discovered" posture photos, a routine report of all new students at Ivy League and Seven Sisters Colleges (and many others) stretching as far back as the 1870s and continuing well into the 1960s, were indeed some of the ones utilized by Sheldon in his somatotyping experiments, but the underlying notion of critically examining student's posture was neither "scandal or folly," "ritual or cottage industry"—all claimed by Rosenbaum as the insubstantial basis of the posture movement. "What could have possessed so many elite institutions of higher education," he said, "to turn their student bodies over to the practitioners of nude stick-pin somatotyping. . . to so dubious a science project . . . to the emperors of scientific certainty who had no clothes?"¹⁸¹

In their examination of modern posture history, David Yosifon and Peter N. Stearns underscore the importance of posture in understanding the changing roles of discipline and attitudes toward body and character in nineteenth- and early twentieth-century life.¹⁸² From the 1870s on there was a stream of popular medical commentary giving advice to

parents and teachers about the dangers of slouching and poor posture to health and reproduction, character and moral habits. To the intensive medical scrutiny of posture was added the enthusiasm of a developing physical education profession who adopted posture remediation and physical fitness as an important and multi-faceted plank of their work, just as they would add somatotyping.¹⁸³ After all, even if body build was largely inherited or was difficult to change, posture certainly could be "normalized" through physical education.¹⁸⁴ Physical educators introduced extensive posture programs into schools and colleges where they insisted on scrutinizing the postures of incoming students with posture photos and detailed measurements.¹⁸⁵ For the usual reasons, girls and women were seen as in particular need of posture remediation, although excellent posture in men was also deemed rare.¹⁸⁶ At Wellesley, shadowgraphs, schematographs and posture tracing were used to "carry to the mind of the student what posture means." "Experience," it was said, "teaches us to expect enthusiasm for living, initiative, self-confidence, and self-respect from a person with an early erect posture."¹⁸⁷ No mere frill or fancy, the posture movement not only advanced the interests of the physical education profession, it expressed "a need to impose discipline against key (problematic) currents in modern society," (including serving as a racial and social marker), and a desire to read posture as an index of civilization, and window to the soul.¹⁸⁸ "Attractive and efficient posture," said Cureton, "has long been associated with desirable personality traits."¹⁸⁹

This was, of course, the aim Sheldon held for somatotyping. In reaction to what he viewed as the "excesses" of the modern industrial world he looked back with a neo-romantic cast to a simpler world with a focus on character building, beauty, virtue, symmetry and order. In *Psychology and the Promethean Will* he mourned the desouling of modern man and the decoupling of the body from nature. His goal was to reinstate the primacy of the biological organism and its essentially traditional heroic values—those he imagined held sway in ancient patriarchal Greece.¹⁹⁰ "To save the somatotype was to preserve a universe of traditional, social, moral and intellectual assumptions under attack by Freudian psychology and modernism generally."¹⁹¹ But to promote it required science—an empiricist, progressive methodology worked out in the twentieth-century laboratory. By most standards he failed at both. Yet as Thomas Gieryn points out, if we look at science from a different vantage—not upstream at the facts (or falsities) in their making, but downstream in their consumption then we can see how "science gets stretched and pulled, pinched and tucked as its epistemic authority is reproduced [or challenged] time and again in a diverse array of settings." What science becomes, the shape it assumes, the landmarks that give it meaning depend on the exigencies of the moment and representations of science come to have "less to do with the cultural realities they supposedly depict and more to do with the cultural realities they sustain."¹⁹²

One of the things that bothered Sheldon most was that his work was too often treated, and condemned, only as "science" and by scientists. Confronted with complex measurement difficulties he refused to confine himself to a static measure of the phenotype. Doing so, he said, "meant exacting the price of life itself for the sake of inflexible metric objectivity."¹⁹³ Though he spent most of his working life developing and defending his measurement techniques linking physique and temperament, he was scornful of the narrow vision of academics seeing himself as a public intellectual more in tune with artists and writers

such as Huxley.¹⁹⁴ When Gardner Lindzey gave a presidential address to a section of the American Psychological Association in 1964, he noted that "in his research and writing, Sheldon is much more the sensitive naturalist, observer, and categorizer, and much less the hard, quantitative and objective scientist than would be optimal to assure a good press from our colleagues."¹⁹⁵ And of course Sheldon's scientific objectivity did not get a good press for as Hilary Rose points out, "Science is one of the few cultural activities where the practitioners have always sought (indeed rather successfully) to stay in charge of the story about science."¹⁹⁶ In a savage indictment of Sheldon's techniques in 1957, Lloyd Humphries claimed, as others had before, that his types had originated in the armchair; that his analyses were statistically naïve; that his correlations had inadequate controls; and that his claims "should be thrown out of court for lack of evidence."¹⁹⁷ Lindzey's purpose, however, was to rescue the study of body and behavior for psychology by disassociating Sheldon's irrelevant behavior and toxic beliefs from what he saw as a legitimate object of study and a very useful set of somatotyping tools—even while accepting the major design and inference shortcomings of his results.¹⁹⁸ Surely, he said, we cannot deny that behavior is directly linked to some degree by the physical person.

Whether or not he was convincing at the time in his effort to separate Sheldon's system from its value-base, (and Sheldon's career was certainly an illustration of the ways in which personal and social needs can attempt to appropriate the prestige and data of science to their own purposes), somatotyping, in one guise or another, continued to have enthusiastic supporters where constitutional medicine, physical education and sport science were concerned. In particular, British physician James Tanner, who first became interested in somatotyping while doing graduate work at Johns Hopkins, published an enthusiastic article on "Somatotypes and Medicine" in *The Lancet* in 1949 promoting Sheldon's "brilliant" body classifications as the most flexible, accurate and comprehensive yet.¹⁹⁹ He followed this up with another two years later where he simply "tidied up Sheldon's photographic technique" to demonstrate relations between physical build and temperament—in this case, to assess the degree of femininity of build in the male.²⁰⁰ In addition to Tanner's work, which would grow in the U.K. into a series of seminal studies on children's growth patterns,²⁰¹ Richard Parnell built upon Sheldon's system in *Behavior and Physique* (1958) in his position as research physician for the constitutional aspects of psychiatric medicine at Oxford.²⁰² He too was particularly interested in encouraging physical educators to use somatotyping to study healthy performance and to channel students into a realistic understanding of their athletic potential and limitations, believing as had Sheldon in the permanency of somatotypes.²⁰³

In 1996, Rodney Rempel pointed out that with modifications by Parnell in the late 1950s and by Heath and Carter in 1967, the somatotype has continued to be the best single quantifier of total body shape.²⁰⁴ Carter and Heath in their 1990 textbook claimed that their modifications finally corrected the problems inherent in the Sheldon system, separated evidence from opinion and smoothed the path for future investigations.²⁰⁵ Carter, who has played a significant role in advancing the study of somatotyping in sport science for over half a century, documents literally hundreds of somatotype studies that have been undertaken around the world, and the scientific subdiscipline of kinanthropometry encouraging studies of growth and somatotyping has a large following. In the

kinanthropometry laboratory manual, developed in 2001 as a key resource for lecturers and students of anthropometry and accredited by the International Society for the Advancement of Kinanthropometry (ISAK), somatotyping has a substantial chapter with a passing reference to Sheldon and a larger nod to the past "more acceptable" contributions of Kretschmer and Viola.²⁰⁶ It is only when we get to the chapter on "Anthropometry and Body Image" that we are re-introduced to Sheldon's associations between body shape and behavior and alerted to studies showing that "men prefer women with symmetrical breasts," and that symmetrical racehorses run faster, as do less lopsided athletes.²⁰⁷

To be sure, Sheldon's attributions of behavior from body shape are largely discounted in the manual as "pseudo-science, social stereotyping and self-fulfilling prophecies,"²⁰⁸ but a whole subdiscipline or series of subdisciplines, has arisen around the study of body image, ideal body shape, and body dysmorphic behavior, including how to use new technologies to change your body shape and form at will—a possibility Sheldon would have strenuously denied.²⁰⁹ In the workbook manual you are encouraged to succumb to an anthropometry of desire by studying the measurements of beautiful female bodies and ideal male bodies. You can then compare your own somatotype against Michelangelo's *David* (1-7.5-2), Titian's *Adam* (1.5-6.5-1), successful basketball players (2.4-4.4-3.7), power lifters (2.7-7.9-0.6) male shop mannequins (2.5-4.7-3.5), Barbie and Ken dolls, and female supermodels and plot yourself on the somatoplot—locating your position in Sheldon's spherical palace of bodies and seeing how you measure up to the ideal and the norm.

Downstream, however, that location is no longer seen as immutable in a world where radical transformations of body forms are increasingly realizable through diet and exercise, training, drugs, cosmetic surgery and gene manipulation.²¹⁰ Genetic engineering, for example, is simply a prosthesis for older techniques of selective breeding and eugenics, for it (and other technical processes) "plays off the openness of the human to modes of engineering and technogenesis."²¹¹ Elite athletes no longer accept their given body but strive to attain the specific body shape, size and composition required for peak performance. Anorexic male ski jumpers are starving and drugging themselves to win medals, for with new techniques, he who weighs least, flies furthest.²¹² Adolescents in increasing numbers are turning to anabolic steroids for athletic performance and perfect bodies.²¹³ Cosmetic surgery plays a lucrative role in reconstructing or making over female and aging bodies especially, or even for a complete reassignment of gender.²¹⁴ In football bigger is better, and huge players are now the norm. Overweight high school boys, once deemed fat are the mainstay of any good football program. Three hundred-pound linemen—once considered freaks—are the norm in the NFL and use excessive diets, weight training and drugs to become "ten feet tall and bulletproof."²¹⁵ Bodybuilders have learned to develop degrees of mesomorphy that far exceed Sheldon's top value of 7. In *Muscle: Confessions of an Unlikely Body Builder*, Sam Fussell documents his determined path from ectomorph to mesomorph with the aid of diet, drugs, cosmetic surgery and obsessive dedication to the weight room.²¹⁶ "To a committed bodybuilder," says Lesley Heywood, "the gym is the world of gods and heroes, goddesses larger than life, a place of incantations where our bodies inflate and we . . . walk about transformed."²¹⁷ It is a struggle for self-improvement, image, success, power—an apotheosis of the American fascination with individual empowerment and sovereignty. And that sense of possibility may best be expressed by Arnold Schwarzenegger whose

body, a walking billboard of invulnerability, was constructed (in his own view) to stand for his ability to fill up the space of the world.²¹⁸ Indeed, his body makes Sheldon's perfect somatotype—a god-like **1-7-2** "displaying the legendary masculine ideal of nearly all combative and dominating peoples," look like a mere echo from an anorexic past.

By extending their "selves" into the world through the medium of muscle, bodybuilders put agency and risk-taking on public display as reflections of a contemporary way of being. Choosing our own body form, re-molding our physical structures, however difficult or partial, may seem like empowerment and self-actualization in relation to the deterministic outlook and aggressive anti-modernism of Sheldon and his genetically fixed somatotypes. But the technologies of change have brought a whole new series of risks, pathologies and desires often running in the opposite direction to the tide of probability—a serious and growing problem for physical educators confronted with such realities.²¹⁹ Individuals do not escape the pressures to conform to the dominant cultural imperatives that have laid the foundations of normalcy—slenderness, muscularity, symmetry, classical beauty—hence the requirements of body modification to a fairly narrow range of acceptable body shapes and sizes have turned the body into a battleground with a regime of constant adjustment, despite societies' claims exalting the virtues of diversity.²²⁰ Though Sheldonism is dead, physique may still be destiny as new forms of self and body government are demanded in what Gilles Deleuze has identified as contemporary "societies of control."²²¹ New technologies of body transformation are not so much a script for freedom but for subjection to the demand that active citizens engage in the constant work of adjusting and sculpting their somatic forms in response to the changing requirements of the practices of their mode of everyday life.²²² Biotechnical configurations work by demanding that the body conforms to their logics, logics that are frequently equivocal, painful, alien or confronting for the embodied subjects enrolled in them.²²³ One can see, says Nikolas Rose, the logic of normalization giving way to the logic of continual adjustment and limitless correction—a harsh destiny indeed for the physical self.²²⁴



¹See, for example, Ian Hacking's discussion of Frameworks of Classification in "Degeneracy, Criminal Behavior and Looping," in *Genetics and Criminal Behavior*, eds. David Wasserman and Robert Wachbroit (Cambridge: Cambridge University, 2001), 154-156 and idem, "Making Up People," in *Reconstructing Individualism*, eds. Thomas C. Heeler, Morton Sosna and David E. Wellbery (Stanford, Calif.: Stanford University Press, 1986), 222-236.

²Rom Harre, *Physical Being: A Theory for a Corporeal Psychology* (Oxford: Blackwell, 1991), 38, 63.

³George L. Hersey, *The Evolution of Allure: Sexual Selection from the Medici Venus to the Incredible Hulk* (Cambridge, Mass.: The MIT Press, 1996), 3.

⁴Richard Twine, "Physiognomy, Phrenology and the Temporality of the Body," *Body and Society* 8 (2002): 69. Inferiorizations of others, says Twine, along the lines of age, gender, class, race and species are complex and different, but there is a commonality in that they all draw upon a physiognomic marking of a body that makes unsubstantiated claims upon the subjectivity of the person in question, 82.

⁵Barbara Maria Stafford, *Body Criticism: Imaging the Unseen in Enlightenment Art and Medicine* (Cambridge, Mass.: The MIT Press, 1991), 16.

⁶Myths of beauty and ugliness, for example, have been especially important in laying the foundations for normalcy, especially through the powerful tradition in western art of representing the body in a preferred mode of envisioning the body—using a set of idealized conventions on how the body should

look. The systematization of the body by artists and critics suggests a linearity, a regularity, a completeness that belies the fragmentary way the body is constitutively experienced. Lennard J. Davis, *Enforcing Normalcy: Disability, Deafness and the Body* (London: Verso, 1995), 131-134.

⁷Stafford, *Body Criticism*.

⁸Davis, *Enforcing Normalcy*, 17. See also Mary Louise Adams, *The Trouble with Normal: Postwar Youth and the Making of Homosexuality* (Toronto: University of Toronto Press, 1997), 13. Adams points out "as a concept normalization draws our attention to discourses and practices that produce subjects who are normal, who live normally, and most importantly who find it hard to imagine anything different."

⁹We see, said Canguilhem, "how a technological norm gradually reflects an idea of society and its hierarchy of values, how a decision to normalize assumes the representation of a possible whole of correlative, complementary or compensatory decisions. . . . The normal is not a static or peaceful, but a dynamic and polemical concept. It is life itself and not medical judgment that makes the biological normal a concept of value and not a concept of statistical reality." Georges Canguilhem, *On the Normal and the Pathological* (1943; reprint ed., New York: Zone Books, 1991), 152, 43.

¹⁰Earnest Albert Hooton, *Young Man, You Are Normal: Findings from a Study of Students* (New York: G. P. Putnam's Sons, 1945).

¹¹Holism, in fact, extended far into the social and natural sciences, as well as into the wider culture of the Western world, elaborating tendencies that had been developing since the last decades of the nineteenth century. Christopher Lawrence and George Weisz, eds., *Greater than the Parts: Holism in Biomedicine, 1920-1950* (Oxford: Oxford University Press, 1998).

¹²Hooton, *Young Man*, 183.

¹³"Freudianity," Sheldon was to say in *Varieties of Delinquent Youth*, "offered an easy substitute for biological self-insight and an easy external excuse for failure, cutting people off from the chance to grow up." William H. Sheldon, S. S. Stevens, W. B. Tucker, *The Varieties of Delinquent Youth: An Introduction to Constitutional Psychology* (New York: Harper and Brothers Pubs., 1940), 857.

¹⁴Such as those of Dudley Allen Sargent, whose enthusiasm for the typical man, the symmetry of perfect normalcy, rivaled that of M. Adolphe Quetelet, Henry Pickering Bowditch, Edward Hitchcock, Jr. and others.

¹⁵Stephen H. Gatlin, "William H. Sheldon and the Culture of the Somatotype" (doctoral dissertation, Virginia Polytechnic and State University, 1997), 120. Sheldon was convinced that the somatotype offered the best available means of assessing a person's constitution which he further believed determined individual behavior. As a result, the constitution, and its measure, the somatotype remained unchanged throughout life—a "physical panel of personality." Sarah W. Tracy, "An Evolving Science of Man: The Transformation and Demise of American Constitutional Medicine, 1920-50," in Lawrence and Weisz, eds., *Greater than the Parts*, 177-179.

¹⁶Constitutional medicine's renaissance during the interwar years was led by William Osier's successor at Johns Hopkins University, Lewellys Barker, and by George Draper, Raymond Pearl and Charles Stockard. Their interest in the relationship between body and mind in sickness and health had lost impetus by the 1950s however, when Sheldon, Draper's successor, "preoccupied with the minutiae of anthropometric techniques and tainted by explicitly racist proclamations," became its most visible practitioner. Tracy, "An Evolving Science of Man," 162.

¹⁷In some respects, suggests Gatlin, Sheldon's somatotyping was essentially a subjective art despite its quantitative and objective scientific underpinnings. Gatlin, "William H. Sheldon," 121.

¹⁸William H. Schneider, unpublished letter from Schneider to Gatlin, 14 July 1995, discussed in Gatlin, "William H. Sheldon," 10-11; Robert A. Holt, "Delinquent Scientist?" *The Nation*, 25 November 1950. Holt was responding to *Varieties of Delinquent Youth* and complained to the Rockefeller Foundation that it was putting its money down a rat hole.

¹⁹This palace of bodies—a somatoplot was a triangular three-dimensional projection of the spatial relationships among the known somatotypes. At each of the three corners was a pure type, meso (171),

endo (711), ecto (117). At the center, the pinnacle of the dome was a 444. This triangle becomes for Sheldon a mystical country where he talks about northeasterners, southwesterners and so on who dwell at the poles and the center-meaning people in the middle. For a discussion of the mysticism of somatoplots, see Hersey, *The Evolution of Allure*, 97-99.

²⁰Sandra Harding, "After Absolute Neutrality: Expanding Science," in *Feminist Science Studies: A New Generation*, eds. Maralee Mayberry, Banu Subramaniam and Lisa H. Weasel (London: Routledge, 2001), 292.

²¹Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Allen and Unwin, 1977). See also *The Birth of the Clinic* (London: Tavistock, 1979); *The Archeology of Knowledge* (London: Tavistock, 1974) and *The History of Sexuality, Vol 1., An Introduction* (New York: Vintage Books, 1980). Shilling, for example, underscores the lack of agency in Foucault's views by pointing out that if the body is whatever discourse constructs it as then it can only be the discourse rather than the body that must be examined in Foucault's work. Chris Shilling, *The Body and Social Theory* (London: Sage, 1993), 79-81. Foucault overlooks the ways in which the body is cusped between culture and nature, states Eagleton. Terry Eagleton, *The Illusions of Postmodernism* (Oxford: Blackwell Pubs, 1996), 69-74.

²²David Kirk, "Schooling Bodies in New Times," in *Critical Postmodernism in Human Movement, Physical Education and Sport*, ed. Juan-Miguel Fernandez-Balboa (Albany: State University of New York Press, 1997), 39-64.

²³Twine, "Physiognomy," 82. In somewhat different ways than Foucault, Goffman attaches importance to social classifications in labeling and grading the body. While the body is not actually produced by social forces the meanings attributed to it are determined by "shared vocabularies of body idiom" which exert a strong influence on bodily presentation and self classification. Erving Goffman, *The Presentation of Self in Everyday Life* (Garden City, N.Y.: Doubleday, 1959), 35.

²⁴John Graham, *Lavater, Essays on Physiognomy: A Study in the History of Ideas* (Berne, Switzerland: Peter Lang, 1979), 35. Indeed, states Twine, the historical analysis of physiognomy is an exceptional project, for physiognomy still underlies many everyday assumptions about class, gender and race, and now gets technologized as it provides the underlying ethos for practices such as cosmetic surgery. Twine, "Physiognomy," 67.

²⁵Graham, *Lavater*, 36.

²⁶Hersey, *The Evolution of Allure*, 3.

²⁷Tucker and Lessa point out that the notion of temperament arose from Galen's theory of Krasis. They provide a table of constitution and disease studies over the centuries, 410. Temperament was described according to four basic patterns: choleric, melancholic, phlegmatic and sanguine. The choleric person had a short temper and was often envious and full of rage. Melancholic persons were depressed, withdrawn and full of worry. Phlegmatics were sluggish, cool and self-contained and the sanguine temperament was sturdy, hopeful and optimistic. William B. Tucker and William A. Lessa, "Man: A Constitutional Investigation, Part I," *The Quarterly Review of Biology* 15 (1940): 165-288; *ibid.*, "Part II," 411-455.

²⁸Christopher Rivers, *Face Value: Physiognomical Thought and the Legible Body in Marivalet, Lavater, Balzac, Gautier and Zola* (Madison: The University of Wisconsin Press, 1994), 20.

²⁹Shigehisa Kuriyama, *Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone Books, 1999), 142.

³⁰Le Brun here followed Giambattista della Porta's Renaissance treatise comparing human heads with those of animals. He was strongly influenced by Marin Cureau de La Chambre, the Cartesian physician to Louis IV who wrote *Art de Connoistre les Hommes* (1660) to show that idiosyncratic temperament and particularized anatomy or physiology shaped natural inclinations. See Stafford, *Body Criticism*, 85.

³¹Kathleen Adler and Marcia Pointon, eds., *The Body Imaged: The Human Form and Visual Culture Since the Renaissance* (Cambridge: Cambridge University Press, 1993), 7.

³²The first set of Johann Caspar Lavater's four-volume *Physiognomische Fragmente (Essays on Physiognomy)* was published in Germany in 1775. French and English editions followed. By 1810 there were

fifty-five editions. No book on physiognomy has had greater popular appeal than Lavater's voluminous *Essays on Physiognomy*—indeed no literate person in England or France could have escaped knowing the work directly or indirectly. The use of book clubs in England may well have helped this widespread distribution. Graham, *Lavater*, 11.

³³This agenda, notes Rivers (*Face Value*, 69), implied that by learning to evaluate a person's appearance one could learn to love him better—a rather unlikely scenario and one aimed at men not women. According to Lavater, physiognomy was less kind to a woman who was in any case characterized more by feeling than thinking. His study, "A Word on the Physiognomical Relations of the Sexes," was graphically clear:

Man is the most firm—woman the most flexible
 Man is the straightest—woman the most bending
 Man stands steadfast—woman gently trips
 Man is serious—woman is gay
 Man is the tallest and broadest—woman smooth and soft
 Man has most complex lines—woman most concave
 Man has more straight lines—woman most curved
 Man is most angular—woman most round.

John Caspar Lavater, *Essays on Physiognomy*, trans. T. Holcroft, 9th ed. (1789; reprint ed., London: William Tegg, 1855), 400-403. See also Jenny Bourne Taylor and Sally Shuttleworth, eds., *Embodied Selves: An Anthology of Psychology Texts, 1830-1890* (Oxford: Clarendon Press, 1998), 8-18.

³⁴Graham, *Lavater*, 45.

³⁵Hersey, *The Evolution of Allure*, 70.

³⁶Graham, *Lavater*, 83; Galton, Darwin's celebrated cousin, sought with this and other methods to create a beauty map of the British Isles. Stephen Jay Gould, *The Mismeasure of Man* (New York: W. W. Norton and Co., 1996), 108.

³⁷Stafford, *Body Criticism*, 103.

³⁸Hersey, *The Evolution of Allure*, 87.

³⁹Jaqueline Urla and Alan C. Swedlund, "The Anthropology of Barbie: Unsettling Ideals of the Feminine Body in Popular Culture," in *Feminism and the Body*, ed. Londa Schiebinger (Oxford: Oxford University Press, 2000), 407-408.

⁴⁰Pierre Camper, *Dissertation Physique, 1791*, discussed in Stafford, *Body Criticism*, 111-115.

⁴¹The nuts and bolts of phrenological beliefs are simply put, states Gieryn: "First the brain is the physical embodiment of the mind. Second, the brain is made up of separate organs, each corresponding to distinct mental faculties. Third, the size of a particular organ is a measure of the power of the associated mental faculty. Fourth, the relative size of organs can be read in a craniological examination from the pattern of bumps on a person's skull. . . . Fifth, behavioral and dispositional differences are determined at birth by the relative size of the mental organs, but through phrenological examination and exercise of various faculties anyone can discover their own capabilities or limits and exploit them differently." Thomas Gieryn, *Cultural Boundaries of Science* (Chicago: University of Chicago Press, 1999), 117.

⁴²George Combes's *Of the Constitution of Man and its Relation to External Objects* (1828) was one of the most popular books of the second third of the nineteenth century in both Britain and America where it ran to twenty editions (far more, for example, than Darwin's *Origin of the Species*). Roger Cooter, *The Cultural Meaning of Popular Science: Phrenology and the Organization of Consent in 19th Century Britain* (Cambridge: Cambridge University Press, 1984), 119-120.

⁴³Cooter further suggests that phrenology naturalized the emergent structures and relations of industrial capitalism by casting them into the descriptive and explanatory language of mental organization and mental function. *The Cultural Meaning of Popular Science*, 113.

⁴⁴Sander Gilman, *Sexuality: An Illustrated History* (Chichester, U.K.: John Wiley, 1989).

⁴⁵Nicole Hahn Rafter, *Creating Born Criminals* (Urbana: University of Illinois Press, 1997), 77; Steven Shapin, "The Politics of Observation: Cerebral Anatomy and Social Interests in the Edinburgh

Phrenology Disputes," in *On the Margins of Science: The Social Construction of Rejected Knowledge*, ed. Roy Wallis (Keele, U.K.: University of Keele Press, 1979), 139-178.

⁴⁶Aping phrenology, where specific parts of the brain and skull had been assigned particular character traits, Broca further identified areas of intelligence in the front or back of the head. His exhaustive measurements showed that the front portion contained higher intelligence—that not surprisingly white males were the ones who had more in front. For a discussion of the derivations of phrenology, see Stafford, *Body Criticism*, 118-120. Stephen Jay Gould draws our attention to Walter Freeman, dean of American lobotomists, who admitted late in his career that women responded better to the operation than men, "Negroes" better than "whites." In other words, Freeman would evaluate the results to conclude that people who in his estimation had less up front in the first place did not miss it so much when it was removed. Gould, *The Mismeasure of Man*, 135. It is also the case, however, that Broca was able to detect the location of articulate speech in a specific part of the brain, advancing neurophysiological research in the nineteenth century. Cooter, *The Cultural Meaning of Popular Science*, 21.

⁴⁷Gould, *The Mismeasure of Man*, 114. "Far from the effect of these discourses being vacuumed away as the twentieth century progressed, important tenets of physiognomic discourses remain entrenched today." Twine, "Physiognomy," 81.

⁴⁸Somerset Maugham, quoted in Wendell W. Weber, *Pharmacogenetics* (New York: Oxford University Press, 1997).

⁴⁹We do not know, stated Francis Galton, whether the general physique of the nation remains year after year at the same level or whether it is advancing or deteriorating in some respects. Francis Galton, "Proposal to Apply for Anthropological Statistics from Schools," *Journal of the Anthropological Institute* 3 (1873-1874): 308-311.

⁵⁰For example, in public health planning, Rudolph Virchow surveyed all the males in the German state of Baden including skull size, and hair and eye color.

⁵¹Otto Ammon, *Der Darwinismus Gegen Die Sozialdemokratie* (Baden: n.p., 1891). See also Paul Weindling, *Health, Race and German Politics Between National Unification and Nazism, 1870-1945* (Cambridge: Cambridge University Press, 1989), 100.

⁵²M. Adolphe Quetelet, *A Treatise of Man and the Development of His Faculties* (Edinburgh: William and Robert Chambers, 1842; reprinted in *Comparative Statistics in the 19th Century* [Germany: Gregg International Pubs Ltd., 1973]).

⁵³Theodore M. Porter, *The Rise of Statistical Thinking, 1820-1900* (Princeton, N.J.: Princeton University Press, 1986), 53. It also embodied the ideal of moderation, a man who by taking on the values of a middle way of life became an exemplar of the middle classes. Davis, *Enforcing Normalcy*, 27.

⁵⁴Quetelet, *A Treatise of Man*, 100.

⁵⁵For Galton, eugenics designated the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally. Francis Galton, *Inquiries into Human Faculty* (London: Macmillan and Co., 1883), 44.

⁵⁶See Diane B. Paul, *Controlling Human Heredity, 1865 to the Present* (Atlantic Highlands, N.J.: Humanities Press, 1995), 21.

⁵⁷Francis Galton's *Kantsaywhere*, discussed in Karl Pearson, *The Life, Letters and Labours of Francis Galton* (Cambridge: Cambridge University Press, 1914-30).

⁵⁸Francis Galton, *Hereditary Genius. An Inquiry into its Laws and Consequences* (1869; reprint ed., Cleveland: Meridian Books, 1962).

⁵⁹Idem, "Composite Portraits," *Nature* 18 (1878): 97-100.

⁶⁰Hersey, *The Evolution of Allure*, 104.

⁶¹Gould, *The Mismeasure of Man*, 108; Francis Galton, *Memories of My Life* (London: Methuen, 1909).

⁶²Pearson, *The Life, Letters and Labours*.

⁶³Hacking, "Degeneracy," 148.

⁶⁴Gould, *The Mismeasure of Man*, 166.

⁶⁵Hersey, *The Evolution of Allure*, 113.

⁶⁶Robert A Nye, "Hereditry or Milieu: The Foundations of Modern European Criminological Theory," *ISIS (Journal of the History of Science Society)* 67 (1976): 335.

⁶⁷In a provocative study, Anthea Callen suggests that some of Degas' paintings of female dancers were attempts to express these Lombrosian characteristics. Anthea Callen, *The Spectacular Body: Science, Method and Meaning in the Work of Degas* (New Haven, Conn.: Yale University Press, 1995).

⁶⁸Cesare Lombroso, *Crime: Its Causes and its Remedies* (Boston: Little Brown, 1911), 438-439.

⁶⁹It should also be noted, however, as Stephen Jay Gould points out that legal reforms based on Lombroso's views on differential treatment of [observably] "born" and "occasional" criminals were until recently regarded as enlightened, and informed our modern apparatus of parole, early release and indeterminate sentences. In today's society Lombroso's born criminal with his apish stigmata too often means, albeit more subtly, the defiant, the poor, and the black. Gould, *The Mismeasure of Man*, 171.

⁷⁰James M. Tanner, *A History of the Study of Human Growth* (Cambridge: Cambridge University Press, 1981), 185. See also David Garland, ed., *Punishment and Welfare: A History of Penal Strategies* (Aldershot, U.K.: Gower Pub Co., 1985), 130-160.

⁷¹Nikolas Rose, "The Neurochemical Self and Its Anomalies," in *Risk and Morality*, ed. Richard Ericson (Toronto: University of Toronto Press, 2003), 407-437.

⁷²Edward H. Clarke, *Sex in Education, or a Fair Chance for Girls* (Boston: James R. Osgood, 1873). For a full discussion of this controversy see Patricia Vertinsky, *The Eternally Wounded Woman: Women, Exercise and Doctors in the Late Nineteenth Century* (Urbana: University of Illinois Press, 1994).

⁷³Tanner, *Human Growth*, 198; Dudley Allen Sargent, "The Physical Proportions of the Typical Man," *Scribner's Magazine* 2 (1887): 3-17; idem, "The Physical Development of Women," *Scribner's Magazine* 5 (1889): 172-184; idem, "The Physical Characteristics of the Athlete," *Scribner's Magazine* 2 (1887): 540-561. Martha Verbrugge points out that Sargent's definition and calculation of the "normal," the 50th percentile, for each test were ambiguous for he treated it like a true median. Other times, he called it the "typical" or average result, suggesting that it represented the mean. Yet he also described it as the mode. She suggests that Sargent's understanding of the vocabulary and techniques of elementary statistics was deficient. Martha H. Verbrugge, *Able-Bodied Womanhood: Personal Health and Social Change in Nineteenth Century Boston* (Oxford: Oxford University Press, 1988), 235-236n157.

⁷⁴Sargent, "The Physical Proportions," 17.

⁷⁵Ibid., 16.

⁷⁶He also awarded prizes for perfect symmetry to men and women who came close to his ideal human figure. "The Human Form Divine," *Boston Sunday Herald*, 7 September 1890.

⁷⁷Sargent, "The Physical Characteristics," 547.

⁷⁸Idem, "The Physical Proportions," 17.

⁷⁹"Ladies and Gentlemen, herein lies the source of failure of the old methods of study and reform of the criminal class—their bodies were forgotten." G. Frank Lydston, "Some General Considerations of Criminology," in *National Prison Association, Proceedings*, 1896, 347.

⁸⁰Charles Goring, *The English Convict: A Statistical Study* (1913; reprint ed., Montclair, N.J.: Patterson Smith, 1972), 22. Sargent would have been familiar with the program at Elmira Reformatory in New York State where a physical culture experiment became the institution's primary method of reformation, with a marble-faced gymnasium, pool, Turkish baths, massage rooms, and other scientific apparatus to "improve the physical tissue of the defectives and dullards." Elmira Reformatory, Annual Report, 1889, p. 19.

⁸¹Davis, *Enforcing Normalcy*, 157. The assumption of normalcy, the bell-shaped curve, the Gaussian distribution, points out Hacking, is enormously powerful as a mathematical tool for analyzing the tendency to criminal behavior. Hacking, "Degeneracy," 149.

⁸²George Draper, *Trustee's Confidential Bulletin*, April 1939, 2-5, in Folder 931, 1.1, ser 200, Box 77, Rockefeller Archives, New York.

⁸³"The eugenic view of society was fundamentally individualistic and atomistic: it was to the individual with his or her strengths and weaknesses that the eugenicist ultimately looked." D. Mckenzie, *Statistics in Britain, 1835-1930* (Edinburgh: Edinburgh Press, 1981), 33.

⁸⁴Garland E. Allen, "The Eugenics Record Office at Cold Spring Harbor, 1910-1940: An Essay in Institutional History," *OSIRIS*, 2nd series, 2 (1986): 225-264; Robert N. Proctor, "Eugenics among the Social Sciences: Hereditarian Thought in Germany and the United States," in *The Estate of Social Knowledge*, eds. JoAnne Brown and David K. Van Keuren (Baltimore, Md.: The Johns Hopkins University Press, 1991), 175-208, 178.

⁸⁵Raymond Pearl, one of America's leading biologists, claimed in 1926 that "eugenics was a mingled mess of ill-grounded and uncritical sociology, economics, anthropology and politics, full of emotional appeals to class and race prejudice solemnly put forth as science." Raymond Pearl, "The Biology of Superiority," *American Mercury* 12 (1927): 260.

⁸⁶In their comprehensive study of the human constitution, Tucker and Lessa defined constitution as "the sum total of the morphological, physiological and psychological characters of an individual with additional variables of race, sex and age all in large part determined by heredity, but influenced in varying degrees by environmental factors, all of which, when integrated, and expressed as a single biological entity, fluctuate in varying degrees over a wide range of 'normality' and occasionally cross an arbitrary boundary into abnormality or pathology." Tucker and Lessa, "Man, A Constitutional Investigation," 288.

⁸⁷See, for example, Walter Cannon, *The Wisdom of the Body* (New York: W. W. Norton, 1932). Also of importance was L. J. Henderson who helped found the Fatigue Laboratory at Harvard Business School. See David B. Dill, "The Harvard Fatigue Laboratory: Its Development, Contributions and Demise," *Circulation Research* (1967): 20-21, March Supp-1, 1, 161-170. See also Sarah W. Tracy, "George Draper and American Constitutional Medicine, 1916-1946: Reinventing the Sick Man," *Bulletin of the History of Medicine* 66 (1992): 53-89.

⁸⁸Kretschmer in turn had followed a line of French typologists, especially the work of Rostan (who in 1828 had described three types of physical constitution as type digestif, type musculaire and type cerebral). L. Rostan, *Cours Elementaire d'Hygiene*. 2 vols, (Paris: n.p., 1828). See Ernst Kretschmer, *Physique and Character: An Investigation of the Nature of Constitution and of the Theory of Temperament*. (1921; reprint ed., New York: Harcourt, Brace and Company, 1936).

⁸⁹These were expounded, among other places, in Sheldon's *Varieties of Delinquent Youth*, 820-891.

⁹⁰One might notice that Kretschmer's description of the athletic woman was quite different: "[T]he bodily constitution of the athletic woman gives us on an average more the impression of abnormality, or extreme over-development, of unpleasant stolidity and massiveness than does that of the athletic male— . . . our ideal of female beauty is far out-stepped by the athletic female." Kretschmer, *Physique and Character*, 29.

⁹¹Kretschmer also added a term for the mixtures of types—dysplastic.

⁹²Kretschmer, *Physique and Character*, 20.

⁹³John Hoberman points out that Kretschmer's athletic type was a constitutional type rather than a sportive one, intended as an empirically valid scientific construction not as a modern version of the German hero. He certainly had no interest in improving physical performance. John Hoberman, *Mortal Engines: The Science of Performance and the Dehumanization of Sport* (New York: The Free Press, 1992), 178.

⁹⁴See William H. Sheldon, with the collaboration of S. S. Stevens and W. B. Tucker, *The Varieties of Human Physique: An Introduction to Constitutional Psychology* (New York: Harper and Brothers, 1940), 24.

⁹⁵F. W. Benecke, *Die Anatomische Grundlagen der konstitutionsanomalien des Menschen* (Marburg: n.p., 1878).

⁹⁶Tucker and Lessa point out that the classifications of the Italian school of Viola and Pende restored in some ways the four-fold classifications of Hippocratic medicine and its humoral basis. Tucker and Lessa, "Man, A Constitutional Investigation," 270.

⁹⁷Sante Naccarati, "The Morphological Aspect of Intelligence," *Archives of Psychology* 45 (1921): 1-44.

⁹⁸From the endoderm the functional element of the digestive system was derived; the mesoderm indicated the dominant presence of massive muscles and bones; and from the ectoderm was derived the surface area, skin, nerves and sensory organs.

⁹⁹Tyra Arraj and James Arraj, *Tracking the Elusive Human, Part 2, Vol. 2* (Chiloquin, Calif.: Inner Growth Books, 1988). A recent short biography of Sheldon's life by Margaret Alic in the *Gale Encyclopedia of Psychology*, 2nd ed. (Detroit: Gale Group, 2001) is both uncritical and inaccurate.

¹⁰⁰According to his friend Richard Osborne, Sheldon said that these journals were the work of prosaic minds bent on suppressing originality. Richard Osborne, "William H. Sheldon," *International Encyclopedia of the Social Sciences* (New York: Macmillan, 1981), 716.

¹⁰¹Tracy, "Evolving Science," 176.

¹⁰²Gadin, "William H. Sheldon," 214-218.

¹⁰³James Tanner in a review of J. E. Lindsay Carter and Barbara Honeyman Heath, *Somatotyping—Development and Applications* (Cambridge: Cambridge University Press, 1990). Whether or not his unwavering attention to body and temperament was to some extent psycho-biographical is another question, says Gieryn, *Cultural Boundaries of Science*, 149, 159.

¹⁰⁴*A Forgotten Giant of Psychology* is the title of Arraj's complementary video about Sheldon's life and work.

¹⁰⁵Charles Benedict Davenport, the most active and prominent of American eugenicists was equally and publicly proud of his 300-year-old New England ancestry. Morris Steggarda, "Charles Benedict Davenport, 1866-1944: The Man and His Contributions to Physical Anthropology," *American Journal of Physical Anthropology* 2 (1944): 167.

¹⁰⁶Sheldon talks about his first marriage in a letter to Dorothy Elmhirst, 8 April 1936. I married, he said against the violent opposition of her parents who were Prussian aristocrats, but I failed to carry the situation. Dartington Hall Trust Archives, Dartington Hall, Totnes, Devon, U.K.

¹⁰⁷For a further discussion of his residence at Dartington Hall see Gatlin, "William H. Sheldon," 88-90.

¹⁰⁸Letter from W. H. Sheldon, Zurich, to Dorothy Elmhirst at Dartington Hall, 17 February 1935, Dartington Archives.

¹⁰⁹For example, see *Time Must Have a Stop, Ends and Means, The Genius and the Goddess* and his *Utopia, Island*. L.G.A. Calcraft, "Aldous Huxley and the Sheldonian Hypothesis," *Annals of Science* 37 (1980): 657-671.

¹¹⁰In his article, Huxley stated, "How many of even the best of psychologists talk, write, think and act as though the human body, with its innate constitution and its acquired habits were something that, in an analysis of mental states could safely be ignored. And even when they do admit, rather reluctantly that the mind always trails its carcass behind it they have little or nothing to tell us about the ways in which mental and physical characteristics are related." Aldous Huxley, "Who Are You?" *Harper's Magazine* 189 (1944): 512.

¹¹¹Ibid., 516.

¹¹²Calcraft, "Aldous Huxley," 666.

¹¹³Charles M. Holmes, *Aldous Huxley and the Way to Reality* (Bloomington: Indiana University Press, 1970), 219. Even Huxley, however, did not class himself among the "rabid eugenicists who refused to admit any environmental influences on the body." Huxley, "Who Are You?" 512-522.

¹¹⁴Somatotype photos were based on the tradition of posture pictures common in many P.E. programs in the United States. Carter and Heath, *Somatotyping*, 6.

¹¹⁵Sheldon wrote to his friend Gerald Heard about his devastation over his girlfriend's marriage to another, "[he was] a young fellow of extraordinary decency, as I discovered somewhat to my own shame a little later." Letter, W. H. Sheldon to Gerald Heard, 19 December 1936, Dartington Archives.

¹¹⁶Barbara Honeyman Heath went on to an independent career doing somatotyping for anthropologists and physical educators.

¹¹⁷In a final blow, Heath used Sheldon's own somatotyping terms to discuss Sheldon's right-wing views and lack of empathy, accusing him of building up a persona that was inconsistent with his actual physique. Carter and Heath, *Somatotyping*, 16. For a discussion of these incidents see Gatlin, "William H. Sheldon," 198-202, 218-20.

¹¹⁸Carter and Heath, *Somatotyping*, 7.

¹¹⁹Sheldon's work at the Inn was finally completed and published in 1982 by Emil M. Hartl, E. Monnelly and R. Elderkin, *Physique and Delinquent Behavior: A Thirty Year Follow-Up of W. H. Sheldon's Varieties of Delinquent Youth* (New York: Academic Press, 1982). Ron Rosenbaum sought out 84-year-old Roland Elderkin recently in Columbus, Ohio, when he was looking for the lost boxes of Sheldon's somatotype photos to write an exposé on the fate of the Ivy League Posture Photos studies. Ron Rosenbaum, "The Great Ivy League Nude Posture Scandal," *New York Times Magazine*, 15 January 1995, sec 6, pp. 26-31, 55-56.

¹²⁰The findings from the study are listed in Carter and Heath, *Somatotyping*, 481; Sheldon, *Varieties of Delinquent Youth*.

¹²¹Sheldon later changed the name to the Constitutional Laboratory.

¹²²For a discussion see Arraj and Arraj, *Tracking the Elusive Human*, chap. 7.

¹²³Later Barbara Honeyman Heath and most recently Barbara Honeyman Heath Poll.

¹²⁴Gatlin cites a memo from Robert Morison at the Rockefeller Foundation, 29 May 1951, discussing her "many enemies" at Portland and her determination to remove Dr. Joseph F. Griggs from the Oregon Constitution Project. The funding of research in the medical, biological and social sciences by Foundations was part of the new "progressive" view of approaching social problems rationally and seeking long-range solutions. Garland E. Allen, "The Eugenics Record Office," 264; Memo, Robert Morison, 29 May 1951, Rockefeller Archives.

¹²⁵For example, Carl G. Hempel, *Aspects of Scientific Explanation* (New York: The Free Press, 1970), 143-171.

¹²⁶Robert Coughlan, "What Manner of Morph Are You?" *Life*, 25 June 1951, pp. 68, 79.

¹²⁷Norman Dain, "Psychiatry and Anti-Psychiatry in the United States," in *Discovering the History of Psychiatry*, eds. Mark S. Micale and Roy Porter (Oxford: Oxford University Press, 1994), 415-444.

¹²⁸"The price we have to pay for the delinquency of the past," he said "will be either the fury of war or a universal voluntary moratorium on reproduction." Sheldon, *Varieties of Delinquent Youth*, 879.

¹²⁹Even at the time Earnest Hooton recognized the dangers of his own research in this area: "The anthropologist may work around the kitchen but has to stay out of the bedroom—a vestal virginity which has sterilized human biology." Earnest Albert Hooton, *Crime and the Man* (1939; reprint ed., New York: Greenwood Press Pubs, 1968), 4.

¹³⁰As Gatlin has pointed out, in many respects Sheldon's studies in human constitution really possessed the same value base as German medicine and psychology during the first decades of the twentieth century. Proctor notes that in fact many American eugenicists supported Nazi racial hygiene policies right up to the Second World War and, in 1938, the American Eugenics Society voted to endorse the Nazi sterilization program. After the war, however, most eugenicists rapidly disassociated themselves from the racial prejudice and social class biases of earlier times and concerns for "genetic" health took new forms. Proctor, "Eugenics Among the Social Sciences," 187, 192.

¹³¹Ron Elderkin, Sheldon's life-long supporter, said in an interview with Ron Rosenbaum in 1995, that when Sheldon died he was a lonely old man who did nothing in his last years but sit in his room and read detective stories. Rosenbaum, "The Great Ivy," 400.

¹³²William H. Sheldon with the collaboration of C. Wesley Dupertuis and Eugene McDermott, *Atlas of Men: A Guide for Somatotyping the Adult Male at All Ages* (New York: Harper and Brothers, 1954), 13.

¹³³See Tucker and Lessa, "Man: A Constitutional Investigation," 77n4.

¹³⁴Sheldon, *The Varieties of Human Physique*.

¹³⁵Sheldon based his classification system upon studies of several thousand "normal" and psychotic individuals. See Tucker and Lessa, "Man: A Constitutional Investigation." For another view of Sheldon's system see Joseph Lyons, *Ecology of the Body: Styles of Behavior in Human Life* (Durham, N.C.: Duke University Press, 1987), 8-13.

¹³⁶Sheldon further divided the body into five zones, each with its own somatotype code: i) head, face and neck; ii) thorax; iii) arms, shoulders and head; iv) abdominal trunk; v) legs and feet. If one region of the body differed from another, against the norm, then dysplasia was present, and Sheldon could thus calculate a dysplastic quotient for the whole body and the alignment of its parts. See Sheldon, *Varieties of Human Physique*, 47.

¹³⁷William H. Sheldon and S. S. Stevens, *The Varieties of Temperament: A Psychology of Constitutional Differences* (New York: Harper and Brothers, 1942).

¹³⁸Sheldon, *Varieties of Delinquent Youth*.

¹³⁹Idem, *Varieties of Temperament*, 4.

¹⁴⁰See Arraj and Arraj, *Tracking the Elusive Human*, 110-111, for the full table of these temperaments.

¹⁴¹Rosenbaum, "The Great Ivy," 31.

¹⁴²Sheldon, *Atlas of Men*, 3.

¹⁴³Ibid., 67.

¹⁴⁴Ibid., 252.

¹⁴⁵Ibid., 335. Sheldon was no doubt influenced by the Greek tradition to use animal physiologies as explanations for human types. Magli refers to these as "zoological physiognomies." Patrizia Magli, "The Face and the Soul," in M. Feher, et al., *Fragments for a History of the Human Body, Part Two* (London: MIT Press, 1989), 97-98.

¹⁴⁶Sheldon, *Atlas of Men*, 142, 147, 190.

¹⁴⁷For an excellent bibliography of many of these studies, see Carter and Heath, *Somatotyping*.

¹⁴⁸Carter and Heath, *Somatotyping*, 351.

¹⁴⁹Endomorph—the relative fatness of the physique and the first number in the somatotype; Mesomorph—the musculoskeletal robustness relative to the height of a physique, the second number in the somatotype; Ectomorph—the relative linearity of slenderness of the physique and the third number in the somatotype.

¹⁵⁰Including his eugenic and constitutional beliefs, and the ethnic, gender and racial prejudices built into his classifications of the t-component (aesthetic pleasingness of a physique), dysplasia—(ill-proportioned body), hirsutism (hairiness) and skin texture—thoroughbredness; and secondary sex characteristics—gynandromorphy (i.e., the degree of prominence of feminine characteristics in a male body or vice versa).

¹⁵¹A **2-2-5**, for example, was held up as the most likely physique to excel at university. Mental illness peaked among the more muscular, ectomorphic boys were more likely to wet their beds, occupational selection was related to physique, **5-5-1** women were more likely to get breast cancer, and so on.

¹⁵²Charles McCloy, "Forgotten Objectives of Physical Education," *Journal of Health and Physical Education* 8 (1937): 458-461.

¹⁵³Thomas Kirk Cureton, "Body Build as a Framework of Reference for Interpreting Physical Fitness and Athletic Performance," Springfield College Studies, *Supplement to the Research Quarterly* 12 (1941): 301.

¹⁵⁴Proctor, "Eugenics Among the Social Sciences," 81. See also Steven Selden, *Inheriting Shame: The Story of Eugenics and Racism in America* (New York: Teachers College Press, 1999). As James Tanner put it, even in the 60s "we all, I think are searching for some effective way to contribute to the improvement of human quality, to become positive eugenicists as well as merely negative ones." James M. Tanner, "Galtonian Eugenics and the Study of Growth," *The Eugenics Review* 58 (1966): 134.

¹⁵⁵The main messages of eugenics were evident throughout the various professional journals of the field and physical educators rather willingly associated themselves with "objective" science and medical expertise related to social efficiency, fitness and better breeding.

¹⁵⁶Barbara Honeyman Heath Poll, Regional Oral History Office, Bancroft Library, University of California at Berkeley.

¹⁵⁷Cureton, "Body Build," 301-330.

¹⁵⁸Idem, *Physical Fitness Appraisal and Guidance* (St. Louis: C. V. Mosby, 1947), 69.

¹⁵⁹Idem, "Body Build," 302.

¹⁶⁰Harrison H. Clarke, *The Application of Measurement to Health and Physical Education* (New York: Prentice Hall, 1945), 108.

¹⁶¹Charles H. McCloy, "Anthropometry in the Service of the Individual," *Journal of Health and Physical Education* 5 (1934): 7. McCloy and associates examined the effect of nutrition on growth at the Iowa Child Welfare Research Station—see Tucker and Lessa, "Man: A Constitutional Investigation," 195-196, and Tanner, *A History of the Study of Human Growth*, 305-306.

¹⁶²See Carter and Heath for a full review of the many projects following from Sheldon's work, 23-26. See also Frank Sills, "A Factor Analysis of Somatotypes and their Relationship to Achievement in Motor Skills," *Research Quarterly* 21 (1950): 424-437; Carl Wilgoose and Millard Rogers, "Relationship of Somatotype to Physical Fitness," *Journal of Educational Research* 42 (1949): 701; Carl Wilgoose, "Educational Implications of Constitution Psychology," *Education* 73 (1952): 1-8; Frank Sills, "Anthropometry in Relation to Physical Education," in *Science and Medicine of Exercise and Sports*, ed. Warren R. Johnson (New York: Harper and Brothers, 1960). Women physical educators also enthusiastically studied somatotyping. For example, Adelaide K. Bullen and Harriet L. Hardy, "Analysis of Bodybuild Photographs of 175 College Women," *Journal of Physical Anthropology* 4 (1946): 37-68; N. M. Jorgensen and S. Lucille Hatlestad, "The Determination and Measurement of Body Build in Men and Women College Students," *Research Quarterly* 11 (1940): 60-77.

A more extensive analysis of the application of Somatotyping by physical educators in schools and colleges is a subject to be explored further in a future paper. Of particular interest is the alacrity with which physical educators "bought into" scientific and other expert discourses and with what consequences for the profession.

¹⁶³Carter and Heath, *Somatotyping*, 11. The practice of taking posture photos of college freshmen was adopted at many elite colleges and universities in the late nineteenth century and continued at some places until the 1970s. At the Seven Sisters women's colleges the ritual was billed as an effort to promote hygiene through better posture.

¹⁶⁴This study was fully documented by Hooton in *Young Man, You are Normal*. (There was also a related smoking and masculinity project based on the Yale subjects in the study.)

¹⁶⁵Sheldon discusses these goals in *Varieties of Delinquent Youth*.

¹⁶⁶Carter and Heath, *Somatotyping*, discuss this letter to Smithells at the University of Otago in New Zealand, 325. Smithells had visited Sheldon at the Constitution Laboratory.

¹⁶⁷Tracy, "An Evolving Science of Man," 171.

¹⁶⁸When Sheldon was invited by the American Academy of Physical Education to give the R. Tait McKenzie lecture in 1952, he offered the association a "good project." Noting that he had observed a tendency for long-lived men in the American population to be short across their lifespan, he called on physical educators to use somatotypes and their laboratories to find out why this was so. Meanwhile, he suggested, pediatricians could be asked to hold back babies during the early years by judicious under feeding to prevent early overgrowth. "Unless physical educators contrive to do it," he said, "it will not be done in our century." William H. Sheldon, "Frontiers in Human Physique Studies," *American Academy of Physical Education, Professional Contributions*, No. 2 (1952): 67-75.

¹⁶⁹"Most of us will agree," said Bovard *et al.*, in 1949, "that we are not looking for inherent strength, size or symmetry but the ability to use muscle power for performance and skill in handling daily routines." A section on the uses of Sheldon's somatotypes, however, had a prominent place in the anthropo-

metric section. *Tests and Measurements in Physical Education*, 21. For a discussion of models of the body and athletic performance see John Hoberman, *Mortal Engines*.

¹⁷⁰The question remained for constitutionalists, however, that even though bodily indices and proportions could be shown to change with exercise and nutrition, it did not necessarily follow that the fundamental kind of morphological make up changed (since the indices were not altogether adequate measurements of body build). Tucker and Lessa, "Man, A Constitutional Investigation," 271-273.

¹⁷¹Barbara Honeyman Heath Poll, Berkeley Oral History Project, 2002.

¹⁷²Franklin M. Henry, "Physical Education, An Academic Discipline," *Journal of Health, Physical Education and Recreation* 35 (1964): 32-38, 69. Anthropologist E. E. Hunt pointed to the same issue in relation to constitutional medicine when he remarked in 1952 that "constitution is a point of view rather than a separate discipline." Edward E. Hunt, "Human Constitution: An Appraisal," *American Journal of Physical Anthropology* 10 (1952): 55.

¹⁷³Glenn Olds, "Foreword," *Research Quarterly* 35 (1964): 356.

¹⁷⁴Personal communication with a former student of Cureton, February 2002, notes in possession of author.

¹⁷⁵Urla and Swedlund, "The Anthropometry of Barbie," 414. Robert N. Proctor, *The Nazi War on Cancer* (Princeton, N.J.: Princeton University Press, 1999) provides a useful perspective on the complexities of science undertaken by people with rotten ethical ideals and the kind of continuities that bind the past to the present.

¹⁷⁶Huxley, quoting Sheldon in "Who Are You?" 521. In the same article, Huxley—no doubt reflecting his own early difficulties at school—roundly condemns educators who encouraged boys, whatever their hereditary make-up, to develop athletic ambitions: "By doing this, educators condemn large numbers of pupils to unnecessary disappointment and frustration, plant the seed of neurosis among the unsuccessful and foster a conspicuous bumptiousness and self-conceit in the extreme mesomorphic. Boys need the simple truth, which is that few can excel in sports." Huxley, "Who Are You?" 515.

¹⁷⁷Gieryn, *Cultural Boundaries of Science*.

¹⁷⁸Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (London: Routledge, 1990).

¹⁷⁹David Harvey, *Spaces of Hope* (Berkeley: University of California Press, 2000), 101.

¹⁸⁰D.F. Roberts in Carter and Heath, *Somatotyping*, ix.

¹⁸¹Ron Rosenbaum, "The Great Ivy," 40, 56.

¹⁸²David Yosifon and Peter N. Stearns, "The Rise and Fall of American Posture," *American Historical Review* 103 (1998): 1057-1095.

¹⁸³See numerous articles in *American Physical Education Review*, which began in 1898 and became a leading center for expressions of concern about posture.

¹⁸⁴The need was evident. By 1932 the White House Conference on Child Health and Protection was declaring that 75% of the youth of the United States were in dire need of posture correction. *Body Mechanics*, A Publication of the White House Conference on Child Health and Protection (New York: Century Co., 1932). Among the many physical education publications on posture were K. G. Hansson, "Body Mechanics and Posture," *Journal of Health and Physical Education* 16 (1945): 549-587; Armin Klein, "What Price Posture?" *Journal of Health and Physical Education* 3 (1932): 14-15, 54-55; Ellen Kelly, "Taking Posture Pictures," *Journal of Health and Physical Education* 17 (1946): 464-465, 504-505; Charlotte G. MacEwan and Eugene C. Howe, "An Effective Method of Grading Posture," *Research Quarterly* 3 (1932): 144-157; G.G. Deaver, "Posture and Its Relation to Mental and Physical Health," *Research Quarterly* 4 (1933): 221-228.

¹⁸⁵John F. Bovard, Frederick W. Cozens, and E. Patricia Hagman, *Tests and Measurements in Physical Education*, 3rd ed. (Philadelphia: W.B. Saunders, 1949).

¹⁸⁶Vertinsky, *The Eternally Wounded Woman*; Thomas K. Cureton, "Bodily Posture as an Indicator of Fitness," *Supplement to the Research Quarterly* 12 (1941): 360.

¹⁸⁷Yosifon and Stearns, "The Rise and Fall," 1075-1076.

¹⁸⁸*Ibid.*, 1083.

¹⁸⁹Cureton, "Bodily Posture," 349.

¹⁹⁰William H. Sheldon, *Psychology and the Promethean Will* (New York: Harper and Brothers, 1936).

¹⁹¹Gatlin, "William H. Sheldon," 15.

¹⁹²To maintain authority, science must maintain a culture of consensus. Gieryn, *Cultural Boundaries of Science*, ix-xii.

¹⁹³Sheldon, quoted by Richard W. Parnell, *Behavior and Physique: An Introduction to Practical and Applied Somatotypy* (London: Edward Arnold Pubs Ltd., 1958), 5.

¹⁹⁴Tracy, "An Evolving Science," 163; William H. Sheldon, R. Tait McKenzie Lecture, 74. He claimed, "The gift of playing the piano of the somatotypes was the great inward joy of the naturalist."

¹⁹⁵Gardner Lindzey, "Behavior and Morphological Variation," in *Genetic Diversity of Human Behavior*, ed. J. N. Spuhler (Chicago: Aldine Publishing Co., 1969), 227-240.

¹⁹⁶Hilary Rose, "My Enemy's Enemy Is—Only Perhaps—My Friend," in *Science Wars*, ed. Andrew Ross (Durham, N.C.: Duke University Press, 1996), 86.

¹⁹⁷Lloyd G. Humphries, "Characteristics of Type Concepts with Special Reference to Sheldon's Typology," *Psychological Bulletin* 54 (1957): 225.

¹⁹⁸Sheldon himself executed ratings of both physique and temperament—hence his expectations would have biased his ratings toward the positive. Said Lindzey, "Almost every introductory psychology student has learned to recognize and distrust the striking findings that Sheldon reported between dimensions of physique and temperament." Lindzey, "Behavior and Morphological Variation," 229, 232.

¹⁹⁹James M. Tanner, "Somatotypes and Medicine," *The Lancet* 127 (5 March 1949): 405-407.

²⁰⁰J. M. Tanner, M. B. Lond and M. D. Penna, "Current Advances in the Study of Physique," *The Lancet* 260 (10 March 1951): 574-579. See also J. M. Tanner, "The Morphological Level of Personality," *Proceedings of the Royal Society of Medicine* 40 (1947): 301-308; idem, "The Physique of Students," *The Lancet* 263 (30 August 1952): 405-409.

²⁰¹James M. Tanner, *Human Growth*; idem, *Growth at Adolescence* (Oxford: Blackwell Scientific Publications, 1955); idem, *Education and Physical Growth* (London: University of London Press, 1961); J. M. Tanner and R. H. Whitehouse, *Atlas of Children's Growth: Normal Variation and Growth Disorders* (London: Academic Press, 1982).

²⁰²For a discussion of Parnell's modifications see Carter and Heath, *Somatotyping*, 24, as well as Parnell, *Physique and Behavior*.

²⁰³He was concerned, however, that physical education teachers who were predominantly mesomorphs would not be able to guide the majority of their pupils who had different somatotypes. Parnell, *Physique and Behavior*, 58-59.

²⁰⁴Rodney Dwight Rempel, "Modified Somatotype Assessment Methodology," (M.Sc. thesis, Simon Fraser University, 1996).

²⁰⁵Carter and Heath, *Somatotyping*, xi. Sheldon's trap, said Heath, had been to establish a closed system, making it impossible to modify anything without destroying the whole system. Yet she did admit that somatotyping remains both objective and subjective—it isn't like going out and measuring a fence. You have to be able to visualize what that individual looks like in motion.

²⁰⁶There are three levels of accreditation—with over 1500 people certified at one or more level. Personal electronic-mail communication, J. E. Lindsay Carter, 5 November 2001, notes in possession of author.

²⁰⁷Tim S. Olds, "Anthropometry and Body Image," in *Kinanthropometry and Exercise Physiology Laboratory Manual*, 2nd ed., eds. Roger Eston and Thomas Reilly, vol. 1: *Anthropometry: Tests, Procedures and Data* (London: Routledge, 2001), 222.

²⁰⁸Carter and Heath insist that there is little conclusive evidence linking somatotype and personality, 313.

²⁰⁹The reappearance of physiognomic discourses in New Age settings is but one of many examples. Anthony Synnott, "The Beauty Mystique, Ethics and Aesthetics in the Body Genre," *Journal of Politics*,

Culture and Society 3 (1990): 407-426. Patients with body dysmorphic disorder are preoccupied with an ideal body image and view themselves as ugly or misshaped. A disturbed perception of the body may then lead to social isolation and destructive behavior aimed at improving the body's appearance. Serotonin reuptake inhibitors are prescribed along with psychiatric intervention. James R. Slaughter and Ann M. Sun, "In Pursuit of Perfection: A Primary Care Physician's Guide to Body Dysmorphic Disorder," *American Family Physician* 60 (15 October 1999): 1739-1742. Muscle dysmorphia is a recently recognized form of body dysmorphic behavior occurring almost exclusively among men. The preoccupation that one's body is too small, puny and inadequately muscular can be held by men who are unusually large and muscular and can lead to potentially dangerous abuse of anabolic steroids and dietary supplements, etc. Effective treatments are so far lacking. H. G. Pope, K. A. Phillips, R. Olivardia, *The Adonis Complex: The Secret Crisis of Male Body Obsession* (New York: The Free Press, 2000).

²¹⁰New ways of thinking about life and the body from the new languages of genetic evolution, molecular biology, biomedicine and their new techniques are forging a radical revision in the very notion of corporeality. Nikolas Rose, "Life, Reason and History: Reading Georges Canguilhem Today," *Economy and Society* 27 (1998): 154-170. We might also note that biological stigmata of degeneracy are back, not as Lombrosian physiognomy, but as serotonin depletion or genetic markers. Hacking, "Degeneracy," 152. See also Hoberman, *Mortal Engines*, chap. 8.

²¹¹Catherine Waldby, *The Visible Human Project: Informatic Bodies and Posthuman Medicine* (London: Routledge, 2000), 161.

²¹²Patrick Hruby, "Ski Jumpers Are Taking the Light Approach," *The Washington Times*, 11 February 2002.

²¹³Glen Hanson, "Anabolic Steroids: Is Winning Worth Losing Your Health," *National Institute on Drug Abuse*, www.steroidabuse.org.

²¹⁴Jeff Sharlet, "Beholding Beauty: Scholars Nip and Tuck at Our Quest for Physical Perfection," *The Chronicle of Higher Education*, 2 July 1999, pp. A15-16. See also Fabienne Darling Wolf, "From Airbrushing to Liposuction," in *Women's Bodies, Women's Lives: Health, Well-Being and Body Image*, eds. Baukje Mjedema, Janet M. Stoppard and Vivienne Anderson (Toronto: Sumach Press, 2000), 277-293.

²¹⁵Shelley Anderson, "Bigger Not Always Better: Health Issues Cloud Present, Future for Rising Number of 300-pound Athletes," *Pittsburgh Post-Gazette*, 11 February 2002; Marlene Garcia, Report, *Chicago Tribune*, 23 November 2001; Mike Burrows, "Bigger is Better on Offensive Line: Agile 300 Pounders Wanted to Play Up Front," *Denver Post*, 6 February 2002.

²¹⁶Sam Fussell, *Muscle: Confessions of an Unlikely Bodybuilder* (New York: Avon Books, 1991).

²¹⁷Lesley Heywood, *Bodymakers: A Cultural Anatomy of Women's Body Building* (New Brunswick, N.J.: Rutgers University Press, 1998), 3

²¹⁸See Arnold Schwarzenegger, *Arnold: The Education of a Body Builder* (New York: Simon and Schuster, 1977).

²¹⁹For example, the illusion of personal power that body building confers, says Heywood, covers a darker reality of a power transformed through the subject's eager orchestration of his or her own containment. The rhetoric of choice ends up enacting the rhetoric of standardization. Heywood, *Bodymakers*, 43-44. See also Patricia Vertinsky, "Making and Marking Gender: Bodybuilding and the Medicalization of the Body from One Century's End to Another," *Culture, Sport and Society* 2 (1999): 1-24; Urla and Swedlund, "The Anthropometry of Barbie"; Grant Tompkinson, Tim Olds and J. E. Lindsay Carter, "The Anthropometry of Desire," in *Kinanthropometry: Proceedings of the 6th Scientific Conference of the ISAK*, ed. Kevin Norton and Tim Olds (Underdale, South Australia: International Society for the Advancement of Kinanthropometry, 2001).

²²⁰When *Psychology Today* published the results of the 1997 Body Image Survey they noted the growing gulf between actual and preferred shapes. 56% of the women were dissatisfied with their overall body shape—43% of the men. 15% of the women and 11% of the men said they would sacrifice five years of their life to be at their ideal (normal?) weight. ([Jan/Feb 1997]: 31-78, 84). A 2001 Monitoring the Future Survey said 4% of high school seniors in the U.S. admitted to using steroids. Cosmetic

surgery is on the rise among adolescents, and the global race is on to find sport performance enhancing genes. "The Sports Factor," Radio National, Australia, 16 August 2002.

²²¹Gilles Deleuze, "Postscript on Control Societies," *Negotiations* (New York: Columbia University Press, 1995).

²²²See Paul Rabinow, "French Enlightenment: Truth and Life," *Economy and Society* 27 (May 1998): 193-201.

²²³Waldby, *The Visible Human Project*, 160.

²²⁴Rose, "The Neurochemical Self," 437.