

Day, D. (2009). "Science", "Wind" and "Bottom": Late Eighteenth Century Pugilism. *Manchester Metropolitan University Research Institute for Health & Social Change 2008 Annual Conference* 1-2 July.

The proliferation of boxing manuals in the last quarter of the eighteenth century reflected both a revival of interest in a long standing sporting entertainment and a desire of some participants and observers to record the essential elements of this martial "science". While this term had been used in conjunction with similar activities for over half a century, and while training had been undertaken by professional fighters for at least as long, it was only now that contemporaries believed a full understanding had been achieved of the importance of "wind" (endurance), "bottom" (courage), and "science" (technique). This paper explores a number of texts where authors discussed these essential components of boxing performance, analysed the strengths and weaknesses of contemporary fighters, and highlighted the favourite stances and techniques of each individual, often in considerable depth and with an apparent understanding of basic mechanics. Whether written by fighters or by "Amateurs", the men who backed combatants in the prize ring and took instruction from them in the gymnasium, these manuals display a uniformity of agreement in their articulation of boxing "science", and in their ancillary discussions of training regimes, which is not surprising given the limited and exclusive circle that surrounded professional fighters. As this cadre of sportsmen subsequently extended their sporting interests, many pugilistic training methods, with some sports specific amendments, became the standard modes of preparation for other gambling focussed activities such as rowing and pedestrianism and they remained substantially unaltered for the first half of the nineteenth century.

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During the eighteenth century, pugilism gradually evolved into the less crude and more technical sport of boxing which became immensely popular between 1780 and 1812. Major fights of the period formed part of an organised sporting programme involving lower class fighters backed by gentry who retained them for the purpose of making profitable matches. The sport was widely reported and produced its own specialist literature in the form of boxing manuals. This paper explores the content of some of those publications and draws attention to the levels of understanding of technical and physical training that underpinned the advice they proffered.

Eighteenth century industrialisation brought with it the concept of achievement through improved performance and it became widely accepted that sportspeople benefitted from the implementation of training programmes to enhance their god-given abilities. This growing appreciation of the importance of appropriate training and instruction initiated a constant search for improved performance by backers and their hired trainers resulting in the development of training practices, a refinement of skills instruction, and the systematic selection of talent. Boxing manuals of the period clearly distinguished between the acquisition of technique, "science" or "art", and "wind" or fitness, while also referring to "bottom", the components of which, according to Godfery in 1747, were wind, which could be improved by exercise and diet, and spirit, without which both art and strength would be of little use. While strength was needed a boxer would not succeed without art. Lemoine (1788) agreed that, while boxing required a foundation of strength, a lack of art would be detrimental, even to the strongest. For Mendoza (1789) and An Amateur (1799) strength was more important than art although it was courage, resolution in engaging an adversary, and hardiness or bottom in bearing blows, assisted by strength and art, that made a complete boxer. All these qualities were seldom found

in one man, primarily because those who possessed strength and courage often neglected developing art.

Fewtrell (1790) rejected the assumption that no one could be a good pugilist without having all the necessary attributes. While it was impossible to display art without strength, art was critical, as were courage and activity. Some men were "peculiarly formed for bottom" while quickness of eye, and wind, could be improved by constant practice. Fewtrell applied his analysis to Johnson, whose greatest asset was his ability to assess his opponent's the strengths and weaknesses. Others might be superior in strength, science, or bottom, but in Johnson these elements combined to form a complete boxer. In 1799, *An Amateur* produced a comparative table assessing contemporary fighters.

Although there were differences in the importance given to particular aspects of performance there was unanimity that while some characteristics were naturally endowed others could be improved by training and practice. Some men developed careers as professors, teaching and demonstrating skills, while others became trainers, drawing on their experiences and an existing oral tradition, to develop their own regimes. Gentlemen backers put fighters with these experts to prepare for contests. While *An Amateur* (1788) believed in ten days or a fortnight of preparation, Mendoza recommended up to three weeks, and other fighters took between six and seven weeks to prepare. When "in training" contestants lived constantly with their trainers, whose ultimate success was judged both on the final outcome and on a contestant's physical appearance. On peeling before fighting Humphreys in 1790, Mendoza appeared larger and heavier "a circumstance arising partly from his increase in bulk, and partly from the mode of training adopted by Humphries, apparently more for the purpose of rendering him light and active than of adding to his weight. The odds on stripping were five to four on Mendoza".

In 1788, *An Amateur* recorded one contemporary training regime. Diet revolved around runnet whey, bread and butter, hard white biscuit, rusks, stewed veal or fowl with rice, and chocolate, while drink consisted only of red wine mingled with water. Particular hours of rest, exercise, and recreation were to be observed throughout, with a fighter entertained with martial music to help produce an "heroic state of spirits". *The Modern Art of Boxing* (1789) considered this regime had been "laid down and approved by many scientific men" and emphasised that no bloodletting or physic should be employed because they affected the cooling of the body and the strengthening of the fluids. This publication also offered an alternative, less prescriptive, programme. Boxers should live temperately, but not abstemiously, taking moderate exercise. Men should train in the country, going to bed about ten, rising by seven, having a cold bath followed by a dry rub, some muscular exercise, and a walk of a mile or two. A good breakfast preceded taking the air again, then sparring and moderate exercise until dinner, with men drinking only wine with water. The afternoon should be spent riding or walking with supper, of any light nourishing food, taken about eight followed by more exercise, perhaps with dumbbells, before retiring. The fighter must avoid excess either in food, wine, or women. *An Amateur* (1799) repeated both templates for training together with suggestions about preparations on fight day. Fighters should eat only a single slice of bread, well toasted without butter, or a hard white biscuit toasted, and drink up to a pint of best red wine mulled, with a tablespoonful of brandy, an hour before dressing. On the stage, drinks should consist of Hollands, bitters, and Fine China orange juice, with some lump sugar. Godfrey advised fighters to restrict themselves to a little cordial upon an empty stomach, which helped in "astringing the Fibres, and attracting it into a smaller Compass".

Common to boxing manuals from the late eighteenth century were descriptions of the skills of "scientific" boxing and, in 1790, Fewtrell declared that the understanding of skills had reached the stage where "little more remained to be done to improve the

science". Fundamental to success was knowledge of human anatomy and, through trial and error, fighters discovered basic anatomical principles. In 1747, Godfery argued that a man's strength came from his muscles, mutually interdependent springs and levers which executed the different motions of the body, but art gave them additional force. The nearer a man brought his body to the centre of gravity, the truer the line of direction would his muscles act in, and with more force. Stability of the body, determined by the distance between the legs, was important, and Godfery's detailed description of the optimum poise was repeated by Lemoine, who also referred to tendons, nerves and the laws of gravity.

Although few fighters knew why a blow had a particular affect, their experience told them the prime areas to attack. The blow under the ear squeezed blood proceeding to both head and body, overcharging blood vessels and causing blood to flow from ears, mouth, and nose. Blows between the eyebrows caused blood to fill the eyelids which then closed rapidly, "hoodwinking" an opponent. Punches on the "mark", the pit of the stomach, winded a man by lessening the cavity of the thorax and causing a painful convulsive state and difficulty in respiration. The clever fighter drew in the belly, held his breath and bent the thorax over his navel, when he saw the blow coming.

In perhaps the most detailed exposition of the period regarding boxing technique, *An Amateur of Eminence* in 1788 was precise in describing the postures for advancing, attacking, closely engaging, and retreating. Having discussed the poise, he broke the advance into the brace, the throw, and the square. These steps, the bar movements, were practised assiduously, often to the beating of time, and advice about attack and defence was then referenced to these positions. While other manuals were less prescriptive, all of them dealt with attack and defence. Blows from an adversary's left hand should normally be parried with the right arm or hand, except when using the left arm to block a left, for the purpose of darting the right fist into the kidneys. When fighting a right handed opponent a fighter should repeatedly strike his right arm, between the elbow and the shoulder, in order to affect its nerves and diminish its strength. Fighters were advised against closing with opponents who were too powerful for their grapple and advice was given about how to anticipate an opponent by analysing their mode of fighting and their relative skills and strengths. A discerning eye allowed a man to see blows coming and it was important to look at an opponent's face while taking his arms "within compass of your view". When feinting, a fighter should direct his eyes away from his intended point of attack.

Appropriate practice could increase strength and activity and was essential to ensure a perfect knowledge of the science. A mirror, or standing between a candle and a wall, enabled a man to practice his lessons while striking straight forward with each arm successively would improve the capacity to strike often and quickly, especially if using a pair of appropriately weighted dumbbells. Sparring, boxing practiced merely as an art or exercise, allowed a man to unite practice with theory and was crucial in forming a pugilist.

In 1788, *An Amateur of Eminence* declared that by following his lessons a man's "stage walk" would be superior to that of stronger men who lacked science. Discipline, reduced to general maxims and standing rules, rendered the art so easy and intelligent, that "sleight in this science will accomplish what strength and resolution cannot". The prescriptive nature of this kind of advice was, however, contested by Fewtrell who declared that to point out any attitude as the best in every case was inappropriate. Everyone should adopt his mode of defence to his own powers and when a person had adopted a particular guard, he should not easily relinquish it but should focus on its improvement.

The science of manly defence became an integral part of a gentleman's education, and academies were established by prizefighters like Mendoza, who had apparently added

P.P. (Professor of Pugilism) to his name in 1789. Humphreys was "the instructor of most of the young men of fashion for a guinea for six lessons" at his school in London while Ward was teaching in Bristol where he was allowed sixteen shillings a week by some gentlemen, on condition that he only fought with their agreement. In a reminder of the ongoing connection between sport and entertainment, entrepreneurial professors also appeared in the theatre. In January 1789, Mendoza sparred in Pantomime at Covent Garden Theatre and in May he appeared on stage in Manchester.

Other pugilistic practitioners concentrated on their careers as trainers, often using their experiential knowledge to prepare rowers and pedestrians in addition to pugilists, and traditional training advice proved to be extraordinarily effective in developing professional athletes beyond the capacities of their contemporaries. In 1789, Ward was found guilty of manslaughter after killing a local blacksmith, a remarkably strong man and the best bruiser in his neighbourhood, with a blow to the right temple. Two years later while Mendoza was sparring, his opponent demanded that he box in earnest. Mendoza took off a glove and using only one hand he closed both the man's eyes within three minutes. Paradoxically, this expertise contributed to the declining popularity of bare-knuckle boxing as improved training regimes and refined hitting methods made the sport extremely brutal. In 1800, James had his nose cut dreadfully in the fourth round, his collar-bone broken in the twentieth, his jaw broken in the twenty-first, and yet still fight four more rounds before falling. This was a scenario considered far too barbaric in what was becoming an increasingly sophisticated society and the sport gradually faded away under the opprobrium of the rising middle class. In looking back with a certain smugness and arrogance to a time they believed was less scientific, rational, and progressive, than their own, middle class men marginalised, and then subsequently forgot, the valuable experiences and substantial knowledge of a previous generation of practitioners. There may be some lessons here for the sports scientists and coach educators of the twenty first century if they would care to look for them.