

A Critical Assessment of John Hoberman's Histories of Drugs in Sport

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Introduction

The historiography of sports doping and anti-doping is littered with examples of weak scholarship. All too often unsubstantiated claims made by one author have been reproduced by later authors. For example, it has been claimed by many writers that the first recorded death due to drug abuse in sports was that of the Welsh cyclist Arthur Linton in 1886. A number of writers also make broad claims about doping as being commonplace in late 19th century European sport. Similarly it has been claimed that the winner of the 1904 Olympic marathon, Tom Hicks, was given strychnine and brandy; and that the disqualified 'winner' of the 1908 Olympic marathon Dorando Pietri was given stimulants. Some have claimed that the Nazis gave their athletes steroids and amphetamines. And moving into the post-war period, a frequently cited claim is that the Danish cyclist who died at the 1960 Rome Olympics had been given amphetamines.¹ The principle problem with all of the above examples is that none of the writers who make such claims bother to ask basic questions of history, evidence and method such as: where is the supporting documentation which can form the basis for historical knowledge? There is in fact no evidence to support the notion that Linton died due to drugs – he died in 1896 and his obituary states that the cause was typhoid fever. There is evidence of Hicks' coach, Charles Lucas, giving him strychnine and brandy as written up by Lucas himself in the 1904 official Olympic Report. This obviously begs the question whether or not strychnine was seen as either

morally or physically disreputable. There is also some evidence that Pietri took stimulants.² But there is no evidence about the Nazis³ and no evidence that Jensen took amphetamines.⁴

More broadly, most of the contributors to this field allow themselves to repeat earlier claims of doping because they are pursuing some idea about drug misuse that is actually a construction of late 20th century modernity. So we are led to believe that Linton died, Hicks and Pietri collapsed and were close to death, Jensen died: all proving the assumptions of anti-doping to be correct. There is a specific agenda here to demonstrate that history shows us that drugs have always been a problem when used in sport.

John Hoberman's contribution to the field: an overview

Perhaps the one author who has retained both a critical detachment from the assumptions of anti-doping, and who has demonstrated a preference for primary source material, is John Hoberman. He consistently produces a vast array of new material and posits a range of challenging questions. There is no doubt he has progressed the historical study of drug use in sport more than any other scholar. The major works are the 1992 ground-breaking book *Mortal Engines: The Science of Performance and the Dehumanization of Sport*, and the impressive 2005 monograph *Testosterone Dreams: Rejuvenation, Aphrodisia, Doping*. Combined with numerous journal articles, book chapters and conference papers, his output on the history of drugs in sport spans two decades and is wide-ranging and comprehensive. He does not approach the issue from a single conceptual or disciplinary perspective. He uses

history to make sociological comments, and he is often deliberately provocative, finding arguments that will challenge common thinking and using confident (sometimes over-confident) language to drive home specific points.

The less impressive consequence however is that the reader can feel bewildered, unsure as to what exactly is being argued and if the historiographic methods used support the conclusions made. Often, especially in his monographs, it is very challenging to find an overarching framework, a set of key ideas, or a consistent paradigm. Reading John Hoberman's historical writings on doping and anti-doping can lead to both admiration at the scope of his scholarship and frustration at the lack of clear purpose.

Taking his writings on doping as a whole, if the reader was looking for historical insight into the contemporary debate on liberalisation they would find contrasting and sometimes contradictory statements. He attacks both the failings of anti-doping and the excesses of doping cultures. This apparent generic criticism may at first seem like critical detachment, a valuable approach to a politicised and emotive field. However, scratching beneath the surface one finds an underlying theme of conservatism, nostalgia, and anti-modernity though arguably over time this is shifted towards pragmatism, realism and disappointment. Certainly, even a consideration of the two monograph titles and sub-titles suggests a weakening of the original trenchant critique of high performance sport towards a reluctant acceptance of modern society's quest for performance in the body, the bedroom, the boardroom and the sports field.

This discussion of his work begins with the most obvious question of his position on drug use in sport. This will lead on to considering a much more complex underlying theme in his writing – a critique of modernity and sport – through examples of his historical analysis and a broader review of his anxieties about modernity and its futures. The final section discusses Hoberman's style of research and writing to argue that his non-traditional, arguably non-empirical approach, to history opens him up to criticism for over-elaboration to the point of invention for the sake of being provocative. While such an approach encourages readers to review and reflect, it does not necessarily lend confidence towards accuracy, validity and balance.

Pro or Anti- Drugs in Sport?

Perhaps it is not the job of the historian to make a judgement on ethical values or policies. Equally, though, it can be argued that historians always bring their prejudices to their work regardless of whether these are acknowledged explicitly. The value of historical scholarship can be that it helps inform contemporary debates. In a subject area like doping, it is almost impossible for a historian to distance themselves from the controversies surrounding doping and anti-doping in practice. Hoberman laces his writings with emotive representations and questions that challenge the reader to engage with complex problems. Yet, the reader is constantly trying to work out what position he is arguing for.

Going back to 1992, the Preface to *Mortal Engines* offers a personal testimony that might help explain the author's ambivalence. While training as a runner, someone offered him a substance that would make him faster and stronger. This turned out to

be powered amino acids, not especially strong or even illegal: they are now available at some high street stores. He did not consider the ethical issues, just accepted the offer and does not tell us if the powders worked. However, he does expand on his self-reflections,

The real meaning of this episode was the intoxicating feeling – still unique to my experience – that I might actually become capable of unprecedented performances. This was a ‘peak experience’ I have never forgotten, and it has partially tempered my own judgements of athletes who take drugs in secret to outperform their competitors. I do not think they should, but I can understand something about why they do.⁵

However, this does not stop him criticising a range of episodes of excessive doping. *Mortal Engines* begins with the death of West German heptathlete Birgit Dressler at only 26 years old in 1987. Hoberman overlays this with a series of accusations against specific individuals and her own ambitions that led to her to take heavy doses of steroids and pain-killers. The critical focus is on the structure of elite sports and the obsession with success,

The Birgit Dressel affair offers a comprehensive portrait of modern high-performance sport in miniature. The cast of characters is complete: the ambitious athlete and her trainer-companion, both hoping to escape from their cramped attic apartment into the brightly illuminated world of international stardom; the sports officials who take the necessity of illicit drug use for granted and therefore tolerate or even encourage the use of performance-enhancing

drugs; and the physician whose need to associate with athletes rendered him unfit to distinguish between maintaining the body's health and boosting its performance with medically reckless procedures.⁶

This sort of explicit condemnation of the risks inherent in doping runs throughout Hoberman's work as if he cannot help wanting to remind readers of the health consequences.⁷ In *Mortal Engines* he discusses the idea proposed by a Swedish strength coach in 1984 that doping was a progressive development comparable to a new technology like fibreglass poles for vaulters. Such pro-doping positions are condemned as 'flawed by naiveté about the pathological consequences of steroid use and about the social dynamics of steroid abuse both inside and outside elite sports circles'.⁸ Towards the end of the same book, after a detailed discussion of doping issues in German sport, he agonises over the perilous state of anti-doping policy,

Today the national alliance among sports physicians, officials, and politicians discourages statements of principle while perpetuating the bureaucratic arrangements that guarantee the future of doping. Our final question is whether or not international governance might break this monopoly of power.⁹

After reviewing a range of barriers to effective international control, the question then arises as to whether or not modern societies could or should simply accept the existence and use of drugs like steroids. The final chapter of the book considers the consequences of such a shift in attitude in terms, as will be discussed below, that construct the problem in Biblical terms as being about reshaping human essence in a way never intended by God or Nature. The point being that doping is constructed in

the first instance as a problem for sport, that controls to stop it are criticised for their flaws, and then doping is represented as one of the great problems for humanity.

By the time *Testosterone Dreams* is published, his position has changed slightly as he is more prepared to accept that anti-doping has fatal ideological and practical problems. And times have changed: no longer is doping about the USSR and GDR abuses, but examples like the 1998 Tour de France Festina affair and the varied response to baseball hero Mark McGwire's positive test, show that in liberal societies where doping is a choice, some athletes and sports fans think it is an acceptable choice. He reiterates warning about the health consequences by pointing to the deaths of West German shot-putter Ralf Reichenbach in 1998 and American sprinter Florence Griffith Joyner in 1999 as being related to steroid use. 'Neither these deaths nor rumours about doping-related death lists could persuade most elite athletes that steroids were truly hazardous'.¹⁰ However, even this contains a reluctant acceptance that athletes have the choice and while we might despair over their risk-taking and their lack of consideration for ethics, they are aware of the potential outcomes and still make the decision to use drugs.

This leads to a series of dilemmas, tensions, contradictions, failings and ambiguities, 'The anti-doping campaign in sport can thus be seen as a kind of popular referendum on enhancements: Given the choice, does the public prefer to watch drug-free athletes or winning athletes?'¹¹ Such questions are not given direct answers, and perhaps the weight of historical complexity cannot allow direct answers. However, there is a hint of explanation for this in Hoberman's response to Verner Møller's comprehensive body of work in this area. Møller offers a philosophical deconstruction of the

rationales for anti-doping and proposes that anti-doping is a contravention of the modernist vision of sport and the Enlightenment ideals of individual freedom of choice,

Møller's work is an essential antidote to the standard anti-doping doctrine that generally ignores the sociological and economic dimensions of the doping phenomenon. At the same time, I do not share his view that the right to practice doping is an inherent part of elite sport.¹²

In other words, he is willing to accept Møller's analysis but is not happy, in a subjective sense, with the implications. This tells us something of Hoberman's position – a questioning of anti-doping but an acceptance that it could and should be more effective. Though, as will be discussed in due course, the above quote is not an accurate representation of Møller's arguments.

There is a powerful analytical thread that runs through his work that questions why societies have been so concerned about the doped athlete. In *Mortal Engines*, the following objective is set out, 'Our ultimate goal is to determine whether or not the doping of athletes deserves the unique stigma it has acquired since the 1920s.¹³ And this is soon followed by reference to a central conceptual component, 'The ubiquity of drugs, and their fundamental role in human life over millennia, are of crucial significance to our inquiry, since the distinction between what is "natural" and what is "unnatural" is at the heart of the twentieth century controversy over the use of performance-enhancing drugs in sport'.¹⁴

This is a fascinating but complex turn. On one hand, we can see how Hoberman dislikes the health implications of doping, and agonises over the social circumstances within which excessive doping might occur. When athletes become obsessed with victory, when their entourage fail to protect their health, when external concerns like nationalism lead to abusive practices: these are the problem areas. However, this criticism of doping does not quite sit easily with the moral relativism found elsewhere. In his later writings, he has become much more aware of the flaws in anti-doping; even to the extent of suggesting that the West's criticism of the GDR's system actually shows that 'our sense of what constitutes doping is socially conditioned'.¹⁵ From there he goes on to argue almost in favour of doping because it is merely a social idea and that 'restricting the idea of doping to athletes is sociologically indefensible, since many other people pursue enhancements through drugs'.¹⁶ In fact, it is possible that the 13 years between *Mortal Engines* and *Testosterone Dreams* have led Hoberman to increased disillusionment with the principles and practices of anti-doping. He certainly focuses a lot of creative energy on the inconsistencies and ineffectiveness of the IOC's anti-doping policy, especially under Samaranch. At the same time, he also admits the philosophical weakness in anti-doping,

Condemnations of doping during the past century have typically relied on a combination of ethical and medical arguments – drugs are both unfair and medically dangerous – that was inherently unstable, because it implied that doping drugs violated both norms. This definition introduced instability into the definition of doping in two ways. First, a performance-enhancing drug without harmful side effects would meet the criteria for medical safety and should

therefore escape censure; similarly, an agreement among competitor athletes to use the same drug would appear to make its use fair.¹⁷

This is reminiscent of Møller's philosophical and analytical approach to the subject, and a departure from most of the historical offerings on doping that assert the basic values of anti-doping. However, Hoberman still seems hopeful that better governance can improve anti-doping in practice despite the above realisation that the project contains far from fundamental problems.

So he focuses attention on the social distinctiveness of the athlete from other workers and artists. Why should they be treated as a sacrosanct group who should act and think in a way that is not only different to others but which runs contrary to their self-identified goals of sporting achievement? Indeed, he makes this one of the core statements of *Testosterone Dreams*, 'Why modern society has made such a drama out of doping is perhaps the deepest question that this book attempts to explore. Why would a civilization bent on maximizing performance of various kinds require certain performers to exercise self-restraint?'¹⁸ The answer he provides is very interesting. He argues that athletes are manageable but symbolic target for a broad trend which aims to reassert the boundaries of human nature in the face of such technological innovations as cloning and genetic manipulation. So 'doping scandals are symbolic demonstrations of our unwillingness to succumb to unbridled experimentation on the human organism'.¹⁹ Athletes are expendable role models in this dishonest project.

Taking such a position that refers doping to wider contextualising debates, means that Hoberman can criticise the hypocrisy of anti-doping without going so far as to

legitimise doping. The implication is that if sports allows doping then it removes one of the last barriers to full-scale human engineering; but we are stuck in an impasse because restricting doping singles out sport for all the wrong reasons as being 'above' or 'better than' all the other drugs, enhancements and messing around with humanity that goes on elsewhere in society. This means Hoberman's critique of doping is really a much broader discussion on modernity, humanity and technology; of the problematic symbiosis of high performance sport and medicine which leads to the enhancement innovations purely to serve the cult of victory. The next sections of this paper consider two examples wherein the implicit critique of modernity informs the interpretation of specific time periods.

The Past as a More Innocent Age: the 19th century

Hoberman discusses a number of contributors to the history of medicine, including such scientists as Charles-Edouard Brown-Séquard and Francis Galton. He has a tendency to over-state the place of such individuals in this history. So, despite the flaws in his research and the criticisms of his contemporaries, Brown-Séquard is labelled 'the father of steroids'. In this section, the focus will be on Hoberman's discussion of French physiologist Phillip Tissié who was at one point close to de Coubertin before making it clear he did not like the idea of high performance sport. Hoberman uses Tissié to prove that this was a period of comparative moral virtue before the sports-medicine nexus produced doping up achievement-oriented athletes,

By the standards of our technological and sports-obsessed age, the last decades of the nineteenth and the early decades of the twentieth centuries were a

premodern world in terms of physiological investigations of human performance. Dynamic athleticism was a peripheral preoccupation rather than the self-evident ideal it has become for many people in widely varying cultures across the globe.²⁰

Tissié's experimental work with a cyclist called Stéphane is of some interest because he used the athlete to test out the properties of various substances on performance. This could be interpreted an early example of doping science, of the application of sports science to performance. However, Hoberman goes to some lengths to demonstrate that Tissié did not represent the continuity of a modern practice but rather some form of discontinuity: that he was part of a pre-modern world. His experimental work might have 'made him a pioneer in the field of sports medicine' but importantly, 'he was not an active proponent of high-performance athletics'.²¹

One reason for this is that he was a generalist interested in diet and the body, a second reason is that these were early days for performance sport. Hoberman cannot help pointing out to the reader the risks in misinterpreting the past by using the paradigms of the present,

The paradox of Tissié's scientific career, from our standpoint, is that a man who recorded early and prescient observations on the physiological and psychological consequences of extreme athletic exertion actually disapproved of the high-performance sport of his era. But it is really our own 'modern' assumptions about the relationship between research and its eventual applications that make Tissié's viewpoint seem paradoxical in the first place.

Almost a century of science and technology separates us from Tissié's early work in the area of what is now called 'exercise physiology', and in the course of this century the pursuit of athletic records has become one of the unquestioned norms of our popular culture. Therefore, we tend to assume that the whole point of scientific research is its application on behalf of tangible, and often measurable, gains.²²

Hoberman implores the reader not to view the past in terms of the present, but it is hard to see any reason for describing Tissié's career other than to do precisely that. In offering a strong case study example of someone we have to assume was high profile and influential, Hoberman specifically attacks the late twentieth century assumption about science and sport. By arguing that premodern physiologists distanced themselves from the cult of victory, from the obsessive pursuit of sporting achievement, he offers a benign vision of the past and an implicit critique of modernity.

However this critique is meaningless without knowledge of the 'doping regimes' of the former GDR and USSR that pursued a goal of nationalist-oriented sports success informed at every stage by legal and illegal applications of sports medicine; or of the subterfuge that has characterised the history of doping in Western nations. The career of a relatively obscure French scientist would be meaningless unless he helped create something which became important later on. Hoberman's point is that the sports physiology Tissié developed departed from his much more reasonable ambivalence about performance sport. Indeed, if Tissié had won his argument with de Coubertin

about the value of performance sport the history of doping would, it seems, have been different,

We should remember that less than a century ago European scientists were discussing pharmacological aids to athletic performance without a qualm. But when a proliferation of such studies coincided with the sports boom of the 1920s, when athletic achievement took on new significance and now became vulnerable to the threat of ‘manipulation’, a ‘doping crisis’ was born ... Eventually, a more determined and systematic approach to human performance would produce the intractable doping problem of our era.²³

The language used reveals the sentiments, the past is a simpler place where the ‘intractable’ problem of doping did not exist because sports medicine and sports performance had not yet combined to change the very nature of human essence, abilities, desires and possibilities.

The Past as a More Innocent Age: the 1950s

It has been broadly argued by a number of writers in this field that doping took on the nature of a ‘crisis’ in the 1960s. There are some unanswered questions about this change. Was it rooted in a material sense that athletes were suddenly taking a lot more drugs? This is possible as more drugs were available and there were no laws against doping until the mid-1960s or testing systems until the late-1960s. Moreover, this can easily be connected to criticisms of the politicisation, professionalisation and commercialisation of sport. In other words, athletes were driven to take risks, at times

encouraged to do so by sports doctors and by fanatical supporters, and so in an increasingly medicalised society athletes would also use performance enhancements. In this perspective, anti-doping was a natural, normal, understandable and morally correct response to a clear problem. However, it is just as possible that doping was a moral panic invented by those who feared the influence of external factors in sport and whose traditionalism led to a dislike of the seriousness given to elite international sport by the 1960s. The crisis could easily be interpreted as a legalistic, moralistic and bureaucracy construction that would not have had the same sort of profile or public interest had there not been a series of fanatical endeavours to stop it.

Hoberman does not directly address these issues despite their obvious importance and centrality to a historical understanding of doping and anti-doping. He does though offer an interesting and insightful discussion of the period just before the crisis began: the 1950s. This had the potential of addressing the gap in knowledge about the origins, emergence and consolidation of anti-doping as a social phenomenon. He characterises this decade as one before the governmental consensus about anti-doping had been achieved: 'uncertainty about the immorality of performance-enhancing drugs was evident during the 1950s'.²⁴ Since there were no clear rules or guidelines about what constituted doping and if indeed doping should be disallowed, there was a different form of openness on the subject that would soon disappear under the hegemonic pressure of anti-doping. He goes on then to suggest that the 1950s 'were in some ways an age of innocence that had not yet encountered the consequences of effective performance-enhancing drugs'.²⁵ And in an article which focuses in more detail on this time period, he claims that the varying 'responses to the amphetamine

episode of 1957 evoke a simpler age that appears to have been unaffected by the idea that drugs might boost athletic performance'.²⁶

The nuances of this are crucial but unclear. Was the decade more innocent because the drugs being used were not as risky as drugs like steroids that would be used by athletes in the 1960s? Or was it the lack of awareness in the sports community about the risks involved in any drug use? Given that amphetamine was the main drug of choice, the answer may lie in both the comparison between that drug and steroids and the changing nature of amphetamine which had been lauded for general health benefits throughout the 1940s and 1950s but by the early 1960s was being questioned for its addictive properties and its role in violent or anti-establishment cultures. Moreover, other drugs like tobacco were being increasingly regulated in the 1960s.²⁷

Hoberman remains focused on sport in his analysis. He argues that the important element was the distinction between amateurs and professionals though he does not tell us if this was one of perception or material reality. The professional cyclists who were largely assumed to use drugs were 'often ignored in the early British discussions of doping, because these competitors belonged to a different social world'.²⁸ Although it is not clear where these concerns were being expressed, Hoberman argues that the widespread assumption was that professionals had a different set of ethical values from amateurs. The real controversy or 'consternation' emerged in response to amateur athletes while professionals' 'right to use drugs was taken for granted'.²⁹ And 'well-informed people' assumed that professional athletes 'enjoyed a tacit exemption from the ethical standards that applied to amateurs'.³⁰

The analysis may well be correct though it is not supported by a great deal of evidence. It may lead the reader to assume that the critique of doping is actually a critique of professionalism. If the amateur ethos had remained in place then the doping crisis would not have developed as it did in the 1960s. As he notes, the late 1950s began a time when 'the conflict between sportsmanship and athletic ambition that had been intensifying since the beginning of the century now had a pharmacological dimension that could not be ignored'.³¹ Certainly, the discourse of the pure amateur who would not defile himself or sport by using drugs, and at the same time would not allow the impurity of money to ruin sport, is a common theme among pro-Olympic writers throughout the 1960s and 1970s. The fantasy of romantic idealism has been a pervasive ideological undercurrent of anti-doping. Which makes the 1950s a really important period as it set the scene for the arrival of organised anti-doping.

Given this, Hoberman's next stage of reflection is all the more fascinating. He continues on to claim that professionals, particularly cyclists, were less at risk from the health consequences of doping because of the medical supervision that came with the honest use of doping drugs. He quotes an American sportswriter, 'Deaths are rare, and occur mostly in amateur races. Professionals are experienced in such matters and use drugs only within prescribed limits'.³² It seems therefore that the problem in the 1950s was not constructed along the lines of health and fair play, as would become standard anti-doping doctrine, but the anxieties that amateurs would mess around with drugs without the benefits of experience or of medical guidance. It was fine for professionals, who knew what they were doing and had a right to earn their living. However, it is not entirely clear if it was ethics or health risks that should deter the

amateur athlete from using drugs. And it is not clear if the 'age of innocence' reflected a lack of knowledge or a lack of widespread usage of harder drugs. What is clear is that 'innocence' was a privilege afforded to amateurs; the last generation of a pre-modern era when sport was about sport, and not about the various external pressures and rewards of the modern period. This certainly stands in contrast to his view of later time periods when, as he describes it, 'the persistence of doping' arose from 'the pharmacological ingenuity of athletes and doctors' combined with the 'political and economic demands that athletes are expected to meet'.³³

In the 1950s, amateurs 'were supposed to be immune to the financial pressures that caused professionals to dope themselves' and to 'other kinds of ambitions' that would lead to doping.³⁴ They were seen as morally superior to professionals, not least because they could exercise the 'ideal of self-restraint' and demonstrate their honour since 'the rejection of drugs originated in a refusal to despoil the glory of sport by violating ethical standards that were seen as part of the amateur tradition'.³⁵ And so, Hoberman claims (though without any supporting reference) that the 'idea that doping was medically dangerous contained its own kind of moral admonition, as if Nature were bent on punishing those who sought to violate the limits that had been imposed upon the human body'.³⁶

In what seems a contrary example, Hoberman discusses the musings of Adolphe Abrahams, brother of Harold Abrahams, sports physician and founder of the British Association of Sports Medicine. One would imagine Abrahams taking up the amateur anti-doping position quite clearly. However, in both 1953 and 1958 he argued that there was no clear reason to prevent athletes taking drugs to enhance performance

especially if such drugs were not unhealthy and were universally available. Abrahams claimed that such a practice would not disturb the conscience of the sporting world, and so Hoberman claims that he ‘opens the door to the legitimate use of performance-enhancing drugs by athletes’ and he had an ‘open scepticism toward the ethic of sportsmanship’.³⁷ This is taken as indicative of a much wider debate that has fascinated Hoberman over the past 20 years, he claims that Abrahams ‘had chosen to open the Pandora’s box that lurks in any honest discussion of human enhancements – the problem of defining normal human functioning and the intolerable deviations from this norm’.³⁸

By the later 1950s, amateurs had acquired ‘professional-style ambitions’ and so coaches experimented more frequently with a range of drugs for performance. This is framed not as a revolt against sportsmanship, but as a meaningful and honest attempt to push the boundaries of human possibility. Australian swimming coach Forbes Carlile gave his young athletes potassium biphosphate which he did not see as unethical. One Australian swimmer, Judy Joy admitted publicly in 1957 that some of her teammates use amphetamines. Hoberman takes these examples as evidence of an age of innocence, ‘The crucial factor was the guilt-free mentality of those who were trying to reach and exceed human limits’; they exemplified ‘the romantic doctrine of athletic heroism before the discovery that doping was a sin’.³⁹ So the turning point was an opening up of drug use to amateurs as well as professionals. Once that had happened the cultural impulses to restrict and define human essence and limits began to take hold in sport. These experiments were no longer to be tolerated. When anti-doping ideology really became a force, the principles of honesty were central to much of the emerging discourse. Doping was constructed as deceitful and contrary to the values of

sportsmanship in which the athlete must strive to succeed within the limits set for them by Nature itself. The key concept by the 1960s was ‘artificial’ – an explicit reference to some supposed notion of what was natural.

The Limits of the Human Body: Fear of Modernity

Ostensibly it is difficult to explain why the open discussion of doping in the 1950s is presented by Hoberman with such respect and as reflective of an age of innocence. He never explicitly admits this, but one suspects that the real focus of critical attention is given to steroids. This reason for this is that steroids represent a much more significant position on the spectrum of human modification and have been used in more abusive contexts than other drugs. However, it also seems that his feelings towards this have become more circumspect over time.

Hoberman’s anxieties about changing the essential human body are set out in an early paper entitled ‘Sport and the Technological Image of Man’, first presented at a symposium in 1986 and published in 1988. He takes as his starting point the anti-technology position espoused by Richard von Weizsäcker in 1985, who was then the President of West Germany and was speaking at a meeting of the West German National Olympic Committee. Weizsäcker was expressing a deeply conservative view of sport and technology, arguing that ‘whereas science and technology can be progressively transformed, the human body cannot be. The temptation to treat the human body as if it were a machine comes into conflict with our most basic ideas of what a human being should be, and the result of this conflict is a reckoning with the idea of human limits’.⁴⁰ There is an underlying value system here about what is right

and good, the language used – such as ‘temptation’ implies a corruption of ethical virtues. Hoberman offers an unusually frank subjective position in response to Weizsäcker,

It is my view that the comprehensive technologizing of high-performance sport contains, and in some ways conceals, an agenda for human development for which high-performance athletes serve as ideal models. It is also my opinion that this anthropological agenda is a sinister one that transcends, even as it includes, the cultivation of certain body-types for sportive purposes. High-performance sport has become an exercise in human engineering that aims at producing not simply an athletic type, but a human type as well.⁴¹

He focuses on drugs as the ‘notorious procedures ... that change, or threaten to change, the human body’.⁴² The first on the list are steroids, then human growth hormone, beta-blockers, amphetamines, other stimulants and blood doping. In other words, Hoberman sets out an argument against doping on the grounds of the ‘sinister’ ways in which the drugs and techniques used play with the nature of humanity. And this is constructed in explicitly negative terms, ‘What we can confirm as of today is, first, that the manipulative sport technologies are poisoning relationships throughout the world of sport, and second, that they are here to stay’.⁴³ He goes on to argue that sports science treats the ‘human organism as though it were a machine, or as though it ought to be a machine’.⁴⁴ And again, in an unusually frank passage admits an almost profound attachment to the idea that this is wrong, ‘The implicit demand ... in my view, is a streamlined and decomplexified image of the human being’.⁴⁵ And the

conclusion links these problems to the very idea of modernity and progress: 'Sport incorporates the man-machine synthesis because it is a *modernism*'.⁴⁶

So here we have the most up-front set of statements that reveal some of the impulses, frustrations and energies that lie behind 20 years of writing on the subject of doping in sport. The principle focus for his critical thinking have been the wider social ramifications of doping set out in terms of both philosophical and anthropological approaches to 'humanness'.

The Essence of Humanity?

Only four years after the publication of 'Sport and the Technological Image of Man', Hoberman set out a series of arguments against the sport and science nexus in *Mortal Engines*. He begins the book with the death of Birgit Dressel, but precedes that episode with a quote from Bertolt Brecht, 'Great sport begins where good health ends'. This is an important quote in itself, it suggests a striking contrast between the 'good' of recreational exercise focused sport, and the 'bad' of serious, competitive, obsessive performance sport. Dressel is obviously positioned as a victim of the 'bad' side of sport. The book contains numerous references to science fiction writers and speculative scientists who, in various ways, have fantasised about using technology to surpass human limitations. It is the case that one of the key features of Western modernity has been a concerted attempt to resolve the problem of fatigue in order to make more efficient and productive citizens. What Hoberman tends to do in *Mortal Engines*, however, is to make us think the absurdities of such fantasists should be taken seriously.

The book ends with a re-assertion of the humanity principle in response to the work of 20th century British scientist J. B. S. Haldane who, according to Hoberman, ‘anticipated the genetic engineering of athletes’.⁴⁷ Hoberman tells us that Haldane thought science ‘would make possible the genetic engineering of superendowed individuals capable of amazing athletic or surgical feats’.⁴⁸ The problem with Hoberman’s representation of people like Haldane is that he provides us with very little idea of the context of their work. He tells us about their absurd excesses, but not if these had any impact on the wider science community or were taken seriously by anyone. Nonetheless, Haldane provides the platform for a highly dramatic end to *Mortal Engines* which put drug use in sport, or any modifications for the sake of sport, into the grandest of all historical frames,

Haldane also dreamed of gene-grafting techniques that would permit the crossing of men and beasts, of legless astronauts, and other specially adapted creatures – a vision perfectly suited to the development of athletes who would be monsters as well. The supreme biological question confronting mankind today is whether Haldane’s vision of the pursuit of organismic efficiency will prevail over the human image that appeared in the Old Testament thousands of years ago.⁴⁹

Given that doping is afforded the deepest of all historical and existential meanings, the earlier sections in which Hoberman condemns steroid use reveal that what bothers him are the changes to the human ‘being’, ‘Today the most urgent problem is to determine whether anabolic steroids, the most notorious and widespread ergogenic

drugs, are uniquely dangerous to the ethos of sport. The medical and psychological hazards of steroid use suggest that indeed they are, not least because of the ways these performance-boosting drugs affect the very *identity* of the athlete'.⁵⁰ So he criticises the masculinizing impact steroids have on women and argues that their affect on the 'endocrinological system' makes them far more meaningful than stimulant type drugs such as caffeine or amphetamines. Similarly, he is disturbed by the process of blood doping for its symbolic and physiological attributes. He claims that, 'the combination of technology and infusion that mimics the Frankenstein procedure and thereby raises the question of who or what this athlete actually is'.⁵¹ He goes on,

While it is true that other substances and methods also modify the athlete, these three techniques express a heightened level of scientific ambition aimed at modifying human functioning and identity. They are properly controversial because they symbolize scientific ambition out of control ... Whereas high-performance sport has always been an experimental field of human activity, it has now become an experimental theatre in which the drama of human self-transformation, however veiled by old pieties and inhibitions, is displayed for all to see.⁵²

By 2005, his position on steroid use as set out in *Testosterone Dreams* is much less about life, nature and about what God intended us to be. Though he does remain troubled that sport has become an ideological battleground between 'modifiers' and 'traditionalists'. Perhaps this is where he reveals his own form of traditionalism, that while he cannot admit to being completely anti-modification he does despair at what is happening in sport. Two chapters in the book show a more ambivalent view: one

which shows sports fans do not always mind their heroes using drugs; and another which describes the failure of anti-doping to prevent sport becoming this focal point for a much wider struggle over human enhancement.

However, by this stage he concedes the ground that many sections of modern society accept the notion of enhancement or modification for the sake of either productivity or artistic creativity. So what concerns him is that sport is singled out by traditionalists to be the last place where participants need to demonstrate their 'natural purity'. He writes, 'modern society both embraces the productive effects of doping drugs and disapproves of them with a prohibitionist passion that is rooted in the traditional idea that socially disreputable drugs are consumed by dysfunctional addicts. The sports world thus at the same time promotes doping and the campaign to abolish it'.⁵³ In other words, the problem lies with how drugs are understood and how sport is understood. Drugs for performance enhancement are associated with the 'evils' of narcotics when they are so obviously not like that when used in a supervised, controlled and focused way. Sport is seen as an opportunity to express self-restraint, moral virtue and honest endeavour when it is so obviously also about politics, commerce and other social pressures. The analytical focus is therefore on the tensions inherent in sport; the critical attention is on those who have failed to resolve these tensions. What has subsided over the years is Hoberman's intense commitment to a non-technological image of sport. If anything he seems by to arguing now that athletes are merely human, susceptible to the temptations of modern life, and they should not be expected to act or think as if they were somehow detached from modernity. He has, it seems, accepted that the athlete is not simply a technological product of modernity, but someone who can choose how to take part in it.

Making History a Drama

The analysis of content as above does bring us closer to what inspires Hoberman, what connects most of his writings on doping and how the principle elements have changed over time. However, in this final section it will be argued that an analysis of style shows that the conventions of historiography are largely ignored, both by focusing on secondary or discursive forms of evidence, and by selectively misrepresenting specific individuals' positions.

The example of Haldane is useful here. Hoberman uses his fantasy ideas, not the more pragmatic and frankly dull, reality of his scientific research, to raise and discuss certain issues. He draws upon a secondary source to make the claims that Haldane 'dreamed of gene-grafting techniques that would permit the crossing of men and beasts, of legless astronauts, and other specially adapted creatures – a vision perfectly suited to the development of athletes who would be monsters as well'.⁵⁴ Reading the source in question, written by Krishna Dronamraju, we find no reference to athletes or sportsmen in this sense, only (as Hoberman does note) that the self-control of a meditative yogi can be compared to that of a sportsman. However, there is nothing in Dronamraju's text to justify the notion that Haldane predicted a time when athletes were monstrous, genetically engineered creatures akin to cross-bred animals. The legless astronauts were not, as Hoberman implies, a deliberate genetic manipulation, rather Haldane was arguing that men who lost legs due to mutation or accident could be 'specially suited to be astronauts'. This was part what Dronamraju called 'far-reaching and speculative' ideas that focused on the colonisation of Mars and Jupiter.

Haldane was interested in how humans might have to adapt to higher gravitational fields, and thus might be better to be short-legged or quadrupedal. Even more ridiculously, he suggested 'A regressive mutation to the condition of our ancestors in the mid-pliocene, with prehensile feet, no appreciable heels, and an ape-like pelvis, would be better still'.⁵⁵ So this was not just pure fantasy but actually, if we wanted to take it seriously, proposed a less athletic creature not a specially adapted athlete. Elsewhere in Dronamraju's account, Haldane's views on more realistic genetic therapy are discussed, only to be tempered with the view that Haldane was being too optimistic given the psychological and religious barriers to genetic manipulation. Dronamraju also suggests that Haldane had in mind the 'drastic decline of various undesired abnormalities'.⁵⁶

So even when fantasising about new human possibilities using 'deliberate inductions of mutations using chemical agents', the focus was on health, 'This could lead to the creation of a special breed of superhuman beings who could be as strong and disease-resistant as many animals while at the same time retaining human consciousness and intelligence'.⁵⁷ This must be where Hoberman read 'the crossing of men and beasts', and the 'vision perfectly suited to the development of athletes who would be monsters as well'. However, these passages could be read in a more balanced way, as a search for selecting and developing certain genetic traits in order to improve the chances of survival and health for humankind. More seriously, Hoberman's description of the man as 'more than a bit of a bully, his heroic services as an officer in the Great War taught him the discomfiting lesson that he liked to kill'⁵⁸ encourages the reader to connect the genetic engineering of athletes with the character of a sadistic murderer. This does not fit with Julian Huxley's view that Haldane was 'a real humanist, in the

sense that he believed that every human being had immense potentialities' that if properly tapped 'would give them a richer sense of being, and much greater fulfilment in a more worth-while life'.⁵⁹

The context for these insane ramblings is very significant. A point missed by Hoberman is that they came from an essay written in 1963 for a CIBA foundation symposium. This is fascinating as CIBA were the pharmaceutical company to help develop testosterone and steroids, who worked with the American physician John Zeigler to find a steroid for sport. Zeigler experimented with many combinations through the 1950s and early 1960s before CIBA patented what would be one of the most widely used steroids, Dianabol. More than this, the symposium was on 'the future of man' and Haldane used the forum to speculate 'on the possibilities for human evolution in the next ten thousand years'.⁶⁰ So, far from being a set of ideas we should take seriously in a discussion of doping, these were little more than imaginative fancies though it would be interesting to know how they linked to CIBA and other speakers in the context of the emerging science of steroids.

A related problem is that Hoberman tends to make slight adjustments to the claims others make. Verner Møller has not argued that doping should be allowed: to use Hoberman's words that 'the right to practice doping is an inherent part of elite sport'. Indeed, in the prologue to the English translation of his book *The Doping Devil*, as translated by Hoberman himself, Møller opens with the line: 'Let me make one thing clear at the outset: This book was not written to promote the legalization of doping'.⁶¹

In the same book as Hoberman's summary of Møller's position, the edited collection called *The Essence of Sport*, Møller has a chapter that overviews the nature of sport.⁶²

In this chapter, Møller discusses doping and cycling in the aftermath of the 1998 Festina affair. He does not at any point argue that doping should be allowed, instead he makes a more complex claim that partially reflects Hoberman's position in *Testosterone Dreams*, but partially contradicts Hoberman's more idealistic constructions of sport,

The doping hysteria that descended upon the 1998 Tour de France can be compared with the public reaction to the bodyline cricket scandal of 1932. Indeed, we should not exclude the possibility that a pragmatic attitude towards doping will develop along with a tolerance for other kinds of cheating in sport. The current tendency towards a growing acceptance of drug taking among ordinary people makes this even more likely. In a world of plastic surgery, Prozac, Viagra, Rogaine and similar medical solutions to human desires, doping will easily be reinterpreted as a way to sustain or enhance human health, meaning that doping will no longer violate the modern ideals of health. Hereafter the rationality of sport will be given free rein, and that will put an end to the illusion that sport is naturally compatible with morality and modesty.⁶³

In a later section on sport as drama, Møller does imply that if we accept that sport is about inner drive and passion then it is easier to understand doping as similar to the excesses of other creative cultures. The side-effects such as drug taking occur because athletes, like artists, musicians and dancers 'do whatever is necessary to create their sublime works and then find themselves trapped in serious abuse or self-destructive

behaviours'.⁶⁴ However, this is not the same as proposing liberalisation of doping; indeed the language suggest caution in that the side effects are considered 'serious' and 'destructive'. Møller's work is a profound revision of what sport is about, but he questions the very basis of sport itself as if to say that sports enthusiasts cannot have it both ways, they cannot have committed athletes providing spectacular moments of glory and entertainment and expect these athletes not to fall from their pedestals occasionally in pursuit of personal achievement and individual creativeness.

Hoberman's use of Adolphe Abrahams' contributions to the debate is also worth closer analysis. He deliberately ignores some passages that indicate balance or even concern about doping. He portrays Abrahams as having opened 'the door to the legitimate use of performance-enhancing drugs by athletes'.⁶⁵ Hoberman also claims that Abrahams saw no reason to object to such drug use except they 'they were ineffective and potentially dangerous'.⁶⁶ These two summaries are actually different, though Hoberman is trying to show that Abrahams was not restrained by ideals of amateurism or sportsmanship, and thus was willing to confront doping in more realistic terms of efficacy and health. In another point, Hoberman summarises Abrahams as follows,

'What objection could be raised against its use?' he asks. 'Only that – to use the question-begging term – it would be unsporting to enable athletes to surpass records achieved by the giants of the past, who lacked that advantage. I do not think the conscience of the sporting world would or need be disturbed'.⁶⁷

And from there Hoberman comes to the conclusion that Abrahams opens the door to legitimisation. The above passage comes from a letter to the *Times* in July 1953 in the wake of discussions on doping held by the newly established British Association of Sports Medicine of which Abrahams was one of the founders.⁶⁸ The letter actually offers a much narrower sense of the circumstances under which doping could be allowed. Firstly, the drug in question would have to be ‘free from any harm, temporary and remote’. Secondly, to avoid secrecy it must be ‘universally available’. Abrahams also notes, perhaps naively, that no doctor would ‘by active assistance or passive encouragement lend his support’ to the use of unhealthy drugs. On balance then this letter is full of caveats and qualifications.

These examples serve to illustrate Hoberman’s tendency to look for one side of the dichotomy in every source. He uses other peoples’ ideas to build up a collection of extreme positions which he presents, draws back from, critiques, and constructs dialectical dilemmas. This means that the everyday struggles of historical research are, to an extent, ignored in favour of the dramatic dialogues and discourses. Hoberman eschews the archive, the dry policy documents, the wading through committee minutes and personal correspondence, or the evidence produced by sports organisations about doping. History is sometimes dry and tedious; it needs to be if the researcher is to gain a full appreciation of what happened. It also includes searching around for potential counter-evidence in places that may not provide any worth writing about except a footnote to note the absence of anything important. Instead, Hoberman relies upon novels, the public writings of key people, and media stories. He does not ask balanced or tedious questions like, for instance, are the opinion of a certain individual representative of wider opinion or a very specific cultural milieu?

Not does he does not bother making too much effort to review the secondary literature on the subject. This cannot, therefore, be taken as good history.

In effect, this is not history as in the quest for strong empirical evidence of practices, processes, people and organisations. It is not even true to the sources included. A weak form of criticism is that Hoberman over-relies on discursive forms of evidence which he selects sections of in order to make provocative arguments. He makes the reader reflect and think: no bad thing, and perhaps worth the price of traditional empiricism. A stronger critique is that this is the tabloidisation of history: a misleading, skewed history that distorts evidence, ignores tricky historiographical questions, in order to present a fiction based on fictions. This is the desire to tell a story dominating the desire to check, verify and explain the evidence. He prefers using novels like Frankenstein as conceptual touching points, and using media stories to describe public events. More problematically, he seeks out the extremities from his sources to construct dichotomous positions as the framework for debate.

Conclusion

John Hoberman's contribution to the history of doping and anti-doping is immense. He shows admirable determination to root out new material, present fresh ideas, and to challenge the ways in which people think about the issues at stake. For this he deserves full credit.

Any analysis of his work has to rely on selective representations, not least because there is so much ground to cover. The focus of this paper has been on his modernity-induced anxieties and the ways in which he uses source material. The latter seems

most problematic: if the reader cannot depend on how a writer uses information then the entire project is open to question. There are serious omissions, such as how anti-doping originated and developed in the 1960s, and history of the science of anti-doping testing. There are also in places serious absences of contextualising information. This is vital when most of the evidence is ‘discourse’: we need to know how writers and thinkers impacted on their societies. Just to take one example, was Adolphe Abrahams viewed as an expert whose opinions influenced others around him? Who else was in this debate and where were the comments expressed? Just as a comment on this, the British Association of Sports Medicine had a written statement on doping before the highly influential Council of Europe meetings in 1963.⁶⁹ It would be a real contribution to knowledge if historians could establish the connections between Abrahams, other British Association of Sports Medicine members, the writing of this doping statement, how the Council of Europe meetings drew from this early initiative, and how other international groups related to these processes. Within six years, the balanced and somewhat abstract thinking of Abrahams was pushed aside in favour of a much tougher stance on anti-doping. I think it is a pity Hoberman focuses so much on the ‘drama’ of Abrahams’ ideas to the expense of getting to the heart of anti-doping history. It is examples like this which serve to undermine the consistency and strength of a body of work which has so many other qualities.

¹ For examples where historical information has been presented with little or no regard for primary sources or any sort of substantiation see Barrie Houlihan, *Dying to Win: doping in sport and the development of anti-doping policy* (Strasbourg 1999), Ivan Waddington, *Sport, Health and Drugs: A Critical Sociological Perspective* (London 2000), Robert Voy, *Drugs, Sport and Politics* (Champaign, IL 1991), Tom Donohoe and Neil Johnson, *Foul Play, Drug Abuse in Sports* (Oxford 1986), Steven Ungerleider, *Faust's Gold: inside the East German doping machine* (New York 2001), Michele Verroken, 'Drug use and abuse in sport', in David Mottram, ed., *Drugs in Sport*, 3rd edn (London 2003).

² See Paul Dimeo, *A History of Drug Use in Sport, 1876-1976: Beyond Good and Evil* (Routledge 2007)

³ Rob Beamish and Ian Ritchie, *Faster, Higher, Stronger*:

⁴ Verner Møller, 'Knud Enemark Jensen's Death During the 1960 Rome Olympics: A Search for Truth?', *Sport in History*, 2005, vol. 25, no. 3, pp. 452-471.

⁵ Hoberman, *Mortal Engines*, p.10

⁶ Hoberman, *Mortal Engines*, p.2

⁷ There is a debate which goes beyond this article about whether elite sport is actually about health. Most anti-doping rationalisation assumes that the strong connection between exercise and health holds true for elite sport and health. However, training at the elite level aims to stress the muscles and bones in order to improve performance. Quite how this can be judged healthy is far from clear. The risks of injury, short and long term, are much higher than for exercise activities. The psychological pressures are abundant. And the risks of strain during events are obvious. So to assume that drugs need to be banned because they contravene the health basis of elite sport is to gloss over the reality of competitive sporting cultures and behaviour.

⁸ Hoberman, *Mortal Engines*, p.26

⁹ Hoberman, *Mortal Engines*, p.265

¹⁰ Hoberman, *Testosterone Dreams*, p.202

¹¹ Hoberman, *Testosterone Dreams*, p.181

¹² John Hoberman, 'A Pharmacology on Wheels: Doping and Community Cohesion Among Professional Cyclists Following the Tour de France Scandal of 1998' in Verner Møller and John Nauright (eds) *The Essence of Sport* (University of Southern Denmark Press 2003)

¹³ Hoberman, *Mortal Engines*, p.104

¹⁴ Hoberman, *Mortal Engines*, p.104

¹⁵ Hoberman, *Testosterone Dreams*, p.203

¹⁶ Hoberman, *Testosterone Dreams*, p.203

¹⁷ Hoberman, *Testosterone Dreams*, p.182-3

¹⁸ Hoberman, *Testosterone Dreams*, p.202-3

¹⁹ Hoberman, *Testosterone Dreams*, p.203

²⁰ Hoberman, *Mortal Engines*, p.63

²¹ Hoberman, *Mortal Engines*, p.82

²² Hoberman, *Mortal Engines*, p.82-3

²³ Hoberman, *Mortal Engines*, p.106

²⁴ Hoberman, *Testosterone Dreams*, p.183

²⁵ Hoberman, *Testosterone Dreams*, p.183

²⁶ John Hoberman, 2006, pp.292-3

²⁷ (Jacobson et al, 1997).

²⁸ Hoberman, *Testosterone Dreams*, p.183

²⁹ Hoberman, *Testosterone Dreams*, p.183

³⁰ Hoberman, *Testosterone Dreams*, p.183

³¹ John Hoberman, 2006, pp.297

³² Hoberman, *Testosterone Dreams*, p.183-4

³³ Hoberman, *Testosterone Dreams*, p.275

³⁴ Hoberman, *Testosterone Dreams*, p.184

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- ³⁵ Hoberman, *Testosterone Dreams*, p.184
- ³⁶ Hoberman, *Testosterone Dreams*, p.184
- ³⁷ Hoberman, *Testosterone Dreams*, p.185
- ³⁸ Hoberman, *Testosterone Dreams*, p.185
- ³⁹ Hoberman, *Testosterone Dreams*, p.186
- ⁴⁰ (Hoberman 1988:202).
- ⁴¹ (Hoberman 1988:203
- ⁴² Hoberman 1988:203
- ⁴³ Hoberman 1988:204
- ⁴⁴ Hoberman 1988:206
- ⁴⁵ Hoberman 1988:207
- ⁴⁶ Hoberman 1988:208
- ⁴⁷ Hoberman, *Mortal Engines*, p.290
- ⁴⁸ Hoberman, *Mortal Engines*, p.290
- ⁴⁹ Hoberman, *Mortal Engines*, p.290
- ⁵⁰ Hoberman, *Mortal Engines*, p.27
- ⁵¹ Hoberman, *Mortal Engines*, p.28
- ⁵² Hoberman, *Mortal Engines*, p.28
- ⁵³ Hoberman, *Testosterone Dreams*, p.268
- ⁵⁴ Hoberman, *Mortal Engines*, p.290
- ⁵⁵ Krishna Dronamraju, *The Life and Work of J B S Haldane: with special reference to India* (Aberdeen 1985), p.107
- ⁵⁶ Dronamraju, *The Life and Work of J B S Haldane*, p.106
- ⁵⁷ Dronamraju, *The Life and Work of J B S Haldane*, p.107
- ⁵⁸ Hoberman, *Mortal Engines*, p.290
- ⁵⁹ Cited in Dronamraju, *The Life and Work of J B S Haldane*, p.102
- ⁶⁰ Dronamraju, *The Life and Work of J B S Haldane*, p.103
- ⁶¹ Verner Møller, *Dopingdjævlen – analyse af en hed debat* (Copenhagen, 1999). The English translation has yet to be published by I am grateful to Verner Møller for allowing access to the draft manuscript.
- ⁶² I cannot say for certain if Hoberman had read Møller's contribution to this collection prior to submitting his own chapter. However, as Visiting Researcher to the University of Southern Denmark, Hoberman has worked closely with Møller for several years and the collection emerged after each chapter had been presented as a paper to a seminar meeting in November 2000. It is unlikely Hoberman did not know or understand Møller's arguments.
- ⁶³ Verner Møller, 'What is Sport?: Outline to a Redefinition', in Verner Møller and John Nauright (eds) *The Essence of Sport* (University of Southern Denmark Press 2003)
- ⁶⁴ Møller, 'What is Sport?', p.31
- ⁶⁵ Hoberman, *Testosterone Dreams*, p.185
- ⁶⁶ Hoberman, *Testosterone Dreams*, p.186
- ⁶⁷ Hoberman, *Testosterone Dreams*, p.185
- ⁶⁸ Adolphe Abrahams, 'Doping of Athletes', Letter, *Times*, July 10, 1953.
- ⁶⁹ Paul Dimeo, *A History of Drug Use in Sport, 1876-1976: Beyond Good and Evil* (London 2007)