Drugs wipe out a sporting chance

Dying to Win: Doping in Sport and the Development of Anti-Doping Policy
by Barrie Houlihan
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Craig Sharp

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Unfair game: Ben Johnson's winning Olympic medal was taken away when he tested positive for steroids.

Elite competitors experience diminishing returns from training: the better they become, the harder it is to improve. Yet an improvement of less than one per cent in , for example, swimming or athletics may well make the difference between a gold medal or nothing at all. As an extreme example, runner Said Aouita broke David Moorcroft's 5,000-metres world record of 13 minutes 0.41 seconds by 0.01 seconds — or 0.000013% (a margin less, presumably, than the accuracy of the measurement of the track).

Hence the unremitting search by coaches and competitors for techniques and substances to improve performance. Most use legal 'ergogenic aids', which range from nutritional supplements to swimmers' attempts to optimize their centre of buoyancy by sucking air into their rectums. But some use banned substances to modify their sports performance artificially, a practice officially known as 'doping'. Cynics suggest, with some justification, that the difference between ergogenic aids and doping is that doping works.

The astonishment of the sporting world when Seoul Olympic 100-metres winner Ben Johnson tested positive for anabolic steroids was not so much that he used them, but that he and his coach had apparently been so remarkably careless as to be detected. Contemporary explanations in the Olympic village ranged from his simply mistaking the tablets, to the shoulder-shrugging certainty expressed by a Cuban team doctor who told me he "knew" the CIA had spiked Johnson's drink, "because the Americans did not want a Canadian to win the 100 metres".

Barrie Houlihan, professor of sport policy at the University of Loughborough, sets his book on doping against this obsessively competitive background.

Most current books on doping concentrate on the pharmacology of the drugs and the technology of detection but, pleasingly, Houlihan takes much of this as read and pitches most of his book on the philosophical side. He defines the problem in terms of ethics and debates the evolution of anti-doping policies. A crucial aspect is the need to harmonize policies on testing methods and on sanctions or penalties — not only among the various sports governing bodies within each country, but also globally. But this issue is a lot easier to debate than to solve.

Rule 29 of the Olympic Charter begins with the simple sentence "Doping is forbidden". It is banned for two main reasons: sport is entirely an arbitrary activity, bounded by 'rules of the game' , and taking drugs is as much a contravention of these rules as punching a soccer ball into the net with one's hand. It may also have adverse health effects.

Houlihan's discussion of the ethics involved is challenging and stimulating. His main point is that appealing to intuitive values is not enough. What is required is "the weight of democratic community condemnation and pervasive disapproval". Doping policies are never intellectually secure, in his view, but in need of continual "defence, support and refinement" based on education and resulting community support. These can act as a bulwark against cynical public acceptance of doping as a chemical version of the professional foul.

Houlihan explores the ethical and legal aspects of the urine-versus-blood controversy, and notes that Jehovah's Witnesses are one group that could object to venepuncture on religious grounds. It is not entirely facetious to predict a sudden increase in this faith among competitors, in line with the dramatic increase in apparent cardiac complaints in shooting teams at the 1984 Olympics, when β-blocking drugs were permitted if medically sanctioned. It may not have been entirely coincidental that β-blockers improve shooting performance; they are now on the International Olympic Committee's banned list.

Michele Verroken, director of ethics and anti-doping at the UK Sports Council, ends an excellent preface to the book with "After all, it is only a game!". That is the only statement of hers with which I disagree. Worldwide, sport is now a major industry, forming a large part of the entertainment industry. Participants are decreasingly club members and increasingly club employees. In Orwellian fashion, high-level sport is now work.

Overall, Houlihan has written a very readable, highly interesting and to some extent controversial book. It tackles the complex ethical, philosophical and policy problems head-on, and suggests more studies on the social reasons for doping. This book will greatly inform the often ill-informed debates on the topic, and will put into context the increasingly frequent legal cases in which disgruntled competitors who have tested positive sue their sport's governing bodies. □

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Peering into a child's priorities

The Nurture Assumption: Why Children Turn Out The Way They Do
by Judith Rich Harris
Bloomsbury/Free Press: 1998. 462 pp. £18.99/$26

Simon Baron-Cohen

Occasionally, a book is written about child development that is refreshing in breaking the mould. Judith Rich Harris's book is one of these. For a century at least, theories of child development have emphasized how the most important influence on a child is its parents (and in many theories, specifically its mother). Harris questions this sacred cow,

and in doing so, she opens up a space for a new theory not only of child development but also of cultural transmission. Her thesis is simple: the peer group is at least as important as parents in shaping child development, and there is plenty of evidence that it is more important.

At a first pass, this theory sounds crazy. Neonates have at least one parent, and for their first few years spend more time with a parent-figure than any peer group. So how can a peer group be having any significant effect on learning, personality, attitude formation or any other aspect of their mental development? Painstakingly, Harris takes the reader through some critical evidence — natural experiments, where the two rival theories can be teased apart and tested against each other. Here are some of her most persuasive cases.

Children who are born to immigrant parents, and who are raised in a language environment that is different from that spoken at home, do not end up speaking with their parents' immigrant accent, but instead effortlessly and rapidly acquire the accent of their peers. A moment's reflection brings home the truth of this elegant finding. We all know parents who continue to speak with a heavy 'foreign' accent, and who are therefore exposing their language-learning infant to this eccentric input — yet their children do not imitate these speech patterns. This is despite the fact that parents may reward their child with parental attention in conversation, and with love and affection. Rather, children systematically imitate the accent of their peers, with whom they may spend only a small proportion of their waking life.

Consider a second, equally compelling example. Babies born to profoundly deaf couples are exposed to sign language. This is not a needle-in-a-haystack situation — most deaf people marry other deaf people, but more than 90 per cent of the babies born to these couples have normal hearing. One might expect that the child would end up with little spoken language and with a preference for sign language. However, such children turn out to be as fluent speakers of the language of their peer group as children of hearing parents.

What is nice about these well-chosen examples is that the children can have only been learning the accent, or the spoken language, from one source — their peer group, not their parents. Moreover, the examples demonstrate that when a child has a choice over which type of input to prioritize, it tends to choose the influence of the peer group.

Harris's third example is again shockingly persuasive. Children born to parents who speak pidgin languages end up speaking something completely different: a creole. Thus, studies from Hawaii and elsewhere show that, under conditions where the labour force is drawn from many different language groups, creating a sort of natural Tower of Babel situation, adults typically can communicate with one another only in a pidgin, which is a makeshift language lacking prepositions, articles, verb forms and a standardized word order. Each speaker of a pidgin speaks it a little differently, and the pidgin is often no more than a skimpy list of words that the speakers have in common. Yet the children of pidgin speakers speak a creole. A creole is a genuine language, with standardized word order and containing all of the linguistic properties that a pidgin lacks. A creole can express any idea, however abstract or complex, while a pidgin cannot. These children create their own language, which belongs to their peer group, and which ends up being more important to their social needs than either their parents' pidgin or ancestral tongue.

The final example is quite familiar. Deaf children put together in a school create not only their own community, but also their own sign language, even if this is discouraged by parents or adult teaching methods. Again, it is clear where the direction of influence is coming from, and what children are choosing to prioritize.

Harris is no narrow-minded theorist. She recognizes that parents have an enormous influence on their child's development, but she has audaciously challenged why, for decades, students of developmental psychology have been fed a diet of parent–child factors in the absence of an equally, if not more important, set of peer-group factors.

Her own history is interesting in this respect. She was rejected from the PhD programme at Harvard, and so spent her adult life studying psychology on her own, as an outsider. She felt no pressure to conform to the dominant theories, but instead had the benefit of looking at the field from an impartial distance. The result is a new theory which I predict will stimulate many new research programmes. She finds her peer-group theory useful not just in explaining phenomena such as language acquisition, but also old chestnuts such as gender differences in behaviour, adolescent–parent conflicts and why anti-smoking campaigns are bound to fail with teenagers, to name but a few gems.

The book is long but very readable. Harris has an impressive breadth of knowledge, and entertainingly leads the reader from social development to genetics, from neuropsychology to criminology, and from social anthropology to linguistics and child-care. Even if her theory turns out to be wrong, which I doubt, I recommend this book to all students of developmental psychology as a stimulus for fresh thinking.

One final point: her book has helped me to make sense of a small empirical study of my own. Years ago, we investigated children with autism who are raised by parents where one or both have a different language from that of the peer group. We compared such children with their non-autistic siblings. Whereas the non-autistic siblings conformed exactly to Harris's predictions — they rapidly acquired the accent of their peers — the children with autism mostly acquired the accent of one of their parents, typically their mother (with whom they presumably had spent most time). The normal (non-

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Child's play: peer pressure could mean anti-smoking campaigns are bound to fail with teenagers.

autistic) child has the strong need to be accepted by the peer group, to fit in and to belong. The case of autism starkly reminds us what happens when the normal brain circuits for social development malfunction, and how this affects not just the child's accent, but also their assimilation into culture. □

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A singularity in modern science

Geons, Black Holes, and Quantum Foam: A Life in Physics
by John Archibald Wheeler with Kenneth Ford
W. W. Norton: 1998. 380 pp. $27.95, £19.95

Peter Galison

In the twentieth century theatre of physics, John Wheeler has stood at centre stage but always just out of the spotlight. He worked with Niels Bohr on the theory of nuclear fission in 1939 and on the Manhattan Project during the Second World War, and launched Richard Feynman on the quest that led him to quantum electrodynamics. Alongside Edward Teller, Wheeler helped to make thermonuclear weapons a reality in the late 1940s and early 1950s. From black holes to quantum measurement, from positronium to the collective model of the nucleus, Wheeler transformed an astonishing range of physics.

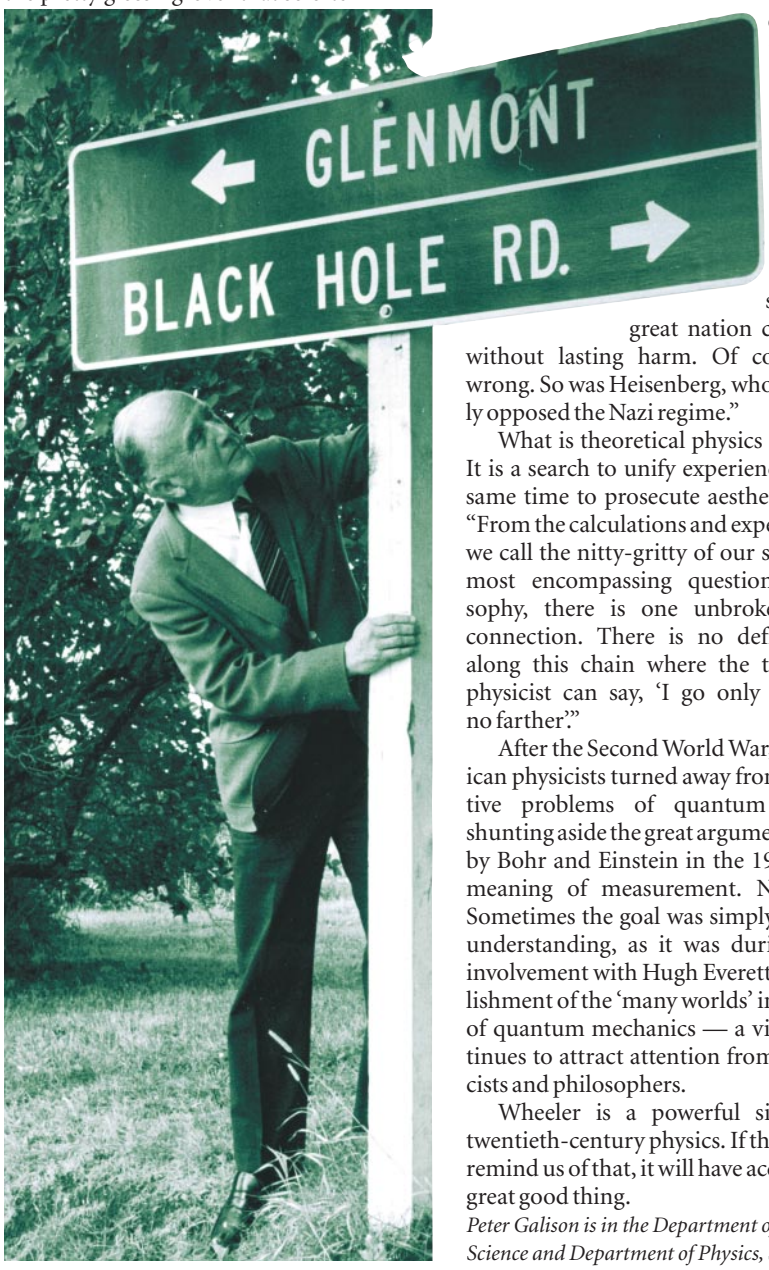
In a sadly conformist age, as herds of theorists thunder to one rumoured oasis after another, Wheeler has somehow maintained a quirky, intuitive, insightful style that is truly his own. There simply has been no one like him — he is and has always been a pragmatic visionary.

Pragmatic: Wheeler grew up an American boy who liked inventions and explosives. He was a theorist who, more than most of the other physicists at the wartime Metallurgical Lab in Chicago, ended up working well and learning easily from the DuPont engineers. Visionary: Bohr's institute in Copenhagen was about as far from American physics as it could be — a place where Bohr and his young associates agonized for days over getting the words, the physics and the philosophy right all at once. What comes through in *Geons, Black Holes, and Quantum Foam* is just how thoroughly, how improbably, how importantly Wheeler joined these American and European impulses.

Wheeler liked to work at the extremes. Could physics be done without fields — a world of particles alone? That became a long-standing project. But even that wasn't extreme enough. So Wheeler called up Feynman one day in 1940 or 1941, and said (more or less), "Feynman, I know why all electrons and all positrons have the same charge." Why? "Because there's only one electron and it travels back and forth in time." In Feynman's hands this idea became a foundation of quantum electrodynamics in 1947–49. When the 'no fields' campaign faltered, Wheeler reversed course and fought on the opposite front, to reduce physics to fields without particles. When Wheeler wanted to explore the limits of gravitational physics, he took Robert Oppenheimer's 1939 speculations about black holes and pushed farther, doing physics at the extremity of the then quiescent field of general relativity.

Kenneth Ford has kept Wheeler's voice. It is a voice of striking honesty. There is none of the pretty glossing-over that so often characterizes retrospective accounts of the Cold War, no pretending that everyone was on wonderful terms, that issues of national security were sidebars to the 'real world' of physics. No, Wheeler remembers Oppenheimer as a concatenation of brilliance and unstraightforward show-off. "My feelings toward him remain as they were more than 60 years ago," he says. "Oppenheimer was a complex human being. I never felt really close to him. I always felt I had to keep my guard up."

He speaks warmly of Teller, yet does not hesitate to criticize him. Nor does Wheeler ignore his own failings, such as his attachment to an idealized picture of Germany that may have delayed the launch of Los Alamos — without that delay, he believes, his brother might not have died on the battlefield. Wheeler says: "I was inclined to believe [as Werner Heisenberg did] that an immoral dictatorship was a transitory evil, something a great nation could endure without lasting harm. Of course, I was wrong. So was Heisenberg, who never openly opposed the Nazi regime."



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Where next? Wheeler has stood at the crossroads of physics and explored diverse directions.

What is theoretical physics for Wheeler? It is a search to unify experience and at the same time to prosecute aesthetic concerns. "From the calculations and experiments that we call the nitty-gritty of our science to the most encompassing questions of philosophy, there is one unbroken chain of connection. There is no definable point along this chain where the truly curious physicist can say, 'I go only this far and no farther'."

After the Second World War, most American physicists turned away from interpretative problems of quantum mechanics, shunting aside the great arguments launched by Bohr and Einstein in the 1930s over the meaning of measurement. Not Wheeler. Sometimes the goal was simply to augment understanding, as it was during his early involvement with Hugh Everett in the establishment of the 'many worlds' interpretation of quantum mechanics — a view that continues to attract attention from both physicists and philosophers.

Wheeler is a powerful singularity in twentieth-century physics. If this book helps remind us of that, it will have accomplished a great good thing. □

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