

## The elementary DNA of Dr Watson

**History will remember James Watson for the discovery of the double helix. But his pronouncements are often highly controversial. His former protegee examines the complex legacy of a Nobel laureate**



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The names Watson and Crick, it has been said, have “joined Darwin and Copernicus among the immortals”. The pair’s discovery of the structure of DNA, in 1953, has been hailed by fellow Nobel laureates as the greatest single scientific achievement of the 20th century. Today the only one remaining of the two, Dr James Watson, 79, stands alone as “the godfather of DNA”.

When, sitting at a dinner in Lincoln College, Oxford, in 1996, this ageing geneticist gingerly leant over to the guest by his side – the formidable headmistress of a large girls’ boarding school – and said, “I’m looking for some girls,” he was met with an appropriately cold stare. However, when he explained he was in England to hand-pick two students, one male and one female, to live in his Long Island home with him and his wife, Liz, and work as geneticists for a year at Cold Spring Harbor Laboratory, it was an opportunity too good to lose. The headmistress promptly replied: “Well, funnily enough...”

It’s August and I am standing on the shimmering forecourt of the laboratory’s towering neuroscience building. “You’re doing this for the future of women in science,” my headmistress had impressed on me, 10 years earlier, as I left to start my stint at the laboratory bench. Watson, she said, had come over specifically to recruit a girl – a change from the male-dominated programme to date. Glancing up, I see a familiar figure pacing briskly over sun-drenched paving slabs towards me. At 79, Watson looks remarkably unchanged, perhaps his scant wisps of hair a touch whiter and gait a little less sure. “Ah,

Charlotte,” he says enthusiastically and, pausing to give me the wide, open-mouthed smile I remember well and fixing me with intense, pale grey eyes, he presses my shoulders and plants a kiss firmly on both cheeks.

I am back in Long Island to discuss the geneticist’s latest and, he tells me, final memoir, *Avoid Boring People: Lessons from a Life in Science*. His early life and academic career, peppered with useful tips for “those on their way up” as well as those “on the top who do not want their leadership years to be an assemblage of opportunities gone astray”. And – as befits the ultimate memoir of a forthright scientist – an inflammatory epilogue with eye-popping theories that will, undoubtedly, leave ethicists choking with disbelief. We are not alone, however. A rotund thirty-something man asks for a photograph, puffing his chest and beaming proudly into the camera lens. Later, Watson tells me that the visitor was a science reporter who confided he has a form of schizophrenia.

## Background

- [The Sunday Times reviews DNA: The Secret of Life by James D Watson with Andrew Berry](#)
- [Watson no stranger to controversy](#)
- [Call that being nice, professor?](#)

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The visitor’s trust is well founded. Standing just a few hundred metres from the building, vast construction frameworks jut above the campus. This, Watson’s latest project – an impressive \$100m new-build – heralds a new era of genetics. It will soon become Cold Spring Harbor’s platform for unravelling the genetic causes of mental disorders such as autism and schizophrenia. He is convinced that within 10 years “we will be able to diagnose the problem of schizophrenia by looking at the patient’s DNA”.

James Watson, or Jim, as the majority of scientists call him at the lab, has an energy that’s infectious, almost childlike. Born in Chicago in 1928 into a family who believed in “books, birds, and the Democratic party”, his outgoing character comes, he tells me, from his mother, the well-liked and extrovert Margaret – a raven-haired beauty who worked enthusiastically for the Democrats, the basement of their modest house doubling as a polling station at election time. His father, James, worked for a correspondence school and was a quiet, kind character who introduced his son to books and instigated a love of biology with early-morning birding forays in the nearby park. Watson recalls that he was conditioned to accept his father’s disdain for “any explanation that went beyond the laws of reason and science”.

Caught up in the Depression of the 1930s, he slept in tiny attic rooms with his younger sister, Betty, in the middle-class neighbourhood of South Shore, playing evening games of “kick the can” and softball in bungalow-lined streets. Skinny-framed and physically weak in his teens, his only consolation from school bullies was his parents’ empathy, encouraging constant trips to buy milk shakes to “fatten him up”. He recalls how a pupil cheerfully told him how, given his social awkwardness, “none of my classmates thought I would amount to much”.

In his picture-lined office, sitting beneath a rough paper sketch of a twisting DNA helix, Watson leans back in his chair, excitedly discussing his book. “Not being boring isn’t sufficient to be a success in this world, but certainly,” he pauses, fixing me with a brilliant smile, “it helps.” He says he hopes the book will encourage people to go into science and – tilting the cover to the light points out a hidden “Other” between the words “Boring” and “People” – “One, I’m a snob; the other, I’m a realist!” He giggles in delight.

Watson didn’t grow up thinking he was particularly gifted. “I never was one of those boy geniuses who could do maths,” he admits. But he does remember his teachers liked him, commenting that: “I must have had some spark that I didn’t know I had myself.” At the extremely young age of 15, he was admitted to the University of Chicago; his mother knew the head of admissions, he says, and “I always thought I got in because they liked my mother”. For a brilliant but awkward teenager, university was the break he needed. “A world where I might succeed using my head – not based on personal popularity or physical stature – was all that mattered to me,” he writes.

Watson prefers to eat at Winship’s, the chatty, down-to-earth laboratory bar overlooking the harbour, named after my boss of the time, whom he describes as having the “second loudest laugh I’ve ever heard after Francis Crick”. He mingles enthusiastically, hands shoved deep in dark-

red knee-length shorts, an orange floppy sunhat perched on his head. He remembers, as I do, being seduced by the informal and intelligent atmosphere of Cold Spring Harbor Laboratory, something he first encountered as a 20-year-old biology graduate on a summer course. He says that in these early days, molecular biology was a very small field and people “didn’t know what DNA was”. He was under the spell of Max Delbrück, the charismatic young German lab director who played tennis and wasn’t “stuffy”.

For Watson, the ability to socialise is a key skill, one he believes can help propel you far beyond your peers. “Gossip is a fact of life also among scientists. And if you are out of the loop of what’s new, you are working with one hand tied behind your back.” The trait is clear among his staff, who, chatting easily at the bar, have the “ungeeky” Watson touch. My headmistress recalls the geneticist wanting a “bright but not very boffiny candidate who had lots of other interests” and who, above all, was “sociable”.

When Watson arrived in the Cavendish laboratory at Cambridge University as a 23-year-old postdoc, thirsty for the truth about the genetic material in our cells, his sociable American ways encountered Francis Crick’s “extraordinary conversational ability”, and he was hooked. Suddenly it no longer mattered what Delbrück thought: “It became what

Francis thinks.” The pair freely discussed their scientific findings with other researchers at Cambridge and King’s College London, and Watson says this was essential to the pair’s ability to work out the detailed structure of the DNA molecule.

But there was someone who seemed immune to Watson’s precocious intelligence and eager collaboration: the acclaimed x-ray crystallographer Rosalind Franklin – someone described by Watson and Franklin’s estranged research colleague Maurice Wilkins, who shared the Nobel prize, as “hostile”. Whereas Watson admits to never having a problem asking for advice, writing that it is better for someone to “know my inadequacies than not to be able to go on to the next problem”. Franklin seemed unwilling to risk criticism, reportedly preferring to work on DNA in isolation, jealously guarding her results. Watson comments that “avoiding your competition because you are afraid that you will reveal too much is a dangerous course”.

As he chews a melted-cheese sandwich and sips an iced coffee in the bar, he reflects on his relationship with “Rosy”. “She was possibly somewhat Asperger’s,” he says quietly, “because she didn’t seem to even want to look at people and would hurry past them. I think she wasn’t good at knowing what other people thought and so she would insult them. She had some terrible interviews with the Medical Research Council and I think she cried afterwards. She was just awkward.” Then he softens: “I tell people, instead of feeling angry at awkward people, you realise it’s not their choice. It’s awful. And I think science selects for awkward people because you think in dealing with ideas, you don’t have to deal with people. But the moment you’re in science and you realise you can’t deal with other people, you’re at an enormous disadvantage.”

It is hard to ignore the accusations that emerged around that time. In 1962, Watson, Crick and Wilkins received the Nobel prize for physiology or medicine, but by then Franklin – whose data was so crucial to the discovery – had died at the age of 37, her life cut short by ovarian cancer. But when, in 1968, Watson wrote an account of the DNA “race” in which he revealed that Wilkins had shown him Franklin’s data without her knowledge, and compounded it by being derogatory about her physical appearance, he was slammed by feminists riled by what they believed was a blatant case of sexism. Although the prize can only be shared by a maximum of three people in one category – and Franklin’s input was readily acknowledged – they claimed her contribution had been overshadowed. When, in an interview at the time, he was asked why it mattered how a woman looked, he said: “Because it’s important” – a statement surely grounded in the genteel influences of his early life, when manners mattered, and being unkind “just wasn’t the way to behave”. And occasionally, throughout the day, his “old-fashioned” ideals come through. He describes Max Delbrück’s wife, Manny, as someone he liked very much but “not the sort of wife he needed”, adding that she was a terrible cook and would never have enjoyed the entertaining and fundraising that comes with being a university president’s wife. He also refers more than once to his disdain for women turning men into “girly men”, which means “men who don’t have the courage to say anything – it’s absurd”.

Feminists are a constant source of trouble for him. I remember him turning to me the day the headline “Abort babies with gay genes, says Nobel winner” appeared in a British broadsheet 10 years ago. Eyes wild and voice uncharacteristically strained, he asked: “What

should I do about the press?” He refers to the incident again at lunch. “It was a hypothetical thing,” he explains. “If you could detect it pre-natally, could a woman abort a child who was homosexual? I said they should have the right to, because most women want to have grandchildren, period. We can’t do it, but it’s common sense. Anyways,” he says, shaking his head wearily, “it was a bad day when that headline hit. I was just arguing for the freedom of women to try and have the children they want, not what is right or wrong.”

One former pupil, an eminent biologist and staunch feminist, is outraged at his account of her in his book. He describes her as having “bolted from the room” when the ex-Harvard University president Larry Summers gave his infamous lecture suggesting that the low representation of tenured female scientists at universities might stem from, among other causes, innate differences between the sexes – an “unpopular, though by no means unfounded” theory, Watson comments. “She can criticise men; men can criticise women,” he says. “People criticise me all the time and you just take it. If you enter the public arena then you’re subject to it.” On the subject of gender equality he says, adamantly: “All I care about is great science.”

But he happily admits to appreciating a pretty smile or a well-dressed physique. A love of things aesthetic is unmistakable – pictures, glass sculptures and his elegant wife, Liz, 20 years his junior. He once said that in the early days, “almost everything I ever did, even as a scientist, was in the hope of meeting a pretty girl”. However, on the subject of science, he seems impartial. He admits that Rosalind Franklin would have seen the double helix first “had she seen fit to enter the model-building race and been better able to interact with other scientists”, and makes a point of mentioning that a former female student whose career he “certainly encouraged” – who is now a high-powered biology professor – calls him “the first real feminist for women in science”. As I sit with him, another former female student is being derided for her poor personal hygiene. He jumps to her defence: “No,” he shakes his head, dismissing it. “She was very intelligent.”

We drive in Watson’s silver-grey Volvo between tall sycamores and past the laboratory basketball court – a favourite pastime for many of the staff, fulfilling his rule to “exorcise intellectual blahs” by incorporating “plenty of physical exertion

to get outside your head regularly”. The road winds down to Ballybung, the Watsons’ peach-coloured Palladian-style home perching on the edge of Long Island Sound, which serves as a tranquil retreat from the bustling campus.

The lab is undoubtedly his second legacy. When he took on its directorship in 1967 at the age of 39, it was an ailing institution whose endowment was effectively zero, but it stands today as one of the world’s foremost genetic research institutes. Last year its budget stood at an impressive \$115.4m. Success, he believes, comes from having the right objectives: “Ones that are important and which are achievable.” Is he proud of the achievement? “Yes, I always wanted anything we did to be in the top five in the world. But I achieved it by encouraging people and making people think that you’re good enough to do something very good and make sure you don’t waste your life with unimportant objectives.” He says Cold Spring Harbor couldn’t survive if the science was pedestrian: “It has to be unusual or you die.”

When he took on the directorship, he split his time between Cold Spring Harbor and his professorship at Harvard. At 39 he had been captivated by the Radcliffe sophomore Elizabeth Lewis, the young assistant in his university faculty. After a lightning romance, he memorably wrote a postcard to a close friend saying:

“19-year-old now mine.” As I wait in Ballybung’s homely kitchen, Liz breezes in clutching a bunch of sunflowers to “brighten up the hall, because they are so pretty”. A dark-haired beauty with wide-set eyes and a dazzling smile that, says Watson, “would always make me feel good”; it seems clear her intelligent and solid support contributes much to the laboratory’s success.

On late nights back from the lab, I would stumble over little presents and notes on the stairs to our annexe – timely reminders from Liz not to forget a drinks party that weekend. The Watsons, I soon discovered, never stop working. The house was invariably crammed with rich benefactors and potential donors. Unaware of funding concerns then, I find out that the new buildings I saw earlier will need an additional \$100m on top of the building costs, to “attract researchers”. Jim is as blatantly direct about his fundraising tactics as about everything else. He writes: “Nothing attracts money like the quest for the cure for a terrible disease.”

But the quest for the root causes of mental illness is not driven only by a lust for the truth. Of his two sons – Rufus, 37, and Duncan, 35 – Rufus lives at home, seriously incapacitated by an inability to plan ahead. “Rufus couldn’t really do his schoolwork,” Watson says. “Even though he was bright, he could never write a term paper because he couldn’t really organise his thoughts. He can handle one day and that’s all that he wants to think about.”

Rufus was first hospitalised at the time of the 1986 meeting on the human genome. Watson realised that he would never really find out what was wrong with him until he could isolate the genes. But, as more is uncovered about the causes of schizophrenia, he wonders if he himself is to blame. “I worry that I was 42 with Rufus,” he says. “I read that the frequency of schizophrenia goes up with the age of both parents.” This leads him to expound his latest socio-biological theory, that “Viagra is fighting against evolution” – because if evolution has selected for erectile-dysfunction disorder, it is to prevent older men fathering children. He suggests that “men should store sperm at 15 to be used if they want to be fathers at 80”.

He talks of the “horror and destruction” of life that can arise from having a severely autistic child, and hopes that by diagnosing autism early, “we might prevent some [autism-prone] families having subsequent children”. His mother died young, at 57. He says her heart was weakened by rheumatic fever earlier in her life, and that his father died of lung cancer. It was the quest to understand the biology of cancer that ultimately lured him from his professorship at Harvard. As the director of Cold Spring Harbor Laboratory, he could preside over seasoned professionals, focusing his efforts first on “recruiting scientists who cared as much as I did about the biology of cancer, and then on finding the funding they needed to make their ideas work”.

But what of the man himself? “I used to be three inches taller,” he says conspiratorially. “I used to be almost 6ft 2in and now I think I’m barely 5ft 10½in.” His voice drops to a

whisper: “You get smaller.” The other disconcerting thing for the geneticist is that, when they sequenced his DNA, he hardly had anything left of his Ychromosome – an evolutionary phenomenon that commonly occurs as men age. “I try not to think about it,” he chuckles. Acutely conscious of his physical appearance in his youth, he still finds looking at himself irksome. “The trouble is,” he says, as the photographer shows him a picture, “I don’t like the ones that look like me.” His ideal look? “Twenty-five,” he chuckles, “but I’d be satisfied with 35. A man, no matter how old, wants to think of himself as no more than 35, and to look at a wife who was 45... No! That would immediately tell you how old you are.”

As I sit on the plush tennis lawns of the nearby Piping Rock club, I am aware – as Watson powers formidable forehands cross-court – that even during his daily relaxation he is unfailingly competitive. “I play for two reasons,” he tells me. “To stay fit, and when occasionally I win a good point against a good player, I feel good.”

Does he ever reflect on his achievements?

“I don’t think back much. I’m still thinking can we find the genes for mental disease while I’m still mentally alive, and will we have stopped cancer in 10 years, and... will my tennis serve improve?”

We are waiting at a red light on the way back from tennis and, for Watson, a meeting with a potential sponsor. I remember that while I was thrilled when a sheet of familiar laboratory paper landed on my desk a few months ago, asking if I would like to interview him for his new book, I was wary of the ethical content. “If I believe something then I’ll say it,” the scientist says. “I figure, generally, at least half the time I am reflecting common sense, which is not a lie.”

Back in 1990, the journal *Science* commented: “To many in the scientific community, Watson has long been something of a wild man, and his colleagues tend to hold their collective breath whenever he veers from the script.” When, in 2000, he left an audience reeling by suggesting a link between skin colour and sex drive – hypothesising that dark-skinned people have stronger libidos – some journalists suggested he had “opened a transatlantic rift”. American scientists accused him of “trading on past successes to promote opinions that have little scientific basis”. British academics countered that subjects should not be off limits because they are politically incorrect. Susan Greenfield, director of the Royal Institution, said that “nothing should stop you ascertaining the scientific truth; science must be free of concerns about gender and race”.

He says that he is “inherently gloomy about the prospect of Africa” because “all our social policies are based on the fact that their intelligence is the same as ours – whereas all the testing says not really”, and I know that this “hot potato” is going to be difficult to address. His hope is that everyone is equal, but he counters that “people who have to deal with black employees find this not true”. He says that you should not discriminate on the basis of colour, because “there are many people of colour who are very talented, but don’t promote them when they haven’t succeeded at the lower level”. He writes that “there is no firm reason to anticipate that the intellectual capacities of peoples geographically separated in

their evolution should prove to have evolved identically. Our wanting to reserve equal powers of reason as some universal heritage of humanity will not be enough to make it so”.

When asked how long it might take for the key genes in affecting differences in human intelligence to be found, his “back-of-the-envelope answer” is 15 years. However, he wonders if even 10 years will pass. In his mission to make children more DNA-literate, the geneticist explains that he has opened a DNA learning centre on the borders of Harlem in New York. He is also recruiting minorities at the lab and, he tells me, has just accepted a black girl “but,” he comments, “there’s no one to recruit.”

Watson will no doubt enthusiastically counter the inevitable criticisms that will arise. He once commented to a fellow scientist – perhaps optimistically – that “the time was surely not far off when academia would have no choice but to hand political correctness back to the politicians”. Even after a year at the lab, I am still unnerved by his devil-may-care compulsion to say what he believes. Critics may see his acceptance of “softer-science” studies – that attempt to link IQ with specific genes, but remove society and other factors from the equation – as a dangerously flippant approach to a complex issue. His comments, however, although seemingly unguarded, are always calculated. Not maliciously, but with the mischievous air of a great mind hoping to be challenged. I ask him how he placates those he offends. “I try to use humour or whatever I can to indicate that I understand other people having other views,” he explains.

As I motor back to New York, I reflect on a man who – at nearly 80 – is, and will remain, an immensely powerful and revered force in science. I wonder whether it’s possible, as his desire to shock seems so strong, that a fear of boring people really does play on his mind. Perhaps the best description of the man is from the driver. “Dr Watson’s so kind and still very young at heart,” he drawls as we leave the campus behind. “He’s got a lot of curiosity about everything and he’s always working. But to him it isn’t work: it’s a challenge to the mind. And if he runs into a problem, it’s fun time.”

**Avoid Boring People by James D Watson (Oxford University Press, £14.99) is published on October 22. It is available at the BooksFirst price of £13.49, including postage and packing. Tel: 0870 165 8585**

#### **Dr Watson’s tips for success**

- Always make necessary decisions before you have to
- Be the first to tell a good story
- Don’t back schemes that demand miracles
- Never be the brightest person in the room
- Only ask for advice that you will later accept

