

HALDANE AT 125



Becoming an Indian

RAMACHANDRA GUHA*

New Delhi, India

*E-mail: ramguha@gmail.com.

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I

The story of modern science is, among other things, a story of gifted young men fleeing poverty and persecution at home for fame and success abroad. Bethe, Perutz, Fermi, Einstein, von Neumann: the names of scientific exiles are legion. A curious name in this list is that of the biologist and polymath J. B. S. Haldane. For he abandoned a rich country, England, for a poor one, India; besides, the move occurred at the relatively advanced age of 65.

Fearlessness was part of J. B. S. Haldane's genetic make-up. His father, J. S. Haldane, was a famous physiologist known for experimenting on himself. The son started early—at the age of four, when cut on his forehead, he wiped the blood, and asked: 'Is it oxyhaemoglobin or carboxy-haemoglobin?' By the time he was seven he was learning science by what he later recalled as 'Gandhian or basic methods'; washing up bottles while his father explained what was going on.

Haldane won a scholarship to Eton, and from there, to Oxford. After a degree in classics he enlisted in the Army. World War I had just broken out. Sent to France, Haldane acquired a reputation as (to quote General Sir Douglas Haig) the 'bravest and dirtiest officer in the British Army'. While he was in the trenches the Germans used poison gas for the first time. Faced with this new and deadly weapon, the Secretary of State for War turned to a colleague for advice. This was the Lord Chancellor, R. B. Haldane. He, in turn, called his brother J. S. down from Oxford. It was made even more of a family affair when the scientist said he would have to do some fresh experiments, for which he needed his old research assistant, his son.

So, in May 1915, J. B. S. Haldane joined his father's team in rural France, where they had converted a school into a laboratory. In a room enclosed by glass they pumped different quantities of chlorine gas, and then walked into it, sometimes with a mask, at other times without it. As Ronald Clark has written, these 'few days' work saved thousands of Allied lives and helped blunt the cutting edge of what might have been a decisive German weapon'.

J. B. S. went back to the front, but was almost immediately injured, at the Battle of Ambers Ridge. While recovering he ran a bombing school at Nigg. In October 1916 he succeeded in rejoining his regiment, which was now fighting the Turks in Iraq. This, his third spell in action, ended when he was injured by a bomb thrown by his own side.

Haldane was now sent to India to recuperate. He spent 16 months in the subcontinent, shuttling between hospital beds in the plains and the hills before being assigned a quiet desk at Army Headquarters in Delhi. His biographer writes of his time in India that 'naturally enough, as a matter of principle, he refused to conform. He travelled as widely as possible, took few of the precautions expected of him, drank unboiled water and chewed betel nuts, bought food at roadside booths and, as he agreed, generally behaved in an un-English manner'. In a later fragment of autobiography, Haldane recalled that the racism of the Raj had made him 'determined to come back as soon as I could associate with Indians on a footing of equality'.

After the War, Haldane was elected a Fellow of New College in Oxford. He was to spend a decade apiece in Oxford, Cambridge, and the University of London. He was one of the greatest of modern biologists, and unquestionably

the most versatile. He made fundamental contributions to evolutionary theory, biochemistry, and genetics.

But Haldane's interests were by no means restricted to science. He was learned in the classics, and steeped in history and philosophy. He was a wonderfully accomplished writer, a master equally of the scientific paper and the polemical pamphlet. A philosopher who thought rather highly of himself once wrote to Haldane saying: 'I have always been awed by the range of your learning'. This was A. J. (Freddie) Ayer, who in a public oration at University College had commented on the death of the idea of the philosopher as the synthesizer of the different sciences. Now each science had become too complex to be understood by someone placed outside it. The last man alive to understand all the disciplines, said Ayer, was J. B. S. Haldane; but soon the task would be beyond him as well.

For all his achievements in science and scholarship, Haldane believed that 'the best and most important action of my life' was to find jobs for Jewish refugee scientists. He was anti-fascist as well anti-imperialist, a combination which meant also that he was soft on the Soviets. For many years he wrote a weekly column for the *Daily Worker*. Until 1949, he was a member of the Communist Party of Great Britain. He quit the Party when asked to affirm his faith in Stalin's pet biologist, Trofim Lysenko, whose belief that acquired characteristics could be inherited flew in the face of established evidence in genetics, some of it provided by Haldane himself. However, even while he was in the Party he was never wholly of it. As his sister, the writer and feminist Naomi Mitchison once remarked, Haldane was 'a somewhat romantic Communist who didn't really like having to bother with Kremnology'.

It was characteristic of Haldane that even in his exit from Communism he would be uncharacteristic. He did not take the usual path of the apostate, which was to extol the newly discovered virtues of the Free World. For him, there was life beyond (Soviet) communism and (Anglo-American) capitalism. A visit to India in 1952, the first in 35 years, convinced him that the Indian Government was 'doing as much for world peace' as anyone else. He came back in 1954 and, three years later, decided to settle there for good. In the last week of July 1957 Haldane and his wife Helen Spurway arrived in Calcutta to join the Indian Statistical Institute. Haldane was to be a Research Professor; his wife, who was also a biologist, would assist him.

Why did Haldane and his wife move to India in 1957? Sometimes he said it was a statement of political belief. India was a democracy, whereas the invasion of the Suez Canal showed that Britain was still imperialist. Besides, he found Jawaharlal Nehru more attractive than Tory politicians. His India was genuinely nonaligned, whereas Britain was becoming increasingly subservient to the United States. As Haldane told the press while departing London: 'I want to live in a free country where there are no foreign troops all over the land'.

At other times he offered a personal motive for the move. He was soon to retire from University College, and wanted to spend his last days in a more congenial climate. As he put it: 'Sixty years in socks was enough'.

A third reason was scientific, namely the diversity of plant and animal life in India. Haldane thought that biology had become obsessed with technology and technique; it needed to return to the field. And here the tropics offered opportunities comprehensively denied the scientist in the temperate world. An essay in *The Rationalist Annual* of 1957 explained the move thus: 'Of course, if my work required electron microscopes, cyclotrons, and the like, I should not get them in India. But the sort of facilities which Darwin and Bateson used for their researches—such as gardens, gardeners, pigeon lofts, and pigeons—are more easily obtained in India than in England'.

Like so many other intelligent people, Haldane was absolutely paranoid about the Cold War. He seemed to think that by removing himself to India he might help in saving his own science from extinction. When an American interviewer asked him what the future held, Haldane replied: 'For me personally the future holds death. Before that, I should like to put in at least ten years of scientific research and teaching in India. If, as is very possible, the U. S. S. R. and the U. S. A. destroy one another, and China and Europe as well, there is about an even chance that biology may continue in India'.

Shortly after coming to Calcutta, Haldane recruited a young Bengali poet as his secretary. The letter of appointment can also be read as a statement of his philosophy in general:

Dear Mr. Bhattacharya,

Here are a few reprints some of which you might care to read with a view to possible translation into Bengali. Meanwhile, let us consider your duties. My *Dharma* is as follows.

- (i) *Kamadharma*. I am happily married. You may open all letters. It is unlikely that I shall have any extramarital love affairs.
- (ii) *Arthadharma*. This is an intolerable nuisance. You will have to keep me up to it, for example to see that my income tax returns are made, cheques paid in, and so on, not to mention the *Journal of Genetics*.
- (iii) *Sundaradharma*. You will find that my main interest here is poetry. I may be able to introduce you to some European literatures. I shall expect your help with Indian ones as time goes on. I have a modest appreciation of architecture, sculpture and painting (I think in that order) and none of music.
- (iv) *Mokhsadharma*. I should like to spend as much time as possible doing mathematics and scientific work which is valuable in so far as it is impersonal in the sense that my results are valid for everyone. Of course it expresses

my personality, but I try to suppress this. It will be your main job to make this possible for me by guarding me from the various people who want to distract me from it. I do not mean people with whom I can exchange information. They are not a nuisance. I mean people who want me to appear on public platforms, or make a 20 min speech after travelling 200 miles.

My wife's aims are not dissimilar. You will have to do various jobs for her particularly as she will be your employer. I am sorry for you. But at least it will be a change.

As we can see, among the tasks Haldane set himself was the learning of Sanskrit. He had already become a vegetarian, and begun wearing Indian dress. He applied for Indian citizenship, which, given his renown, was granted to him in three years, rather than the customary 30. The Haldanes worked in the Indian Statistical Institute until 1961, their period there recalled in a commemorative volume brought out some 30 years after they had departed. The volume had pictures of the great man in his Calcutta pomp, some taken with his boss P. C. Mahalanobis—the Indian clad in an immaculately ironed suit-and-tie, the Englishman in a crumpled *dhoti* and *kurta*. (Unfortunately, there were no photographs of Haldane in the saffron trunks which he wore to conduct interviews and to take his daily swim in the local pond.)

The ISI's Director, P. C. Mahalanobis, was himself a man of forceful, not to say imperious, character. (Two chapters in a recent biography of Mahalanobis are entitled 'The big banyan tree' and 'The great dictator'.) He was also in his own way a polymath. Trained in physics at Cambridge, he knew enough of his subject to be elected a member of the Royal Society at the age of 40. But he knew even more about Bengali literature. (It was said that he had a better knowledge of the works of Rabindranath Tagore than did Tagore himself.) In 1931 Mahalanobis established the Indian Statistical Institute, which, despite its name, had established a reputation in fields as varied as flood control and demography. His work attracted the attention of free India's first Prime Minister, Jawaharlal Nehru who placed the country's economic future in his hands. It was Mahalanobis who designed the Second Five Year Plan, which decisively rejected Gandhian and free-market alternatives in favour of a import-substituting, capital-intensive model of heavy industrialization.

In the decade since India became Independent, in 1947, Mahalanobis and the ISI played host to great economists from all over the world. Simon Kuznets, Oskar Lange, Milton Friedman, John Kenneth Galbraith: all came to Calcutta to offer their thoughts on Indian planning. Haldane was a prize as great as any of these—besides, he had come to India for good. But any pride Mahalanobis took in his catch was to quickly dissipate. The Director frowned on Haldane's manner of dress and, more seriously, on his disregard of protocol. His disenchantment

was communicated, as is the Indian tradition, by orders issued by his subordinates. Thus Haldane was told he could not swim in office hours and that the research staff he recruited had to have a first-class degree in the concerned subject. (Haldane answered that his own degree was in classics, while the only one of his students to have won a Nobel Prize had taken a third-class degree.) The final provocation was when Haldane was asked to show his work to the visiting Soviet Prime Minister, and insisted that an assistant be present, as it was he who was conducting the experiments. He was icily told that dignitaries to the Institute were expected only to meet 'Professors'.

In 1961 Haldane resigned from the ISI. He then attempted to start a genetics unit of his own in Calcutta, but was defeated by the bureaucracy. In 1962, the Haldanes moved to Orissa at the invitation of the state's Chief Minister, Biju Patnaik. 'Orissa seems to be rather a one-man show, like the I. S. I.', wrote JBS to an Indian friend. 'But Patnaik is younger than Mahalanobis, spends less time abroad, and (I hope and trust) does not think he knows how scientific research should be conducted. And above all, the rooms are there'.

With Haldane came his students, who were working on the genetics of rice, coconut, and other useful species. He spent his last days in the Orissa capital, Bhubaneswar. After his death in December 1964, Helen Spurway stayed on in India, dying as late as 1978, as the result of rabies contracted while doing research in the forests of Adilabad.

II

The papers of J. B. S. Haldane are held by the National Library of Scotland, near King George's Bridge in Edinburgh. After Helen Spurway's death, a nephew was dispatched to India to collect her (and her husband's) effects. This was wise, for there is no guarantee that the papers would have survived the monsoon and the Eastern disregard for written records.

Among these papers are numerous letters from men of high distinction in the Western world; Aldous and Julian Huxley, Isaiah Berlin, Jean Paul Sartre, Karl Jaspers, Pyotr Kapitza, the Marquess of Salisbury. As interesting, perhaps, are the letters from unknown Indians. For Haldane had a considerable reputation as a scientist and popularizer of science. His books were available in cheap paperback editions. His coming to India was advertised as a victory for anticolonialism, which added to his appeal. His reach and influence were further enhanced when he began writing a regular column for *The Hindu* of Madras.

Reading Haldane's correspondence with Indians, under the great green dome of the National Library, was to get a privileged peep into the making of a middle-class icon. I felt much as a hacker would who had access to the electronic mail box of Stephen Jay Gould—the contemporary

scientist who came closest to Haldane in his staggering erudition and range of interests.

A not untypical letter was written by a man from Hyderabad suffering from sterility, due to which his wife had developed 'deep complexes'. Wrote S. Krishna Rao: 'I bear a deep grudge against politicians and scientists who emphasize birth control but not sterility, especially masculine'. Could Haldane please write about his problem and its solution in *The Hindu*?

Haldane's response was entirely characteristic. 'I do not think you are justified in feeling as miserable as you do', he replied: 'I can quite understand that your wife does not desire artificial insemination, But why not adopt a child? ... It is quite normal to find sexual relations less satisfactory at 49 than at 29. However other satisfactions may become greater.'

Among the more interesting letters was this one, from the little town of Tiruvalla in Kerala:

J. B. S. Haldane, Esq.
Institute of Statistics,
Calcutta.
Dear Sir,

May I introduce myself as a retired man, past 65 years of age. I am not a scientist, but I am interested in reading scientific writings. For instance, I usually read your articles in 'The Hindu' and similar articles elsewhere.

I spend much of my time now on reading books and magazines and one of my recreations is listening in to music on the radio. That means I often stand before the radio, adjusting and tuning, mainly because we get an erratic current supply here—fluctuating voltage, they call it. The radio receiving set is so placed that the illuminated dial faces my stomach, the upper part of the body being often left bare in the usual South Indian fashion. I am having this radio for the last three years.

For several months now, I have been feeling a burning sensation all over the surface of my stomach, not confined to any spot, but just all over the stomach. (I never use any intoxicants or even tobacco in any form. Nor do I have any disorder within my stomach.)

Please, do you think that the light falling from the dial or any rays that might emanate from the radio could have brought this burning sensation? In other words, is there any relation between the radio and radio activity?

At the same time, I must say that I do not feel the same sensation on the skin of my hands or my face, tho' they come within the range of the dial in tuning and setting the metre bands.

I shall be grateful for a line in reply.

Yours sincerely

M. C. Varghese, M. A.

(Retd. Labour Commissioner)

Haldane wrote back saying that he could not answer the question unless he had a full description of the radio

set, 'which you could hardly give me'. He speculated that Mr Varghese's problem might be an early sign of ulceration, when the pain from an internal organ is felt in the skin. To confirm his hypothesis he suggested a scientific experiment: 'It would be interesting to know whether your skin sensations are relieved or aggravated if you go without food for 24 hours'.

Indians wrote to Haldane for medical advice and moral advice, for jobs and for reading lists. He was besieged by letters from rationalists, anti-imperialists, young scientists, old poets, Hindu monks. When his difficulties with the ISI were the subject of a Parliamentary debate in 1961, Vice Chancellors of half-a-dozen universities offered him jobs and facilities. A farmer from Tamil Nadu wrote saying 'I am eager to be of help and service to a sincere soul like you please'. He promised Haldane his own property, composed of hillocks and paddy fields, situated opposite a railway station not far from Cape Comorin, at the very tip of India. A senior manager in the Indian Telephone Industries requested him to move to Bangalore, a garden city with a wonderful climate which 'still wears to a certain extent an English look', which already had high-quality scientific institutions, and where he would find 'typical Dravidian stock of people with hoary traditions of Tamil culture and language'. The proposal, said the manager, was being put forward on behalf of 'hundreds of science-loving Indians'.

Most of Haldane's correspondents were from Southern and Eastern India. But the loveliest letter came from the border town of Gurdaspur, in the Punjab. Here it is, reproduced more-or-less in full:

Puri Farm
Sukala,
P. O. Kishankot,
Dist. Gurdaspur,
Punjab
28th March, 1961

Dear Professor Haldane,

A few days ago a Lok Sabha proceedings report made me infer that you have severed connexion with the Indian Institute of Statistics. The news gave me pain because it is clear that the directing authority made things unbearable for you. I shall feel depressed until I hear that you have not decided to abandon India.... Your troubles make me more uncomfortable than the two lies I told this week.

I believe that *My Friend Mr Leaky* which I bought in the Puffins about twenty years ago and read again and again until I lost it at Lahore in 1947 is one of the most enjoyable books ever written. (Ah! and how I remember that story of gold-makers in *The Inequality of Man*.) For you I have special respect. If psychoanalysis and psychotherapy require confession, you are the only person in the world whom I would tell everything.

Is it not queer that your break with Indian statisticians should coincide with the Indian census? It is now when the figures are coming in that your sage advice is most needed.

If you leave India I will go berserk for at least a fortnight. But I hope you will stay and wish you another real Indian summer with some studious hours spent in splendid bath-rooms stocked with mangoes capable of squirting in every possible direction.

Yours sincerely
T. C. Puri

III

Haldane, then, was an object of adoration among all kinds of Indians. For his part, the Indian the scientist most venerated was a dead one, Mahatma Gandhi. In 1952 he made his second visit to India, 35 years after the first. Among the people he met was the anthropologist Nirmal Kumar Bose, who had been Gandhi's secretary in 1946–1947, while the Mahatma walked the Bengal countryside, dousing the flames of communal passion. Haldane thought Bose 'probably the ablest man in academic life in India'. Their friendship furthered his interest in Gandhi. After his final move to Calcutta the anthropologist was one of two Indians whom Haldane was prepared to regard as an intellectual equal. (Not that there were many others elsewhere.)

Reading N. K. Bose's *Studies in Gandhism* prompted Haldane to read the Mahatma in the original. In 1957, when an interviewer asked him what were the most important trends of thinking in the modern world, Haldane answered: 'scientific method, and by this I include much of Marxism, and the opinions of Gandhi.'

This former Communist and veteran of two World Wars was profoundly impressed by Gandhi's attempts to eliminate violence from human affairs. Could this be done in biology? Haldane had long been conscious of the unnecessary suffering imposed in the course of modern scientific research. Like his father, he had never done an experiment on an animal that he could not do on himself. In a lecture of 1928 on 'Science and ethics', he argued that a belief in the theory of evolution implied a belief in the rights of animals. As biologists, he said then, 'our clear duty to animals is to spare them obvious physical suffering. As we learn about their psychology we shall know better. It is quite possibly as cruel to keep a pet rat in a light and airy cage as to lock a dog in the cellar all day; and it is already the duty of every one who keeps animals to acquaint himself with the elementary principles governing himself'.

His own training had led Haldane to believe that science should foster a 'feeling of unity with other animal

species, with plants and with the so-called animate nature'. Reading Gandhi confirmed this. For a 'Gandhian should avoid causing suffering to others unless they volunteer for it'. By the same token, 'a Gandhian should not object to some pain or discomfort, such as thirst, in a cause which he or she considers worthwhile'. Both science and morality sanctioned, even mandated, self-experimentation. For you cannot be a good human physiologist unless you regard your own body, and that of your own colleagues, with the same kind of respect with which you regard the starry sky, and yet as something to be used, and if need be, used up. This, I think, is a Vaisnava attitude which Gandhi would have understood.

Haldane was also influenced by his friendship with the ornithologist Salim Ali. Unlike many Western biologists, Ali studied distribution, density, breeding, behaviour, and songs with little or no recourse to the killing or capturing of birds. As it happens, Ali was a carnivore who enjoyed shooting birds and small game for the pot. His research methods were dictated by shortages of finance; but seeing them in practice, his British friend elevated them into a moral principle. They were a prolegomena to what Haldane called (in a paper of 1959) 'The Non-Violent Scientific Study of Birds.'

Thus Haldane saw a 'very great opening for non-violent biological studies in India'. One could breed groups of ducks, separated only by wire netting, and study their evolution with a tape measure and chart of colours. One could develop vaccines against snake poison (a big killer in Indian villages), by experimenting on oneself. This was 'a task for non-violent Indian biologists. Two or three of them might die of snake bite before the process was fully worked out. If so they would not have died in vain'.

The Buddha and Gandhi notwithstanding, a non-violent biology had never developed in India. This paradox was answered in a paper by Haldane called 'An Indian perspective of Darwin', published to mark the centenary of the first appearance of *The origin of species*. To the European and American, Darwin's great achievement had been to show man's kinship with animals. The Hindus and Buddhists knew this all along. Unfortunately, in Indian tradition sympathy for animals had degenerated into a set of ritual prohibitions. It did not prompt scientific research. In the case of Darwin, however, his love for plants inspired him to observe them with greater accuracy.

Haldane tried heroically to synthesize his Darwinism and his Gandhism. 'India has made many contributions to world culture', he remarked: 'Perhaps the greatest is the ideal of non-violence. Europe's greatest contribution is the scientific method. If these can be married, their offspring may raise mankind to a new level.'

After Jawaharlal Nehru's death, in May 1964, Haldane wrote a long article called 'Indian science after Nehru'. Here he made the case, pessimistically, for a Gandhian science:

The kind of science I want to start here could be called Gandhian science, though in fact it was only after I had worked out my own ideas that I found how close some of them were to Gandhi's! Among other things we do biological research with very little killing of animals and no infliction of pain. I am not a Jain. We must deliberately kill about two hundred insects a year, largely for identification... [But] I believe that science could and should be taught on Gandhian lines in Indian schools... I want to be able to present this point of view before the changes in organization which are inevitable after [Nehru's] death are embodied in regulations and institutions which will be hard to alter. It seems unlikely that I will get the opportunity and Indian science, like some other Indian activities, will drift even further from anything of which Gandhi might have approved.

IV

Whether commenting on politics or culture, science or religion, Haldane's ideas were unorthodox, iconoclastic, and often ahead of their time. A partial exception must be made for his anti-Americanism. His British lineage and Marxist faith predisposed him to this prejudice; which was reinforced by the India of the 1, where the intellectual class as a whole, the Gandhians among them, were inclined to give the Soviets the benefit of the doubt in the Cold War. Haldane was no longer a party man, but he still inclined towards the Left. In 1958, he visited the state of Kerala, then ruled by a democratically elected Communist government, and was greatly impressed by the lack of deference among workers and waiters.

Not long after returning from Kerala, Haldane was invited by the University of Utah to give a series of lectures. He went to the U. S. Consulate to get a visa form, which asked him to 'name all the organizations of which I am or have been a member of or affiliate since my sixteenth birthday (with inclusive dates).' In his long life Haldane had been a member of more than 50 organizations. But he could not precisely remember when he had joined (and left) the Oxford Liberal Club, or the Genetical Society, or the Association of Scientific Workers. However, the visa form made him liable to penalties under U. S. law if he made a 'false' declaration. Haldane wrote to the Professor who had invited him that these conditions were 'unworthy of the land of the free and the brave.' 'So long as you keep this "iron curtain"', he said, 'it is a waste of your time and your own to invite me to the U. S. A.'

A few months later Princeton University wrote inviting Haldane and his wife. The visa form, he told them, made such a visit 'impossible for me'. He added: 'If President

Kennedy has the guts to tear down this Iron Curtain I will come when next asked, if I can manage. But I think there are too many officials who have a vested interest in this kind of nonsense.

Then, when Senator Hubert Humphrey wrote asking for some reprints, Haldane complained to him in these prophetic words:

If I wished to blow up the Empire State Building or subvert the Republican Party I should doubtless be willing to sign false statements. But I happen to have a professional prejudice in favour of the truth, though I am quite lax on some other virtues. It seems to be ridiculous that a great country like yours (or rather its government) should be so frightened of what I can do as to make such demands.

V

There were times when Haldane could be quite fed up with life in India. Asked why Indian science was not up to the mark, he answered: 'It is not because Indians are stupid and lazy. It is because they are too polite and courteous. They spend hours daily in conversation with others, not on professional matters, but on personal topics. But in science efficiency is more important than courtesy.'

His own work was impeded at every step by bureaucratic indolence and mindlessness. The Government of India, he found, had 'done nothing serious to cut the cocoon of red tape in which the British authorities enclosed it'. Moreover, 'the ferocious hatred and contempt of administrators for scientists' was 'as common in India as in England'. Haldane hit the roof when sent a circular specifying that any assistants he recruited must have first-class degrees. As he pointed out, he himself had a degree in classics, yet was recognized as one of the half-dozen leading biologists in the world. And 'as for the untouchability of men with second class honours, the only one of my pupils who is a Nobel Laureate got a third class'.

A year after settling in Calcutta, Haldane began a correspondence with the great geneticist Theodosius Dobzhansky. Dobzhansky too was an exile, although his route had been more orthodox. Born in the Ukraine, he had studied in Kiev and Leningrad before moving to New York in 1927. And whereas Dobzhansky was a believer—he had a fabulous collection of Russian Orthodox icons—Haldane was a lifelong Marxist and agnostic.

When Haldane heard that Dobzhansky planned to visit India, he wrote offering to organize and host the trip. He hoped that the geneticist would catalyse an indigenous school of *Drosophila* (fruit fly) research. In exchange he would guide Dobzhansky around the rich diversity of India. The prospect he held out was seductive: delta marshes, rain forests, Himalayan forests, and, not least, Hindu temples.

The letter then came to the ‘bad points’. ‘You will have to be polite to a lot of pompous people’, warned Haldane. ‘Laboratories will shut at 5.30 pm, and you will not be allowed to have a meal with your technician. This will be an insult to you under our new caste system, based on university degrees.’ ‘You will have to eat the local food. I do. You had better get to like the local liquor...’.

This letter was posted on the 2nd of October 1958. Six weeks later Haldane wrote to Dobzhansky that he had wangled him an invitation to the annual Indian Science Congress. This had cost him ‘a great deal of effort in pulling strings, one being attached to the Prime Minister. Such string-pulling will do me no good unless you can get some research started, as in Brazil’. Once more, he told his friend to expect a unique mixture of the dismal and delightful. ‘The first thing to realize about this country is that from the Western and communist points of view alike its principal occupation is wasting time. I may of course have lost my job by the time you arrive for protesting too vigorously against this practice. But you will soon discover this to be the case. On the other hand, the country contains a number of first rate people, plants and animals’.

Somewhere along the way, the proposal was hijacked by the Government of India and the American Embassy, working in tandem. By the time Dobzhansky and his wife were due to come, in December 1959, Haldane had been excluded from the final programme. The distinguished visitor was to make a special speech at the Science Congress, cut ribbons at various new buildings, and be awarded a number of honorary Ph.D.’s.

When Haldane saw the programme he wrote to a mutual friend in dismay: ‘These official organizations sure hate research. And yet from the point of view of U. S. influence in the world it would be far more useful to start a *Drosophila* systematics school here, as he did in Brazil, than to give twenty lectures in universities. I am disappointed, as I want to get biological research going here’.

Haldane now planned to go to Bombay himself for the Science Congress. He wrote to Dobzhansky telling him to deliver his speech and miss the rest of the proceedings. Instead, he might join Haldane in a tour of the rock temples at Ajanta and Ellora. ‘It would be grand if you could come with us, for we could talk biology after dark’. In addition, he would arrange a special excursion with India’s leading ornithologist, Salim Ali. ‘My wife’, said Haldane, ‘will be extremely fierce with the Science Congress bureaucrats on your behalf, if you will let her’.

Dobzhansky, in reply, admitted that a ‘combination of great art from the caves and temples and great biology from the Haldanes cannot be excelled’. But then he added: ‘We are tremendously thankful to the Indian colleagues for inviting us, and want to do exactly as they want us to do. Please do not be “extremely fierce” on our behalf. On the contrary, I want to be as meek as a lamb. A guest

who makes trouble, or who causes trouble indirectly is a nuisance, and I would like if possible make a good impression and leave good memory. In Rome do as Romans do.’

In the end, the trip to Ajanta had to be made without the Dobzhanskys. They did visit the Haldanes’ lab in Calcutta, but only once, and their minders had rationed them to 90 minutes.

Not long after he left the ISI, one of Haldane’s former assistants lost his job. His letter of support says it all:

Dear Mr Ghosh,

I understand that you are to lose your position for smoking in front of a worker senior to yourself. I take full responsibility for this conduct on your part. Since 1915 I have always permitted and even encouraged workers under me to smoke, if they wished; and I treated you no better, but I hope no worse, than I treated my British juniors.

It appears that some persons in the Indian Statistical Institute wish to model it on the court of a British Viceroy rather than a scientific laboratory. If they succeed they will certainly make original work there impossible, and this may well be their aim.

You may use this letter in any way that you wish, and show it, or copies of it, to anyone you wish.

Yours sincerely

J. B. S. Haldane (F. N. I., F. R. S., Ak. Nauk, etc.)

As the last sentence shows, Haldane was prepared to place his criticisms in the public domain. In August 1962, the *Illustrated Weekly of India* asked him to write an essay to mark 15 years of freedom. He entitled his essay ‘Halfway to Independence’, and sharply criticized the imitiveness of the Indian élite, the feudalism of the bureaucracy and scientific establishment, and the archaic laws which allowed the state to monitor and censor the press.

A few weeks after writing this article, Haldane received a circular announcing the compilation of a National Register of Indian Scientists. By its criteria, neither he nor Salim Ali could be included, since they did not have the appropriate degrees. This prompted Haldane to write an essay with the ironical title: ‘Am I a Scientist?’. ‘India is supposed to be a democracy’, he began. And indeed, ‘a few million Indians want to make it one in fact as well as in name’. However, ‘it will not be a democracy until a *mali* [gardener] can become a distinguished scientist, as he can become a distinguished politician’.

It was typical of Haldane that, at the same time as he would mount these criticisms in the Indian press, he would underline his patriotism to the outside world. He accepted foreign prizes and honours as an ‘honour done to Indian science’. The prize money—sometimes very considerable—was spent on funding the research and

other expenses of his students. He insisted on his Indian citizenship being mentioned wherever possible. When an American science writer described him as a 'citizen of the world', Haldane replied:

No doubt I am in some sense a citizen of the world. But I believe with Thomas Jefferson that one of the chief duties of a citizen is to be a nuisance to the government of his state. As there is no world state, I cannot do this... On the other hand I can be, and am, a nuisance to the government of India, which has the merit of permitting a good deal of criticism, though it reacts to it rather slowly. I also happen to be proud of being a citizen of India, which is a lot more diverse than Europe, let alone the U. S. A., U. S. S. R., or China, and thus a better model for a possible world organisation. It may of course break up, but it is a wonderful experiment. So I want to be labelled as a citizen of India.

Haldane once went so far as to call India 'the closest approximation to the Free World'. An American colleague protested, saying his impression was that 'India has its fair share of scoundrels and a tremendous amount of poor unthinking and disgustingly subservient individuals who are not attractive'. To this Haldane responded:

Perhaps one is freer to be a scoundrel in India than elsewhere. So one was in the U. S. A. in the days of people like Jay Gould, when (in my opinion) there was more internal freedom in the U. S. A. than there is today. The 'disgusting subservience' of the others has its limits. The people of Calcutta riot, upset trams, and refuse to obey police regulations, in a manner which would have delighted Jefferson. I don't think their activities are very efficient, but that is not the question at issue.

Indian society, American politics, world science: on these large and important topics the ideas of J. B. S. Haldane speak to us across the decades. As do his views on another always relevant subject—British royalty. In the first weeks of 1961, Queen Elizabeth came to India on a state visit. She was to spend two days in Calcutta, as the guest of the Governor, Padmaja Naidu. Miss Naidu was the daughter of the celebrated nationalist poetess, Sarojini Naidu, and herself a long-time associate of Jawaharlal Nehru. In short, she was exactly the sort of educated, Westernized, and élite Indian who would know and admire J. B. S. Haldane.

Weeks before the royal visit, Miss Naidu wrote to Haldane asking for advice. He told her to present the Queen a copy of Salim Ali's *Book of Indian birds*, and to gift her husband a Mughal or Rajput picture of a polo match. The visitors could also be taken to the Calcutta zoo, which in winter was home to plenty of colourful migratory

birds. This would 'probably interest her [the Queen] more than a good many of the things which she is made to see'.

The advice was accepted, and in exchange the Haldanes were invited to Government House for tea with the Queen. The scientist thanked Miss Naidu for her courtesy, but said they could not come as a broken bone had put his leg in a cast, as they did not own a car, and as 'neither my wife nor I possess clothes suitable for such a reception'. He continued:

My European tail coat was bought before 1939, and looks it. My Indian clothes come from the Gram Khadi Udyog, and look it. My wife also has no formal evening dress, jewellery, and the like. One reason for our coming to India is that the Gandhian tradition makes such simplification of life not only practicable but respectable. On the other hand they might be regarded as insulting to the Queen of England, and we have no wish to insult her.

To his mother, in England, Haldane added a fourth reason for his 'avoiding ceremonies in connexion with the [Queen's] visit'. This was that 'the Duke of Edinburgh keeps up a permanent smile at public functions which makes him too like a shark for my taste'.

VI

Before and after Haldane, there have been other white men (and women) who became Indians. They include the ornithologist and civil servant Allan Octavian Hume, who founded the Indian National Congress; the Irishwoman Annie Besant, a suffragette and Fabian who came to spend 30 years in India, starting schools for girls and preaching 'Home Rule'; the renegade priest Verrier Elwin, a brilliant Oxford scholar who became the foremost spokesman for India's tribal people; and Madeleine Slade, the Admiral's daughter who became an associate of Gandhi, went to jail on his behalf, and later did pioneering environmental work in the Himalaya.

From both scholar and popularizer these rebels have got somewhat less than their due. In one version of colonial history, associated with the rulers, the British conquered the subcontinent in a fit of absence of mind but, once it was in their possession, gave to India the rule of law, science, modern education, and other accoutrements of civilization. In the competing version, associated with the ruled, the white man's Raj was always illegitimate, marked by coercion and backed by force, its central aim the economic exploitation of Indian labour and Indian raw materials.

Thus, British bookshops and libraries are awash with biographies of men such as Robert Clive and Francis Younghusband, celebrating the exploration and adventure

that went into the making of Empire. Other works write of the social lives of officials, planters, missionaries, and businessmen—that is, the lesser-known but nonetheless indispensable bulwarks of the Raj. School textbooks in India, meanwhile, tell only of the opposition to colonial rule, casting the deeds of Gandhi and Nehru with the glow otherwise associated with the epic figures of the Ramayana and Mahabharata. Professional historians seek instead to recover the resistance to colonialism of the ‘subaltern’ classes, the tribals, peasants, women and workers deprived or dispossessed by British policy.

Like Besant and Elwin before him, J. B. S. Haldane had chosen India over England; and he would stick by it. In numerous letters to friends, Haldane disabused them of the notion that he had made a mistake in coming to the sub-continent. In November 1959 he wrote to his sister Naomi that ‘I have no desire whatever to return to England, nor has Helen’. Two months later he told an old Cambridge friend that ‘I have definitely settled down here, and hope to do a lot of elementary biology’. He added: ‘I think human beings should be transplanted every 25 years or so; otherwise they get pot-bound’. Writing to Isaiah Berlin in October 1961, he insisted that ‘my exile here has been a howling success’. He had collected a group of young men, ‘who are at least capable of transposing my thought into novel keys, thus appearing original to others and flattering me by leading me to believe that my utterances were profounder than I believed when I made them’. It was true that there were problems with the bureaucracy, but life in India was still ‘somewhat better than in London, where promises made to me in 1935 had not been implemented in 1957’.

This was written as he prepared to leave the ISI and start a new unit funded by the Council for Scientific and Industrial Research. Six months later the CSIR withdrew support, prompting a protest by Haldane and further questions in the Indian Parliament. The President of the Royal Society, Sir Howard Florey, wrote anxiously to Haldane, hinting that he might be better off if he returned. ‘Please don’t think I am fed up with this country’, replied Haldane: ‘Some of the people at the top should be liquidated (though not the President, Nehru, Krishna Menon, and Jagjivan Ram, to mention no more). But the young men are grand; and so are a lot of the plants and animals’.

Shortly after this exchange Haldane moved to Orissa. Then, towards the end of 1962, China and India went to war. Haldane deplored the excessive displays of jingoism, but there was no doubt which side he was on. An essay entitled ‘Some common sense about the Chinese invasion’ argued that fighting on the front was not the only way to display one’s patriotism; one could grow more food, or earn foreign exchange, or simply work harder at one’s job. In the midst of this exhortation Haldane jocularly remarked that ‘I am too old to take part in the defence

of India, though if invaders ever reached Orissa I hope I should be allowed a rifle, since I can still fire it, and am too feeble to run away!’

Life in Orissa exposed Haldane more directly to the glories of Indian culture. Calcutta was a dirty, crowded metropolis—its only noble buildings of colonial origin. Bhubaneswar, by contrast, was a small town surrounded by forests, lakes, rice fields, and above all, temples. Within city limits lay a hundred medieval shrines—a couple of hours away by car were Puri and Konarak, the sites of two of the greatest of all Hindu temples.

Haldane’s letters of 1962 and 1963 display a growing interest in Indian thought and culture. His knowledge of Sanskrit deepened; as did his admiration for traditions of Indian philosophy such as *samkhya*, whose ‘surprisingly materialist’ cast was so much at odds with the image of the other-worldly Hindu. In August 1963, Haldane received a letter from a television producer at the BBC, asking about the possibility of filming him at work. His reply indicated a decided preference for the land of his domicile over the land of his birth. ‘You could have a wonderful time in Orissa’, he told the producer:

Besides my noble self and colleagues you could film:

- (i) Local birds, including a huge roost of egret and other species.
- (ii) Wasps, engaged in making mud nests, and sometimes hatching out of them.
- (iii) Men with funny-shaped feet (hereditary).
- (iv) Sculptures showing, among other things, human copulation.

The latter could be of great value to Mr Macmillan by taking peoples’ minds off Christine (if mind is the right word).

For readers under 50 perhaps a word of explanation is called for. ‘Mr Macmillan’ was the beleaguered British Prime Minister, Harold Macmillan. ‘Christine’ was Christine Keeler, the call-girl whose simultaneous involvement with a British Minister and a Russian spy was then dominating the headlines in Britain. Haldane, it seems, thought it more appealing for sex to be the stuff of high art rather than of high politics.

Even as he was writing this Haldane received an invitation from a land he detested even more than the country of his birth—namely, the United States of America. Unlike on previous occasions, however, he had been assured that the Consulate would ask him no questions about his ‘personal or professional history’. Honour thus satisfied, Haldane visited the U. S. in October, speaking at various academic fora, among them the Rockefeller Institute, where he spent rather more time in Dobzhansky’s lab than Dobzhansky had done in his.

At his last American engagement, in Florida, Haldane was taken ill with rectal bleeding. He bravely saw out the

meeting and took a flight to London. At the hospital of University College he was diagnosed with cancer of the rectum. He was operated upon, and, while recovering, wrote a poem called 'Cancer is a funny thing'. The poem was later reproduced in many anthologies, including the *Oxford book of twentieth century verse*. One has only to read the first few lines to understand why:

I wish I had the voice of Homer
To sing of rectal carcinoma,
Which kills a lot more chaps, in fact,
Than were bumped off when Troy was sacked.
I noticed I was passing blood
(only a few drops, not a flood).
So pausing on my homeward way
From Tallahassee to Bombay
I asked a doctor, now my friend,
To peer into my hinder end,
To prove or disprove the rumour
That I had a malignant tumour.

The tumour was removed, and in March 1964 Haldane departed for Bhubaneswar (via Bombay). Through the Indian summer he analysed his students' research results, nourished no doubt by a roomful of squirting mangoes. But in August the pain in the stomach returned. Haldane went to Calcutta, where an expatriate English doctor subjected him to a series of tests. Three weeks later the results were communicated to the patient in Orissa.

Fortunately, when the letter from the Calcutta doctor arrived in the Haldane home a number of his disciples were present. One opened the letter; and silently passed it on to Helen Spurway. She read it quickly and ran with it to the bedroom, the students following her. Years later, a student at the scene remembered how his *guru* received the news that the cancer had spread to the liver and abdomen: 'Prof read the letter. We stood around the bed. There was no change in his face—the news of his imminent death did not affect him at all'.

Seeing the shattered students around him, Haldane recited a Sanskrit verse from memory:

*jatasya hi dhruvo mrityur
dhruvam janma mrttasya ca
tasmad apariharye 'rthe
na tvam socitam arhasi*

(For the one that is borne death is certain and certain is birth for the one that has died. Therefore for what is unavoidable, thou shouldst not grieve).

The eyewitness we owe this to also remembered two other touches typical of the man. One was that Haldane was delighted that none of the high-caste men around his bedside could recognize the verse (which was from chapter II of the *Bhagavad Gita*). The other was his joke that while his wife Helen was a good biologist, she was not good enough to take his pulse before and after he had read the letter.

In the days and weeks left to him, Haldane briskly put his affairs in order. A colleague was chosen to succeed him in the Orissa institute; other colleagues consoled with statues and rare stones from his personal collection. Helen herself was handed over his beloved *Journal of Genetics* which, among other things, was generating valuable foreign exchange for India. After his death, on the 1st of December 1964, his body was sent (as he had willed) to the nearest Medical College, so that 'some future Indian doctors will have the unusual experience of dissecting a European'.

Acknowledgements

Unless otherwise stated, all quotes are from the Haldane papers held at the National Library of Scotland, Edinburgh. Biographical information concerning J. B. S. Haldane is primarily taken from *J. B. S.: the life and work of J. B. S. Haldane* by Ronald W. Clark (1968, Hodder and Stoughton), and from a mimeographed volume of reminiscences brought out by the Indian Statistical Institute on the occasion of his birth centenary. An earlier version of this essay was published in the *Times Literary Supplement* on 16 June 2006; the rights of reproduction are with the author.