

A Dominant Character: New biography of British scientist J.B.S. Haldane

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A Dominant Character: The Radical Science and Restless Politics of J. B. S. Haldane, by Samantha Subramanian, W. W. Norton & Company, New York, NY, 2020.

Samantha Subramanian's new biography of the British scientific genius J.B.S. Haldane (1892-1964) devotes its attention both to Haldane's historic achievements in the field of genetics (and much other scientific research) and to his extremely prominent political activism. These two sides of his life occasionally overlapped.

After a period as a very public fellow traveler of the British Communist Party, Haldane formally joined the CP in 1942, in the middle of the wartime alliance between Churchill and Stalin. He quietly left the Stalinist party in 1950, unable any longer to publicly defend the reactionary anti-scientific edicts handed down by Moscow. Haldane never broke from Stalinism politically, however.

His role as a well-known defender of Stalinist crimes, including the Moscow Trials and the many betrayals of revolutionary struggles of the working class, cannot of course be forgotten or minimized. As a scientist, however, Haldane was one of the dozen most significant figures of the first half of the 20th century.

In the field of genetics, in particular, he is forever associated with the Mendelian-Darwinian synthesis, which ended decades of conflict between the followers of Gregor Mendel and those of Darwin. This laid the basis in turn for much of modern genetics, epigenetics and evolutionary biology.

Haldane was a larger-than-life figure. He was known to millions of his countrymen and to many millions more around the world. This was owing in large part to his ability to popularize, explaining complex scientific concepts to a broad audience while avoiding oversimplification. He positively enjoyed this work.

In addition, he was a speaker, polemicist, pamphleteer, even a poet, with a talent for rhyme and doggerel. He was known for his repeated experimentations on himself during the course of his long career. Finally, it must be said that he was totally disinterested when it came to wealth, nor did he ever seek fame for its own sake.

The biographer devotes considerable attention to Haldane's fascinating childhood, learning so to speak at the knee of his father, J.S. Haldane, a very noted scientist of his own day. The younger Haldane was educated at Eton and then Oxford. He was 22 when the First World War began, and Haldane joined in the patriotic fervor, seeing war service in France. As the war dragged on, however, like so many of his generation, he became increasingly disillusioned and radicalized.

As Subramanian notes, Haldane did little laboratory work. Rather he looked at the work of others, noticed connections between different discoveries, and in his major work in genetics he was a theoretician, above all. This points to the scientist's application of the dialectical materialist method, whether Haldane was fully conscious of this or not.

Haldane and the development of modern evolutionary theory

In the limited confines of this review, it is impossible to effectively summarize Subramanian's detailed presentation of Haldane's substantial and wide-ranging scientific efforts, principally the significant role he played in the development of modern evolutionary theory. It should be noted that the book's roughly chronological order of presentation, appropriate to a biography, nevertheless tends to scatter the discussion of scientific topics, which could be more clearly elucidated if organized topically.

Many of Haldane's great discoveries were made in the decade between 1924 and 1933. By 1924 he had already attracted wide attention. He published a kind of utopian science fiction in that year, entitled *Daedalus*. The book made him extremely well known and not only in scientific circles.

A significant factor in Haldane's ability to make valuable contributions on a variety of topics was his systematic application of mathematical analyses to data. In one of his early, seminal papers, Haldane declared, "A satisfactory theory of natural selection must be quantitative."

A prime example, described in detail by Subramanian, is Haldane's analysis of the rapid evolution of a species of moths in the Manchester area during the nineteenth century in response to industrial pollution. He calculated the degree of selective pressure needed to substantially increase the prevalence of a previously infrequent, dark color variant due to changed environmental conditions (darkening of the bark of trees on which the moths rested), which now rendered the trait highly adaptive by providing camouflage from predators. Haldane's model was substantiated by subsequent research.

Another important contribution was a statistical analysis by Haldane of how certain traits tended to be passed on together. It was later demonstrated that this was due to the relevant genes lying close to each other on chromosomes during the exchange of genetic material (recombination) in sexual reproduction, building on the earlier work of Thomas Morgan.

In his 1932 book, *The Causes of Evolution*, Haldane presented much of what is now known as the Synthetic Theory of evolution.

This and other works by Haldane marked, as the biographer shows, a significant step in reconciling the Darwinian view that evolution takes place by slow, incremental steps via natural selection acting on small variations from one generation to the next, with that of the Mendelians, who held that variation occurred in discrete units (genes) which could impart significant, abrupt selective advantages, leading to rapid evolution.

Haldane's work produced a more detailed, mathematically rigorous elaboration of the intricacies of the transmission of genetic material, demonstrating that phenotypic expression was often the product of the interactions of multiple genes (contrary to the simple Mendelian model), while at the same time demonstrating that under certain circumstances the

combination of beneficial genetic material and strong selective pressure could produce rapid evolutionary changes (contrary to the Darwinians), potentially leading to the development of new species.

Without strong selective pressure, even advantageous mutations might not become dominant in a population, due to the vagaries of reproduction (genetic drift). Thus, according to Subramanian, Haldane's synthesis, explaining both stability and change, anticipated the theory of punctuated equilibrium enunciated by Stephen Jay Gould and Niles Eldredge by 40 years.

Haldane also theorized on the origin of life. He developed what became known as the Oparin-Haldane hypothesis, named after himself and a noted Soviet scientist, which both arrived at independently of each other. It proposed the chemical process by which a combination of inorganic compounds, in what is now known as the "primordial soup," could be induced to produce simple organic molecules by the addition of energy (lightning). The feasibility of this model was supported experimentally in 1953.

He spoke out on scientific controversies not directly related to his research. Earlier in his career, he had energetically opposed eugenics, which became especially popular in the first three decades of the 20th century. It attracted many unlikely supporters, including George Bernard Shaw and John Maynard Keynes, as well as those who would be expected to embrace it, like John D. Rockefeller and Theodore Roosevelt.

Haldane in the orbit of Stalinism

Haldane's political trajectory brought him from the Liberalism of his family, to Labour in the early 1920s, Fabianism by 1928, and then increasingly into the orbit of Stalinism in the 1930s. He was already sympathetic to the Soviet Union when he traveled there in 1928. Later in the 30s, Haldane epitomized a certain layer of the middle-class intelligentsia (Beatrice and Sydney Webb were by no means the only examples) who were sympathetic to Stalinism precisely because they recognized that support for the Moscow bureaucracy was compatible with their reform views and support for their own liberal bourgeoisie.

At the same time, another factor in bolstering support for Stalinism was the growing threat of fascism, including the Franco-led rebellion against the Spanish Republic. This no doubt disturbed many sincere liberals, who increasingly saw in the Soviet Union the only bulwark against the Nazi menace, and mistakenly identified the USSR with the counterrevolutionary bureaucracy.

Haldane does not appear to have had any doubts about the monstrous false confessions of such figures as Zinoviev, Kamenev and so many others. He did not himself identify with the tradition of Bolshevism. When the October Revolution took place, Haldane had been a 25-year-old Liberal, and it is unlikely that he later on seriously read or considered Trotsky's exposures.

Like Paul Robeson and others, Haldane may have had some doubts when the Stalinist purges began to touch figures that he knew. One of these was the Soviet geneticist Vavilov, who had invited his British colleague to the Soviet Union back in 1928. The two men remained in communication over the years, but Haldane's wife Charlotte reported back after a trip in 1941 that Vavilov had disappeared. Even then, Haldane said nothing publicly.

He had become chairman of the *Daily Worker* Editorial Board even before he joined the party. When Stalin agreed to the pact with Hitler in August 1939, Haldane did not hesitate to defend it. In this early period of the Second World War, he took a more oppositional stance toward the government. He campaigned for the so-called "Haldane shelters,"

proposals of his to shield hundreds of civilians from German bombing raids, and he denounced the authorities for their resistance to this proposal.

When Operation Barbarossa was launched on June 22, 1941, however, Haldane immediately threw himself into a role in which he was infinitely more at ease, a renewed popular social-patriotic alliance and all-out support for the Churchill government.

During the war years MI5 paid increased attention to Haldane, although government surveillance of him had begun many years earlier. There was some suspicion that, owing to his ability to obtain many government secrets, he could have been a Soviet spy. Subramanian insists that there was no basis for this. Haldane, always open about his political views, was not at all the same as Kim Philby and other Soviet agents in the British government and scientific circles.

The one near-fatal flaw of this otherwise conscientious account of Haldane's life and work becomes apparent in the early chapters. The author, an Indian writer and journalist, is not a scientist himself, nor does he have a knowledge of Marxism. He crudely equates Lenin with Stalin, and the great discoveries of materialist dialectics by Marx and Engels with the lifeless formulas used by the Stalinist bureaucracy to falsify Marxism in order to defend its own privileges. The counterrevolutionary bureaucracy rested on the property forms established by the October Revolution, while undermining and finally destroying them in the restoration of capitalism 30 years ago.

Subramanian even adopts the Stalinist term "diamat" in this way, indicating that Stalinism is the legitimate inheritor of the work of the founders of scientific socialism. He describes "the smudgy jargon of diamat—the abstract dogma that explained change in the world through the interactions of physical conditions. ... In the official versions of diamat that Lenin and Stalin promoted, development arose out of the struggle of opposing material forces—a tenet they insisted on applying not only to history but in science and society."

Pointing to Stalinist formulas, the author slanders the work of Marx and the great Marxists. He completely ignores the fundamental question: motion is the mode of existence of matter. How else does motion take place except through internal conflict and contradiction? Subramanian, like many others, substitutes external forces for the internal, lawful movement of nature and society.

Haldane and Lysenkoism

No account of Haldane's life and his scientific contributions would be complete without an explanation of the biggest blot on his professional and intellectual career: his support for the reactionary doctrine of Soviet biologist Trofim Lysenko.

Lysenko contended that crops could be improved simply by growing them in different environments from those in which they had evolved. Individual plants would then rapidly adapt, passing these adaptations along to the next generation by somehow transferring the advantageous changes to their genetic material via some unknown mechanism. This totally false proposition, in fact, resulted in substantial damage to Soviet agriculture.

The possibility of the rapid improvements promised by Lysenko was attractive to the Stalinists in view of the disasters wrought in the early 1930s by the bureaucracy's forced collectivization of agriculture. Lysenko's quackery was a reversion to the pre-Mendelian concept identified with Lamarck, long after it had been disproved. It nevertheless was embraced by the Stalinists as a means of diverting attention from their own disastrous course, as well as stoking nationalism. Lysenkoism caused

havoc in Soviet biology, resulting in the ruin and often even the deaths of many who opposed it, including the above-mentioned geneticist Vavilov.

The great contributions of Haldane were undermined by his endorsement of Lysenkoism and lesser-known Stalinist perversions of science. The most notorious episode was a 1948 BBC broadcast in which the scientist, usually clear and even eloquent in his choice of words, delivered a contradictory and halting defense of this Stalinist “theory” of agriculture.

Following this, Haldane’s position became increasingly difficult to maintain. In December 1949, he resigned from the editorial board of the *Daily Worker*. By the fall of 1950 he had left the CP itself, but there was no formal announcement. The Stalinists did not want to call attention to the friction with one of their most famous members, and Haldane for his part saw any public criticism as giving aid and comfort to the imperialist enemy of “Soviet socialism.”

As with so many others, he could not understand, and perhaps did not want to understand, the contradictory character of the Soviet Union. The defense of the Russian Revolution and the Soviet workers state, in fact, **required** the exposure of and struggle to overthrow Stalinism in a political revolution.

After Stalin’s death in 1953, the influence of Lysenko steadily declined, although he was not removed from his official posts for some years. Haldane became far less politically outspoken, although he continued to defend the Moscow regime.

The last chapter of Haldane’s life began in July 1957, when he and his second wife Helen accepted an offer to work in an institute in Calcutta. He transferred his political affections, to some extent, from Stalin’s and Khrushchev’s USSR to Nehru’s “socialist” India. He continued to travel, lecture and speak at international conferences until a diagnosis of cancer, which led to his death in December 1964.

A speech that Haldane gave in London in 1962 provides a revealing glimpse of his political outlook. At a symposium called “Man and His Future,” Haldane discussed, “Biological Possibilities for the Human Species in the Next 10,000 Years.” The great scientist, now 70 years old, declared, “A few centuries of Stalinism or technocracy might be a cheap price to pay for the unification of mankind.”

This formulation is strikingly similar to the approach of those within the Trotskyist movement, led by Michel Pablo, who envisioned “centuries of deformed workers’ states,” abandoning any revolutionary perspective based on defending and extending the great revolutionary example set in Russia in 1917.

Ex-Stalinists and ex-Trotskyists both excluded the working class as a conscious actor in society, led by a revolutionary party. In the case of Haldane, it is clear that his version of socialism was never based on the working class and was not socialism at all.

The new biography is valuable for two main reasons. First, it provides an account for the general reader of some of the phenomenal discoveries of science in the first half of the 20th century and of the genius behind them. Second, it also sheds light on the enormous damage done by Stalinism during the past century. The immense achievements of science and culture in the USSR were made possible by the revolution, not by the bureaucracy which undermined it. While Stalinism’s betrayal of the working class and the cause of socialism is its greatest crime, this is inseparable from the attacks on science and on all aspects of culture that accompanied the nationalist degeneration of the Russian Revolution.



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