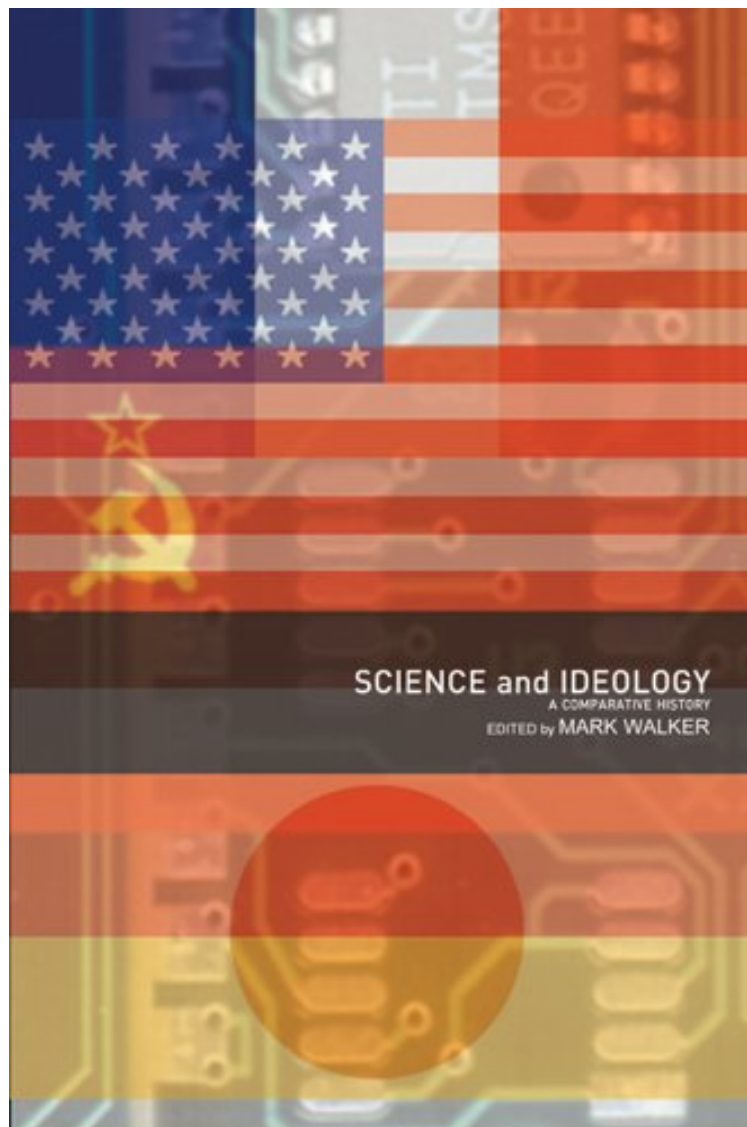


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Science and Ideology: A Comparative History (Routledge Studies in the History of Science, Technology and Medicine)

Mark Walker

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Mark Walker : Science and Ideology: A Comparative History (Routledge Studies in the History of Science, Technology and Medicine) before purchasing it in order to gauge whether or not it would be worth my time, and all praised Science and Ideology: A Comparative History (Routledge Studies in the History of Science, Technology and Medicine):

0 of 0 people found the following review helpful. Science and Politics Don't Always Mix - Complex Relationship

Between Ideology, Science, and Scientists
By Clandestine Library For Further Reading
This collection discusses the complexities involved when ideologies and scientists. Though it is often heard that science is some timeless, monolithic, and immune object to ideologies and worldviews, this book should rectify that by pointing out cases where ideologies have limited, restricted, prohibited, and opened opportunities to scientists in many parts of the world in recent history. Science does not exist in vacuum since it is made by scientists, who are ultimately regular people. The most important chapters, in my opinion, are the first few since they get to the bulk of the question of science and ideology. The rest are extra glimpses into some other aspects of how ideology and politics can influence scientists and their scientific research. Since scientists have depended on government funding and since issues affecting the state like war or modernization have controlled the focus of scientists in some fields, one can surely see that science does not exist in vacuum nor is it an isolated enterprise that is immune from the ideologies of both governments and individual scientists. Another important lesson is that democracy is not really as "necessary" to science as is often assumed. The book documents some examples of research and technological advances that were done by even imprisoned scientists for various war efforts. However, it cannot be missed that ideologies did have career stopping and lethal consequences. Many scientists in numerous countries (e.g. Soviet Union and Communist China) lost their lives for various reasons and overall this is a loss to humanity that is utterly repugnant.

Further reading:
The Perversion Of Knowledge: The True Story Of Soviet Science - by a member of the Russian Academy of Sciences
Lysenko and the Tragedy of Soviet Science - by a scientist who observed the tyranny and abuses of biology first hand and survived the persecutions
Stalin and the Soviet Science Wars
Biology and Ideology from Descartes to Dawkins

1. Introduction: science and ideology
General introduction
2. Science and totalitarianism: lessons for the twenty-first century

"Science and totalitarianism may be two of the most characteristic traits of the twentieth century. Science, in the comprehensive sense that encompasses most organized knowledge, has attracted much scholarly attention, particularly in the aftermath of Auschwitz and Hiroshima. There have been many images of science in this century: a noble, selfless activity in search of new knowledge and a pathological obsession with controlling the world; a means of improving the material quality of life and a threat to the physical survival of the planet; a relentless progress on the path to greater enlightenment and a politically manipulated attempt to enslave humankind; selfless pursuit of objective truth and routine manufacturing of socially constructed scientific facts; a new way to understanding God's work and an implacable antithesis to religion; an activity grounded in personal freedom and basis for negating humans their free will." (17); "Relations between science and totalitarianism were often perceived in diametrically opposing manners. Some regard science and scientists as innocent victims of totalitarian oppression. Others see science as an essential ingredient of totalitarian ideologies, and scientists as "willing executioners" at the employ of totalitarian tyrants. Most accounts consider "normal" science devoid of ideology, and therefore view interactions of dominant totalitarian ideologies with scientific knowledge as sad perversions of science." (19); both the social sciences and religion were used by totalitarian regimes, though regimes were also suspicious of both and so both were censored; totalitarian leaders in the 19th and 20th centuries understood science in a deterministic way; "The Nazis used eugenics, practiced mass murder and encouraged human breeding by the SS. The Soviets, the Chinese, and the Cambodians put emphasis on "re-education" that, paradoxically, led to an even wider scale of human destruction than the German policies predicated on genetic determination of human behavior. In spite of differences among them, all these regimes legitimated atrocities by references to science. Science used to be neglected as a building block of totalitarian ideologies. Yet, science was clearly a constructive, i.e. more than merely instrumental element of totalitarian forms of political oppression. While different degrees of rejection of modernity characterized all totalitarian ideologies, they were, at the same time, permeated by scientific discourse. Their common trait is reductionism, i.e. the reduction of complex political and social issues to a limited number of variables that are then presented as part of a scientific problem. Social and political tensions were reduced to a "problem" for which solutions, preferably final, were enthusiastically sought. The very use of the word "problem" presupposes that a solution exists and should be found. Scientific language was adapted to totalitarian uses, thereby conferring the air of objectivity on value judgements of most serious nature." (22); Marx and Engels claimed they could predict social change in a mathematical or mechanical form and this allowed regimes to be like messianic figures to redeem the world; in traditional scapegoating relied on no scientific proof and was reversible by real or fake conversions, but totalitarian regimes created "objective enemies" in the guise of scientific approaches - "Soviet experience introduced the term "objective enemy" to identify someone who may have committed no crime against the Revolution, but possessed a predictive value, was bound to commit it. Similarly, the term "Jew" was applied according to apparently objective criteria of biological provenance, not to the more arbitrary criteria such as behavior or belief. This constitutes an important departure from the more traditional Christian anti-Jewish persecution which always left the door open to conversion, sincere or not, thereby offering a chance to survive. Modern biological anti-Semitism, a pillar of Nazi ideology, left no such way to save one's life. The 'libre arbitre', or freedom of choice was as a condition of personal responsibility disappeared while traditional morality was being replaced with totalitarian surrogates. What makes the twentieth century unique is not so much the total number of civilian casualties of organized violence as the fact that this mass violence was brought about by "advanced" or cultured societies, usually with scientific legitimization, and occasionally with the help of science-based

technologies." (23-24); "Ideological uses of science in totalitarianism can be better understood against the background of the rapid demise of traditional organized religions. Science as the antithesis of religion was among the most common beliefs in the last century. The twentieth century saw science become an accepted cultural form and invade the place of organized religions in many societies. Science spectacularly expanded the realm of human cognition and, concomitantly, reinforced the illusion of human omnipotence. The belief in human omnipotence, common to both scientific and totalitarian ideologies, was able to affect the twentieth century precisely because of the formal secularization of most European societies. The goals of "elimination of the bourgeoisie," of "liquidation of the kulaks," of "the final solution of the Jewish question," were all predicated on omnipotence, on the human capacity to change society just as advanced technological means appeared to change, or at least subdue, nature. Dehumanizing scientific and medical metaphors (leech, vermin, cancer) were used in the context of cleansing that would rid the unjustly disdained races (Aryans) or classes (workers and peasants) of such impurities, and thereby elevate and redeem them to the well deserved state of superiority and dominance." (24); "...science was often perceived as a jealous deity that would tolerate no non-scientific approaches." (25) - scientism and as a quasi-religious thing; "Restrictions on scientific research are known to have been imposed in a variety of political regimes. Restrictions practiced in totalitarian societies may only stand out because of their overt links with an explicitly ambitious political ideology." (26); "There is an interesting paradox between, on the one hand, the totalitarian regimes' use of science as an objective universal truth and as a pillar of the official ideology (such as the Soviet discipline of scientific communism or the Nazis' race sciences), and, on the other hand, their commitment to the idea of total control offered unusual opportunities to scientists willing to resort to appropriate discursive and political strategies in the advancement of their scientific ideas and careers. Such scientists, some of whom were responsible for totalitarian crimes and abuses, have been often portrayed as exceptions. Many scholars continue to see scientists as victims of totalitarianism. With the development of social studies of science, research on science in totalitarian societies has revealed a degree of symbiosis between scientists and political elites. In some instances, it has been shown that scientists used totalitarian leaders in their quest for power and influence in science. "The Lysenko affair, the story of repression of genetics in the Soviet Union, has been the most researched episode in the history of Soviet science. Lysenko, and his ally philosopher Prezent, resorted to Marxist-Leninist rhetoric to declare genetics "a bourgeois pseudo-science". They succeeded in shutting down institutes, imprisoning prominent geneticists, and purging biology textbooks of references to genetics. Most histories of the Lysenko affair portray scientists as innocent victims of political intervention in science. One tends to forget that it takes a scientifically literate person to be able to effect such intervention. The recent evolution of scholarship on the Lysenko affair shows how scientists, rather than party functionaries, took the initiative and used communist rhetoric to expand their influence and eliminate competition." (26-27); "Freedom of scientific pursuit is a crucial aspect of scientific cultures. A mere comparison of titles of publications devoted to the history of science in totalitarian societies shows the unusual frequency of the word "under." It suggests that scientists found themselves subjected to a regime that opposed them and from which they were somewhat alienated. This is one of the best known aspects of the history of science in totalitarian societies, the history of "science without freedom." It is quite clear that scientists were deprived of human rights and political freedoms. So were most other citizens of those societies. Whatever the virtues of international solidarity of scientists exhibited in this century, the freedom of scientists must be compared to that of their fellow citizens rather than to that of their colleagues in democratic countries. Once one distinguishes between political and scientific freedoms, a clearer picture emerges. As already discussed, scientists were sometimes ideologically restricted in their choice of certain research methods and themes. These restrictions were often initiated by other scientists who adroitly used the totalitarian power structures to concentrate control of entire disciplines in their hands...In a less dramatic vein, many Soviet researchers enjoyed greater freedom of research because their work was usually shielded from peer review and other forms of collegial input from abroad that was common prior to the "triumph of socialism." One may even argue that Lysenko and his allies benefitted from international isolation and enjoyed unprecedented scientific freedoms within their discipline." (29-30); "The incarceration of scientists and the spread of research institutes operating behind prison bars characterized both Nazi Germany and the Soviet Union. Since the 1930s scientists and engineers were rounded up, threatened with regular concentration camps, and then, as a token of consideration, offered privilege to continue their professional work in a research establishment behind iron bars...Important discoveries and innovations came from these institutes. Rocket science, for example, was largely developed by imprisoned researchers in both countries. These programs were predicated on the absence of personal freedom but offered reasonable, often superior conditions for research. In all of these circumstances scientists continued their work, provided they had access to scientific equipment and literature. Golden cages turned out to offer a propitious environment for scientific research. Whether scientists themselves or their research objects were actual inmates, there is an important lesson to be learnt from these experiences with respect to the relationship between science and freedom. Science can and has blossomed in politically oppressive milieux. While political freedom may be attractive to many scientists qua citizens, there seems to be little substance for the oft repeated belief that science and scientists require political freedom to conduct their work." (30-31)3. "Ideologically correct" science On ideologically-correct-science (ICS); "ICS often followed the same pattern: (1) purge of unacceptable scientists and purge or

transformation of unacceptable scientific institutions; (2) the enlistment/recruitment of acceptable scientists; (3) the training of new scientists and creation of new institutions; and (4) the production of ICS. This essay will examine this admittedly ideal pattern in order to shed light on ICS in particular the interaction of science and ideology in general." (36); Discusses ICS in France, especially the French Revolution; "The varied fortunes of science in the French Revolution, like the other case studies, is a story of complexity and nuance, which can hardly be given adequate justice here. The two most celebrated incidents of the "attack" on science during the Jacobin Terror - the closing of the Academy of Sciences (Academie des Sciences), and the execution of the chemist Antoine Lavoisier - both fall short of being conscious attempts to impose an ideology of science. Jacobin ideology was only dominant for about a year, and was not treated equally: important Jacobins were hostile to abstract, theoretical, and mathematical science, but were favorable to natural history. After much debate about how to reform education and how to structure expertise in the Republic of Virtue, in 1793 the Academy was closed as an institution and its resources dispersed. But the issues here were not just science, and even not centrally science. Resentment of royal privilege and corporate prestige were mainly responsible the closing of the Academy...The case of Lavoisier, on the surface the purge of an acceptable scientist who was hardly a strong advocate of Robespierre's government, upon inspection had even less to do with science than the closure of the Academy. Lavoisier was executed by the machinery of the Terror, but not for any reason connected to his positions in science. His association with the Tax Farm sealed his fate. Similarly, Condorcet died at the hands of the Revolution, not because of his mathematics, rather because of hostility to his rationalist Enlightenment views. The Terror prematurely ended the lives of several prominent scientists, and interrupted the careers of many others, forcing twenty academicians out of forty-eight into "exile" (most went to the provinces, and only about four actually emigrated during the Jacobin Republic). But other natural scientists in educational institutions, government branches, and other venues were actively recruited by the regime." (37); "The attack on Newtonianism and the retention of the Jardin du Roi as the Jardin des Plantes after the dissolution of the academy of Sciences are the two most prominent candidates for ideology affecting science." (38); "ICS during the French Revolution was fleeting and superficial...The scientific community did have to make concessions to the new political order, and a few individual scientists (for example, Condorcet and Lavoisier) suffered and died, but in general French science and scientists benefited from the French Revolution and Napoleon." (39); when the Bolsheviks rose to power, they tolerated bourgeois scientists for a while - "In fact, except for an exile of some 200 dissident intellectuals, there was not much of a purge in science until the period of 1928-31." (40); "While some bourgeois specialists were prominent in this framework, by the early 1930s and the conclusion of the first of Stalin's Five-Year Plans, most had either blended into the woodwork and adopted appropriate ideological colors or had been executed or exiled during the purges. However, as late as the 1950s, non-Party scientists, former "bourgeois specialists," occupied the majority of high level administrative positions in Soviet scientific research. The Soviet Union grudgingly used its "bourgeois specialists" while simultaneously training new cadres of "red" scientists. But these new ideologically correct scientists had the same professional aspirations as their "bourgeois" , mentors - concern for international scientific standards, the need for international contacts - and therefore sometimes clashed just as forcefully with the Stalinist regime's desire for ideologically fidelity. The growth of cadres of communist researchers in the various fields of science was really quite extraordinary. As more and more competent (and ideologically "clean") individuals were generated, they began to take over positions held by disgraced members of the older generation. By the onset of the Second World War, Stalinists had essentially completed the ideological purification and installation of "red" specialists in almost all levels of the Soviet research empire. Dialectical materialism, the official philosophy of science of the Soviet Union, complemented historical materialism - the Marxist theory of historical and economic development - to compose the complete orthodox set of beliefs about the social and natural world...But unlike the meaning of dialectical materialism, the unwritten "requirement" that scientists hold to some of the tenets (or at least not openly contradict them) was more or less constant through Soviet history - and reached some disastrous consequences during the Lysenko years." (41-42); "Whereas dialectical materialism provides the most important example of ICS as basic research in the Soviet Union, the most famous instance of ICS as applied research is the well-known case of Lysenkoism. Scion of a Ukrainian peasant family, Trofim Denisovich Lysenko began his work as an agronomist in the 1920s in an agricultural station near Baku. While there, he claimed to have discovered a biological process he dubbed "vernalization" (iarovizatsiia): the treatment of germinated seed of various plants with abnormal conditions of heat, cold, and other forms of environmental exposure, in order to make plants develop a more appropriate way - essentially a neo-Lamarckian biological program. Lysenko's attempts to present his results to the Soviet agronomic and genetics community were rebuffed as contrary to all known facts about genetics. The famed geneticist N.I. Vavilov initially supported Lysenko's research as potentially producing innovations in agronomic practice, but broke with Lysenko when he started to push his neo-Lamarckian views on plant breeding and genetics in the mid-1930s. In the early 1930s, Lysenko teamed up with ideologist I.I. Prezent, who convinced Lysenko to link his neo-Lamarckian views of inheritance with Darwinism, and to couch both in a Marxist framework. This marriage of dialectical materialism and agronomic practice in opposition to genetic theory caught the attention of Stalin in the late 1930s, who praised Lysenko openly in various contexts as a means of supporting the regime's disastrous and bloody collectivization

campaign in the countryside. Lysenko grew in power...The actual banning of genetics did not happen until after the Second World War, when Lysenko's star actually seemed to be waning and the Cold War got underway. But in 1948, Lysenko read a speech (toned down but supported by personal editing of Stalin) condemning genetics as a "bourgeois" science and banning almost all research on it in the Soviet Union...After Khrushchev's fall in October 1964, however, Lysenko's days in power were numbered. Genetics was restored in 1965, but the recovery process was painful and the loss of Vavilov hard to forgive. The scars caused by Lysenkoism remain to this day." (42-43); in Germany in the 1st year of the National Socialist rule perhaps 15 per cent of scientists were forced out of Germany on racial or political grounds, not scientific grounds; universities were purged and transformed relatively quickly but some Jews still remained in some of them; Hitler had little interest in scientific research except when it served his purposes; failures of "Aryan science"; in Japan there were no major ICS, just vague policy on Japanese technology; in the US there was McCarthyism which influenced nuclear weapons and held scientists in the country to prevent them from becoming scientists for communists; in China there was the ideology of "Revolutionary Utilitarianism" whereby scientists were to achieve immediate and practical results in order to modernize China; "Ideological purification of the scientists, often Western-trained, started almost immediately in the People's Republic of China (PRC), and intensified during the "thought reform" campaign at the height of the Korean War in 1952-3. In a scene paralleling that in the U.S.A, war hysteria turned into a hunt for internal enemies, resulting in the suicides of a number of scientists in Shanghai. Many scientists were accused of following bourgeois scientific theories, such as Mendelian genetics, cybernetics, resonance chemical theory, and Gestalt psychology, and forced to renounce them. The Anti-Rightist Campaign of 1957, however, outdid all these previous purges. Attacking those scientists who had criticized the party's mishandling and distrust of scientists as part of a conspiracy to overthrow the new government, Mao ordered the purge of hundreds of thousands of intellectuals, including scientists. Many of the brightest scientists were thus taken from science and education and placed in forced labor camps for many years. Despite periods of relaxation, the pressure on scientists for ideological purification never completely relented over the next two decades. Mao's distrust of scientists reached a crescendo during the Cultural Revolution of 1966-76. He and his supporters unleashed a harsh reign of terror by the Radical Guards against anyone, including scientists, who could be accused of deviating from Mao's correct political line. Along with other intellectuals, scientists were again purged for their bourgeois ideology and their elitism; they had to be cleansed and reformed. Red Guards and other rebels took over scientific and educational institutions and stopped virtually all research. Scientists, especially those formerly in administrative positions, were criticized and persecuted, and sometimes beaten, tortured, and killed. By 1969, many scientists who survived the ordeal were sent to the countryside or factories to perform physical labor and help make a "people's science." Only after Mao's death in 1976 was it possible for a full-scale restoration of utilitarian science policy under the leadership of Deng Xiaoping." (54); the Maoists tried to encourage scientists who worked for the enemies (Nationalists and the West) to stay and not go to Taiwan; since the inception of the PRC, the PRC tried to train its own "red" scientists; "During the early stages of the Cultural Revolution, there was little effort to train new scientists, except for what existed in the nuclear and military space projects. Most of the universities were shut down from 1966 to 1971, with no students admitted or graduated. In 1971, universities were re-opened and operated under a radical new direction: freshmen were to come not from high school graduates based on national entrance examinations, as before, but from peasants, workers, and soldiers with practical experience but with junior high school preparation, selected on political criteria. The standards in this new educational regime proved so low that years later, following the end of the Cultural Revolution, the so-called peasant-worker-soldier students had to be retrained after graduation to reach university level. The experiment in recruitment and enlistment in science turned out to be a complete failure: it may have produced a "red", but not by any means "expert," generation. When the pragmatist party leader Deng Xiaoping, who was purged by Mao during the Cultural Revolution, returned to power following Mao's death in 1976, he brought the returnee/carryover generation of scientists back into power. The older scientists often bypassed the peasant-worker-soldiers of the Maoist era and began to train a new generation of scientists who came through a restored educational system. Many of the latter also began to pursue studies abroad, especially in the U.S.A. and western Europe." (55-56); "Despite claims of the Red Guards and other Maoists at the time, the Cultural revolution produced few, if any ideologically correct scientific theories. Much of the energy of the radical Maoists theorists was focused on attacking that they viewed as bourgeois scientific beliefs within and outside of China, rather than constructing new ones. These included Albert Einstein's relativity theory, which the Maoists denounced as politically capitalistic and philosophically idealistic." (56); Mao's vision of elementary particles - the straton theory - was inspired by a Marxist Japanese scientist and was compatible with Western models of hadrons; "Perhaps no modern state has purged and persecuted its scientists as ruthlessly and repeatedly as the People's Republic of China, but these waves of purges, as well as the intervals of relative tranquility which followed them, had little to do with ideologically-correct-science. Mao and his successors have wanted first and foremost obedience from their scientists. Ideologically correct conduct is part of this, but in this regard scientists have been no different than other Chinese." (57-58); the examples in this chapter show that science is not especially suited to democracy since irrespective of the abuses repressions by many regimes on scientists and science, scientists were still able to do their scientific work⁴. From communications engineering to communications science: cybernetics and

information theory in the United States, France, and the Soviet UnionPetty clearly post WWII and Cold war concerns5. Science policy in post-1945 West Germany and Japan: between ideology and economicsAfter WWII with American input in reconstruction of science in those countries6. The transformation of nature under Hitler and StalinGerman and Soviet comparisons of transforming of land and ecology7. Legitimation through use: rocket and aeronautic research in the Third Reich and the U.S.A.Like chapter title says8. Weaving networks: the University of Jena in the Weimar Republic, the Third Reich, and the postwar East German stateHow the University of Jena, as a "laboratory of modernity", went through many ideological changes in German history9. Friedrich Moglich: a scientist's journey from fascism to communismAn interesting biographical sketchOverall, an excellent collection.

Does science work best in a democracy? Were 'Soviet' or 'Nazi' science fundamentally different from science in the USA? These questions have been passionately debated in the recent past. Particular developments in science took place under particular political regimes, but they may or may not have been directly determined by them.Science and Ideology brings together a number of comparative case studies to examine the relationship between science and the dominant ideology of a state. Cybernetics in the USA is compared to France and the Soviet Union. Postwar Allied science policy in occupied Germany is juxtaposed to that in Japan. The essays are narrowly focussed, yet cover a wide range of countries and ideologies. The collection provides a unique comparative history of scientific policies and practices in the 20th century.

"Several of the essays offer useful case studies for understanding the ways in which science has been influenced by the ideological context in which it was practiced."-"Historical Studies in the Physical and Biological Sciences