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NATURALISTS AS CONSERVATIONISTS:
AMERICAN SCIENTISTS, SOCIAL RESPONSIBILITY,
AND POLITICAL ACTIVISM BEFORE THE BOMB

ABSTRACT

American naturalists have long served key roles in conservation causes. This paper presents case studies of three prominent scientists whose lives and careers demonstrate this pervasive, yet historically neglected phenomenon: the ichthyologist David Starr Jordan, the ornithologist Frank Michler Chapman, and the ecologist Victor Shelford. Their stories reveal a deep, abiding commitment to conservation within the American natural history community, a commitment that is not only important in its own right but also challenges the prevailing view that an interest in social responsibility and political activism in science was a product of the atomic age.

INTRODUCTION

Contrary to a persistent myth within the science studies community, scientists did not suddenly discover the notion of social responsibility with the creation of the atom bomb. There is no doubt that the development and use of this incredibly destructive weapon led to much hand-wringing, especially among some of the scientists who played a central role in its birth. There is also no doubt that the nuclear annihilation of Hiroshima and Nagasaki sparked an emotional debate that forced into the limelight the related issues of political activism and social responsibility in science.¹ The prominence of this discourse and the status of the individuals involved have led many scholars to conclude falsely that before the Manhattan project most, if not all, scientists remained aloof from society, largely oblivious to the implications of their research. Gerald Holton, a professor of physics and the history of science at Harvard and one of Everett Mendelsohn's longtime colleagues, presented a typical formulation of this prevailing view two decades ago when he argued that: "On the time scale of history, social responsibility and other social concerns as a

topic of active introspection by even a small percentage of practicing scientists is a recent notion, largely a post-Hiroshima conception".²

There are numerous problems with such a claim. First, it seems to equate all of science with a particular subset of it – pure or basic research – the production of fundamental knowledge of the natural world for its own sake, with little or no concern about potential applications.³ Certainly many researchers were influenced by this lofty ideal. Yet, the thousands of scientists who routinely served on private and governmental advisory boards, who worked for state and federal agencies, or who undertook research in industrial, medical, or agricultural settings prior to World War II would be quite surprised to learn that they were indifferent to the applications of the knowledge they were producing. Applied science is and always has been intimately wrapped up with economic, social, and political concerns, and much of the science done in the last several centuries has been applied science.

A second potential challenge to the prevailing view comes from mainstream historians, who have long been providing hints that something might be wrong with the tradition of locating the emergence of social responsibility in science as late as World War II. Until the late 1950s and early 1960s most American historians viewed the Progressive movement – the prolonged period of reform agitation that stretched from the end of the nineteenth century until the First World War – in terms of a triumph of “the common people” over various narrow (and often corrupt) “special interests”. With the appearance of Samuel P. Hays’s *Conservation and the Gospel of Efficiency* (1959), however, they began to recognize that a major characteristic of progressivism was the ascendancy of “experts” of various sorts, including scientists, who sought to impose order and efficiency on an increasingly chaotic modern industrial society, while simultaneously advancing their own professional interests.⁴ Hays’ influential study focused on scientists within the federal government who lobbied for various conservation initiatives, including the creation of new federal agencies and the passage of new protective legislation; subsequent historians have examined the role of psychologists, geneticists, chemists, and other scientists who were central to Progressive reform.⁵

Sociologists studying professions have provided a third approach that might have led to more questioning of the notion that scientists first began to grapple with the issue of social responsibility in the shadow of the bomb. For decades now a key theme in the vast body of sociological literature devoted to professionalization – studies in which occupations like medicine, law, and the ministry predominate – is the claim that one of the distinguishing characteristics of modern professions is an orientation toward public service.⁶ Now, either the professionalization of science is entirely anomalous (an unlikely prospect), or we need to start paying more attention to the ways in which scientists have interacted with the public in the years before the bomb.⁷ I would argue that the latter proposition makes the most sense.

That is not to suggest that scholars have entirely ignored the issues of social responsibility and political activism in science prior to the bomb. In *The Visible College* (1978), a book that began as a dissertation under the direction of

Everett Mendelsohn, Gary Werskey convincingly documents the extensive political activities of several left-leaning British scientists during the 1930s, including J.B.S. Haldane, J.D. Bernal, Joseph Needham, Herman Levy, and Lancelot Hogben.⁸ Similarly, Peter J. Kuznick's *Beyond the Laboratory* (1987) presents an analogous case of American scientists who became politicized during the Great Depression, a period of profound social and intellectual ferment on both sides of the Atlantic. Working under the auspices of newly established organizations, like the American Committee for Democracy and International Freedom and the American Association of Scientific Workers, prominent scientists in the United States positioned themselves on the "fore-front of both the antifascist and social reform movements" of the 1930s.⁹ And William Akin's study of the technocratic movement has demonstrated how engineers and scientists sought to re-orient society along more rational, scientific, and efficient lines in the years leading up to World War II.¹⁰

These are important studies that present difficult challenges to those who would link the emergence of social consciousness and political activism in science to the development of nuclear technologies, but they fail to go far enough in recognizing how many scientists behaved as socially engaged political actors in the years before the Second World War. More particularly, they ignore an important, pervasive tradition of naturalists who had long been active in conservation causes.¹¹ To illustrate this phenomenon here, I rely on case studies examining the lives and careers of three prominent American naturalists who were also well-known conservationists: the ichthyologist David Starr Jordan, the ornithologist Frank Michler Chapman, and the ecologist Victor Ernest Shelford. All three were active in the period between the end of the nineteenth century and the beginning of the Second World War, and all three made fundamental scientific contributions that were widely acclaimed by their peers. At the same time all three were centrally involved in conservation campaigns that required them to go before the public as experts in their given fields. While Jordan, Chapman, and Shelford might be exceptional in the amount of time and effort they devoted to activities in the public sphere, they are hardly unique in their desire to apply their expert knowledge to civic affairs. Many of their colleagues were also firmly dedicated to conservation causes. Whether motivated by a desire to impose order on an unregulated and chaotic society, a longing to advance their emerging profession, a sense of civic duty, or an emotional attachment to nature, naturalists provided crucial leadership in an ongoing campaign to protect American flora and fauna from the juggernaut of unrestrained economic, technological, and territorial growth.

DAVID STARR JORDAN AND THE CONSERVATION OF HUMAN AND AQUATIC RESOURCES

David Starr Jordan (1851–1931) spent his childhood in rural upstate New York, an environment that provided him with ample opportunity to explore his youthful interest in fishing, collecting plants, and gazing at the stars.¹² His parents were moderately prosperous farmers and successful teachers who

encouraged their children's curiosity about the natural world while instilling them with a strong sense of morality and civic duty. After receiving a special exemption to study at the Gainesville Female Seminary, Jordan entered the newly established Cornell University in 1869 with visions of becoming either a botanist or a sheep herder.

Jordan seemed to thrive at Cornell and later claimed that his experiences there "exerted a controlling influence" over his entire subsequent career.¹³ Besides having contact with inspiring professors – like the geologist C.F. Hartt and the zoologist Burt Wilder – Jordan relished the opportunity to teach botany to his fellow undergraduates. During this period he also became enthralled with the writings of the American transcendentalist Henry David Thoreau, which were finally beginning to gain a wide audience, and the educational theories of Cornell's reform-minded president, Andrew D. White.¹⁴ Impressed with his accomplishment, Jordan's instructors granted him an M.S. in 1872, just a little over three years after he first set foot on the Cornell campus.

The year after graduation Jordan attended an experimental summer school that the famed naturalist Louis Agassiz organized on Penikese Island, off the coast of Woods Hole, in Buzzard's Bay, Massachusetts. This experience also proved critical in Jordan's development as a naturalist. Agassiz, a charismatic scientist and visionary institution-builder, inspired Jordan to take up the study of fish, an undertaking he quickly and enthusiastically embraced. Jordan soon established a reputation as the "greatest living authority on ichthyology", and by the end of his life, he had authored or co-authored more than 600 articles and books on fish and named more than 2,500 new species, a truly phenomenal accomplishment.¹⁵ In addition to extensive contributions to descriptive taxonomy, Jordan came up with theoretical insights into the role of isolating mechanisms in evolution, including Jordan's law – the notion that the species most closely related to each other tend to be found just beyond the barriers that separate their populations.¹⁶

Unfortunately for Jordan, good teaching positions in natural history were scarce at the end of the nineteenth century, even for someone with his ambition and credentials. Following graduation from Cornell, he held jobs at a series of high schools and small colleges until 1879, when he received an invitation to become professor of natural history at Indiana University. Six years later he reluctantly agreed to serve that institution as America's youngest college president. Jordan overhauled the curriculum, introduced "majors" and electives, and enacted other important reforms during his six years as president at Indiana.

These initiatives eventually gained the attention of Leland and Jane Lathrop Stanford, who were in the process of creating a university as a memorial to their deceased son. The Stanfords were particularly keen to have their new university provide its students with "training for usefulness in life", an educational philosophy with which Jordan was in full agreement.¹⁷ In 1891 he became founding president of Stanford University. He attracted an impressive faculty, designed the curriculum, recruited students, and managed to shape the

institution into a thriving concern, despite troublesome financial and legal challenges that engulfed its early years. In a circular outlining its guiding principles, Jordan announced that "work in applied science was to be carried on side by side with the pure sciences and humanities and be equally fostered".¹⁸ Nine years later, during a lecture to a Japanese audience, he argued that "the final end of education is not learning or official position, but service to humanity".¹⁹ Jordan remained as president at Stanford until 1913 and as chancellor until 1916.

In a break with precedent, Jordan remained actively engaged in research and teaching even after he became a university president. One of his favorite courses was on "Bionomics", which explored the relationship between the biological and human sciences. The popular course, which he first taught at Indiana and continued offering regularly for the next thirty years, began with the "laws of organic life" and concluded with eugenics and the relationship between biology and ethics.²⁰

Jordan's interest in the application of scientific knowledge to society was not confined to the college lecture hall; he also became an outspoken proponent of eugenics. In addition to regularly promoting the idea in public lectures and publications, in 1906 he became chair of the first formal eugenics organization in the United States, the American Breeders Association Committee on Eugenics, which included several other prominent American scientists and inventors.²¹ By his own account, four years later Jordan was also instrumental in obtaining funding for the Eugenics Record Office, which under the leadership of the Harvard-trained biologist Charles B. Davenport, became the nerve center for the American eugenics movement.²² Supporters of that movement, which included most practicing geneticists at the time, became instrumental in the passage of a long series of state laws authorizing the sterilization of patients in publicly owned mental facilities and federal legislation that restricted immigration.²³ These policies were exactly the kind of reform many turn-of-the-century progressives advocated. Through the systematic application of the science of genetics, eugenicists hoped to impose order and control on the chaotic process of human breeding.

Jordan also became a leading American pacifist. Although he had long been interested in educational reform, not until after the Spanish-American War – a conflict that he felt could have been avoided – did his "mind began to turn more directly to matters of government – national, international, and municipal".²⁴ His frequent pleas for world peace and international arbitration were informed not only by a distaste for the human suffering wrought by war but also by its eugenic implications. Throughout history, Jordan argued, warfare had resulted in a kind of reverse selection, a racial degeneration in which the strongest, bravest, and most ambitious young men tended to be killed off, leaving the less fit behind to pass on their negative traits to future generations.²⁵

Jordan found other opportunities to apply his scientific knowledge through conservation efforts on behalf of aquatic animals.²⁶ By the end of the nineteenth century overharvesting, habitat destruction, and pollution were wreaking havoc with fish populations in the waters between the United States and

Science, History and Social Activism

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