

traces the phrenological controversies as a mechanism through which phrenology became a far more ambitious and institutionalized science. Once this foundation has been laid, van Wyhe switches tracks, looking more closely into one important phrenological and naturalistic text, George Combe's *The Constitution of Man* (Edinburgh/London, 1828). Herein lies the heart of van Wyhe's argument and interests, as he demonstrates that this was not just a work of phrenology but a philosophical treatise that proved fundamental in shaping the Victorian scientific worldview for a number of historical actors. Looking at its publication history and responses to it, van Wyhe shows that *The Constitution of Man*, and thus phrenology, lay at the heart of Victorian approaches to fields as diverse as medicine, education, theology, economics, and, especially, evolution.

Each of van Wyhe's chapters serves as a stand-alone essay offering a wealth of historical and bibliographic information. At times weighted down with historiographic detail, this book nevertheless provides a useful complement to the extant literature on phrenology. Though he does not quite deliver on his promise to go "beyond both traditional accounts of ideas as idealized transcendental entities and more recent social contextual approaches in which beliefs are served up by formative contexts" (p. 8), van Wyhe convincingly demonstrates the role that phrenology played in establishing the naturalistic worldview held by many Victorian scientists and shows how phrenology served as a means through which battles for personal intellectual authority and status were waged.

SHARRONA PEARL

Alexander Vucinich. *Einstein and Soviet Ideology*. viii + 291 pp., bibl., index. Stanford, Calif.: Stanford University Press, 2001. \$60 (cloth).

Einstein and Soviet Ideology is the last book by one of the preeminent students of Russian science, Alexander Vucinich (1914–2002). This remarkable book draws together some of the dominant themes of his work: the intellectual richness and diversity of Russian science, the political and ideological complexities of doing science under the Soviet regime, and the subtle dynamic of reinterpretation of Western scientific theories in Russian culture. Through the prism of Soviet attitudes toward Einstein, Vucinich surveys the complex evolution of the relationship between science, philosophy, and ideology over the four major stages of Soviet history.

The first stage—the early Soviet period—was

characterized by the proliferation of views about Einstein's scientific and philosophical ideas, ranging from complete acceptance to wholesale rejection. The older generation of classically trained physicists greeted new theories with skepticism, while the younger generation—especially Jewish physicists, for whom the revolution opened many educational and research opportunities—embraced new trends with great enthusiasm. Soviet philosophers were equally split. Two major factions—the "dialecticians" and the "mechanists"—took opposite attitudes toward Einstein's theories, especially the theory of relativity. The mechanists argued that Einstein was wrong on both scientific and philosophical grounds and portrayed him as a faithful follower of Ernst Mach's subjective epistemology, which had been strongly condemned by Lenin himself. The dialecticians, in contrast, argued the full compatibility of the theory of relativity with dialectical materialism, the Marxist philosophy of science, and cited Einstein's conceptualization of space, time, and matter as an example of dialectics. The debates among the physicists and among the philosophers ran largely along different tracks, with little interaction between the two communities.

At the second stage, the Stalinist period, the physicists and the philosophers became engaged in direct debates over the ideological meaning of the theory of relativity. Dispelling a widespread misconception, Vucinich notes that the debates between the proponents and the critics of the theory of relativity in the 1930s, however bitter, were largely open and unhindered. The political authorities did not interfere, even though both sides evidently appealed to them to take "administrative measures" against their opponents. In the late Stalinist era—the postwar period, with its vociferous ideological campaigns against cosmopolitanism and "reactionary science"—Marxist philosophers strengthened their position as guardians of official ideology and began demanding the total rejection of those Western-born scientific theories that presumably had philosophical flaws. Vucinich argues that the physicists counteracted such efforts by developing a philosophical defense of the theory of relativity. He couches the physicists' defense largely in intellectual terms, leaving out of his account their growing political influence, due largely to their crucial role in the development of nuclear weapons. According to David Holloway's *Stalin and the Bomb* (Yale, 1994), it was this influence, rather than any intellectual arguments, that saved Soviet physics from the fate that befell genetics.

The third stage, the post-Stalinist political thaw, brought about a significant reduction in the power of philosophers and the growing intellectual autonomy of the scientific community. A new generation of philosophers saw their mission not as the ideological policing of science but, rather, as the integration of the latest scientific achievements into the philosophical framework of dialectical materialism. Physicists and philosophers jointly eliminated the last traces of disagreement between the theory of relativity and Marxism, and in the 1960s and 1970s Einstein became almost an icon for Soviet historians and philosophers of science. Literary critics and philosophers relished the humanist aspects of Einstein's legacy, especially his connection with Dostoevskii's work.

The fourth stage, *perestroika*, saw widespread questioning of the dominant position of dialectical materialism, which became closely associated with the abuses and crimes of the Stalin era. Philosophers' discussions shifted away from questions of idealism and materialism and toward an emphasis on diversity and pluralism of opinions. Broadly construed relativism, including cultural relativism, became a topic of popular discussions. Telling the story of ideological attacks on Einstein and remembering Einstein scholars who had perished in labor camps featured prominently in the anti-Stalinist discourse of the *perestroika* years.

Curiously, Vucinich describes the relationship between science and ideology through a series of meteorological metaphors: the intensity of attacks on Einstein serves as a "barometer of ideological pressure" (p. 35), and critics' arguments tend to reflect "the direction of the current ideological winds" (p. 62). To some extent, these metaphors evoke the Mertonian image of science and the totalitarian model of Soviet history, in which science is portrayed as an inherently non-ideological entity suffering from external "ideological pressure." At the same time, these metaphors subtly suggest the fluid, loosely defined, and unpredictable nature of the elusive phenomenon called "Soviet ideology." Despite its analytical limitations and its narrow focus on intellectual debates, Vucinich's masterful systematic narrative provides much empirical support for the recent studies of Soviet science that conceptualize Soviet ideology as a language of negotiation, view scientists as political actors, examine institutional conflicts at the heart of ideological disputes, and analyze the exchange of symbols, values, and legitimacy between Soviet science and politics.

Although Vucinich tends to draw a sharp line

between the "champions of Stalinist orthodoxy" and the "unorthodox philosophical interpreters" (p. 64), his own detailed account of the immense diversity of Soviet views on Einstein, all of which laid claim to orthodoxy, paints a different picture: one in which "Soviet ideology" dissipates into a multiplicity of conflicting views, scientists appear as skilled in ideological discourse as philosophers, and the Marxist philosophy of science is constantly reconfigured as the scientific community goes through a series of metamorphoses following the twists and turns of Soviet history.

SLAVA GEROVITCH

Heiko Weber. *Monistische und antimonistische Weltanschauung: Eine Auswahlbibliographie.* (Ernst-Haeckel-Haus-Studien, Monographien zur Geschichte der Biowissenschaften und Medizin, 1.) iv + 260 pp., bibl. Berlin: Verlag für Wissenschaft und Bildung, 2000. DM 48.

Monism, or the belief in the unity of mind and matter, has a long history stretching back to the Greeks. Within the history of science, however, the term is associated with the movement in the late nineteenth and early twentieth centuries to unite science and religion through a unitary view of nature. One of "materialistic" monism's chief apologists was the German evolutionist Ernst Haeckel (1834–1919). In his 1892 tract *Monismus als Band zwischen Religion und Wissenschaft* (translated into English in 1895 as *Monism, as Connecting Science and Religion*), Haeckel defined monism as the conviction "that there lives 'one spirit in all things,'" based on one common fundamental law that emphasized "the essential unity of inorganic and organic nature" (p. 3). In *Die Welträthsel* (1899; published in English as *The Riddle of the Universe* in 1900) Haeckel expanded these views into a general philosophy of nature that linked God, through the "law of substance," to the eternal persistence of matter and energy throughout the universe. This book became an immediate worldwide best seller, translated into more than a dozen languages and selling hundreds of thousands of copies. It also, not surprisingly, attracted considerable criticism, particularly among theologians.

While not all monists agreed with Haeckel's particular formulation, by 1900 monism became a full-blown international movement, attracting a considerable following among scientists (including, most prominently, Wilhelm Ostwald, Ernst Mach, and August Forel) and, more generally, among the educated lay public. In January 1906 the German Society of Monists—Deutsche