

## Roots of Technocracy

... *The Heavens and the Earth*. A Political History of the Space Age. WALTER A. McDUGALL. Basic Books, New York, 1985. xviii, 555 pp., illus. \$25.95.

*The Heavens and the Earth* by Walter McDougall is a boldly conceived, elegantly written, and unfailingly provocative history of the new age of space. It is not a book about engineering technique, much less a chronicle of the derring-do of astronauts. Nor is it a prosaic institutional history of the type favored by historians of technology. Nor, for that matter, and its subtitle notwithstanding, is it a conventional political history. It is rather a book about the political economy of technology and about the emergence, in both the United States and the Soviet Union, of what McDougall calls "technocracy," the "institutionalization of technical change for state purposes."

The world's first technocracy, McDougall argues, was forged in the crucible of the Bolshevik Revolution, as dreams of space flight and of social perfection were wedded in Leninist ideology to the power of the total state. Early Soviet progress in rocketry continued, he chillingly notes, even amid the purges and labor camps of the Stalin era; and though the pace of development was slowed during World War II, the Soviet Union nevertheless emerged from the war as the only state that "reified the notion of centralized mobilization of science." The United States, on the other hand, with its classical liberal traditions of limited government and free enterprise, was in his view a reluctant technocracy that was mobilized principally as a consequence of the Cold War and Sputnik and did not fully embrace the new organization of technology until the 1960's.

The heart of McDougall's book, and its most original contribution, is an exploration of the political leadership of Khrushchev, Eisenhower, Kennedy, and Johnson in the years immediately following the launch of Sputnik. In Moscow, according to McDougall, Khrushchev capitalized on the Russian suc-

cess in two ways: first, he ran a daring bluff, boasting publicly of a largely nonexistent Soviet missile prowess in order to obscure the relative backwardness of the Russian space program and the Soviet Union's acute vulnerability to American nuclear superiority; second, he used the accomplishment to legitimate his own efforts to reform the Soviet system and to create what McDougall calls "space age communism." Both efforts had consequences that Khrushchev could hardly have intended. The missile bluff led the United States to intensify its own space and missile programs, and the Khrushchevian reforms alienated traditionalists in both the military and the party and eventually led to his downfall. It was nevertheless Khrushchev who managed the Russian transition to the space age and who wed the Soviet regime as never before to the irresistible march of technology.

In Washington, by contrast, Eisenhower sought to stem the hysteria that followed the launch of Sputnik, in part because he saw that its significance was exaggerated but also because he feared the consequences of "technocracy" for the traditional values of limited government and free enterprise. A product himself of the new 20th-century world of large-scale organization, Eisenhower fully understood its perils, warning in his farewell address of the dangers posed by a "military-industrial complex" and a "scientific-technological elite." Yet Eisenhower fought at best a stubborn rear-guard action, conceding more and more ground to the forces of technological progressivism—the federal R&D budget nearly doubled during his second administration—even as he continued to counsel restraint.

It remained for Kennedy and Johnson to forge a powerful alliance of military "hawks" and social liberals and to commit the United States to the new "command technology." The result, according to McDougall, was "the transformation of the state into the dominant promoter and manager of technological progress" and with it "the institutional-

ization of wartime methods, the suspension of peacetime values, the blurring of distinctions between the state and society, and the apparent erosion of cultural differences around the world." The United States, driven by the threat of international competition, had thus purchased technological progress at a price that threatened to "undermine the values that make a society worth defending in the first place."

Not all readers will agree with the idiosyncratically conservative premises of this book, with its nostalgia for the lost world of Thomas Jefferson and Adam Smith, its seeming faith in the untrammelled operation of the marketplace, its occasionally strident anticommunism, or its neoorthodox assertions about humanity's sinful nature. Nor will they agree with all of its sweeping and categorical interpretative claims. Was it really Sputnik and "the new symbolism of the space race" that discredited "the old verities about limited government, local initiative, balanced budgets, and individualism," for example, or had that already been largely accomplished by three earlier decades of war and depression? Was not "technocracy" a component of a much broader and more deeply rooted process of economic and political reorganization? And if so, are not the causes of our current situation to be sought less in our rivalry with the Russians than in the dynamics of our own society? Was the organization of science by the federal government, which was at least putatively subject to democratic control, the only source of danger to traditional American values, or did the appropriation of science and technology by large corporations, about which McDougall is curiously silent, also imperil liberty and democracy? Was, finally, the triumph of technocracy in America really a product of the liberalism of the 1960's, as McDougall argues, or of much deeper, and in their consequences more fundamentally conservative, processes?

These questions, and many more like them, are themselves testament to the power of McDougall's provocative book. Indeed, he has raised the history of the space age to a new high ground on which the triumphs and failures of our recent past will henceforth be debated. If not all who join that debate agree with him, they will nevertheless be indebted to his extraordinarily challenging account of the new politics of space.

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