sian fatalism than to modern political science) unleashed by the triumph of science developed a Frankenstein effect: the most dangerous scientific-technical rivalry in human history and the forces of the great state directed by totalitarian will reinforced each other for several decades.

The book is also about the great temptations of the scientific mind. Ironically, it was not Stalin but Kurchatov and his physicists who made the decision to create a thermonuclear "superbomb" in 1948. The community of Soviet atomic scientists, which Holloway calls the closest thing to civil society in the Stalinist regime, continued to believe, even after facing the "horror" of the first thermonuclear tests in August 1953 and November 1955, that nuclear balance offered an ultimate hope for peace. True, after Stalin's death in 1953, they also began to convey to the political leadership the idea that the thermonuclear weapons posed a common danger for humanity.

The story that Holloway has so superbly written for us looks even more tragic with the benefit of hindsight. Today one knows that, in spite of the authority and freedom of the nuclear designers, they remained prisoners of secrecy. Kurchatov's dream of turning his nuclear complex into the basis for an unprecedented scientific-technical revolution became a reality for the advanced parts of the world, but for the Soviet Union it turned out to be a road to overextension. Numerous installations of the Soviet atomic complex, although they can be hardly compared to the forgotten pillboxes in Albania, today are more a symbol of the Cold War legacy than of a promise for Russia's greatness.

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Marine Conservation

Global Marine Biological Diversity. A Strategy for Building Conservation into Decision Making. ELLIOTT A. NORSE, Ed. Island Press, Washington, DC, 1993. xxxii, 383 pp., illus. $50; paper, $27.50.

What does the variety of life have to do with rates of production or material processing by ecosystems? Ecologists and conservationists are now evaluating linkages between biodiversity and ecosystem processes and the implications of such linkages for environmental policy. Norse argues that a focus on preservation of remnant populations is risky and expensive and ignores the goods and services provided by biodiversity. Instead, we should "maintain the integrity of life," which implies that ecosystem processes as well as species should be conserved. Many of the book's specific recommendations would conserve entire marine ecosystems or communities, which often transcend geopolitical boundaries. Under this approach, conservation of genes and species follows from conservation of spatially extensive systems.

Global Marine Biological Diversity was written by more than 100 authors for the decision-makers of coastal countries. The central message is that marine biodiversity and the sea's living resources are at great risk from overexploitation, modifications of the physical environment, pollution, invasions by exotic species, and modifications of global geochemistry and climate. These stresses are attributed to root causes that include human overpopulation, overconsumption, failure to build conservation into institutional objectives, ignorance, and a tendency to undervalue nature. The book concludes with 26 pages of specific policy recommendations. A sampling of topics includes sustainable management of marine species, protection of marine habitats, pollution control, ending free rides for alien species, restoration of damaged marine ecosystems, citizen involvement in decision-making, and shifting the burden of proof to users of marine resources.

The least convincing proposal is that for strengthening the knowledge base. The main point of the book is that marine biodiversity is at risk and that we should save it through actions that sustain whole communities or ecosystems at large scales. If one accepts this goal, then it is difficult to understand how more inventories or more taxonomists will accelerate the process. The argument for research on restoration is more persuasive, as we will surely have many opportunities to learn from our mistakes as we attempt to restore marine ecosystems. Marine conservation requires "learning by doing." Conservation and restoration actions are experiments from which we can learn, provided assessment, analysis, and capacity for adaptive change are built into the management process.

In contrast, the book's call for public education and involvement is compelling. The Senegalese ecologist Baba Dioum comments, "In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught."

Several sections of the book offer syntheses that will engage the interests of diverse readers. The fascinating section on the spread of exotic species will dispel any notion that the sea is homogeneous. A valuable chapter evaluates the similarities and differences between terrestrial and marine conservation. In both habitats, certain productive, diverse, or risk-prone areas may be of greatest concern to specialists, while the public is most concerned about the charismatic macrofauna. However, marine habitats differ from terrestrial ones in several ways that affect conservation: sea water is a buoyant medium; marine systems are global biogeochemical sinks; food webs are different; and research and monitoring are relatively difficult.

Norse has succeeded in putting together a volume that is accessible to a wide readership. Scientists will appreciate the tables of acronyms and institutions, and nonscientists will be grateful for the glossary. The book also includes a list of endangered marine species and an index.

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A Science of Fitness

Ecological Genetics. LESLIE A. REAL, Ed. Princeton University Press, Princeton, NJ, 1994. xvi, 238 pp., illus. $49.50 or £40; paper, $24.95 or £18.50.

Ecological genetics originated in the realization that genetics and ecology are equal partners in the evolutionary process and should be studied on the same time and spatial scales. The papers in the current volume embody well this outlook. The five contributors are all exciting and accomplished researchers in ecological and population genetics. Each contributes two papers, the first typically being an overview of a topic and the second a more detailed exploration of a specific problem. Montgomery Slatkin considers gene flow and population structure from a cladistic perspective. Sara Via considers the evolution of phenotypic plasticity in heterogeneous environments, taking issue with the view that plasticity is a character in its own right, one that can evolve independently of the character values. Michael Lynch reviews neutral models of phenotypic evolution, in which fluctuating selection increases genetic variability above that predicted by the neutral model. He then considers the extensive population genetics data from *Daphnia*, in which bouts of sexual reproduction expose the genetic variation hidden beneath phenotypically similar clones. Janis Antonovics emphasizes the interplay of ecological and genetic dynamics in both of his papers. The first considers theoretical models of host-pathogen systems and the second the field ecological genetics of metapopulations, specifically the *Silene-Ustilago* plant pathogen system. Joseph Travis pro-