D

ɔls, Farrington

ıgton Daniels (1889–1972), a physical ist, was a major advocate of solar energy the late 1940s through the 1950s and ɔ, conducting research and writing techni- ıd popular articles and books for wide nces. He stressed particularly that less ɔped countries could use solar energy to :heir living standards, especially in rural

ɔrn in Minneapolis, Daniels earned his rom Harvard University and after some ıg and government research moved to the sity of Wisconsin at Madison in 1920, ɜ in 1959. A distinguished chemist, he in the 1950s as the president of the :an Chemical Society.

ıte in World War II, Daniels worked at :tallurgical Laboratory in Chicago, part Manhattan Project to build the first r weapon, and stayed on for a year after ır as the director of the new Argonne ıal Laboratory. He designed the Daniels ɔrototype civilian nuclear power reactor, igned from the lab in part due to frustra- at the government was more interested ime in the military uses of nuclear power willing to invest heavily in civilian power Upon his return to Madison in 1947 he ɔ solar energy as one of his research

aniels established a solar energy research he university and actively promoted so- side of academia. He helped found the ation for Applied Solar Energy, later the ıtional Solar Energy Society, serving as ɜnt. His 1964 book, *Direct Use of the Energy*, became a popular work, both ıing how various solar technologies l and arguing for more attention to them. He lectured widely on solar energy, and traveled to less developed countries to lecture and consult with scientists and engineers on problems in utilizing solar energy.

Frank N. Laird

Further Readings

Daniels, Farrington. *Direct Use of the Sun's Energy.* 1964. Reprinted by Ballentine Press. 1974.

See also SOFT ENERGY PATHS; SOLAR ENERGY

Danube River

See EASTERN EUROPE: ENVIRONMENTAL PROBLEMS

Darling, Jay Norwood "Ding"

In the course of a fifty-year journalism career that began in 1900, Jay Norwood Darling became the most widely known and respected political cartoonist of his day. He achieved equal fame, however, for his important contributions to conservation as an illustrator, administrator, and advocate.

Born in Michigan in 1876, Darling grew up in Iowa, where he developed the strong love of duck hunting that became the basis for his lifelong commitment to conservation. Darling had intended to pursue a career in medicine but after completing college found himself employed as a reporter. Sidetracked into cartooning, he soon cultivated a unique style and editorial perspective that gained a wide public following. Known to his readers by the contracted nickname "Ding," Darling reached a national audience from his base at the Des

Moines *Register* and eventually received two Pulitzer Prizes for his work.

Through his daily cartoons Darling often delivered strong conservation messages. In particular he brought attention to the plight of declining waterfowl populations in the late 1920s and helped to stimulate national-level reforms. In 1934 Darling was appointed (along with publisher Thomas Beck and Aldo Leopold) to Franklin Roosevelt's Committee on Wild Life Restoration. Their report outlined ways of integrating wildlife conservation with other New Deal initiatives.

Darling's work on the committee led to an invitation from Roosevelt to become director of the U.S. Bureau of Biological Survey (BBS), forerunner of the Fish and Wildlife Service. Despite reservations—Darling was active nationally in Republican Party politics—he agreed to serve, and became head of the BBS in 1934. Although his tenure at the BBS lasted less than two years it was an important turning point in the administration of wildlife conservation programs in the United States. Darling succeeded in reinvigorating the Bureau, securing increased funds for its programs, enlarging the wildlife refuge system, and promoting scientific research and education on conservation problems.

Darling's most active years as a conservation leader came during the last three decades of his life. From the mid-1930s until his death in 1962 he remained deeply involved in conservation policy debates, devoting himself especially to improving education on conservation issues, and to efforts to unite conservation organizations for more effective representation. In 1965 the National Wildlife Federation, which he was instrumental in founding, chose him as one of the first initiates in its Conservation Hall of Fame.

Curt Meine

Further Readings

Lendt, David L. *Ding: The Life of Jay Norwood Darling*. 1984.

See also CONSERVATION MOVEMENT; DEPARTMENT OF THE INTERIOR (U.S.); LEOPOLD, ALDO; NATIONAL WILDLIFE FEDERATION; WATERFOWL: CONSERVATION AND HABITAT; WILDLIFE PROTECTION: HISTORY

Darwin, Charles

Modern ecological thinking has its roots in the scientific theories of Charles Darwin (1809–1882), the greatest naturalist of the nineteenth century. Before Darwin observers of nature regarded the flora and fauna as stable, fixed parts of an ideal design. In Christian Europe and America the designer was most commonly seen as a benevolent God. That view assumed humans could do little to upset the order of nature; all their disturbances were merely rearrangements of the parts, not threats to the design. Each species, it was believed, worked for the good of others as much as for itself, and all worked for the good of humankind. But Darwin shook that assumption to its core. After him the order of life on the planet came to be seen as the result of struggle, competition, adaptation, and opportunism. What Darwin called "the web of life" showed no design or conscious plan, only the individualistic strivings of independent species.

Darwin's new perception of nature was influenced by the rapid economic changes going on in his native England and by his travels to South America and the Pacific Islands, particularly the Galápagos archipelago, where he found strange creatures living in an alien landscape. He searched for natural explanations of their forms and interactions. A student of the Reverend Robert Thomas Malthus, he was impressed with the imbalance between the power of the earth to produce food and the power of species to reproduce themselves; those whose offspring survive the competition for resources are the "fittest." In 1859 he published his revolutionary work, *On the Origin of Species*, followed in 1871 by *The Descent of Man.* Together, they provided a naturalistic mechanism for understanding how new species come into being, why some species become extinct, how and why they are distributed geographically as they are, and how the interdependencies in nature evolve. Darwin called his theory "evolution through natural selection." Following its appearance, the science of ecology also emerged to study the interactions of plants and animals with each other and with the inorganic environment over time.

Darwin, who lived before the conservation movement began, saw this designless process as benign and progressive. Like other Victorians he applauded the march of civilization, the triumph of technology over wild and savage continents. Nowhere did he call for any restraint on man's economic behavior. However, he also found an impressive kind of order in nature—an order commanding respect—though it was completely the result of species pursuing their