



Iron, Nature's Universal Element

Why People Need Iron and Animals Make Magnets

by Sharon Bertsch McGrayne and Eugenie Vorburger Mielczarek

DESCRIPTION

Virtually all life on Earth, from bacteria to humans, needs iron to survive. From facilitating oxygen flow in mammals to assisting migrating birds in finding their way south for the winter, iron serves a variety of definitive roles for nearly all living creatures.

Our knowledge of iron's role in life is the result of recent discoveries about iron and magnetism in bacteria, in myriad animals and plant species, and in humans. Personal stories of scientists illustrate the lively interplay between molecular biologists, ornithologists, physicists, oceanographers, chemists, geologists, physicians, and ecologists.

The authors start with the discovery of iron-rich hot springs on the ocean floor. Was this life's nursery? Other chapters describe why there is iron in our blood and how the body safely cages excess iron. The physiology of exercise and the genetic blood diseases, sickle cell anemia, hemochromatosis, and the thalassemias are explained.

One of nature's most dramatic mysteries—the migration of birds, turtle, salmon and other animals—depends on iron magnets. The bodies of some animals contain minute deposits of magnetite that are sensory navigators. Far reaching in scope, *Iron, Nature's Universal Element* also looks at global issues including iron's power over the earth's oceans, vegetation, and populations; and the low-protein diets that lead to long-term cognitive damage in iron-deficient children in poor countries.

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