

uid immiscibility, diffusion and the Soret effect, optical properties, and isotopic composition, including their interaction as well as the instruments required to observe or measure each of them. Broadly, this chronological sweep presents the earliest interactions of field and theory in the eighteenth century and progresses through the illumination brought successively by microscopic petrography, chemistry and physical chemistry, modes and norms, the mechanics of emplacement, stable and radiogenic isotopes, spectroscopy, experimental petrology before and during the twentieth century (and its gifted practitioners), and the physics of fluid dynamics. Throughout, the problems of classification are discussed with the aid of comparative tables and methods of graphic representation.

This bare-bones review hardly hints at the complexity of the story Young tells. Here are just two instances in a little more detail. In the context of classification and the transfer of German petrography to problems and description in the American West, Young details the interaction of Ferdinand von Richthofen (1833–1905), and his reasoning about basalt and granite occurrences and nomenclature, with Clarence King, G. F. Becker, and other American geologists; he also notes the influence, partly through von Richthofen, of talented German petrographers such as Ferdinand Zirkel (1838–1912). There is also a detailed discussion of how the Soret effect, a diffusion mechanism, was applied to granite formation, fell out of favor, and then was tentatively reinstated a century later. All the stars are here, but so also are a host of others.

My very few quibbles about the book are minor compared to its significance; primary among them is the wish for a more detailed subject index. Igneous petrologists and students thereof should read *Mind over Magma* both for the intrinsic value of its story and in order to avoid reinventing some petrological wheel. Historians of science, particularly of geology, will appreciate it as an exemplar of their craft.

SALLY NEWCOMB

**Karl Sabbagh.** *A Rum Affair: A True Story of Botanical Fraud.* 284 pp., illus., app., index. Cambridge, Mass.: Da Capo Press, 1999. \$15 (paper).

John W. Heslop Harrison, the respected professor of botany at King's College, Newcastle upon Tyne, believed strongly that parts of the Hebrides had remained ice-free throughout the last Ice Age, and on the Isle of Rum from the 1930s to the 1950s he found the plants to prove his theory.

But did he plant them? In the summer of 1948, with a grant and a few outraged botanists supporting him, the able amateur botanist John Raven set off to Rum to find out. His subsequent report remained unpublished and nearly forgotten for fifty years.

In 1997 Karl Sabbagh, an author and documentary producer, read Raven's report and began unearthing the evidence surrounding the case in "true crime" fashion, with the aim of setting the record straight. Sabbagh narrates the story as it unfolds in response to his inquiries. Thankfully, what begins as a lighthearted romp settles down after the first three chapters to a darker discussion of fraud in scientific methodology and exploration.

Sabbagh is a skillful and entertaining writer, but he often forces his conclusions on the reader even though alternatives might be equally plausible. His remark that the Royal Society publishes an obituary for each of its members without exception because "its absence would draw attention to activities suggesting a severe misjudgment on the part of all the fellows in electing this man or woman in the first place" (p. 43) is a particularly mean-spirited example. Amusingly, Sabbagh considered this tactic suspicious when used by Heslop Harrison to promote his theory.

*A Rum Affair* consists of thirteen wittily named chapters and an epilogue. Endnotes are supplied, but there is no bibliography. An appendix contains a 1948 letter from Heslop Harrison to Raven; but Raven's 1948 report, which we might have expected to be included in its entirety, is not.

*A Rum Affair* is an interesting study of the personalities and relationships of a small group of botanists involved in the study of a specific flora and their reactions to the fraudulent practices of a colleague. While it has little significance for the history of science, it offers the general public a window on the world of botany of fifty years ago.

SUSAN E. SCHNARE

**Andrew Jamison.** *The Making of Green Knowledge: Environmental Politics and Cultural Transformation.* xi + 205 pp., bibl., index. Cambridge/New York: Cambridge University Press, 2002. £60 (cloth); £22 (paper).

It has become standard practice in analyses of the environmental movement to begin by pointing out just how complex, contradictory, and multifaceted has been its development. Typologies are often introduced, and different perspec-

tives are marshaled in order to cut into the complexity. This book is no different in that respect. What does mark it out from the others, with one or two exceptions, is that it combines an open, personal account with a social movement analysis of modern environmentalism. It is personal, because Andrew Jamison has participated in the development of environmentalism since the 1960s; and it is analytical, because, at the same time, he has researched and charted that development. Looking at it from his position in science and technology studies—an academic field to which many former activists have contributed—Jamison's contribution has been to study the variety of ways environmentalism has made our knowledge greener. *The Making of Green Knowledge* brings together in a single volume the fruits of this work, hitherto distributed in other books and journal articles, and allows Jamison to reflect on the state of environmentalism today.

Jamison clearly believes in the power and durability of ideas. Environmentalism is conceived through different traditions of thought regarding the relation between humanity and nature. Tensions between these traditions are seen as an important motive force in the development of the movement in different places and at different times—such as radical and reformist perspectives on the degrees to which humanity can be considered apart from nature. Shifting structures of political opportunity have channeled the directions along which the movement has divided and diffused. Much of this is discussed at a very general level in the book, with specific examples used to highlight some of the points being made; one chapter does provide a brief, though not entirely satisfactory, illustration of this model through a comparison between environmentalism in Sweden and Denmark.

The overall argument that emerges is that environmentalism needs to nourish the critical stance and the position of radical reflection that it originally held. Though times have changed, argues Jamison, the need for an ecological culture has not. Industry has incorporated the rhetoric of greening. Environmentalism has become professional and reformist. Along the way, activists have contributed a host of new theories, methods, instruments, social roles, and organizations for the production of greener knowledge. One gets the sense, however, that Jamison believes this new knowledge has lost some of its bite.

In presenting environmentalism in this way—that is, as passing through a series of phases, beginning with radical origins and culminating

with institutionalization in the new environmental professions, I think Jamison runs the risk of being misconstrued. He could be criticized for overlooking the radical undercurrents that continue to be a part of environmentalism today. This would be unfortunate. He does acknowledge the radicals; and he devotes a chapter to the dilemma confronting activism today (whether professional or militant). That dilemma is the choice between a resistant “ecological culture” and a “dominant culture” of neo-liberalism. The latter has coopted and invested in green reforms, but the signs are that it continues to degrade the environment and perpetuates global inequalities. Unfortunately, this exploration comes quite late in the book. Consequently, Jamison's plea for new public spaces, in which the green production of knowledge can be reinvigorated, remains relatively underdeveloped.

Jamison believes that some of the public spaces used by the ecological culture in the past are now shrinking. Universities are under pressure to be entrepreneurial and build links with business. The emphasis in government technology policy has tilted from social control to enabling commercial development. And so forth. These shifts make important a search for new public spaces in which an “ecological culture” can experiment with alternatives to the “dominant culture.” These are intriguing claims, and I hope it is an area of work that Jamison can develop in the future. Meanwhile, we are left with a collection of insights into modern environmentalism that should be of interest to students of the history of knowledge, scientific or otherwise.

ADRIAN SMITH

**Celeste Michelle Condit.** *The Meanings of the Gene: Public Debates about Human Heredity.* (Rhetoric of the Human Sciences.) xi + 325 pp., bibl., index. Madison: University of Wisconsin Press, 1999. \$49.95 (cloth); \$19.95 (paper).

Celeste Condit's extended essay on the evolving meanings of the word “gene” is now available in paperback. This study, based on analyses of popular communications about genetics in four eras since the founding of genetics just a century ago, explores the dramatic evolution of rhetoric with much actual or potential impact on health and agriculture. Because genetics in particular and biology generally have become the lifeblood of vast industries and the source of changing views of what a human is, they will be among the most salient elements of the history of the last fifty and the next one hundred years.

When the term “gene” was coined in substi-

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