

Scientific Americana: From the Tombigbee to the Tushepaws and the Timpanagos

Letters of the Lewis and Clark Expedition. With related documents, 1783–1854. Donald Jackson, Ed. University of Illinois Press, Urbana, 1962. xxi + 728 pp. Illus. \$10.

Jean-Bernard Bossu's Travels in the Interior of North America, 1751–1762. Translated and edited by Seymour Feiler. University of Oklahoma Press, Norman, 1962. xvii + 243 pp. Illus. \$4.50.

Journey Through the Rocky Mountains and the Humboldt Mountains to the Pacific Ocean. Jacob H. Schiel. Translated by Thomas N. Bonner. University of Oklahoma Press, Norman, 1959. xxi + 114 pp. Illus. \$3.75.

A concern for history has always been regarded as the mark of a civilized man. He who knows only his own generation remains always a child. These maxims of the historian Louis B. Wright and college president George Norris read from sides of the same coin: perception in perspective and history's wide-angle lens. Today perhaps the social historian detains more readers than the descendants of Hakluyt and Thwaites, yet the intrinsic narrative interest of Americana inevitably captures many readers. These three Americana of exploration, with political mileposts, revived after one or two centuries carry interest for the anthropologist, the geographer, and the biologist.

The most important of the trilogy is Donald Jackson's two-pound 13-ounce mail bag filled with 428 letters and documents related to the amazing Lewis and Clark Expedition of 1804 to 1806. The names of Lewis, Clark (it came close to being Hooke), and Sacagawea linger in the schoolboy's memory. Lewis mock orange is Idaho's state flower. English gardens have long sported *Clarkias*. Even the scientific results of the expedition have been analyzed repeatedly [see *Science* 134, 1611 (1961)]. Jackson's book is in no way simply an-

other edition of the journals but, in the best sense, a long, detailed commentary on them. Those readers who browse contentedly in footnotes and, as Peattie remarked, do not consider them interruptions on the bridal night, will find the letters a fascination. They comment on the inception and outfitting of and the foreign reactions to the expedition as well as on the carrying out and consequences of its achievement, the natural history, the delays in publication of the journals and the scientific reports, Lewis's death, and the subsequent often mundane lives of the expedition's personnel.

There are stories behind the outfitting of the expedition: Saugrain's wife's mirror and the thermometers (discredited); Lewis's insistence on blue rather than white beads for Indian gifts (confirmed); Barton's *Elements of Botany* (purchased) although Lewis had suggested the two-volume Miller edition of Linnaeus; Indian presents (two dozen "Nonesopretty" and 130 rolls of pigtail tobacco to be included); medicines (opium and ipecac); provisions (flannels, coatees, and the like); not to forget the keel boat, two canoes, pocket pistols with secret triggers, and on and on. The men who manned the expedition come to life even though heretofore "so careless were they of notoriety" that Lewis and Clark fused as personalities. They wrote letters "constantly and abundantly, afloat and ashore, legibly and illegibly, and always with an urgent sense of purpose." Chronologically arranged—Lewis, for example, writes President Jefferson and seven days later comes a reply—these letters reveal many unnoticed traits of character. There emerges a diorama of the wide Missouri that captures the smells and sights from Mandan to the Pacific.

Flexner was right when he said scholars push undocumented books into limbo and keep the others alive indefinitely. Elliott Coues, whom Jackson ad-

mires, left this aphorism: "once well done, it is done forever." Jackson adds realistically "never quite true in the writing of history but still a goal worth trying for." Well done, too, is Jackson's book in format, with portraits, facsimiles of many documents, and easy-to-follow typography so that writer and commentator may be distinguished quickly.

While the student of Lewis and Clark follows through the forest of detail, leaf-by-leaf, the historian who retraces the steps of the French naval officer Jean-Bernard Bossu (1720–1792) welcomes every blaze left by the scholar before him. Monaghan remarked that the importance of Bossu's travels has long been recognized. After serving as a soldier with the Comte de Schonberg in Italy and elsewhere in Europe, Bossu sailed from LaRochelle for Louisiana the day after Christmas, 1750, and returned to France on 15 June 1757. He arrived in New Orleans on his second voyage on 12 August 1758 and remained 4 years. He related his experiences and colonial history gathered from others in a series of 22 letters addressed to a fellow Burgundian, the Marquis de l'Estrade, who described Bossu's style as "quick, sometimes warm, and always clear" and predicted that the public would welcome the published letters. His prophecy proved true. The first edition appeared in Paris in 1768 and was twice reprinted before it appeared in German and English in 1771. Altogether there were nine editions and printings of his first *Travels*, in four languages. Bossu's third trip to America, as a private citizen, led to a second work published in French in 1777 and twice reprinted. It has never been translated. This narrative of his third voyage would merit translation as a social document.

The first English translation of Bossu was by Johann Reinhold Forster, author, naturalist, and companion (with his son) of Cook on his second voyage, the same Forster who translated all the travel narratives of the Linnaean firmament—Osbeck, Toren, Hasselquist, Kalm, and Loeffling. Seymour Feiler (University of Oklahoma), who made this translation, believes that since the Forster edition is rare, archaic, and excessively literal a new rendering is called for. However, rarity is satisfactorily countered now-a-days by excellent facsimile reprints coming out of Milan, Weinheim, Tumba, and New York. Forster's archaisms provide appeal and authenticity which Feiler often

loses. For example, Feiler translates the French *pirogue* as canoe when the original is preferable. Forster says "to increase my misfortunes." Feiler turns this as "to make matters worse." Forster, transliterating the original, speaks of a "dance of impudicity"; Feiler, of a "lewd dance" (p. 61). When a reader today turns to an 18th century travel narrative he anticipates the idiom of 200 years ago, and may delight in it. Forster's inexplicable omission of certain passages, such as Voltaire's couplet on syphilis, is a more serious count against the first English translation. But Feiler sometimes fails to understand the naturalists' parlance: Bossu's "pour en orner votre cabinet l'histoire naturelle" is rendered "that you could decorate your natural history study with it" (p. 97). "Cabinets" of natural "curiosities" were familiar in Bossu's day. And Feiler occasionally strays in his explanatory footnotes—for example (p. 84) when he compares the reputed musk of the Mississippi alligator with that of the true cervine musk of Asia (compare, Valmont de Bomare's *Dictionnaire* on this interesting topic). Although *Pliakmine* puzzled Forster, Feiler correctly identifies it as persimmon and *bluets* as huckleberries. Bossu's *la patate*, translated by Feiler as a "type of earth apple" (p. 131), is the sweet potato, more fully described by Du Pratz. Or, since it "tastes very much like chestnuts," could it be the Jerusalem artichoke? Only two of the four original plates are reproduced; six others from Lafitau and Seth Eastman are included. There's an index of generalities. But open the book and the hunt is on. Bossu tells a good story.

Schiel's journey to the Rocky Mountains, the Timpanagos, and the Humboldt is another translation from that bethel of historians, the University of Oklahoma Press. Edited by Thomas N. Bonner of the University of Omaha, Schiel's *Journey* is illustrated with uncolored reproductions of Kern's plates from the Pacific Railroad Report, by one of Schiel's fossil mollusk plates, and by Beeler's vignettes. Jacob [or is it James?] Heinrich Schiel was of Rhenish vintage, took a philosophy degree at Heidelberg, became a docent there, lectured on chemistry and geology, and then emigrated to America about 1848. Circumstances surely suggest Schiel followed Agassiz, Guyot, and Lesquereux, as a political exile. He served with Captain Gunnison, 1853 to 1854, as geologist and surgeon (though he was without a medical degree), kept a diary, geol-

ogized along the route, and was fated to miss the massacre of his Captain and seven comrades. Schiel published his *Reise* in 1859, evidently in a small edition, for only six copies have been located in libraries. Bachmann and Wallace published a translation in 1957 but they stint natural history. We wish for another Coues! There is Schiel's brief geology report. To be sure, we have had Captain Beckwith's narrative of the expedition, which incidentally is almost devoid of mention of Schiel: "To the pass [in the Humboldt Mountains], Dr. Schiel, geologist, gave the name of Agate, that stone being profusely scattered about in large blocks." When Beckwith made sorties of exploration it was generally in the company of Morris, Snyder, and Egloffstein. The historian of geology, G. P. Merrill, says Schiel's report "contains scarcely anything of value from a geological standpoint, being mainly mineralogical and lithological" and adds, "nothing was said concerning the probable geological age" of the fossil invertebrates.

Schiel was keenly interested in the Mormons, although he advised against joining them. He warned those "who may look with silent envy and perhaps secret desire upon the prerogatives of the saints," and with pride he reported that not more than three Germans had joined the Latter-day-Saints! Contrast Jules Remy's account from French eyes of his Mormon visit of 1855. *C'est la vie!*

"It is too bad," wrote Bossu, "that only a few savages inhabit such beautiful country."

JOSEPH EWAN

Department of Botany,
Tulane University

Alchemy to Organic Chemistry

Historical Studies in the Language of Chemistry. Maurice P. Crosland. Harvard University Press, Cambridge, Mass., 1962. xvii + 406 pp. Illus. \$9.

There are as many ways of writing the history of science as there are of writing political, social, or economic history. One author may choose to write a narrative of events, another may prefer to deal with the ideas that influenced human actions, and a third may feel that the rich tapestry of the past can be properly revealed only through the biographies of great men.

All these methods have been utilized in the history of chemistry. M. P. Crosland, however, has preferred to try something new, and the result is a fascinating book.

What Crosland has done is to view the history of chemistry through its changing nomenclature from the days of the alchemists to the end of the 19th century when organic chemistry became a mature science. He has modestly entitled his book, *Historical Studies . . .*, for he is eager to underline the fact that there is still much to be done. This is not the least merit of the volume for it opens up many new areas, and students of the history of chemistry, it is hoped, will soon move to explore them.

The five "studies" are entitled "The language of alchemy," "Early chemical terminology," "The introduction of systematic nomenclature into chemistry and the acceptance of the 1787 reform," "Chemical symbolism," and "The language of organic chemistry." Every reader will probably rank these studies in a different order, depending upon his interests and his specialized knowledge. I found the study of the language of alchemy completely fascinating and filled with an abundance of good sense and scholarship. Nowhere, I think, have the honest strivings and the dishonest fakery been so clearly described. The almost inevitable muddle in which even the most sincere alchemist found himself is also nicely delineated. The second study I thought a bit tedious and repetitious, although there is much of value in it. In Crosland's study of the reform of chemical nomenclature, I wish somewhat greater emphasis had been given to the philosophy of the Abbé de Condillac. Crosland fully recognized that Lavoisier's debt to Condillac was considerable, but the full impact of Condillac upon the French reformers is not adequately represented. Similarly, I felt that the effect of Sir Humphry Davy's "discovery" of chlorine was passed over rather quickly. After all, in naming chlorine and iodine Davy violated the spirit, if not the letter, of the French reformers, for he returned to the use of a physical, rather than a chemical, characteristic as the base of the new names.

The first three studies form a unity; the last two deal with problems somewhat more complicated than the mere naming of chemical compounds. The evolution of chemical symbols from antiquity to Berzelius is nicely de-