discusses operations on "The Busiest Little Railroad in the World" over the thirty-year period from ca. 1915 to 1945. This was the BA&P's heyday, when most of the heavy, smelter-bound traffic was pulled by electric locomotives, but the branch lines were still steam-powered. In "The End of an Age" (Chapter 6), the transition to modern electric locomotives and diesels in the post-World War II years is covered. In the book's brief epilogue—"Success of Failure?"—Mutschler evaluates several of the BA&P's experiments and innovations. He concludes that this railroad "was undoubtedly a success story" which "proved that electrification could be efficient for short, high density traffic."

The book contains three locomotive roster appendices, a fairly comprehensive bibliography, a useful index, and a brief note about the author, who is a professional archivist and historian as well as a railroad enthusiast. That note about the author reminds me how important an individual writer's personality is to the quality of a finished work. Mutschler's interest in mining and railroad history is evident on every page of this highly readable book. He knows the interior Northwest well, and does a nice job of linking its mines and railroads. This book is both well written and nicely illustrated. Mutschler selected photographs and illustrations carefully, and they are well reproduced. *Wired for Success* fills an important niche in the literature about mining-related railroads. For students of mining, railroad, and corporate history, this readable book on the fabled BA&P was worth the wait.

Richard Francaviglia
The University of Texas at Arlington

Helmut Waszkis. ***Dr. Moritz (Don Mauricio) Hochschild 1881-1965. The Man and His Companies. A German Jewish Mining Entrepreneur in South America.*** Frankfurt am Main: Vervuert Verlag, 2001. 280 pages. US$35.00

History has not treated this Hochschild kindly. "Although possessing a very pleasing and ingratiating personality, he has proved to be unscrupulous, unreliable, and extremely hard-boiled in all of his business dealings. Next to Patiño, I would presume that he is the most disliked person in Bolivia." This typical assessment came from the head of the Latin American section at the U.S. Department of State. It is mild compared to the way in which Bolivian nationalists have judged this most successful of the many foreigners who made modest mining fortunes in that country. While Laurence Duggan's evaluation was quite accurate, he missed the extraordinary qualities of the man who reinvigorated the Bolivian mining industry over the three decades from 1921 until his properties were nationalized in 1952.

Helmut Waszkis is well placed to write a more balanced view, since his own background and experience in metals trading in Latin America provides him with a good appreciation of the problems confronting a metals trader such as Hochschild in the inhospitable environment of Bolivia. It has not been an easy task. While Hochschild was concerned to leave a legacy, it took the form of a charitable foundation, rather than a comprehensive set of personal and corporate records to serve as the basis for a conventional biography. However, two of Hochschild's close business associates wrote short memoirs, and Waszkis has systematically tracked down all those who had any dealings with him and who are still alive. Their interviews, especially the anecdotes, provide the basis for a remarkable portrait of an exceptional man.

One central theme is the economic history of the group of trading and mining enterprises Hochschild eventually controlled. But since Hochschild was born into and used an extensive metal trading network, it is impossible to present this history without an account of Hochschild's relationship to that network. In addition to constructing an appreciative biography of the man, Waszkis has had to address the more general problem of the relationship between family and enterprise. Since that was the basis of both the success and the failure of the Hochschild group, it makes for a fascinating study.

Moritz Hochschild was the eldest son of a general trader in Biblis, who arranged for his sons to receive first-rate educations as mining engineers. Moritz's father had two cousins, one of whom, Berthold, founded the American Metal Company; the other, Zacharias, was a partner in the leading German metal trading company, Metallgesellschaft. Moritz's career began conventionally enough, in the accounting department of Metallgesellschaft, and he then served as the company's agent in Spain. A three-year stint as manager of an Australian copper mine followed; then an uncle on his mother's side provided him with the credit necessary to run a small ore dealing business in Chile. From 1911 to 1914 he rode the price cycle of copper sufficiently well to amass some resources of his own, and was joined by his brother Sali.

Returning to Chile after his service in World War I—spent mainly procuring metals—Moritz broke with Sali. The two brothers divided the territory between them, with Sali taking central and southern Chile and Moritz everything north. They would not speak again for nearly fifty years. Unfortunately there are no sources to shed light on either this breakup or on the more important decision by Moritz to move to Bolivia. Moritz would be seen as a visionary, and like so many other mining visionaries, this was both a source of strength and of weakness. But whether this condition had any roots in his overall professional development or whether it emerged from the peculiar conditions of Bolivia remains unsettled.

Mining visions are about how neglected or exhausted ore bodies can be transformed into profitable metals. Patiño had previously had one about Llallagua's potential as an extraordinarily rich tin mine. Its realization not only made him a huge personal fortune but also placed him and Bolivia at the center of the world's tin industry. Hochschild operated in Patiño's shadow, but he had four such schemes, though only one can be considered a real success.

Hochschild started in Bolivia as an ore dealer. Unlike others, who had incorporated ore dealing as a part of general merchandise businesses, Hochschild was a specialist and quickly became the largest ore dealer in the country. Ore dealing was a complex business not simply about buying local concentrates and arranging for their dispatch to appropriate smelters. It also involved the necessary but risky business of financing small mines. When these went bankrupt or were otherwise unable to supply the concentrates to service their loans, Hochschild was drawn into their administration. It is this background that provided the basis on which the Bolivian sector of his group was constructed.

Waszkis argues that Hochschild must have run his ore-dealing business by assuming the risk of price fluctuations between the time at which he bought concentrates in Bolivia, and the time at which the resulting metal was sold, months later. If so, he would have been one of the few in the mining industry to have done so. This testifies to his unbridled optimism, an optimism that was well rewarded, at least in tin, for which prices rose steadily from 1921 to 1927. While this tactic may explain how Hochschild suddenly became quite wealthy, it raises some interesting, though unfortunately unknowable, questions as to how he actually marketed and financed the metal.

The most important of Hochschild's early contributions was to create a new market for small mines. Thanks to his connections with Metallgesellschaft, he was able to persuade its smelting subsidiary, Berzelius, to modify a volatilization process to treat very-low-grade tin concentrates. Since he served as the only conduit for this otherwise worthless material, he could make a substantial profit on the difference between its cost of production in Bolivia and its value to the company's smelter in Germany. This success in commercializing low-grade concentrates simply confirmed the larger lesson that was being dramatically taught in copper: high-grade deposits must give way to low-grade ones, and when they do, new techniques of extraction and processing are required to make them profitable.

The first extension of this principle was to the Compañia Huanchaca de Bolivia, a large and famous silver-lead-zinc mine facing the problems of flooding and declining ore grades. Hochschild had purchased Huanchaca's concentrates, thus the company turned to him for assistance in 1927–28. His aid came in the form of fresh investment, together with a management and sales contract. Against all expectations, Hochschild managed to turn the company around, but after the deduction of generous administrative and selling fees, any profits remaining in the hands of the company were quite modest, and shareholders saw no dividends until the property was nationalized. A similar formula was adopted with a tin-silver mine, Compañia Minera de Oruro, when the plunging price of tin forced it close to bankruptcy in 1930. But the most important, and certainly most controversial, application of this approach was the consolidation of several different companies working tin on the famous Cerro de Potosí, which was also facing bankruptcy in 1929.

Compañia Minera Unificada del Cerro de Potosí was Hochschild's major opportunity to demonstrate how new technologies could resurrect a great mine—one that had the potential to rival Patiño's Llallagua. Of the new techniques applied at Unificada, the most interesting was a modification of the volatilization process adopted by Berzelius. This had been developed in a Baltimore laboratory, and, against the advice of his chief metallurgist, Hochschild insisted on proceeding from an untested pilot process to constructing a full-scale plant to operate in the oxygen-thin atmosphere of Potosí. The Tainton plant lost millions. Whatever profits the mine made were absorbed covering not only these costs, but also the administrative and selling fees levied by Hochschild.

Of all the properties included in the consolidation, those owned by the Soux family were the largest and most viable. Since Hochschild's administration meant that they received no return on their investment, they complained vociferously and their bitterness continued to sully Hochschild's reputation in Bolivia. Their experience has generally been treated as an example of Hochschild's sharp business practices, but now that a more comprehensive account of the Tainton fiasco has been provided, it is better understood as yet another example of the way in which most mining visions are doomed to failure.

Hochschild saw new opportunities in two undeveloped ore bodies. Under his guidance the tin deposit at Colquiri emerged as a successful producer, but the zinc-lead deposit near Lake Titicaca proved less tractable. Hochschild had acquired the latter property in his early days from a small miner and had named it Matilde in honor of the wife of President Busch. Developing it would raise several novel problems, from negotiating an appropriate taxation schedule to building a hydro-electric plant to serve a smelter to treat the concentrates. This project was still not complete when the property was nationalized, and it took many years before the fresh foreign investment necessary could be secured to make it operational. At first, Matilde proved to be a worthy testimony to Hochschild's vision, but the deposit turned out to be quite limited and the mine had to be abandoned. Here, of course, Hochschild simply lost his own millions in pursuing his ambition.

While Bolivia was the focus of Hochschild's energy for most of his life, it was in Chile that he saw his final mining vision realized. After Hochschild's staff left Bolivia for Chile following nationalization, they became interested in a low-grade copper deposit, Mantos Blancos. Here their formula for recovering high profits from low-grade deposits using new technologies actually worked—to the point where the mine has become one of Chile's most successful copper producers.

Again, Hochschild had to set aside the reservations of a senior executive, but in this case he was risking the entire fortune of the whole group on the venture. Since Waszkis was able to interview those involved in the development of Mantos Blancos, his account is particularly rich, not only of the manifold technical problems, but also of the way in which the company avoided the political pitfalls encountered in Bolivia. The author also shows one of Hochschild's profound personal failings: he was unable to provide more than token recognition of the work done by the engineers that ensured the project's success.

Although the formal corporate structure of Hochschild's group was extraordinarily complex, it rested on an old organizational principle: keep firm personal control and rely for support only on those who are close, either by ties of kinship or ethnicity. The first senior recruits were drawn from Hochschild's wider family, but one of these left following a policy dispute, and another after his wife and Hochschild fell in love, then married. Thereafter Hochschild's close associates were German Jews, mostly lawyers, and drawn mainly from the Metallgesellschaft network.

Hochschild's second wife was extraordinarily possessive, and ensured that his only child, a son from his first marriage, remained permanently estranged from his father. That tragedy was compounded by tension in the marriage itself. Neither could live with or without the other, and their marriage soon ended in divorce—only to be followed by remarriage and another separation. The fact that his personal life was much less successful than his business life created a major problem for his succession.

It was a problem that could not have been handled worse. Hochschild's conception was simple enough: turn over his assets to a trust, to be run for the benefit of his son and his senior managers. Just how a commercial enterprise could flourish within such a framework was never clear, but frequent changes of design, accompanied by much litigation, ensured its stillbirth. The senior managers, acting as trustees, quickly decided to sell off the assets. They created therefrom a conventional foundation, Lampadia, whose subsidiaries undertook philanthropic work in Chile, Argentina, and Brazil, but not in the country that Hochschild cared so much about, Bolivia.

Bolivian historiography has been dominated and distorted by a left-nationalist current whose moment came with the populist revolution of 1952. Its view of Hochschild has only seen the profits he extracted and his manipulation of Bolivian politics to secure his private ends—an interpretation which is then used to justify the nationalization of his properties.

In Waszkis's account, this view should be replaced by one which recognizes: that Hochschild gave the mining industry a new lease on life, contributing both to employment and government revenues; that the profit he recovered was not extraordinary, and that much of it was shared locally through charitable donations; and that bribery and intimidation were standard features of economic and political life in Bolivia, irrespective of his activities. To this list must be added Hochschild's role in making Bolivia the largest recipient of Jewish refugees in Latin America, although this contribution enters on the negative side of the nationalists' ledger.

Among the pantheon of martyrs of the 1952 revolution are two presidents, Busch, who committed suicide in 1939, and Villarroel, who was hanged from a lamppost by a mob in 1946. Busch had attempted to extend state control over the mining industry with a draconian decree in June 1939, and Hochschild had the audacity to contest a part of it which would eliminate his ore-dealing business. Busch defined such a challenge as high treason and he immediately ordered Hochschild's execution, a fate from which the latter was saved only thanks to extensive lobbying. Busch's suicide followed soon thereafter, but that act was easily portrayed by his supporters as a murder instigated by Hochschild and the other tin barons. When Villarroel began to make similar moves against the industry, Hochschild talked openly of the need for a regime change.

These events set the context for what may have been the first kidnaping of a businessman in Latin America in modern times. In 1944 Hochschild and his second in command, Blum, were arrested with other political opponents of the regime. They did get released from prison, but they were held for another seventeen days before diplomatic intervention and a modest ransom won their freedom. Hochschild would not run such a risk again, and he left Bolivia for good.

The absence of extensive personal and business records from Hochschild and his associates places severe limits on the comprehensiveness of the portrait Waszkis is able to construct. There are a large number of loose ends and unsolved questions, but Waszkis discusses most of them quite explicitly.

Within those limits, Waszkis has made a valuable contribution both to the history of Bolivia and to mining history more generally. His use of anecdotal material fleshes out what it was like to have worked in an organization trying to overcome the inherent difficulties of extracting and marketing minerals. Analyzing mining is even more complicated, since it requires sensitivity to a wide range of interrelated issues. These include the character of the ore deposits, the techniques of extraction and processing, the systems of marketing, and the personalities involved in ensuring that mining companies generate real return on risky investments. One of Waszkis' strengths lies in his ability to weave these many themes together to provide more than just a fascinating yarn.

John Hillman
Trent University