

MORE ABOUT FAUSTO DE ELHUYAR

Sr. Arnaiz's valuable article, "D. Fausto de Elhuyar y de Zubice," recently published in this review (Nº 6, August 1939, pp. 75-96), deals with a distinguished Spanish scientist and colonial official whose career in both Europe and America deserves more attention than it has received from historians on either side of the Atlantic. The article was doubtless written in the hope that it would stimulate further discussion of Elhuyar's career, and on this assumption the present writer is offering the following supplementary biographical and bibliographical data on the subject, which he gathered in connection with a study of mercury mining in colonial Peru.

I. BIBLIOGRAPHICAL DATA

To the extensive bibliography accompanying Sr. Arnaiz's article, the following items should be added:

ANDRÉ, MARIUS, "Le Baron de Nordenflicht. . . et les mineurs allemands au Pérou," *Revue de l'Amérique latine*, VIII (1924), 289-306. Despite many obvious faults, this article, written with the aid of manuscript sources in the Archivo de Indias (Seville), contains information not elsewhere obtainable about Elhuyar's connection with the Nordenflicht mission to Peru (see below).

CABANILLAS, RAFAEL, article without title, *Anales de minas* (4 vols., Madrid, 1841-1846), Tomo I, pp. I-XV. Contains information about Elhuyar.

ELHUYAR, FAUSTO DE, "Memoria sobre la formación de una ley orgánica para gobierno de la minería en España," dated Madrid, February 3, 1825, *Anales de minas (cit. supra)*, Tomo I, 1-153.

ELHUYAR, FAUSTO DE, "Reflections on the working of the mines and refining operations in the Real de Guanajuato," dated Mexico, January 27, 1789, English translation of the original document, which is in the Archivo de Indias, Audiencia de México, legajo 2,241. I am indebted to Mr. Walter Howe of Litchfield, Conn., for the loan of this translation.

MAFFEI, EUGENIO, and RAMÓN RUA FIGUEROA, *Apuntes para una biblioteca española de libros . . . y manuscritos relativos al conocimiento y explotación de las riquezas minerales y a las ciencias auxiliares* (2 vols., Madrid, 1871). Aside from its general bibliographical value for this subject, this work contains (vol. I, pp. 205-207) a biographical sketch of Fausto de Elhuyar which, as explained below, throws further light on his early career. It also lists an additional bibliographical item of considerable importance, namely, a more detailed biographical sketch published in the *Semanario pintoresco español*, January 22, 1843, and republished in the *Boletín oficial de minas*, N^o 10, September 15, 1844.

II. BIOGRAPHICAL DATA

Although Sr. Arnaiz gives some information about Elhuyar's early career, he states: ". . . no se han hallado señales claras de su paso hasta 1788, en que sale de España con su hermano mayor Juan José, para ampliar sus estudios metalúrgicos pensionado por la Real Sociedad Vascongada de los Amigos del País." That the date given in this passage is a typographical error is shown by facts stated elsewhere in this article as well as in the work by MAFFEI and RUA FIGUEROA cited above; and the latter also

provides further information about the relatively obscure period of Elhuyar's life before 1788. Some of the principal items are as follows:

Fausto de Elhuyar was born October 11, 1757. His family name was variously spelled Luyart, Lhuyart, and Deluyart (a fact which may help to explain the difficulty, noted by Sr. Arnaiz, of obtaining information about his early life); but he himself always spelled it Elhuyar in his published works.¹ His first visit to a foreign country, made when he was still in his teens, took him to Paris, where he studied the exact and natural sciences. Returning to Spain before he was twenty, he taught mineralogy in the Seminario de Vergara in 1776 and 1777. In the latter year his brother Juan José was sent abroad by the crown to study metallurgy and Fausto accompanied him by appointment of the Sociedad Vascongada. They went first to Freiberg (near Dresden), "cuna de la minería europea." In 1779 they visited the principal mines of Saxony, and in 1780 they continued their studies in Sweden, Norway, and England. Juan José remained in the latter country for some time, but Fausto returned to Spain, where he was variously occupied from 1781 to 1785. In this year the Spanish court commissioned him to study the new amalgamation process (the Born process), and in this connection he visited Styria, Carinthia, Carniola, and Salzburg. While on this mission he was ordered not only to head a mission of miners and metallurgists to Mexico (as related by Sr. Arnaiz) but also to engage specialists for a similar mission to South America. For the latter mission he engaged the Baron von Nordenflicht and several other German miners, who left Spain in 1788 and spent many years trying to improve mining methods in what is now Bolivia and Peru.

Thus, before Elhuyar left Spain in 1788 for his long

¹ In MAFFEI and RUA FIGUEROA, Elhuyar's last name is spelled Suvive.

residence in Mexico, he had made three separate journeys to other parts of Europe in search of scientific knowledge; he had established direct contact with the highly important center of the study of applied science at Freiberg; he was a principal agent in transmitting advanced scientific ideas and information from the Europe of the enlightenment to Spanish America; and his agency was not confined to Mexico but, through his connection with the Nordenflicht mission, extended to South America as well.

Two passages in Sr. Arnaiz's valuable article seem to require some modification. In the first place, in explanation of the fact that only two German specialists joined the Mexican mission led by Elhuyar, Sr. Arnaiz quotes the latter to the effect that the other Germans "were terrified by the very name of Spain, since, as Lutherans, 'they pictured themselves as being burned alive'" if they should be so foolhardy as to set foot on Spanish soil. This is quite true, so far as it goes, and the point is further illustrated by the following passage from the Spanish government's instructions to the viceroy of Peru regarding the treatment he was to accord Nordenflicht and the other Germans engaged for service in that country through Elhuyar:

Finalmente no deberá omitirse el recomendar estas gentes a sus superiores, encargandoles especialmente que en todas partes sean bien tratados y se miren y respeten con el decoro y atención que se merecen y en particular no se les moleste ni inquiete por cuestión de Religión, siendo en este punto en el único en el que irán algunos recelosos, pues con esto harán su deber con mas libertad y sosiego y hallando buena acogida en los habitantes de aquel Paiz se familiarizen con sus uzos y costumbres y pierdan el deseo de volver a su Patria, no siendo tampoco de despreciar el que los que vuelvan combatan y destruyan con sus relaciones las preocupaciones e ideas falsas que se tienen en los países extrangeros y que el exemplo de estos anime a otros sugetos hábiles de la misma especie a brindarse a pasar a América o

haga a lo menos que quando se necesiten se encuentren con menos dificultad que ha habido que vencer en la colectación presente.²

Nevertheless, while fear of religious persecution in Spanish America made it more difficult for Spain to engage the services of these Germans, most of whom were Lutherans, the fact remains that they did enter the service of Spain and that besides the two who went to Mexico there were a dozen who went to Peru, though they had no more guarantee than the word of the Spanish government that they would not be molested or disturbed in matters of religion. Their fears on this score were doubtless genuine, though they may have been exaggerated for bargaining purposes; but in any event they proved to be far from insuperable.

In the second place, a careful reading of Elhuyar's "Reflections" of 1789, cited above, raises some doubt about Sr. Arnaiz's characterization of his attitude towards the miners and mining methods of Mexico. "No supo ni quiso [Elhuyar]," writes Sr. Arnaiz (pp. 82-83), "hacer concesiones al ambiente que lo rodeaba. Adquirió con rapidez el conocimiento de los procedimientos primitivos empleados por los mineros de Nueva España, y se empeñó en censurarlos, esgrimiendo verdades demostrables." Elhuyar seems to have possessed courage and a quick mind, as this passage suggests; but he also appears to have been more open-minded and conciliatory than it might lead one to believe. At any rate, his "Reflections" of 1789 on the methods in use at the Guanajuato mines show that he had a good deal of respect for the Mexican miners and their methods, an appreciation of their willingness to be convinced that his new methods were better than their

² "Observaciones sobre los mineros destinados al Perú", undated document bearing the rubric of Antonio Valdés, secretary of state for the navy and the colonies. A certified copy of this document, made at Lima, Dec. 15, 1791, is in the private library of Father Rubén Vargas Ugarte, S. J., of Lima, who kindly furnished me with a copy of it.

old ones, and a realization that their reluctance to change their methods lightly was not only natural but might be justified by experience. This appears most clearly in his discussion of the relative merits of the established *patio* process of amalgamation and the new Born process, the introduction of which was one of the main purposes of his mission. After a close study of this problem at Guanajuato, he concluded that each of these processes had certain advantages over the other; that the Born process was superior for high grade ore, which was rare at Guanajuato, but of more doubtful value for low grade ore, which was abundant there, and that the problem required further study in the other mines of Mexico.

Finally, it may be noted that the "puestos de responsabilidad" which, as Sr. Arnaiz states, Elhuyar held in Spain after his return from Mexico, included the highly important post of *Director General de Minas*; and a draft which he prepared was made the basis of a new mining code for Spain. This draft is one of the items cited above in the present communication (the *Memoria* of 1825).

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