Descriptive Summary

Languages: Spanish; Castilian

Contributing Institution: Special Collections & Archives, UC San Diego
9500 Gilman Drive
La Jolla 92093-0175

Title: José Villegas Collection on Mining

Creator: Villegas, José A.

Identifier/Call Number: MSS 0758

Physical Description: 6.6 Linear feet (9 archives boxes, 2 flat boxes, and 1 map case folder)

Date (inclusive): ca. 1825 - 1983

Abstract: Papers of José A. Villegas, a scholar and lecturer specializing in technological development in Latin America. The collection includes Villegas's research materials on 18th and 19th century mining technologies; original and reproduced mine illustrations, sections, and maps; and original documents, primarily correspondence, related to the Mexican mining complexes Real del Monte, Bolaños, Fresnillo, and the Spanish mines of Almadén.

Preferred Citation
José Villegas Collection on Mining, MSS 758. Special Collections & Archives, UC San Diego.

Acquisition Note
Acquired 2013.

Biography
José Alberto Villegas Mendoza (1924 - ) has held various academic and government positions during a career spanning more than 50 years of international teaching, research, consulting, and service. Born in San Juan, Puerto Rico, Villegas moved to Argentina while still young and graduated from the Universidad del Salvador (Buenos Aires) in 1952. He soon published several articles in Estudios Centroamericanos and Cuadernos Hispanoamericanos, moved to New York, and attended Columbia University and Fordham University. Villegas then worked on urban, housing, and environmental issues for the New York City Planning Commission, the LaGuardia Community Project, the Office of the Commonwealth of Puerto Rico, the United Nations (international housing consultant in Mogadishu, Somalia), the Agency for International Development (Ciudad Techo project in Bogotá, Columbia), and Cornell University (holding a faculty position in the Department of Design and Environmental Analysis during the late 1960s). His teaching work with urban simulation games at Cornell was profiled in Alvin Toffler's Future Shock (1970), and Toffler later acknowledged Villegas for help in the preparation of the Spanish edition of the same book. During this period Villegas served as a Ford Foundation consultant in Brazil, teaching a seminar course on "Science and Technological Development in Latin America and World Politics" at the Universidade Federal de Minas Gerais, a class that he later hosted at Columbia University.

Villegas worked during the early 1970s at the UNESCO Department of Social Sciences in Paris, and while in Europe the seeds of his 10-year research project on national competition, industrial innovation, technology transfer, and the Mexican mining industry were planted. He began in earnest with a one-year research residency in Spain, primarily at the Archives of the Indies (AGI) in Seville, acquiring copies of original texts and drawings relating to colonial-era mining in Spain, Mexico, and Peru. Villegas then enrolled in the graduate history program at the University of Pittsburgh and continued collecting original and published materials at archives and libraries in Mexico, England, Germany, France, and the United States for a proposed dissertation on "The technological transfer of the steam engine in the Mexican mining industry, 1750-1850" (under the direction of Robert Colodny). In the 1980s he moved to San Diego and was a frequent guest scholar on Latin American studies at UC San Diego.

Scope and Content of Collection
Papers of José A. Villegas, a scholar and lecturer specializing in technological development in Latin America. The collection includes Villegas's research materials on 18th and 19th century mining technologies; original and reproduced mine illustrations, sections, and maps; and original documents, primarily correspondence, related to the Mexican mining complexes Real del Monte, Bolaños, Fresnillo, and the Spanish mines of Almadén. Many of the reproductions are photographic copies of archival documents from the Archivos General de Indias (AGI), in Seville, Spain. The bulk of the collection is in Spanish, with some documents in English.

Arranged in six series: 1) RESEARCH MATERIALS, 2) MINING ILLUSTRATIONS, 3) REAL DEL MONTE MINING COMPLEX, 4) BOLAÑOS MINING COMPLEX, 5) FRESNILLO MINE, and 6) ALMADEN MINE.

Digital Content
A selection of manuscripts and images from this collection have been digitized. Content may be viewed by clicking on links in the container list, or on the Library's Digital Collections website.

**Items available online**

**Subjects and Indexing Terms**

Mining engineering
Mines and mineral resources -- Spain -- History
Silver mines and mining -- Mexico
Mineral industries -- Mexico -- History
Mines and mineral resources -- Mexico -- History
Mineral industries -- Spain -- History
Compañía Real del Monte y Pachuca
Company of Adventurers in the Mines of Real del Monte

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**RESEARCH MATERIALS**

**Scope and Content of Series**

Series 1) RESEARCH MATERIALS, 1975-1990: Original writings by Villegas, including dissertation proposals and chapter drafts, a conference paper, a workshop proposal, research notes and bibliography. Arranged chronologically.

**Box 1, Folder 1**

"La Transferencia Científica y Tecnológica en Hispanoamérica" - Outline of thesis 1975 December 12
General note
In Spanish.

**Box 1, Folder 2**

"The History of the Transfer of Mining Technology" - Research proposal 1977 November

**Box 1, Folder 3**

Research bibliography and notes for Library of Congress 1978 July

**Box 1, Folder 4**

Thesis plan and summary of overview meeting 1978 November

**Box 1, Folder 5**

"La Tecnología y la Minería Mexicana" - Analysis of technological processes at the Bolaños mine 1978 December
General note
In Spanish.

**Box 1, Folder 6**

Research bibliography and notes for Archivo General de Indias (AGI) ca. 1980
General note
Bibliography of AGI reproductions and maps in Series 2.

**Box 1, Folder 7**

Research project and teaching proposal, Universidad Nacional Autónoma de Guanajuato 1980 November 11
General note
In Spanish.

**Box 1, Folder 8**

Progress report draft on methodology 1981 February 23

**Box 1, Folder 9**

Mellon Fellowship work plan and supporting documents 1981-1982

**Box 1, Folder 10**

"A Historical Model of Technological Transfer in the Mexican Mines" - Conference paper 1982 March 3-6
General note
Presented at the 10th national meeting of the Latin American Studies Association.

**Box 1, Folder 11**

Mellon Foundation Research progress report 1982-1983

**Box 1, Folder 12**

"The Technological Transfer of the Steam Engine" - Thesis plan 1986 December
MINING ILLUSTRATIONS

Scope and Content of Series
Series 2) MINING ILLUSTRATIONS, 1730-1975. Arranged in two subseries: A) AGI Reproductions, and 2) Miscellaneous Reproductions and Maps. Index numbers correlate to Villegas's own inventory record of the original locations of documents from two major collections, Mapas y Planos and Ingenios y Muestras, and have been recorded for cross-referencing.

A) AGI Reproductions: Copies of documents from the Archivo General de Indias (AGI) in Seville, Spain. Items are primarily photographic prints of unidentified mine sections, along with some photocopied text.

B) Miscellaneous Reproductions and Maps: Research materials collected by Villegas, including photographs, a blueprint, schematics of mining machinery, and some oversized maps of mining regions and complexes in central Mexico.

Reproductions from AGI

Box 2, Folder 1  AGI reproductions inventory by Villegas 1973 March 17
General note
Handwritten inventory of materials from MyP and IyM, primarily numbers 23-196.

Box 2, Folder 2-4  Mine sections, affidavits, correspondence 1747-1788, and undated
General note
49 MyP photographic prints, photocopied text. Index numbers 4-6, 8-11, 14-20.

Box 2, Folder 5-8  Mine sections, operations descriptions 1648-1807, and undated
General note

Box 2, Folder 9  Mine sections, maps, affidavit 1765, 1791, 1797, and undated
General note
13 MyP photographic prints, photocopied text. Index numbers 60-65.

Box 2, Folder 10-12  Mine sections, operations descriptions 1783-1807, and undated
General note
22 MyP photographic prints, photocopied text. Index numbers 66-72, 74, 78, 84-86.

Box 2, Folder 13-14  Mine sections, maps, correspondence ca. 1730-1749, and undated
General note
### Mine sections, operations descriptions, correspondence 1780-1838

General note

### Miscellaneous reproductions and maps

<table>
<thead>
<tr>
<th>Box 3, Folder 1</th>
<th>Mine section undated</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>Photocopied illustration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 2</th>
<th>Photographs of Perran Foundry (Cornwall) steam engines and schematics 1815-1820, 1936</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>22 photographic prints, 1 postcard.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 3</th>
<th>Schematic for Cornish pumping engine undated</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>Original drawing, 19x33&quot;, unknown creator (No. 232).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 4</th>
<th>Photographs of electric power pumps, Knowles Co. undated</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>1 photographic print, 7 paper reproductions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 5</th>
<th>Blueprint of electric pump, Knowles Steam Pump Works (B-790) 1894 October 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>Original drawing, 20x26.5&quot;.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 6</th>
<th>Photographs of Cornwall mines 1896</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>Five prints mounted on board.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 7</th>
<th>Iron patterns and price list form, Coalbrookdale Company 1847 May 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oversize MC-028-01</td>
<td>&quot;Plan Section of Rincón Grande Mine,&quot; Waterlow &amp; Sons, London (C. y D.) 1847 March 18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 8</th>
<th>Postcards of mine equipment and themes undated</th>
</tr>
</thead>
</table>

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<thead>
<tr>
<th>Box 3, Folder 9</th>
<th>Photographs of unidentified Mexican mine undated</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>18 photographic prints, 2 slides, 1 negative.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3, Folder 10</th>
<th>Photographs of mines in Mexico, Australia, and New Zealand undated</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>Four prints mounded on board.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oversize MC-028-01</th>
<th>Reproduction of February 1857 map of Guanajuato and some of its mines 1973</th>
</tr>
</thead>
<tbody>
<tr>
<td>General note</td>
<td>In Spanish.</td>
</tr>
</tbody>
</table>
REAL DEL MONTE MINING COMPLEX

Scope and Content of Series

Series 3) REAL DEL MONTE MINING COMPLEX, 1825-1907: Original documents gathered by Villegas in the course of his research on this Hidalgo, Mexico mine, with a small number of reproductions. The Real del Monte mining company, a British mining venture during the mid-1800s, was sold in 1849 when the company's losses reached five million pounds; Mexican purchasers, however, were able to produce a profit in ensuing years. Arranged in three subseries: A) Mining Operations, B) Correspondence, and C) Harvey & Company and Other Documents.


B) Correspondence: Original archival documents. The series includes letters written by the mine commissioners James Vetch, Charles Tindall, John Rule, along with other managers; and letters from mining supply companies drafted on formal letterhead stationery.

C) Harvey & Company and Other Documents: Original correspondence, financial records, and contracts exchanged with the notable Hayle Foundry in Cornwall, England.

Mining Operations

Oversize FB-184, Folder 1
Financial records - Records of expenditures, abstracts, and returns 1829-1832
General
Some documents in this folder have been digitized.

Real del Monte Mining Company expenditures and returns
http://library.ucsd.edu/dc/object/bb0207414q

Oversize FB-184, Folder 2
Financial records - Records of expenditures, abstracts, and returns 1829-1832

Oversize FB-184, Folder 3
Invoices for goods shipped from London to Veracruz 1838-1856
General
Some documents in this folder have been digitized.

Oversize FB-184, Folder 4
Invoices
http://library.ucsd.edu/dc/object/bb69651541

Oversize FB-184, Folder 5
Records of disbursements and statements of sundries 1839-1851

Box 3, Folder 11
Accounts for Haciendas San Miguel and Santa Maria Regla 1855-1862

Inventory and cost report 1856, 1890-1892
General note
Some AGI reproductions.

Box 3, Folder 12
Regulations and operations description 1854-1857, 1869, 1885
General note
Some AGI reproductions.

Box 3, Folder 13
Legal agreements and contracts 1854, 1865-1875, 1883
http://library.ucsd.edu/dc/object/bb1163052d
Maps 1889
| Box 3, Folder 14 | **Photographic prints 1894 and undated**  
| General | All items in this folder have been digitized.  
|  
| Casa de la máquina de vapor y chimenea Real del Monte  
http://library.ucsd.edu/dc/object/bb7920791t |  
| La Dificultad mine steam engine house, Pachuca, Hidalgo  
http://library.ucsd.edu/dc/object/bb7238192x |  
| La Dificultad mine steam engine house chimney, Pachuca, Hidalgo  
http://library.ucsd.edu/dc/object/bb6555592z |  
| Box 3, Folder 15 | **Photographic prints 1894 and undated**  
| General | Some items in this folder have been digitized.  
|  
| Hacienda de Beneficio Loreto, Pachuca, Hidalgo  
http://library.ucsd.edu/dc/object/bb59071218 |  
| Compressor at La Dificultad mine, Pachuca, Hidalgo  
http://library.ucsd.edu/dc/object/bb52245257 |  
| Box 3, Folder 16 | **Broadside “Alerte!” 1885 September 2**  
http://library.ucsd.edu/dc/object/bb45419237 |  

**Correspondence**

| Oversize FB-184, Folder 7 |  
| 1825 |  
| General note | Includes correspondence by mine commissioner James Vetch.  
| Box 4, Folder 1-4 |  
| 1825-1873 |  
| General | Documents in Box 4, Folder 2 have been digitized.  
|  
| Real del Monte mine business correspondence 1830-1834  
http://library.ucsd.edu/dc/object/bb5804732c |  
| Oversize FB-184, Folder 8-9 |  
| 1827-1828 |  
| General note | Includes correspondence by mine commissioner Charles Tindall.  
| Oversize FB-142, Folder 5 |  
| 1828-1829 |  
| General note | Includes correspondence by mine commissioner Charles Tindall. Some documents in this folder have been digitized.  
|  
| Real del Monte mine business correspondence 1829  
http://library.ucsd.edu/dc/object/bb3483894c |  
| Oversize FB-142, Folder 6 |  
| 1828-1829 |  
| Oversize FB-142, Folder 7 |  
| 1829-1831 |  
| General note | Includes correspondence by Henry Lorck.  
| Oversize FB-142, Folder 8-10 |  
| 1829-1833 |  
| General note | Includes correspondence by mine commissioner Charles Tindall.  

José Villegas Collection on Mining  
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<table>
<thead>
<tr>
<th>Year Range</th>
<th>Folder Details</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1834-1841  | Oversize FB-142, Folder 11-13 | General note  
Includes correspondence by mine commissioner John Rule. |
| 1842-1848  | Box 4, Folder 5-8 | General note  
Includes correspondence by mine commissioner John Rule. |
| 1849       | Box 4, Folder 9 and Box 4, Folder 10 | Informe que el Director del Real del Monte... 1850 [1]  
http://library.ucsd.edu/dc/object/bb25282511  
1850-1852  
Real del Monte mine business correspondence 1852 [1]  
http://library.ucsd.edu/dc/object/bb9285994t  
1853-1854  
Real del Monte mine business correspondence 1857-1859 [1]  
http://library.ucsd.edu/dc/object/bb60095124  
General  
Digitized documents are from Box 5, Folder 3. |
| 1855-1867  | Box 4, Folder 11-13 and Box 4, Folder 14 |  
Real del Monte mine business correspondence 1857-1859 [1]  
http://library.ucsd.edu/dc/object/bb60095124  
General  
Digitized documents are from Box 5, Folder 3. |
| 1864-1865  | Oversize FB-142, Folder 14 | General note  
Includes internal correspondence. |
| 1873-1877  | Box 5, Folder 6-9 | General note  
Includes correspondence by William Stoneman. |
| 1872-1875  | Box 5, Folder 10 | Real del Monte mine business correspondence 1873 [1]  
http://library.ucsd.edu/dc/object/bb95249039  
1873-1874  
1875-1877  
1872-1875  
General note  
Includes correspondence by Oetling Gebrüder (from Hamburg to Pachuca). |
| 1878-1885  | Box 6, Folder 4-6 | General note  
Includes 3 maps and letters from the Smithsonian Institution. Documents in Box 6, Folder 6 have been digitized. |
Real del Monte mine business correspondence 1880-1885
http://library.ucsd.edu/dc/object/bb6248421f
General
Digitized documents are from Box 6, Folder 6.

Box 6, Folder 7
1882-1886
General note
Includes correspondence by Oetling Gebrüder (from Hamburg to Pachuca).

Box 6, Folder 8-10
1885-1887
General note
Includes correspondence by Rodolfo Muñoz.

Box 6, Folder 11-12
1887-1888
General note
Includes correspondence by Oetling Gebrüder (from Hamburg to Pachuca).

Box 7, Folder 1-3
1888-1890
General note
Includes correspondence by Rodolfo Muñoz.

Box 7, Folder 4-6
1890-1899
General
Documents in Box 7, Folders 4 and 5 have been digitized.

Real del Monte mine business correspondence 1890-1895
http://library.ucsd.edu/dc/object/bb30060734
General
Digitized documents are from Box 7, Folder 4.

Real del Monte mine business correspondence 1896-1899
http://library.ucsd.edu/dc/object/bb97638134
General
Digitized documents are from Box 7, Folder 5.

Box 7, Folder 7-9
1900-1907
General note
Includes correspondence from mining supplies companies on formal letterhead.

Harvey & Company and Other Documents

Box 7, Folder 10-15
Correspondence 1829-1902
General note
Includes one folder of correspondence primarily by John Phillips.

Box 7, Folder 16
Conditions of contract for an 85 inch cylinder steam engine, boilers, pumps, and other machinery for the Real del Monte Mining Company, Mexico 1857 February 18
http://library.ucsd.edu/dc/object/bb6487335b
1845-1846
REAL DEL MONTE MINING COMPLEX
Harvey & Company and Other Documents

Box 8, Folder 1 1845, 1850-1851, 1857
General note
Includes financial records and contract.

Box 8, Folder 2  Correspondence between the British Consulate, Mexico and the Real del Monte Mining Company 1856-1865 http://library.ucsd.edu/dc/object/bb06511035

BOLANOS MINING COMPLEX
Scope and Content of Series
Series 4) BOLANOS MINING COMPLEX, 1826-1828: Includes two maps, operations reports, and original correspondence from a group of Mexican mines. Arranged chronologically.

Box 8, Folder 3 Plan of the town and mines sections of El Barranco and Cocina mines 1826 October 14
General note
Reproduction of plan surveyed by mine commissioner, captain James Vetch.

Box 8, Folder 4 Map of El Barranco and Cocina mine sections undated
General note
Reproduction "copied from an old Mexican plan."

Box 8, Folder 5-6 Report, Vol. 1 1827-1833
General note
Bear Creek Mining Company, Tucson, Arizona.

Box 8, Folder 7-8 Report, Vol. 2A 1834-1839
General note
Bear Creek Mining Company, Tucson, Arizona.

Box 8, Folder 9 Report, Vol. 2B 1840-1845
General note
Bear Creek Mining Company, Tucson, Arizona.

Oversize FB-142, Folder 16 Correspondence 1828
General note
Includes correspondence by Damian Floresi.

FRESNILLO MINE
Scope and Content of Series
Series 5) FRESNILLO MINE: Includes financial reports, schematics of machinery, maps (including an oversized map of the mine site in Zacatecas, Mexico), articles on the operations of the mine, and some photographic prints. Materials are a mix of original documents and reproductions, arranged chronologically.

Box 9, Folder 1 Financial reports 1835-1849
General note
Reproductions provided by Eng. Justo Wong S., employee of Fresnillo Mine.

Box 9, Folder 2 Schematics of machinery and map of Zacatecas mines 1860
General note
Reproductions from los Anales Mexicanos (U.T. G2, G.506, Rn 13).
Box 9, Folder 3  
**Articles on mining operations, with Spanish translation and illustrations 1923, 1942, 1985**

*General note*
Includes some original documents.

**Oversize MC-028-01**  
**Map of mining areas undated**

*General note*
Anglo Mexican Mining Co. and United Mexican Mining Co.

Box 9, Folder 4  
**Photographic prints undated**

*General note*
Seven prints of various sizes.

**Hacienda de Beneficio de Begoña, Guadalupe, Zacatecas [3]**
http://library.ucsd.edu/dc/object/bb48149639

**Hacienda de Beneficio del Carmen, Zacatecas [3]**
http://library.ucsd.edu/dc/object/bb4132364n

**ALMADÉN MINE**

**Scope and Content of Series**

Series 6) ALMADÉN MINE: Operations reports, financial statements, correspondence, illustrations of mine sections and some photographic prints relating to this Ciudad Real, Spain, mine. All materials are reproductions of originals from the AGI, or other Spanish archives.

Box 9, Folder 5-7  
**Operations report, shipping manifest, and financial statements 1783-1799**

*General note*
AGI reproductions; includes memoir by Agustín de Betancourt y Molina.

Box 9, Folder 8  
**Invoices 1849-1852**

*General note*
Reproductions from the Archivo Histórico Nacional (Spain), annotated by Villegas.

Box 9, Folder 9-13  
**Correspondence and financial statements 1787-1793**

*General note*
AGI reproductions; includes food expenses, annotated by Villegas.

Box 9, Folder 14  
**Diary entries by the governor of Juancavelica on his stay in Almadén 1806 January 21**

*General note*
AGI transcription of the original manuscript (Audiencia de Lima, Legajo 778).

Box 9, Folder 15  
**Illustrations of a transversal view of the mine 1842 November**

*General note*
Reproductions, Laboreo de Minas, Lamina V.

Box 9, Folder 16  
**Photographic prints undated**

*General note*
Six black and white prints, AGI reproductions (unlabeled).