

## Der bibliographische Fundus in zwei historischen Bibliotheken: ITGE und ETSIM im 18. Jahrhundert, Hintergründe und Organisation

### Bibliographic Fund in two Historical Libraries: ITGE and ETSIM in the XVIII<sup>th</sup> Century. Background and Organization

Von / by

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mit 3 Abb. / with 3 fig.

#### Schlüsselworte:

18. Jahrhundert  
Bergakademie  
Bibliotheksgeschichte  
Geologischer Dienst  
Historischer Buchbestand  
Spanien

#### Summary:

The Libraries of the 'Instituto Tecnológico Geominero de España' (ITGE) and the 'Escuela Técnica Superior de Ingenieros de Minas de Madrid' (ETSIM) are introduced.

#### 1. The Enlightenment Century: a new dynasty

The eighteenth century in Spain has special characters in the historical development of the country. We will remark the most important aspects, while have an influence on the book and culture production:

##### 1. 1. Economic and political context

The second part of XVIII<sup>th</sup> century has the importance of representing, for the first time, after a century, the most serious purpose to finish with the isolation of Spain from Europe. The first kings of the Borbon's dynasty FELIPE V (1701 - 1759), and specially CARLOS III (1759 - 1788) carried on a new concept of culture and scientific politics, which was supported by secular bases and assisted by an important sector of the aristocracy. Thus, in this period:

- The 'Sociedades Económicas de Amigos del País' (= Economic Societies of Country Friends) appear:

Sociedad Vascongada de Amigos del País, (1764), Real Seminario de Vergara (1773). The aim of this associations was to promote and spread out the economic and cultural development, with meetings, studies and local publications.

- Many periodicals were published, in order to diffuse new knowledge, discoveries and the Frech encyclopedia: El Pensador, El Censor, El Espíritu de los Mejores Diarios... At the meantime, universities maintain the ancient roman church culture.
- Many official institutions of studies and experimental centres were created as : Gabinete de Historia Natural (1752), Jardín Botánico, Escuela de Mineralogía (1783), Real Seminario de Minería, en México (1792), Real Laboratorio de Química...
- CARLOS III was the first protector of the Spanish printed books. In 1762 he abolished the obligatory tax for selling books, because "Trade freedom is the mother of the wealth of the country".

#### 1. 2. A new scientific methodology

The conception of God as cause and principle of everything, was adapted to the new discoveries, even from the catholic church institution, by Fray B. JERÓNIMO FELJOO in "Nuevo sistema sobre la causa física de los terremotos" (=New system about the physical origin of earthquakes) (1756).

Many books from France, England and Italy, with new encyclopedian premises, (and without taxes), were imported.

Philosophical dissertations and theories were changed by the direct observation of nature, and physical and mathematical arguments took the place of ancient clasic universe values.

#### 2. Books and print of XVIII<sup>th</sup> century in Spain

In general, the editorial production in Spain was very controlled by the ecclesiastic power, specially by the Hieronymian monks of the Escorial Monastery, who had the monopoly of economic profits of prayer books.

On the other hand, it was necessary to get the authorization and supervision of the "La Inquisición" in order to publish, with guaranties, new scientific theories. None could print a book without the licence of the Consejo de Castilla what means, the civil power, otherwise, they could be punished with six years of exile and two thousand ducats fine (1). Since 1773, this Council had to give the printing permit.

Nevertheless, new european tendencies are allowed, and this situation can be shown by the great quantity of books written in its original languages or translated, existing in both libraries. The principal topic to research are natural sciences and the meeting places are the scientific

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academies and societies called "*Sociedades de Amigos del Pais*" (2).

Other legal steps -1763- were:

- The military service was not obligatory for books professionals.
- Free trade for raw materials
- Royal grants for professional training even in other countries of Europe.
- Creation, in 1762, of the Royal Company of Prints and Booksellers of the kingdom, with the special aim of printing the prayers books. Catholic Church were the first book customers.

Every steps were sponsored by the King, and relied by the educated aristocracy, called in spanish "*Los Ilustrados*".

The King, directly made employment contracts with european specialists, as W. BOWLES, who writes on 1775 "*Introducción a la Historia Natural y Geografía de España*" where many minerals and mines are described, besides of the physical geography of the country.

**DE RE METALICA**

**EN EL QV AL**

**SE TRATAN MV**

**CHOS Y DIVERSOS SECRE**

tos del conocimiento de toda fuerte de mi-  
nerales, de como se deuen buscar enfa-  
yar y beneficiar, con otros secretos e indu-  
strias notables, así para los que tratan los  
oficios de oro, plata, cobre, estaño, pla-  
mo, azero, hierro, y otros metales, co-  
mo para muchas personas curiosas

Compuesto por el magnífico  
cauallero Bernardo Pe-  
rez de Vargas.

COMISION  
Dirigido al muy Poderoso Señor don Car-  
los, Principe de España.

CON LICENCIA.

En la Noble y Coronada villa de Madrid  
en casa de Pineda Cosin. Año.  
M.D. LXIX.

Esta cassado a tres maravedis el pliego.

On mining and geology fields German engineers were also employed. So, in 1777, H.C. STORR (1777 - 1787) was ordered to teach mineralogy in the newly founded School of Mines, at Almadén. He wrote a book in german language, "*Curso de Mineralogia y Geometría Subterránea*", that was never translated into Spanish. He treats jointly mineralogy, geology and mining according to the scientific knowledge at that time. Their successors, J.M. HOPPENSACK (1787 - 1792) and F.J. MAYER (1792 - 1796) continued teaching, as directors of the School of Mines (2). The manuals used until then, were "*De Re Metalica*" of "AGRICOLA", and "*El Arte de los Metales*" of Alonso DE BARBA (1640). "*De Re Metalica*", written by Bernardo PEREZ DE VARGAS in 1568, is the first Spanish book found in the ITGE's library, where research mining techniques are described (fig. 1).

In XVIII<sup>th</sup> century the new scientific and technical advances, gave monk benedictine Fr. Martin SARMIENTO the opportunity to write "*Historia Natural de Galicia*" (1757). In 1753, following Buffon theories, José CARBONELL wrote "*Historia de los hechos terrestres y los cuerpos heterogéneos que encierran*". In 1754 Fr. José TORRUBIA (1700 - 1768) published the "*Aparato para la historia Natural*" (fig. 2)

**APARATO**

**PARA LA HISTORIA NATURAL**

**ESPAÑOLA.**

**TOMO PRIMERO.**

CONTIENE

**MUCHAS DISSERTACIONES PHYSICAS,**  
especialmente sobre el Diluuiq.

**RESUELVE EL GRAN PROBLEMA DE LA**  
Transmigracion de Cuerpos Marinos, y su Petrificacion en los  
mas altos Montes de España, donde recientemente  
se han descubierto.

ILUSTRASE CON UN INDICE DE LAMINAS, QUE EXPLICAN  
la naturaleza de estos Fosiles, y de otras muchas Piedras figuradas  
halladas en los Dominios Españoles.

AUTOR

**EL Rmo. P. Fr. JOSEPH TORRUBIA,**  
Archivero, y Chronista General de toda la Orden  
de nuestro Padre S. Francisco, &c.

CON LICENCIA.

EN MADRID: En la Imprenta de los Herederos de DON AGUSTIN  
DE GORDE JUELA Y SIERRA, Calle del Carmen,  
Año de M. DCC. LIV.

Fig. 1 "*De Re Metalica*", written by  
Bernardo PEREZ DE VARGAS

Fig. 2 Fr. José TORRUBIA (1700 - 1768)  
"*Aparato para la historia Natural*"

where many paleontological observations were described as organic remains produced by The Deluge (3).

A. Manuel DEL RIO founded in 1792 the first School of Mines in América (Real Seminario de Minería de México). He also wrote the first manual on mineralogy "*Elementos de Oritognosia o del conocimiento de los fósiles según los principios de G. WERNER*". México, 1795). In 1793 were published, under his supervision, the "*Reales Ordenanzas de la Minería de la Nueva España*"; (6) (fig.3)

X  
3703.

**REALES ORDENANZAS**  
*PARA*  
**LA DIRECCION,**  
**RÉGIMEN Y GOBIERNO**  
**DEL**  
**IMPORTANTE CUERPO**  
**DE LA MINERÍA**  
*DE*  
**NUEVA-ESPAÑA,**  
*Y DE SU*  
**REAL TRIBUNAL GENERAL.**  
  
*DE ORDEN DE SU MAJESTAD.*



MADRID  
AÑO DE 1783.

DIRECCION DE LA MINERIA  
DE  
ESPAÑA  
BIBLIOTECA

R. 12829

Wien 1840

Fig. 3 "*Reales Ordenanzas de la Minería de la Nueva España*"

### 3. Main subjects of both historical libraries

In order to study the various subjects of XVIIIth century books, an special microfiche archive of the ITGE'S library have been chosen (105 items):

1. Dissertations on principles of mathematics and chemistry (16)
2. Natural history of animals and plants (15)
3. New technics on metals treatment (11)
4. Mineral waters as a medical substance (12)
5. Physical Geography (8)
6. History and origin of Earthquakes theories (7)
7. Mineralogy (6)
8. New exploitation systems in agriculture (4)
9. Theories and history of the Universe (17)
10. Dictionaries (2)
11. Journey books(7)

In 1989 the Madrid School of Mines published a book with a very interesting study by Dr. D. Antonio CANSECO MEDEL : "*Comentarios a Varios textos de la Biblioteca Histórica*" where several ancient books are analysed.

The ETSIM' library has an special fund of more than one thousand books before the XIX<sup>th</sup> century, 'the subject of these books are not only about Metallurgy and Pure Sciences, but the rationalist and encyclopedic philosophy are included: history, greek and latin works, curious and rares as clockmaking manuals, physonomuy, numismatic and journeys...'

In relation to special ancient fund, are very important those of the library of the Natural Sciences Museum. 'A Catalogue with Printed works of XVIII<sup>th</sup> century : A - E' have been published on 1992. It includes 360 items. This Institution is the former 'Real Gabinete de Historia Natural'. Since 1752, specialists in several science fields were encharged to collect materials of their nature investigations, as W. BOWLES, J. and A. KETERLIN, and A. PLANCH, from Spain, or DEL RIO and HUMBOLDT from their journeys in America.

### 4. Functions and management today

ITGE'S library has two main functions:

- 1. As an historical library, that belongs to a Government - Department since 1849. It is a dependence of the *Dirección General de Minas* (Ministry of Industry and Energy) and it has received all the bibliographic exchange from similar organizations of 54 countries; directly from the original Institution or through the international exchange department of the National Library of Spain. It mantains exchange agreements with 400 Institutions, and a catalogue with 38.500 monographies, 1.600 periodicals, (600 of them current periodicals) and 800 maps.
  - The collections of both libraries have one of the oldest archive of books and periodicals existing in Spain in its field. It represents a very important source for economic, scientific and technical historical investigation.
- 2. ITGE, also is a Public Scientific Organisation. The Main Library mantain a network of eighth section libraries : structural geology, palaeontology (Museum

library), geophysics, administration management, groundwater, mineral resources, industrial rocks, and mining research.

- These section libraries exist according to the structural division of the Institute, and they are adapted to investigations objectives and areas of studies.

- Acquisitions and cataloguing are centralized in the Main Library, and the sections have the control of their own internal circulation. We only have inter-library loan.

- External individual patrons, only can read and make photocopies for investigation and studies purposes.

- ITGE'S Library maintain current awareness services for its own workers, selective diffusion and retrospective searchers. It is based on a automated catalogue and other International Data Bases (GEODE).

- ITGE'S library catalogue has been implemented into a bibliographic data base system BASIS-PLUS with the following characteristics:

- Searches can be made by several points of access (author, title, date, full text or/and key words, structured as a database system.

- It is charged in a mainframe HP 9000, serie 845. RAM memory of 48 megas and 4 hard disks of 1,3 gigabytes. The operating system is UNIX (9<sup>th</sup> version) with multiprocessing and multiuser equivalences. It is the 5th version ANSI system. It has an structure server-client, local area network Ethernet, and bus structure, with 10 megabites speed. It has X-25 standard (Iberpac) for external communications.

- The Central library of the School of Mines, belongs to the library network of the Politechnic University of Madrid. With DOBIS-UBIS as software and direct access from each Politechnic School, through INTERNET Network.

- It has an acquisitions program, cataloguing and circulation, but, at the meantime several departements have their own acquisitions budget.

## 5. New interest and recent bibliography

The most important bibliographic works on history of mining and geological sciences have been done in the last ten years. Though we can find some very importants

historical works in the beguining of the ITGE's publication "*Boletín Geológico Minero*", (n.1 and 39). In 1984 in the School of Mines, in Madrid, an special course has been created. In order to obtain the doctoral degree: "*History of technology and mining science*", Dr. Ing. Min. Francisco Javier Ayala CARCEDO has started the lectures. He still continues.(6)

At the same time, commemorative studies of special events has been published. It has been reminded the most important scientits of the second part of the century, as: J. JOSÉ (1754 - 1796) and Fausto DELUYAR, D. Andrés Manuel DEL RIO (1764 - 1849). All three had grants to study in Freiberg, with WERNER, HUMBOLDT, and others.

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