

Makers of scientific instruments in a little Italian town

(*Fabricantes de instrumentos científicos numa pequena cidade italiana*)

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A little known feature of the Italian history of Physics between second half of the XIX century and first decades of XX century is recognized. This investigation shows some interesting features because of the geographical isolation of the little town where various makers of scientific instruments succeed during this period.

Keywords: instrument makers, Italian history of Physics.

Um pouco conhecido aspecto da história da física italiana entre a segunda metade do século XIX e primeiras décadas do século XX é revelado. Esta pesquisa mostra alguns aspectos especialmente interessantes por causa do isolamento geográfico da vila onde vários fabricantes de instrumentos científicos foram bem sucedidos.

Palavras-chave: fabricantes de instrumentos, história da física italiana.

1. Introduction

Chiavari is a little town geographically placed between the sea and the mountains in the east coast of Liguria. Despite of the relatively short distance from Genoa (about 40 km), its secular isolation was due to the geographical position between mountains and the sea and for this reason, the railway went from Genoa only in 1869 and extended towards Pisa in 1872. This little town of about 12.000 inhabitants at the end of the XIX century, had various schools (mainly devoted to technical education) and a Seminary where a meteo-seismic observatory was activated in 1884 [1]. The ‘Società Economica’ founded in 1791 as one of the various Illuminist foundations, claims nowadays as the only Illuminist foundation survived in Europe: his role during the XIX century was fundamental in all fields of the industrial and cultural development of this town, as recognizable in ‘Atti della Società Economica di Chiavari’ in a time of about 250 years [2] up to nowadays. Many schools received financial support from Società Economica.

This is the background where a series of makers of scientific instruments succeed from the second half of the XIX century up to the first decades of the XX century. In recognizing various makers of scientific instruments² a good number of apparatuses were found and

signed “Raimondo Isler”, “Egidio Caranza” and “Vittorio Ugobono” even a great number of apparatuses are unsigned but surely manufactured by previous local makers or reducible to one of the above makers. All these apparatuses were found and catalogued in various public and private Schools and in a Museum [2]. No apparatuses were found in Genoa and various Italian Institutions and Museums contacted by author, had not refer to the presence of signed apparatuses made in Chiavari. Scientific instruments marketing so appears as a local one: only a nautical compass signed “Raimondo Isler” was found some years ago in a Museum in Milano.

2. Makers of scientific instruments in Chiavari

About Raimondo Isler (Rome 1830 – Chiavari 1900) only a few notices were found in the register of births, marriage and deaths. He surely was in Chiavari since 1870 because a pair of awards were assigned to him from Società Economica. His major activity was as nautical instruments manufacturer. After his death, his activity worked up at the closing of the shipyards in Chiavari in the first decades of the XX century.

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²‘Atti della Società Economica’ is a annual report of proceedings of this Institution mainly devoted to the progress in Science and Arts. An impetus in encouragement to handcraft were awards in antique arts and crafts exhibitions.

Egidio Caranza (Varese Ligure 1861 – Genoa 1929) mainly worked as technician in schools (Liceo and Istituto Tecnico) since 1901³ and as a technician he built various apparatuses. He was also a free craftsman with an own workshop in Chiavari.

Vittorio Ugobono (1899-1963) mainly was a free craftsman, initially as apprentice of Egidio Caranza; about his life, Author received a rich series of data directly from one of his sons some years ago [2]. He mainly worked as a free craftsman, sometimes engaged form meteo-seismic observatory and schools.

Through a recognition of ‘Atti della Società Economica’ others makers of scientific instruments were found; a particular reference to the scientist Repetto (or Repetti) Agostino (Chiavari 1815 – Chiavari 1891) who received an award in the eightieth meeting of the Italian Scientist in Genoa in 1847 as maker of a scientific instrument. Finally it should be noticed that in Seminary, father Andrea Bianchi (Recco 1856 – Chiavari 1922), teacher in the Seminary and first director of the meteo-seismic observatory [1] was also a maker of various scientific instruments. Some minor instruments (unsigned) were even realized using church manufactured articles and now placed in a little scientific Museum: a remarkable work is a vertical seismograph with a 600 kg mass. This seismograph is still in its original place.

3. Catalogation of the instruments found

In a previous paper [2] about 40 apparatuses signed and about 20 apparatuses unsigned but surely referring to local makers were found and catalogued. Afterwards, about 20 apparatuses signed and about 15 apparatuses unsigned but reducible to local makers were successively found. Major feature of these apparatuses is mainly the use in demonstration experiments. Particular care and precision is found in all apparatuses of Egidio Caranza: particular excellence was found in Whimshurst electrostatic machines signed Egidio Caranza or Vittorio Ugobono as shown in Figs. 1-6. An interesting Whimshurst machine (Fig. 1) unsigned is easily related to Egidio Caranza or to a previous maker master of Egidio Caranza: the mould to made thin-foil sectors is a distinguishing feature of some electrostatic machines signed Caranza or Ugobono: therefore two unsigned electrostatic machines surely does have rotating disks coming from workshops of Caranza (and afterwards of Ugobono). Other two machines (one signed ‘Ugobono’ and another unsigned) were found in private collections. Machines in Figs. 1, 4, 5 and 6 have sectors coming from the *same* mould. In the special

case of electrostatic machines it is argued the *entire* local manufactory but for more complex apparatus (as vacuum pumps) a difficulty pointed by P. Brenni [3] arises. Apparatuses made by foreign great makers (*i.e.* Max Kohl) were often imported and signed by Italian makers. In recognizing apparatuses found, therefore, some of these signed “Ugobono” have had simply received a maintenance and/or alterations from Vittorio Ugobono.



Figura 1 - Wimshurst electrostatic machine (unsigned) placed at Museo di Fisica e meteo-sismologia “G. Sanguineti-G. Leonardini”. Thin foil sectors come from the mould used in the Caranza workshop (after Caranza’s death, this workshop was take over by V. Ugobono). Glass disk have diameter 400 mm. This machine appears as a merge of parts coming from different previous machines: part of the metallic structure in brass and part in chromium plated brass.



Figura 2 - Wimshurst electrostatic machine (signed Egidio Caranza) placed in Museo di Fisica e meteo-sismologia “G. Sanguineti-G. Leonardini”. Thin foil sectors differs from the standard of this maker. Glass disk have diameter 480 mm. As the previous machine, these apparatuses were used in the Physics Cabinet of (Seminario Vescovile) where not only Religious but also laymen studied from 1828 up to end of the XIX century. From a photographic comparison with old photographic documentation before restoration, sectors are original as the double presence of brass and chromium plated brass in both machines.

³In an obituary published by Liceo “F. Delpino” in 1929 Egidio Caranza is so described (translated): *On October 7 died in Genoa Egidio Caranza technician who was in service from 1901 to 1909 in Liceo pareggiato, and from 1909 onwards in our Lyceum. A man of rare moral and intellectual qualities, expert technician he was always valuable and effective help to professors of physics that gradually have followed and ultimately to professor Pietro Rosso, who had the chance to appreciate his great activity and its praiseworthy love for the school. Our Physics Cabinet has many apparatuses construed by him. At the suggestion of Dean was repeatedly gratified by the Ministry for its silent and humble activity. Our school, now feels his missing.*

From the series of the apparatuses found, Figs. 1-6 point out only electrostatic machines because of excellent features as compared with other machines in Physics Catalogues of the end of XIX century and the first decades of the XX century⁴. Some of these machines (Figs. 3, 4 and 5) are still fully efficient.

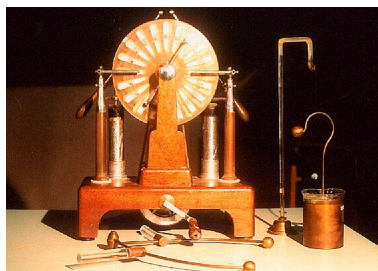


Figura 3 - A little electrostatic machine (disk diameter 200 mm) manufactured by Vittorio Ugobono about in 1950 with some accessories. This machine, placed in Liceo Scientifico 'G. Marconi' in Chiavari, was currently used by the Author up to 2004 in demonstration experiments. This machine is unsigned (or had a detached label). In one of the accessories is found the signature "Ugobono".

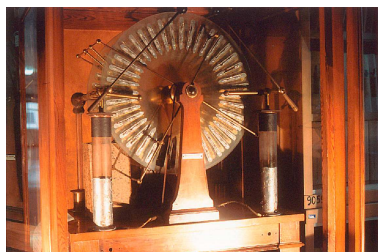


Figura 4 - A beautiful machine having four disks (signed Egidio Caranza) placed in "Istituto Tecnico" in Chiavari, were, from 1924 up to 1929 Egidio Caranza was technician par-time. Disk diameter 480 mm. This machine was charged in "Istituto Tecnico" in 1924 as appear from inventory.

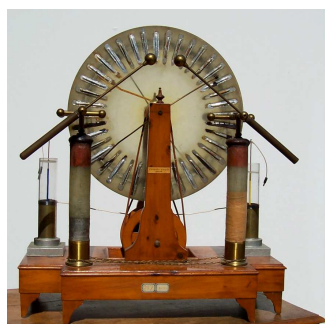


Figura 5 - A beautiful machine with four disks (signed Egidio Caranza) placed in Liceo "F. Delpino" in Chiavari, were, from 1901 up to 1929 Egidio Caranza was technician. Disk diameter 470 mm. Two Leyden jar were successively added by an anonymous technician after Egidio Caranza. Unfortunately, this machine is still used in demonstration experiments.



Figura 6 - One of a twin couple of electrostatic machines signed "Vittorio Ugobono" placed in "Istituto Gianelli" in Chiavari. Disk diameter 460 mm. Other twin unfinished machine (without Leyden jar) is placed in a private collection. Another machine found near Chiavari (and now in a private collection) has disks with the same typical sectors but a very different style in wood construction.

4. Conclusions

This investigation has pointed out an anomalous circumstance: a rich interest for Physical Science in a little Italian town out of the major cultural centers. This is suggested by a constant presence of craftsmen who were capable, as well, as makers of scientific instruments. Fundamental impetus was given by Società Economica with annual expositions and awards. On the other hand, no scientific literature was found. All scientific records are meteo-seismic data from the observatory.

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References and notes

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⁴For catalogues of physics instruments see <http://www.sil.si.edu/DigitalCollections/Trade-Literature/Scientific-instruments/>.