



Anno di fondazione 1824

From Natural History to Volcanology

An account on the development of studies on Mt. Etna at the University of Catania[†]

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Summary

A synthetic outline is given of the development of the investigations devoted to Mount Etna at the University of Catania, within a frame of progressively specializing and growing scientific knowledge and research techniques between the end of the 18th and the first half of the 20th century. At this stage, a gradual "gemination" of new disciplines occurred from the original "Natural History", from which "Botany" was separated first in 1788. After the new School of Sciences, distinct from Medicine, was established in 1840, "Natural History" was divided into "Zoology" and "Mineralogy and Geology" (1852). In this context, after the important contributions to volcanology given by Carlo Gemmellaro (1787-1866), new specifically volcanological interests started growing with Orazio Silvestri in 1878, when the chair of *Earth Physical Chemistry particularly addressed to the study of Etna* (1877) and the Etnean Volcanological Observatory, hosted in the shortly earlier built Astronomical Observatory, were established. When Silvestri died in 1890, these activities had an end or were drastically cut down. A Geodynamic section was operating until 1919 at the Etnean site of the Astronomical Observatory, directed by Annibale Riccò, whose scientific facilities and related activities were gradually transferred and promoted at the former Benedictine Abbey in Catania, whereas some research on etnean products went on under the direction of Lorenzo Bucca at the Institute and Mineralogy and Geology, divided in 1904 into the ones of Geology (Platania) and of Mineralogy (Bucca). Since 1905, the latter one was named Institute of Mineralogy and Volcanology, and the chair of Volcanology, held by Gaetano Ponte, was established in 1920. Since 1926, he directed the newly set up Volcanological Institute, the first one in Europe, to which the restored Etnean Observatory was assigned in 1933. After Ponte retired in 1949, several professors, little involved in volcanological research, were in charge of the direction of the Institute, and activities at the Observatory went gradually to an end, whereas teaching and investigations went on being carried out by an assistant lecturer, Salvatore Cucuzza Silvestri. When in 1958 Alfred Rittmann was charged with the direction of the Institute and of the course of Volcanology, he reorganized the museum collections, equipped a chemical laboratory for rock analysis, and expanded research activities on Sicilian volcanoes. After Rittmann retired in 1963, Leo Ogniben, professor of Geology for the recently instituted Earth sciences degree course, and charged with the direction of the related Institutes, gave a substantial impulse to volcanological studies by addressing a growing teaching and research staff to interdisciplinary investigations on Mount Etna and the Hyblean Plateau, within a frame of developing geological knowledge in Sicily and Southern Apennines, by promoting also the geological surveying of large sectors in SE Sicily, where volcanic activity took place. In the meanwhile, instrumental facilities for petrologic-geochemical and geophysical investigations were also significantly increased.

Key words: *Natural history, Volcanology, Mount Etna, Catania University*

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Riassunto

Dalla Storia Naturale alla Vulcanologia Un contributo sullo sviluppo delle Scienze della Terra presso l'Università di Catania

Viene dato un quadro sintetico dell'evoluzione degli studi rivolti all'Etna, svolti nell'Università di Catania, in un contesto di progressiva specializzazione e sviluppo delle conoscenze e delle metodologie di indagine dalla fine del XVIII alla prima metà del XX secolo. In questo quadro si è avuta una graduale "gemmazione" di discipline dal tronco iniziale della "Storia Naturale", da cui per prima si è distinta la "Botanica" (1788). Dopo l'istituzione della nuova Facoltà di Scienze (1840), separata dalla Medicina, la "Storia Naturale" fu suddivisa in "Zoologia" e "Mineralogia e Geologia" (1852). In quest'ambito, dopo gli importanti contributi di Carlo Gemmellaro (1787-1866), con Orazio Silvestri dal 1878 si sono sviluppati interessi più specificamente vulcanologici, con l'istituzione di una cattedra di *Chimico-Fisica Terrestre con particolari applicazioni di studi all'Etna* (1877) e dell'Osservatorio Vulcanologico Etneo. Tuttavia, alla morte di Silvestri (1890), queste attività ebbero fine o furono profondamente ridimensionate. Nella sede etnea dell'Osservatorio Astronomico sotto la direzione di Annibale Riccò operava una sezione geodinamica, le cui strumentazioni e attività vennero gradualmente trasferite e implementate nella sede catanese dell'ex-monastero dei Benedettini, mentre indagini sui prodotti dell'Etna venivano svolte nell'Istituto di Mineralogia e Geologia diretto da Lorenzo Bucca, poi suddiviso nel 1904 in quelli di Geologia (Platania) e Mineralogia (Bucca). Questo, dal 1905, fu denominato Istituto di Mineralogia e Vulcanologia. Nel 1920 fu istituita la cattedra di Vulcanologia, ricoperta da Gaetano Ponte, prima incaricato e poi di ruolo dal 1936. Nel 1926 fu costituito l'Istituto di Vulcanologia, prima struttura universitaria europea dedicata allo studio dei vulcani, privo tuttavia di una sede propria e ospitato in due locali dell'Istituto di Mineralogia. Ponte ne fu direttore fino alla cessazione delle sue attività accademiche nel 1949, pur continuando a svolgere fino al 1954 attività di ricerca. Nel 1940, l'Istituto, con quelli di Mineralogia e Geologia, fu trasferito nel Palazzo delle Scienze, all'ultimo piano del quale ad esso fu assegnata una sede solo dal 1952. Dopo il pensionamento di Ponte nel 1949, diversi professori poco interessati alla ricerca vulcanologica diressero per incarico l'Istituto e le attività all'Osservatorio cessarono gradualmente, mentre Salvatore Cucuzza Silvestri, già assistente di Ponte, proseguiva le ricerche sull'attività del vulcano. Quando nel 1958 Alfred Rittmann fu incaricato della direzione dell'Istituto e dell'insegnamento di Vulcanologia, egli riordinò il Museo vulcanologico, attrezzò un laboratorio chimico per l'analisi di rocce e diede sviluppo ad attività di ricerca sul vulcanismo siciliano (Isole Eolie ed Etna). Al ritiro dall'insegnamento di Rittmann nel 1963, Leo Ogniben, professore di geologia del corso di laurea in Scienze Geologiche e direttore degli Istituti di Scienze della Terra fino al 1970, avviò un crescente numero di giovani ricercatori anche ad indagini di interesse vulcanologico sull'Etna e sugli Iblei, in un quadro di sviluppo delle conoscenze geologiche nella Sicilia e nell'Appennino meridionale, promuovendo il rilevamento geologico anche di ampi settori interessati dal vulcanismo della Sicilia sud-orientale. In quegli anni fu anche potenziata la strumentazione per la ricerca petrologico-geochimica e geofisica.

Parole chiave: *Storia naturale, Vulcanologia, Etna, Università di Catania*

1 The Natural History Cabinet

A Natural History Cabinet was founded at the University of Catania in 1781, when the highly renown Catanese knight Giuseppe Gioeni (1743-1822), of the Dukes of Anjou family, offered his collections of Etnean rocks and minerals, and of Sicilian shells and fossils to this University. Here in 1780, the chair of Natural History and Botany at the Medical Class (School) had been established by Ferdinand IV, King of Naples, and assigned with a reward of 100 ounces a year for life to Gioeni himself (Alberghina, 2005; Alessi, 1824; Buccieri, 2001; Crinò, 1914), although he often was leaving the seat, and the teaching was consequently uncovered. Since 1788, Botany (assigned

to Di Pasquale) was separated from Natural History, which Gioeni kept on teaching until 1804, when his appointment was revoked, and the related teaching was assigned to Girolamo Recupero (1753-1824), who was chiefly interested in the fields of Zoology and Botany (Gemmellaro, 1833). Gioeni's interest for Earth sciences started first by his contacts with Giuseppe Recupero (1720-1778) and the friendship with the Ignazio Paternò Castello, prince of Biscari (1719-1786), and grew after he had read the paper *Campi Phlegraei* (1776) by the british plenipotentiary at the court of Naples, sir W. Hamilton, with whom he became a friend. In 1781 he met in Catania also the French geologist Dodat de Dolomieu, with whom he exchanged numerous letters until 1791. Gioeni produced his most important work, *Essay on Vesuvian lithology* (*Saggio di litologia vesuviana*), published in Naples in 1790, besides proceeding in other investigations on Mt. Etna and the Sicilian marine fauna. He went on collecting objects for his personal museum till the end of the 18th century, and was then charged with debts up to 12,000 ounces, due to the purchase of instruments, books, and collections. He did not succeed in selling his collections to the King of Naples, and in 1804, lost his teaching chair held then by Girolamo Recupero, started wandering through Italy until 1811, when back to Sicily he was jailed for almost three years. He returned then to his home Palace in Catania and devoted himself to establish an academy where the most talented local scholars of Natural Sciences could join together, but this wish might not be fulfilled before his death (December 6th, 1822).



Figure 1: Portrait of Giuseppe Gioeni with Catania and Mt. Etna in the background

Since 1824, the interest for Earth sciences significantly grew in Catania when the Gioenian Academy was constituted, in memory of Giuseppe Gioeni. Carlo Gemmellaro (1787-1866) admitted as its fellow, and even more after 1830, when he was also designated professor of Natural History for clear reputation, and director of the related cabinet (Cristofolini, 2005; Cucuzza Silvestri, 1989 and references therein).

In these same years, after Recupero's death in 1824, the Cabinet property grew in 1826 when Carmelo Maravigna (1782-1851), professor of Chemistry at the University of Catania, at the time Natural History lecturer too with attitudes in botany and mineralogy, sold to it a Mineral Collection, acquired from Leman, an eminent mineralogist and botanist in Paris. The property was later

enriched with Vesuvian samples that Maravigna received from Nicola Covelli, chemist and naturalist in Naples (A.S.U.C.¹, Casagrandi Fund, 529, in: Patanè & Cristofolini, 2004). This collection was used by Maravigna himself and Antonino Di Giacomo (1783-1850), substitute professor of Natural History, for their teaching activities (Maravigna, 1834).

Gemmellaro was a member of a wealthy family of landowners in Nicolosi, whose uncle, Raimondo, and brothers, Giuseppe and Mario, stimulated his interest on Mt. Etna and its activity. He graduated in Medicine in 1809 and spent seven years as a physician of the British Navy during the Napoleonic wars. In 1817 after having obtained his discharge from the Navy, he travelled across Central Europe and increased his knowledge on geological issues, following classes given in London by Humphrey Davy. Back to Catania he gave an extraordinary stimulus to the geological and volcanological investigations. Here in 1824, at the very beginning of his research life, he exposed at the Gioenian Academy a *Prospect of physical topography of Etna* (*Prospetto di una topografia fisica dell'Etna*), a project on what was to be one of the chief research objects during his life and an outline for any other investigation on the volcano and its natural environment.

After 1830 he rearranged and enriched the rock and mineral collections of the Cabinet, and in 1832 established and equipped with instruments, as a rain gauge designed by himself, a Meteorological Observatory at the University, later run at the Institute of Physics.



Figure 2: Portrait of Carlo Gemmellaro

In 1840, the courses of Natural History and Botany, formerly held in the Class (School) of Medicine, were transferred into the newly established School of Physical and Mathematical Sciences. In 1842, Gioeni's heirs who wanted to get rid of the collection of "natural products" composed of some thousands of specimens, carefully gathered since 1779 by Gioeni and kept in his home museum, sold it to the University at a price much lower than its estimated value (cf. Alberghina, 2005). This collection was later set in new order and classified in the Cabinet of Natural History, as an important increase of its endowments, of which only a few specimens have been recently found (Patanè & Cristofolini, 2004). This is carefully described by Paternò (1847, p. 75-79) who reports about some halls at the first floor of the University Palace, where fossils, rocks, and minerals were

¹ Archivio Storico dell'Università di Catania (Historical Archive of the Catania University)

exposed. Among them the space assigned for the Gioeni's collections (*Gabinetto gioenio*) appears as particularly relevant. The rocks and minerals collection of the Gioenian Academy Cabinet, managed by Gemmellaro too, was also placed in the same location.

2 The Chair of Mineralogy and Geology

In 1852, the Natural History teaching was divided out into two distinct chairs, namely of "Mineralogy and Geology" (delivered by Carlo Gemmellaro) and of "Zoology" (assigned to Andrea Aradas; 1810-1882). At this time Gemmellaro devoted himself to composing his most important work *La vulcanologia dell'Etna*, a synthesis of his life-long research activity, published in 1859. At the time he has been among the first authors to adopt the term Volcanology in order to define an integrated interdisciplinary approach to the study of volcanoes. Due to the worsening health conditions of Gemmellaro his son, Gaetano Giorgio (1832-1904), was temporarily appointed to the course of Mineralogy and Geology, until 1860, when he was called to Palermo as a Professor of Mineralogy and Geology, separated then from Zoology (Corsi, 2000; Fabiani, 1932).

In those years and after the collapse of the Bourbon Kingdom of the Two Sicilies, due to the Garibaldi's expedition, and the subsequent annexation of Sicily to the Kingdom of Italy (1860), the University of Catania started to decline, due to the extension to it of the 1859 Casati and 1862 Matteucci Acts, that led it to be classified among the second rank ones. The consequent funding loss and the vacancy of many chairs produced a severe decrease of the number of enrolled students. The University could get out of this disadvantageous condition only after twenty years when the City and Province authorities united and succeeded in obtaining that the University should be considered among the first class ones.

Nevertheless, even under these difficult conditions Gemmellaro went on with his investigations and in 1864 he was able to acquire a new collection of rocks "from all of the Globe crust terrains" from the Comptoir de Mineraux of Heidelberg (A.S.U.C., Casagrandi Fund n.564, in Patanè & Cristofolini, 2004).

When Gemmellaro died in 1866, Francesco Tornabene (1813-1897), full professor of Botany, held the lectureship of Mineralogy and Geology too, and between 1867-1869 acquired several wooden crystallographic models, geological maps of Mt. Etna, and instruments for mineralogic research (tourmaline pincers and goniometers; A.S.U.C., Casagrandi Fund n.835, in Patanè & Cristofolini, 2004).

Around 1872, the Natural History Museum (formerly Cabinet) was subdivided again into the new ones of "Mineralogy and Geology" (directed by Tornabene) and of "Zoology" (directed by Aradas) (University Yearbook, 1872-1873), due also to the acquisition by Andrea Aradas of a "Mineral Collection" from the Natural History Museum in Bologna and of a "Collection of Minerals from the Sicilian sulfur mines" (A.S.U.C., Casagrandi Fund, n.757, in Patanè & Cristofolini, 2004).

Meanwhile, Orazio Silvestri (1835-1890) (Bartoli, 1891), already involved in research activities on Vesuvius in 1862 as an assistant of industrial chemistry at the University of Naples, from 1863 to 1873 was delivering the course of General Chemistry in Catania. Here he had set up a chemical laboratory, where analytical data were obtained also on Etnean products. The 1865 Etnean eruption excited his interest for volcanology again (Patanè, 2003); since then he put forward, with no success, the idea of building a volcanological observatory on Etna and was engaged in investigating on Etnean eruptions (1865, 1869) and related vapour emissions. While he was absent from Catania (1874-1877), in 1876 it was established that a new Astronomical Observatory should be constructed on Mt. Etna according to the design by the astronomer prof. Pietro Tacchini (1838-1905). This was actually built, after Silvestri had come back to Catania, during the 1879 summer at 2,941 m a.s.l. at the site of the hut built, and later enlarged by the Gemmellaros in the first years of the 19th century, with the support of British Navy officers in Messina and then known as "Casa Inglese" (English house).

3 The Institute of Mineralogy and Geology

In 1878, when Silvestri was appointed to the chair of Mineralogy and Geology, the Institute with this same name was formally established at the Catania University, located at the ground floor of the University Palace, whose Director was Silvestri himself (Di Franco, 1933). The same also held the new course of "Earth Physical Chemistry, particularly addressed to investigations on Etna" ("Chimico-Fisica Terrestre con particolari applicazioni di studi all'Etna"; Bucca, 1918). After the 1879 eruption, a Volcanological section was established at the Astronomical Observatory by a Public Education secretary decree, and in 1881 Silvestri was designated by a King decree as the Director of the formally established Royal Volcanological Observatory, hosted at the Astronomical one. While he was Director, Silvestri gave a great impulse to volcanological and geophysical investigations by promoting the institution of the Geodynamic Survey of Sicily, aimed at observing and investigating eruptive and seismic phenomena.



Figure 3: The Astronomical Observatory in 1880

From then on, the astronomical observations have been gradually moved from the Etnean location into the former Benedictine Abbey in Catania, due to difficult access to the Observatory during the winter time and also because of problems related to the activity at the contiguous eruptive vents (Blanco, 2005).

When Silvestri was appointed to the direction, the facilities at the research laboratories in the new Institute were very poor. He equipped them with burners, hoods, precision scales, connection to gas and water pipes. He contributed to collecting some hundreds specimens chosen among the most typical Etnean and Hyblean volcanic rocks "cut in around 10 cm sided cubes, with one face polished in order to let one observe their qualities as architectural elements" (Di Franco, 1933); he also gathered collections of the most important Italian and foreign volcanic districts (Bucca, 1909) that were placed in elegant shelves and cabinets bought with extraordinary funds (Di Franco, 1933); he furthermore bought a collection of *rhinestone* copies of the most famous diamonds and a copper scale model of Mt. Etna made by the Topographic Military Office, using the leftover yearly funding of the no longer existing Natural History Cabinet (A.S.U.C., Casagrandi Fund n.1293, in Patanè & Cristofolini, 2004). Silvestri also went on investigating on the Etnean activity (1876,

1879, 1883, 1886 eruptions), that he carefully treated in reports to local and national authorities and in several essays, most of which published in the Gioenian Academy journals (cf. Monterosso, 1954, pp. 189-191).

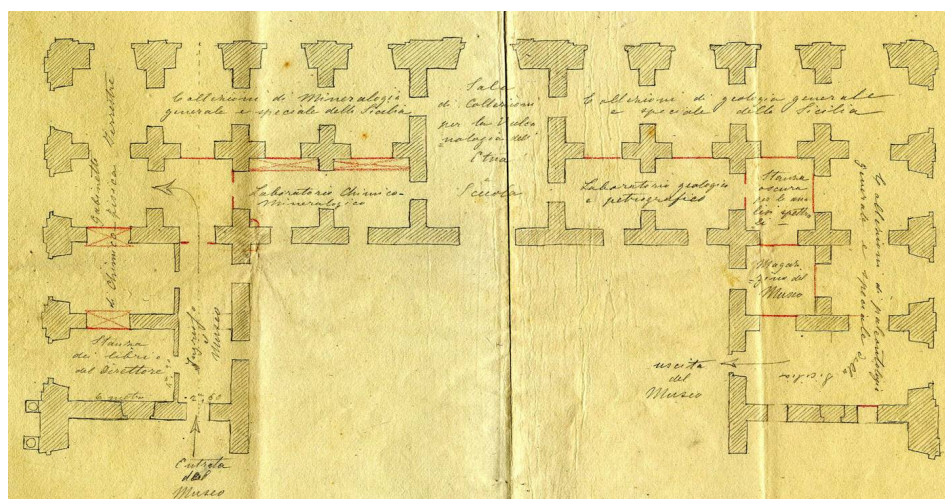


Figure 4: Plan of the Institute of Mineralogy and Geology at the ground floor of the University Palace by Silvestri

In addition to the laboratory of Earth Physical Chemistry, mainly addressed to volcanological investigations with facilities for studying rocks, minerals, and gaseous emissions, in the Silvestri's plans (fig. 4) the Institute should have had a library, the Director's office and a Cabinet (Museum) of Earth Physical Chemistry, Mineralogy and Geology. The museum collections were to be exposed in the outer better-lighted rooms whereas the labs and offices positioned in the interior (A.S.U.C., Casagrandi Fund n.757, in Patanè & Cristofolini, 2004). This plan was not completed because Silvestri prematurely deceased in 1890.

Due to Silvestri's death, activities at the Volcanological Observatory ceased and at the same time, when prof. Annibale Riccò (1844-1919) was appointed to hold the chair of Astrophysics, a Geodynamic section was established in Catania at the Astronomical Observatory (Riccò, 1893, 1903), since then defined as Astrophysical and Etnean, and directed by Riccò until his death. The geophysical laboratory equipment of the geodynamic section was gradually increased to the point that a network of up to 30 seismographs was managed, distributed in the Etnean area and telegraph-linked to the Catania location, that was active till 1924. A large amount of data has been then collected on the seismicity related to the Etnean activity.

The decades following Silvestri's death were a difficult time for the Etnean volcanology: investigations at the Institute were reduced and volcanological subjects were taught no longer. Only after 1910 several petitions by Prof. Vinassa de Regny, at the time professor of Geology in Catania, and letters to newspapers from a group of young professors and scholars (Platania, Stella Starrabba, De Fiore) raised the question that Volcanology should be taught at the University of Catania and the Observatory made operative again. This led the University interest for Volcanology to grow and a request was advanced in 1919 to the Public Education Ministry for establishing the Etnean Volcanological Institute (Russo, 1921), that was approved only in 1926.

Actually starting from 1891, Lorenzo Bucca (1857-1929), conferee to the chair of Mineralogy, succeeded Silvestri as the director of either the Institute and Museum of Mineralogy and Geology. Then teaching and research activities in the field of Volcanology were severely reduced or even abandoned: an accessory course of "Petrography and Volcanology", delivered by prof. Bucca up to 1911, is reported in the University yearbooks of the first years of the 20th century, whereas the course of "Earth Physical Chemistry, particularly addressed to investigations on Etna" is no more mentioned.

Unlike Silvestri, Bucca chiefly addressed the Institute to petrographical investigations, in addition to mineralogical and geological ones, by buying new polarizing microscopes for studying rocks and minerals and providing the library with the main Italian and foreign books and journals on mineralogy, petrography, geology and volcanology (Di Franco, 1930a).

While he was director, Bucca reorganised the collections of minerals, rocks, and fossils that Silvestri had neglected "due to the character of his studies" (Bucca, 1895). In detail between 1891-1896 he gathered the specimens of rocks, various in origin and type, that were disorderly scattered in different rooms of the Institute, into one "General collection of Mineralogy". This was also enriched by him with numerous samples acquired from German and American dealers (Bucca, 1895; 1899). He was also interested in recovering and organising in a museum the important paleontological collection donated to the University, that had been gathered by Bonaventura Gravina (1813-1891; cf. Di Geronimo & Sciuto, 2004) around the second half of the 19th century in Paris, where he was attending that University.

4 The Institute of Mineralogy

According to what Bucca himself (1909) reported, because of the museum increase by the acquisition of the Gravina collection, in 1904 the Government accepted the request advanced by the School of Sciences that the chair of Geology, should be distinct from the one of Mineralogy, which then led to establish two different Institutes, namely of Mineralogy (under the direction of Bucca) and of Geology, of which Gaetano Platania (1867-1938), professor of Physical Geography, was appointed as director.



Figure 5: The Mineralogy Museum at the Central Palace of the University, around the 20th century Thirties (Di Franco, 1933)

Due to this partition, the mineral and rock collections were placed in two galleries in the Institute of Mineralogy (Bucca, 1918), that consisted also of laboratories, a library, a class room, the director's office and another one for the staff (Di Franco, 1933) in spaces at the University palace ground floor formerly assigned to prof. Silvestri.

5 The Institute of Mineralogy and Volcanology

The Institute directed by Bucca was named of Mineralogy and Volcanology until 1926, after a Royal decree dated Dec. 27th 1905, but only between 1912 and 1919 prof. Gaetano Platania was temporarily appointed to an accessory course of Physical Geography and Volcanology. Two sets of Etnean rock samples were also acquired (A.S.U.C., Coltraro Fund, n.806, in Patanè & Cristofolini, 2004), while at the time investigations on the volcano were chiefly focused on describing geodynamic and eruptive phenomena and geological features of the Etnean region, and largely conducted outside the Institute (De Fiore, 1925; Riccò, 1911).

Only in 1920, a chair of Volcanology was formally established and prof. Gaetano Ponte (1876-1955) was charged with the related course. Since 1898, as a high-school student, he carried out research activity at the Geodynamic section of the royal Astrophysical and Etnean Observatory. As a graduate in Natural Sciences (Catania, 1903) he frequented then the Institute of Physical Chemistry directed by W. Ostwald, and attended Zirkel's courses in Leipzig, where he was soundly prepared in studying minerals and rocks. Back to Catania he has been assistant lecturer of Mineralogy (1907), later promoted to lecturer (1911).



Figure 6: Gaetano Ponte during his stay in Leipzig

At the time he carefully followed the Etnean activity, with the aim also at producing a map of Mt. Etna that would allow the possible progress of lava flows to be predicted, in order to plan changes of their courses for preventing the related damages. In the meanwhile he carried out also significant geo-volcanological and petrographic researches on the volcanoes in the Hyblean district and at Capo Passero, on the eruptive phenomena occurring at Stromboli, and geochemical investigations on waters of the thermal springs around Palagonia and Aragona. He founded also the journal "Rivista Italiana di Vulcanologia".

In 1926, owing to the growing interest for the research on the volcanoes and in relation to the request advanced in 1919, the Institute of Volcanology was established, distinct from the one of Mineralogy, which Bucca kept on directing till his death in 1930, when Salvatore Di Franco (1868-1950), formerly his assistant lecturer, was appointed to hold the chair of Mineralogy and to direct the Institute.

6 The Institute of Volcanology (and Etnean Observatory since 1934)

The Institute was the first and unique university structure in Europe addressed to investigating volcanoes and their activity, although it had not its own location and was hosted in two rooms of the Institute of Mineralogy. Its direction was assigned to Ponte (as a temporary charge before being appointed as full professor in 1936) till his retirement in 1949, when he went on doing research as a *professor emeritus* until he died in 1954. The minerals and rocks that were being collected by Ponte and several scale models of Mt. Etna were placed in the museum of Mineralogy. In 1926, the buildings of the Etnean observatory - no longer used by the astronomers, spoiled and abandoned since 1919 - and of the Meteoric-alpine house at 1881 m a.s.l., heavily damaged by a fire, were assigned to the Institute due to Ponte's interest. Only after 1933 however these structures were restored and equipped with proper instruments, when an agreement among the University, banks, and private companies, was validated for supporting the research activities, and made effective by a Royal decree: the Meteoric alpine house ("Cantoniera" since 1934) was then turned into a Volcanological station and the Institute was officially named "Institute of Volcanology and Etnean Observatory". An agreement was also stipulated in 1939 with the National Geophysical Institute, which had no actual effects because of the war outbreak.

At the time investigations on Etnean minerals and lavas were conducted also by Di Franco (see 1930b, 1942 and references therein) and a few associates. Research activities of volcanological interest were having place also with studies on the Etnean seismicity related to the eruptive activity (Platania, 1920) outside the University in a Royal Geodynamical Observatory; these were keeping on the ones at the former Astrophysical Observatory, that since 1924 was an autonomous body unrelated to the University and included in the network of the Royal Astronomical Observatories. Later prof. Giuseppe Imbò, before being appointed as director of the Vesuvian Observatory, conducted his research activity at the Geodynamical one from 1929 to 1935. Since then no activity is reported as kept on at this location in the former Benedictine Abbey, but part of the instruments appear to be still there abandoned (Blanco, personal communication).



Figure 7a: The Meteoric alpine house around 1897

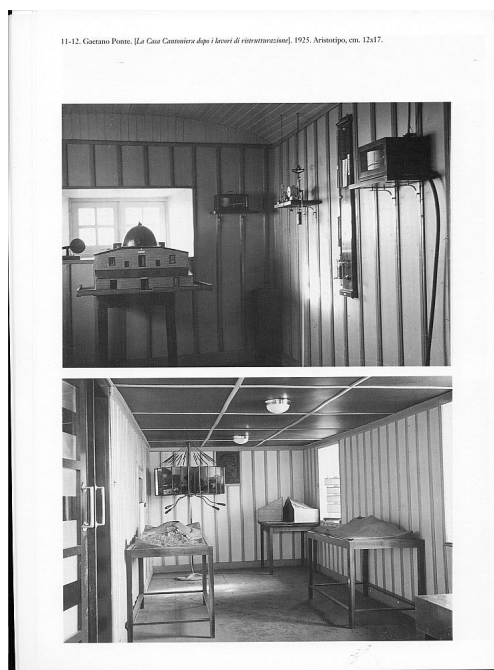


Figure 7b: Inside views of the Volcanological station (La Cantoniera) in 1933

In the first Forties of the past Century, the Earth Sciences Institutes were moved from the University Central Palace to the ground floor of a new building, the Palace of Sciences, where the

Institute of Volcanology was not yet given its own location and was still hosted inside the Institute of Mineralogy. Between 1943-1945 the whole structure was severely damaged during its requisition by the Allied occupation forces, but most of the museum collections and equipments could be preserved. When the war ended, Di Franco coordinated the reorganization and restoration of the mineral and rock collections; these activities had their end with the opening of the Mineralogy Museum, including the samples of volcanological interest too, during the convention of the Italian Mineralogical Society held in Catania in October 1949.

When Ponte retired in 1950, his direction position passed to prof. Ottorino de Fiore (1890-1953), director of the Institute of Geology. He had conducted investigations on Mt. Etna and its eruptive activity mainly between 1908 and 1926, and later after having left his position, in 1937 went to Brazil with the task of organizing the activities related to the chair of Geology and Paleontology at the San Paulo University. He came back to Catania at the end of the Second World War, and established a renewed and important Museum of Paleontology at the new location of the Institute of Geology in the Palace of Sciences. At the same time due to his interest for volcanological and archaeological investigations, he carried out relevant excavations and surveys at the Lachea island and the Pantalica necropolis.



Figure 8: Gallery of the University Museum of Mineralogy at the Palace of Sciences, at the end of the 20th Century Forties (Di Franco, 1949)

In the same years, prof. Francesco Stella Starrabba (1886-1954), mineralist and petrographer, moved from Messina, and was appointed to the chair and Institute direction of Mineralogy when Prof. Di Franco died in 1950; he directed later the Institute of Volcanology after de Fiore's death. During the few years of his appointment, besides being committed in reorganizing the place, he also kept on again investigations started up in 1910 on products of the Etnean activity (see Di Franco, 1949).

At last, a location was made available to the Institute of Volcanology and Etnean Observatory only in 1952 at the top floor of the Palace of Sciences where at first a library and abundant collections of minerals and rocks of the most renown Italian and foreign volcanic districts, previously exposed at the location of the Institute of Mineralogy, found their place under the direction of de Fiore and Stella Starrabba.

At that time, since the world conflict, the buildings of the Observatory and "Cantoniera" suffered a gradual decay, as they were being used only now and then for research purposes. The Observatory, at this point devoid of any equipment, was commonly of service as a shelter for scientists and students visiting the summit areas of the volcano until it was destroyed in 1971 during an eruption whose vents opened immediately upslope. Also the "Cantoniera", totally abandoned by the time, was submerged by the 1983 lava flow.



Figure 9: The Observatory building just before being destroyed in 1971

When Stella Starrabba died in 1954, prof. Gustavo Cumin (1896-1956), since 1935 professor of Economic Geography, held the position of Institute director, being substituted in 1957, for about two years, by Bruno Accordi, appointed professor of Geology. These frequent changes in the management of the Institute by directors scarcely interested in volcanological issues significantly restricted the advancement of the related investigations. Teaching and research activities were being kept on by Salvatore Cucuzza Silvestri (1923-2012), at the time assistant lecturer of Volcanology, and by temporary associates, with scarce means not adequate in relation to the great research technology progression of that time.

When Accordi was director, the Class of Earth Sciences was established at the School of Sciences of the University of Catania, and after he moved to Rome in 1959, prof. Leone Ogniben (1915-1989) was appointed to hold the chair of Geology and the direction of the Institutes of Geology and Mineralogy in 1960. At the same time, prof. Alfred Rittmann (1893-1980) was charged with the Institute direction and teaching of Volcanology until he retired in 1963. Born in Basel, he was a student of Chemistry and Natural Sciences in Basel and Geneva (1912-1921) and obtained his PhD degree in 1922. He was then research fellow at the Immanuel Friedlaender volcanological Institute in Naples (1926-1934), lecturer in Basel (1935-1941), and also coordinated various research groups in Italy (1935-1949). He moved then to Egypt where he taught geology and mineralogy at the Universities of Alexandria (1949-1953) and Cairo (1953-1957). In 1957, he had to leave his position in Egypt and came back to Italy due to the events related to the Suez crisis.



Figure 10: Prof. Alfred Rittmann

Under his direction, a chemical laboratory for rock analyses was implemented and the museum was enriched and better organized. Research activities led by him were developed on the Sicilian volcanism (Aeolian Islands, Mt. Etna) carried out by foreign doctorate students too (Hans Pichler, Tübingen; Jörg Keller, Freiburg; Jean Klerkx, Liège). Rittmann, as IAVCEI chairman (1954-1964), organized also an important meeting on *Hyaloclastites and Ignimbrites* in Catania, that took place in 1961 and was attended by numerous scientists. After Rittmann left his academic activities in 1963, he promoted the establishment by the Italian Research Council, under the UNESCO patronage, of the International Laboratory for Volcanological Research (1964), later named International Institute of Volcanology (1968).

After prof. Rittmann had retired, the course of Volcanology was delivered again by prof. Cucuzza Silvestri. Prof. Ogniben was appointed also as director of this Institute. Since then volcanological investigations on Mt. Etna and the Hyblean highland were highly stimulated within the framework of a growing research interest in the field of the Earth sciences in southern Apennine (namely Calabria and Basilicata) and eastern-central Sicily areas, due to the contribution of about ten young Earth sciences graduates from the Universities of Bologna, Milan, Modena, Padua, and Rome, assisted by some fellows newly graduated in Catania. All of them were intensely engaged in field and laboratory research activities in the various fields of their expertise, besides delivering teaching courses of the recently established Earth sciences Class. Among them, I would like to remember here Piero Atzori, Angelo Di Grande, Antonino Lo Giudice, Piera Spadea, with whom my research activity on the sicilian volcanics had a start. With reference to volcanological investigations, laboratories were gradually equipped with instruments for petrological-geochemical and geophysical studies, and the geological surveying of wide sectors of south-eastern Sicily affected by recent volcanic activity was carried out by research teams of all the three Earth sciences Institutes.

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