

Villa Mondragone 19th-20th September.

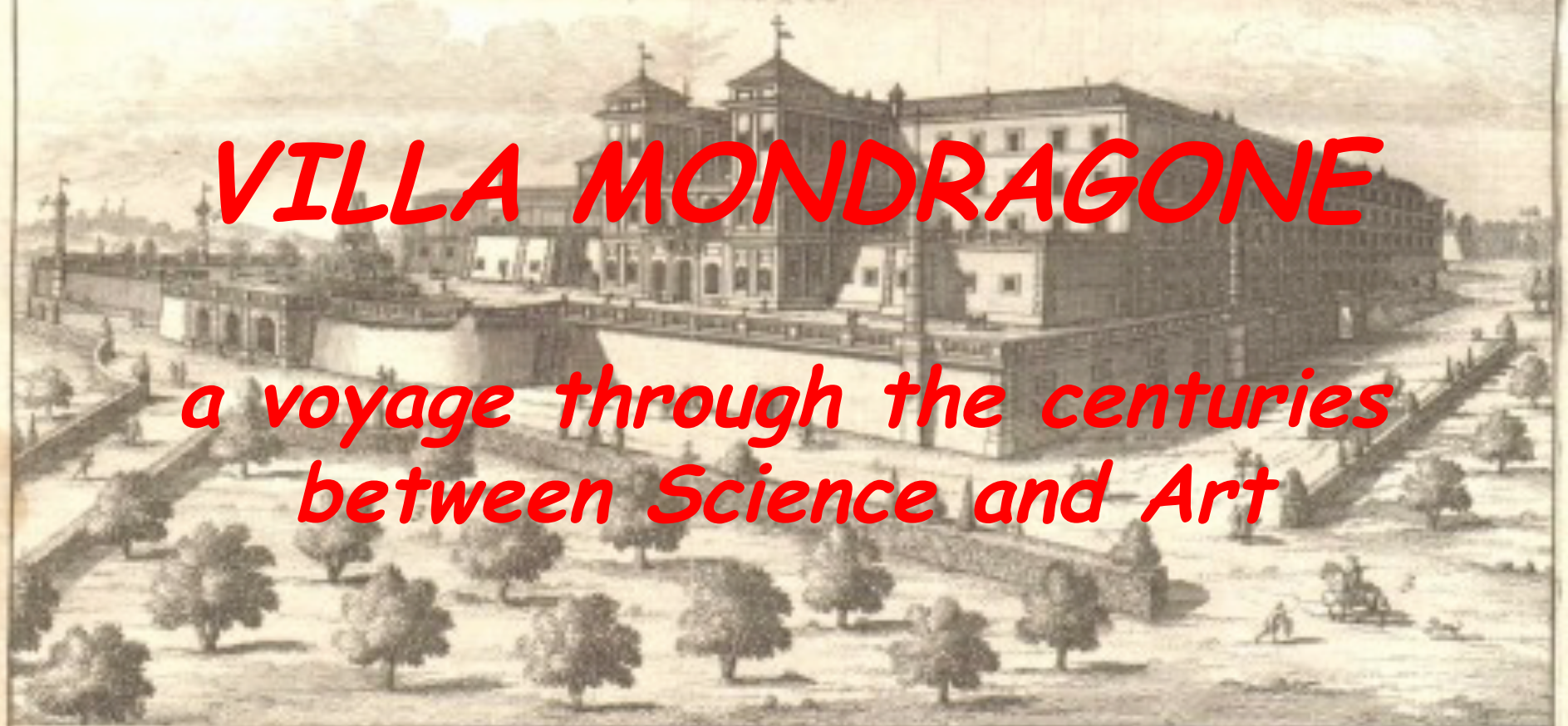
Vortical Structures and Wall Turbulence

Paolo Orlandi: a vortical and turbulent life

VILLA MONDRAGONE

*a voyage through the centuries
between Science and Art*

*Autre Vue de la Vigne de Monte Dragone à Frascati.
1. Façade principale. 2. Le cité. 3. La Vigne. 4. Cheminier des caves
souterraines.*

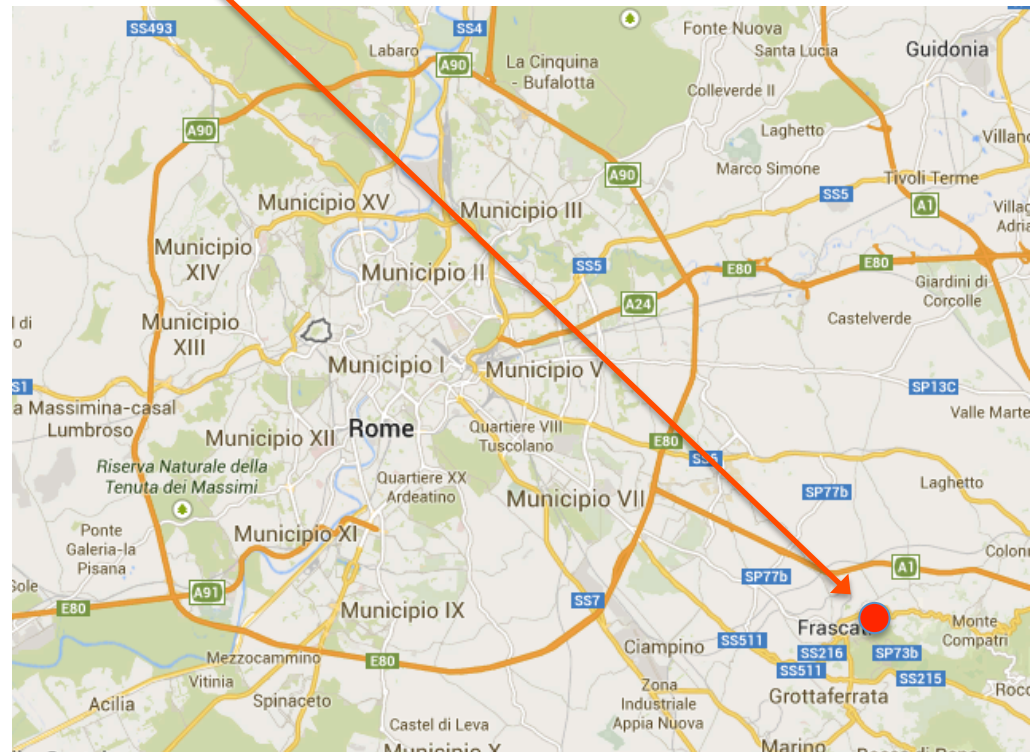


VILLA MONDRAGONE



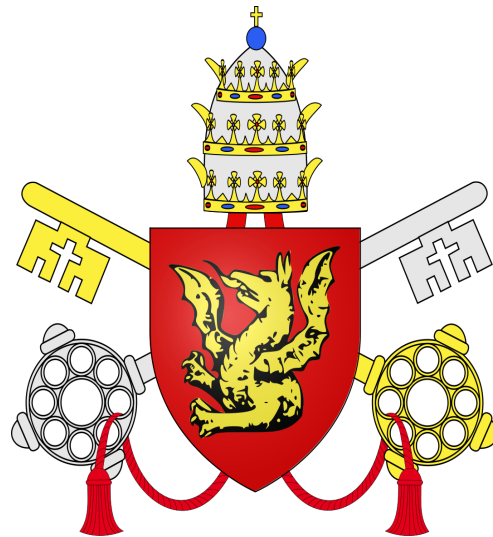
A beautiful Villa, with a park of 18 hectares, owned by the University of Rome "Tor Vergata" and now used for Conferences and events.

It is located in Monte Porzio Catone, on the hills SE of Rome at about 400m a.s.l. and 20Km from the city centre



THE NAME

"Mons Draconis" (Mountain of the Dragon)



The name refers to the location on the top of the hill (Mons) and to the dragon (Draconis) part of the family crest of the noble family Boncompagni-Ludovisi to which Pope Gregorius XIII belonged (although the Villa never belonged to the Pope)

A BIT OF HISTORY

Already in the period of the ancient Romans the rich families used to move for the Summer on the hills around Rome (to avoid the humidity and the malaria of the flooded areas downtown).

In the II century a.C. two brothers (senators) **Sesto Quintilio Condiano** and **Sesto Quintilio Valerio Massimo** built a villa in the same position and of the same size as Villa Mondragone
(although with a different orientation)

(The two senators were killed in 182 a.C. after an accuse of conspiracy against the Emperor Commodo)

During the decline of the Roman Empire the villa was abandoned and only ruins were left in the 16th century

A BIT OF HISTORY

... in the XVI century the noble families continued the tradition of leaving Rome for the Summer

The family Farnese had built "Villa Angelina". In 1567 **Alessandro Farnese** sold the villa to **Marco Sittico Altemps**



They were both Cardinals: **Alessandro Farnese** was the *nephew* of Paolo III and **Marco Sittico Altemps** the *nephew* of Pio IV (**nepotism**)

A BIT OF HISTORY

Cardinal Altemps enlarged "Villa Angelina" to host for the Summer his friend Cardinal Boncompagni that became Pope Gregorius XIII in 1572



That Villa was too small for the Pope and his court, Cardinal Altemps decided then to build a new one (Villa Mondragone) and Villa Angelina became the old villa (Villa Vecchia)

A BIT OF HISTORY

Villa Mondragone was build directly on the ruins of the roman Villa Quintilii and it became the favourite Summer residence of Pope Gregorius XIII that, next to his apartment, had a "Secret Garden" to enjoy alone the view of Rome



The roman ruins were used as foundations for the new construction

Miners were hired to dig out marbles, statues and other materials that were recycled for the new building

A BIT OF HISTORY



The Villa has plenty of decorations and artistic rooms

The Gregorian Calendar: *an interesting and funny digression*

An adjustment of the **Julian Calendar** that reduced the length of the year by only **0.002%**

1 year was **365d 6h** in JC and now is **365d 5h 49m 12s** in GC

This **backward** drift, accumulated over the ~15 centuries, had produced an improper delay of the Easter celebration of **10** days

The Catholic church (and the Pope) were not concerned about astronomic misalignments of the equinoxes or season shift (hot Winter and cold Summer)

The real concern was the possible coincidence of Easter with some pagan festivals,

The Gregorian Calendar:

In the **Julian Calendar** the extra 6h were dealt by allowing a **leap year** (Feb. 29th) every 4 years.

In the **Gregorian Calendar** the extra 5h 49m 12s were more difficult to accommodate.

Aloysius Lilius proposed "a leap year every 4 years **except** those years that are multiples of 100 with the **exception** of those that are multiples of 400"
(1960, 2012, 2000, 2400 leap years) (1900, 2100 no leap years)

This rule was adopted from the Pope Gregorio XIII in the bull "Inter Gravissimas" 1582 and it is still used.

The Gregorian Calendar:

How to compensate 10 days delay in every day life?

In catholic countries (**Italy, Spain, Portugal, ...**) it was imposed that "Thursday, 4 October 1582, was followed by Friday, 15 October 1582"

In **France** "Sunday, 9 December 1582, was followed by Monday, 20 December 1582"

The protestant countries resisted with the argument that the new calendar was part of a plot to restore the Catholic church.

... but they eventually adopted the Gregorian Calendar

In **Germany** "Sunday, 18 February 1700, was followed by Monday, 1 March 1700."

The Gregorian Calendar: *an interesting digression*

Sweden has been very hesitant. In 1700 they decided to compensate for the **10 days** gradually in 40 years (by skipping all the leap years). The system was poorly administrated (some adjustments had been forgotten) and the Country was in confusion.

Sweden was misaligned with the JC and GC so they reverted to the JC by introducing in 1712 the "double leap year" (with the unique 30th Feb.)

Finally in 1753 they adopted the Gregorian Calendar

The latest was **Greece** where "Wednesday, 15 February 1923, was followed by Thursday, 1 March 1923" (... in the while a bigger delay had accumulated)

A link with Galileo Galilei

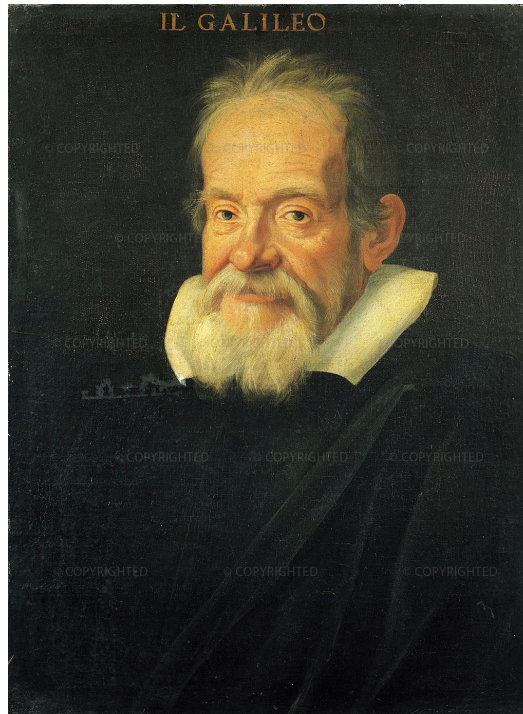
In 1611 Galileo came to Rome to show the validity of his invention: **The Telescope**. On April 11th Galileo and eight scientists went on the hill Gianicolo and pointed the telescope at **Villa Mondragone** (about 20Km far away).



They could distinguish even the smallest details and decorations and the experiment was considered a success. Immediately after Galileo became a member of "Accademia dei Lincei".

A link with Galileo Galilei

The event was celebrated with a banquet with several scientists during which they discussed about the motion of the planets



After the banquet Galileo used again his telescope to show other people the motion of Saturn, Jupiter and their satellites.

... if he only had known in advance ...

... and with Guglielmo Marconi

More recently in 1932 Guglielmo Marconi transmitted a radio signal using ultra-short waves from a station located in the Vatican and **Villa Mondragone**



The peak of Villa Mondragone

After **Cardinal Altemps** his nephew **Pietro Altemps** took over and continued the enlargement of the villa.

In 1613, however, he sold Villa Mondragone to the noble family of **Borghese** that added the "Gallery of Vasanzio" or "Portico del Vasanzio" for Pope **Paolo V** (Camillo Borghese)



The decline of Villa Mondragone

After the death of Paolo V, the successive Popes transferred the Summer residence to Castel Gandolfo and Villa Mondragone declined.



the furniture was largely removed, the marbles spoiled, the gardens abandoned ...
... history repeats itself ...

In 1896 the villa was bought by the Congregation of the Jesuits that made a college for the sons of rich families

The rebirth of Villa Mondragone

In 1981, when the villa had again been abandoned and spoiled, it was bought by the University of Rome "Tor Vergata"

The courtyards and the gardens were used to **grow vegetables**

U. Tor Vergata gradually restored Villa Mondragone to the present status.

In 1982 the inauguration of the first academic year of the University "Tor Vergata" was held in Villa Mondragone at the presence of the (to date) President of the Republic Sandro Pertini.



The new climax of Villa Mondragone?



An outstanding group of fluid dynamicists from all over the world has gathered in Rome (19th-20th Sept. 2014) to celebrate the 70th birthday of a great scientist and mentor.

Thank you Paolo!

Cortona 1993 EUROMECH 305 "Vorticity Dynamics"

