



European Geosciences Union
General Assembly 2015

Vienna | Austria | 12 – 17 April 2015

The definitive analysis of the Bendandi's methodology performed with a specific software

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Rumours about an earthquake prediction in Rome on May, 11th 2011

A devastating earthquake was predicted to hit Rome on May, 11th 2011.

This prediction was never officially released, but it was spread on the internet and was amplified by the media.

The news had been circulating for weeks on blogs and websites, on newspapers, on television and resulted in a collective psychosis.

Starting from March 2011, at the Istituto Nazionale di Geofisica e Vulcanologia (INGV) seismologists received requests for explanations and reassurance about this prediction by the inhabitants of Rome as well as by tourists.

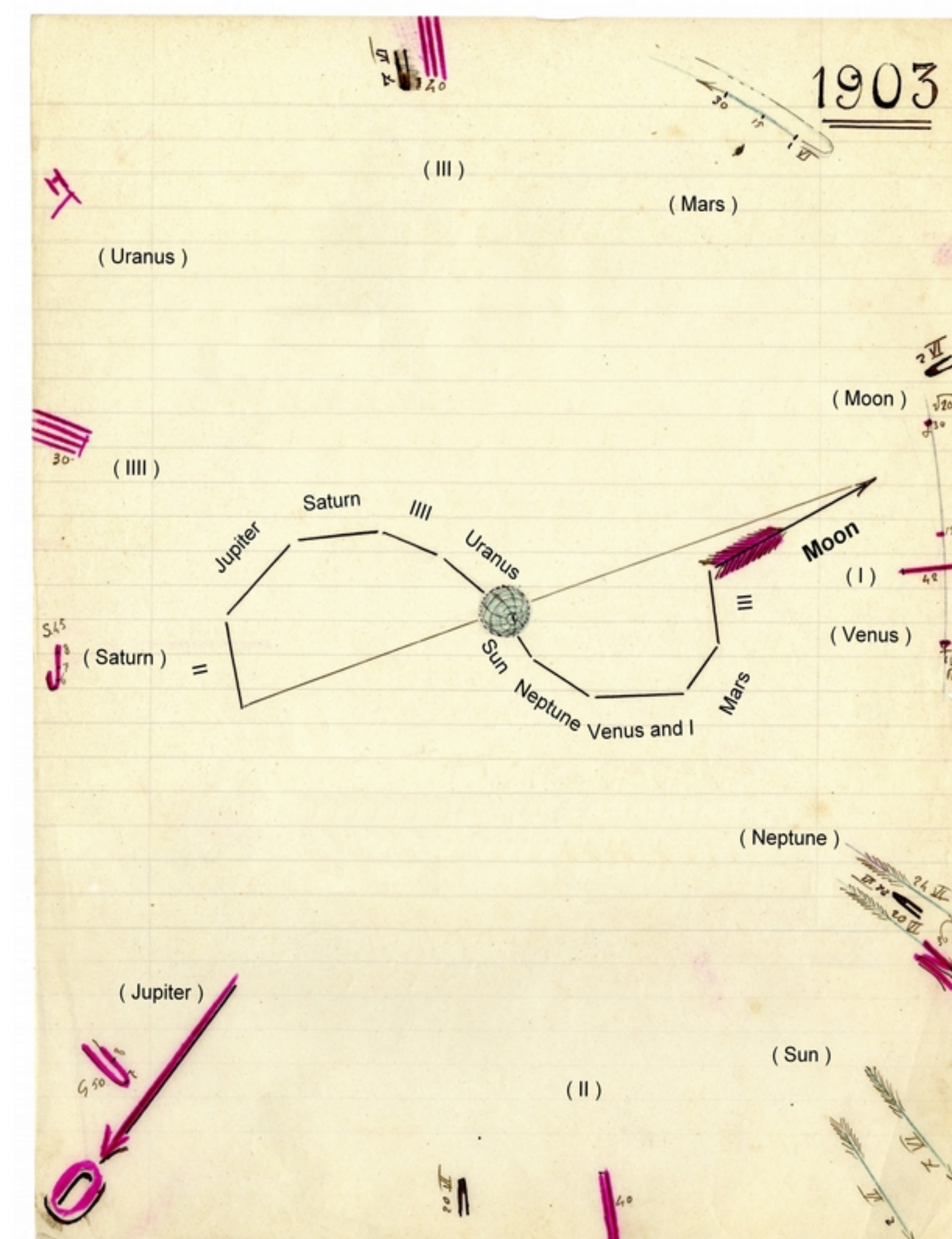
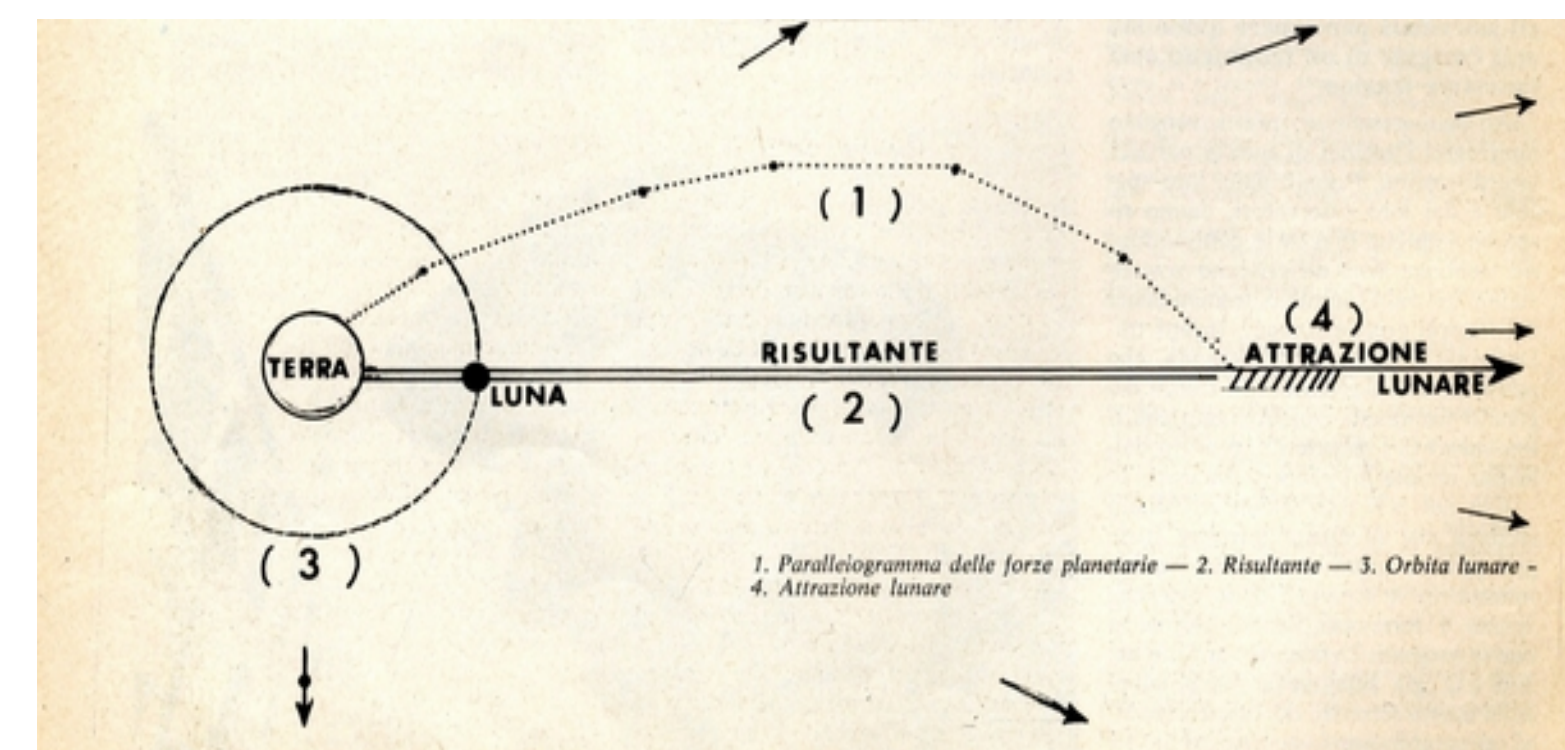
It was erroneously ascribed to Raffaele Bendandi, an Italian self-taught natural scientist who studied earthquakes and related them to planetary motions .

Bendandi's theory was the origin of the rumours about this presumed prediction.

The "seismogenic" theory

"The origin of earthquakes, according to my theory, is purely cosmic. The earthquake occurs, according to the data I collected and tested, when within a month of the lunar revolution, the action of our satellite is to be added to that of the other planets."

Raffaele Bendandi's theory, called *"seismogenic"*, was never fully described, however *geogrammi* constitute the simplified geometric representation of his forecasting method.



Geogrammi represent the calculation of the sum of the planetary forces acting on the Earth during the seismic event.

The result is calculated by applying the rule of the parallelogram of Galileo/Newton.

Each planetary force has values belonging to the same order of magnitude.

Each *geogramma* is formed by two polygons of forces.

The first polygon is constructed

considering the planets belonging to the celestial hemisphere that has the Moon positioned in its center. The second polygon is determined by the bodies of the hemisphere opposite to the first.

The *geogrammi*, designed to represent the historical stronger earthquakes, are configured with the two perfectly aligned semi-resultants. The calculation of the endogenous forces interests all the known planets, the Sun, the Moon and the four trans-Neptunian bodies that Bendandi introduces to complete his theory and points indicates with the symbols I, II, III and IIII.



above: the monthly development of the forces before the earthquake Calabria - Messina December 28, 1908 with a magnitude estimated at 7.2. The force vector of the Moon is represented by the arrow feathered. The Bendandi's method appears to be not only a set of isolated feedback of parameters, but a thorough analysis of multiple factors.

left: the geogramma of June 2, 1903 (M6.9 in the peninsula of Alaska)

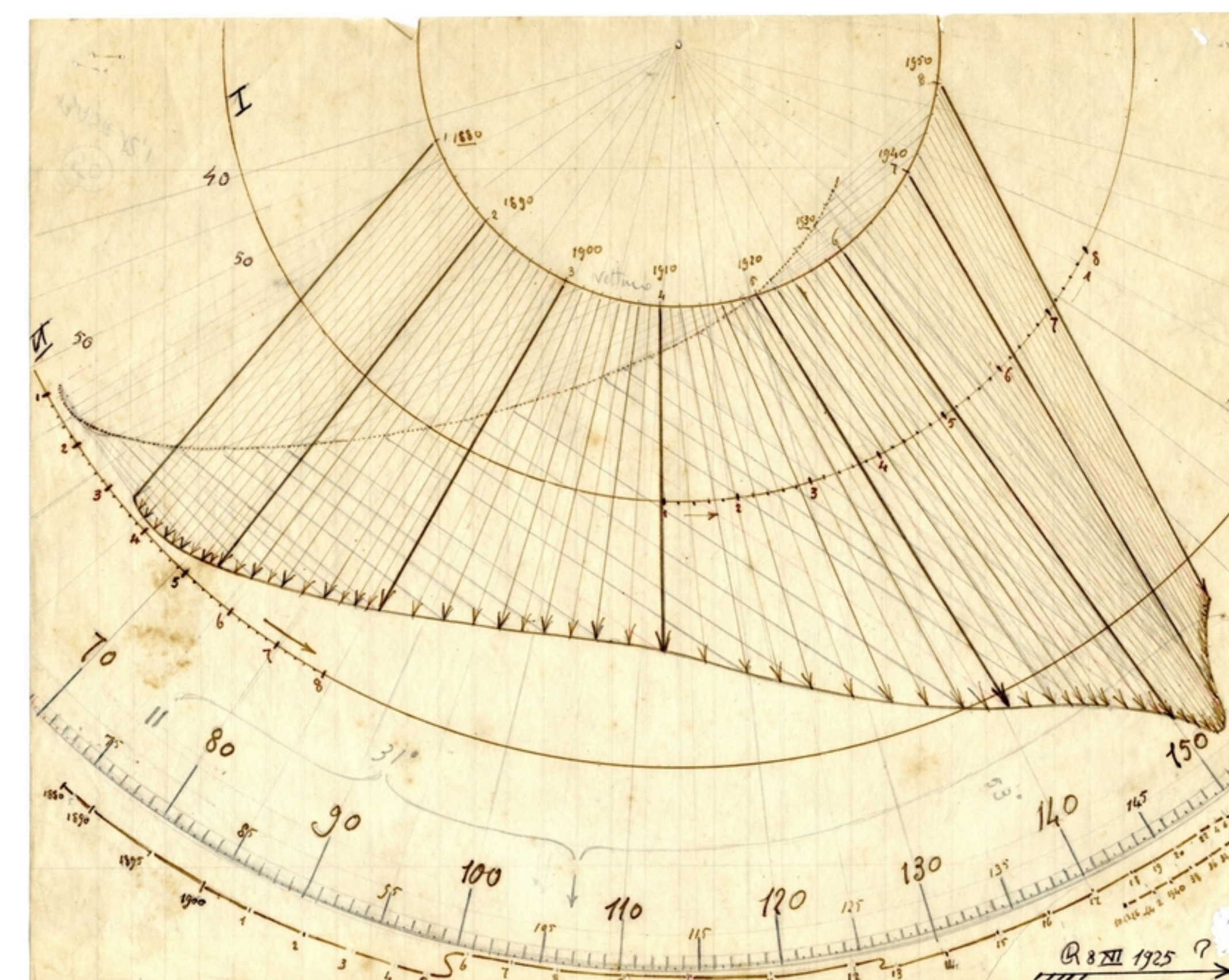
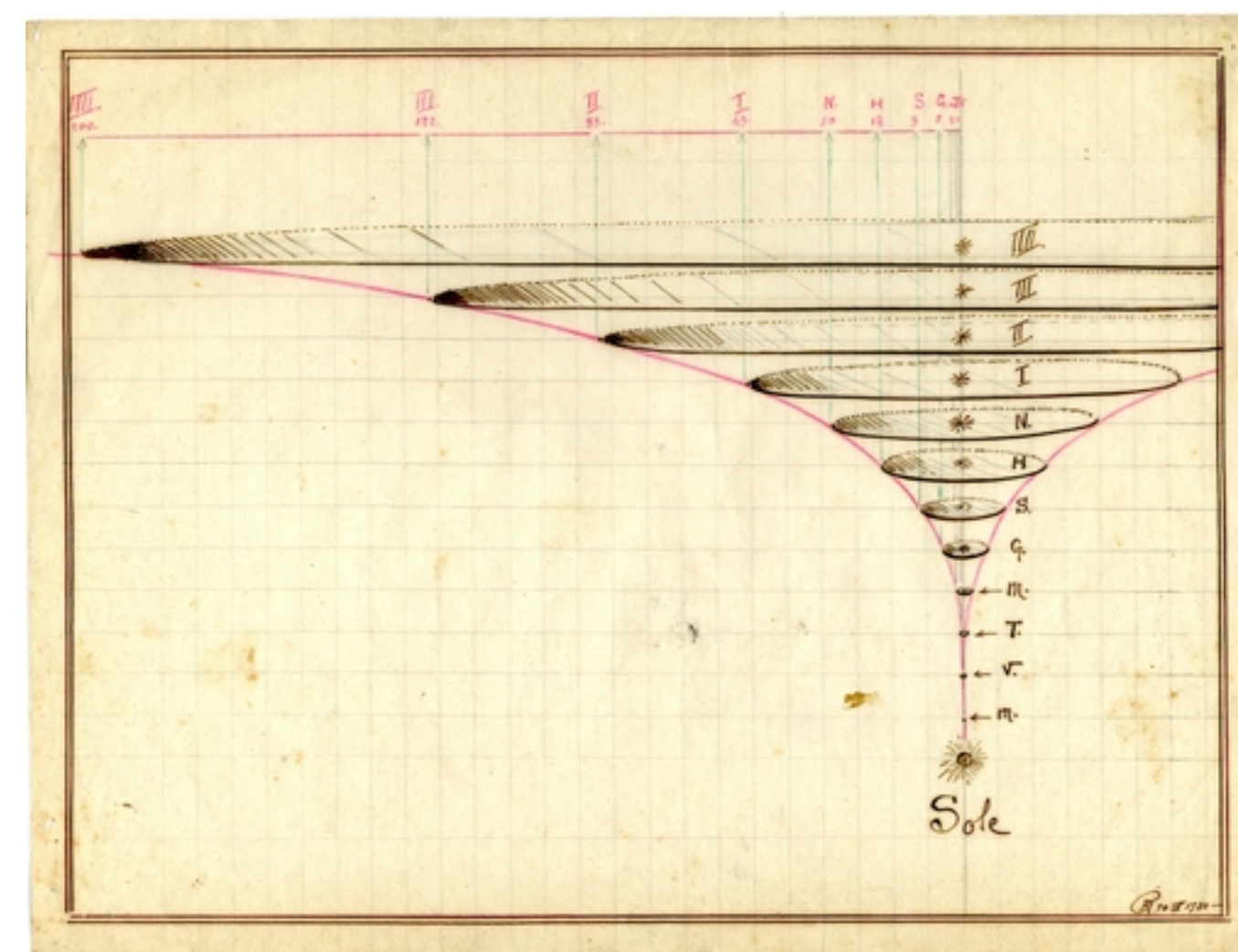
The expanded solar system

Bendandi theorized the existence of four trans-Neptunian planets on the basis of his studies of seismic activity.

"The earthquake occurs when the Moon combines its action with that of some other planets."

Following the course of then Moon during its sidereal revolution, its telluric disturbance can be found adding to the strength of its action on each planet the influence of the eight known planetary masses.

Deepening the study, he noted that the action of the Moon was strengthened in other parts of the orbit, at which he could not identify the cause though.



above: study of disturbing forces of bodies called I and II on the orbit of Neptune during the period 1880 - 1950

The hypothesis of the presence of other planets beyond the orbit of Neptune has been recently advanced by several researchers. Carlos de La Fuente Marcos, astronomer at the Universidad Complutense de Madrid, along with colleagues at the University of Cambridge theorize on the *Monthly Notices of the Royal Astronomical* the presence of at least two other planets.

Until recently it seemed impossible that large solid bodies could be born so far from the Sun, but newly the ALMA radio telescope has discovered that around HL Tauri, a young solar-type star, planets are forming even over 15 billion kilometres away. The four Bendandi's trans-Neptunian masses I, II, III and IIII are respectively 7, 12, 18, 30 billion kilometres away from the Sun.

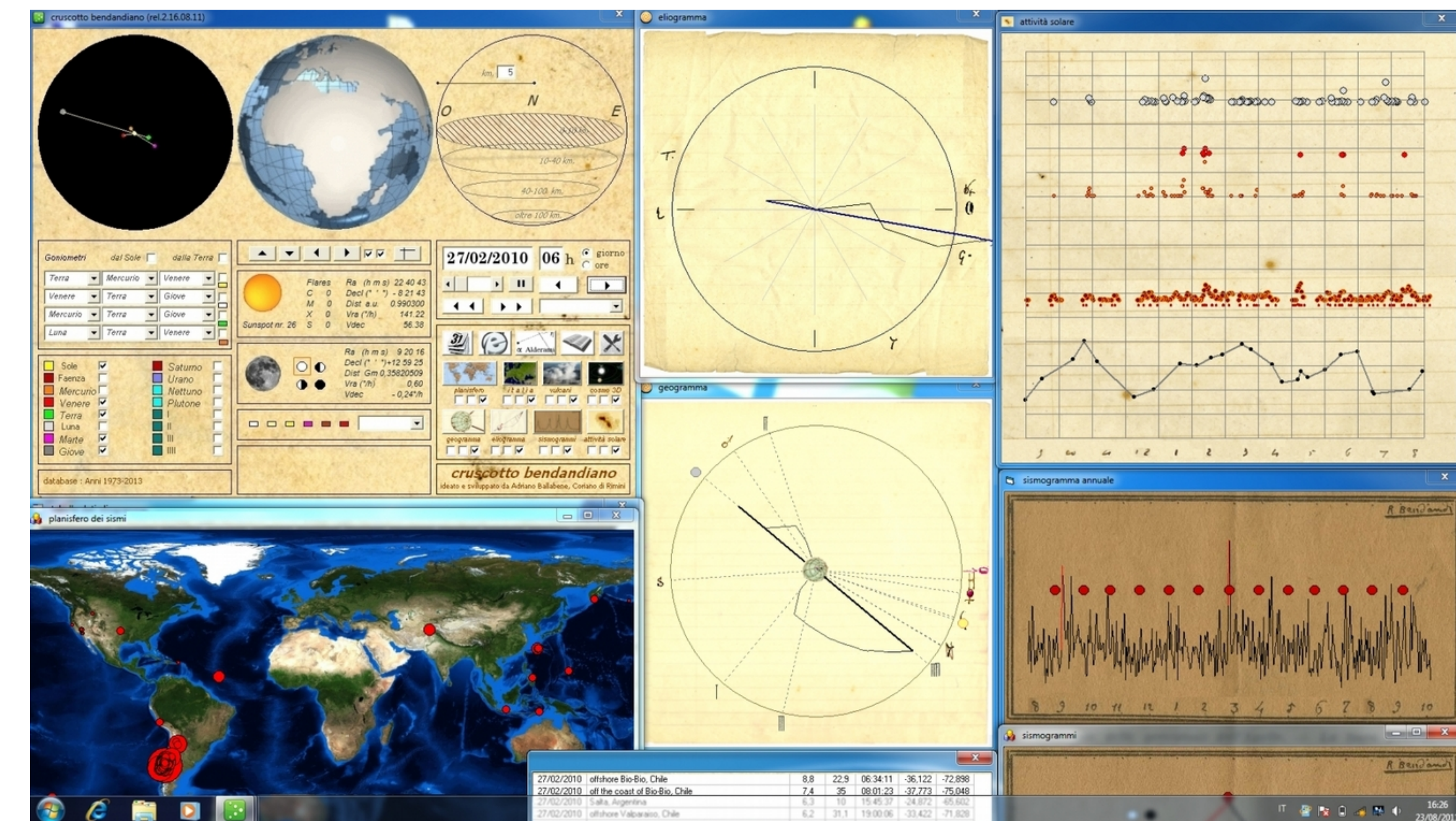
Raffaele Bendandi (Faenza 1893 – Faenza 1979)



www.osservatoriobendandi.it (tel. + 39 338 81 88 688)



www.cruscottobendandiano.it



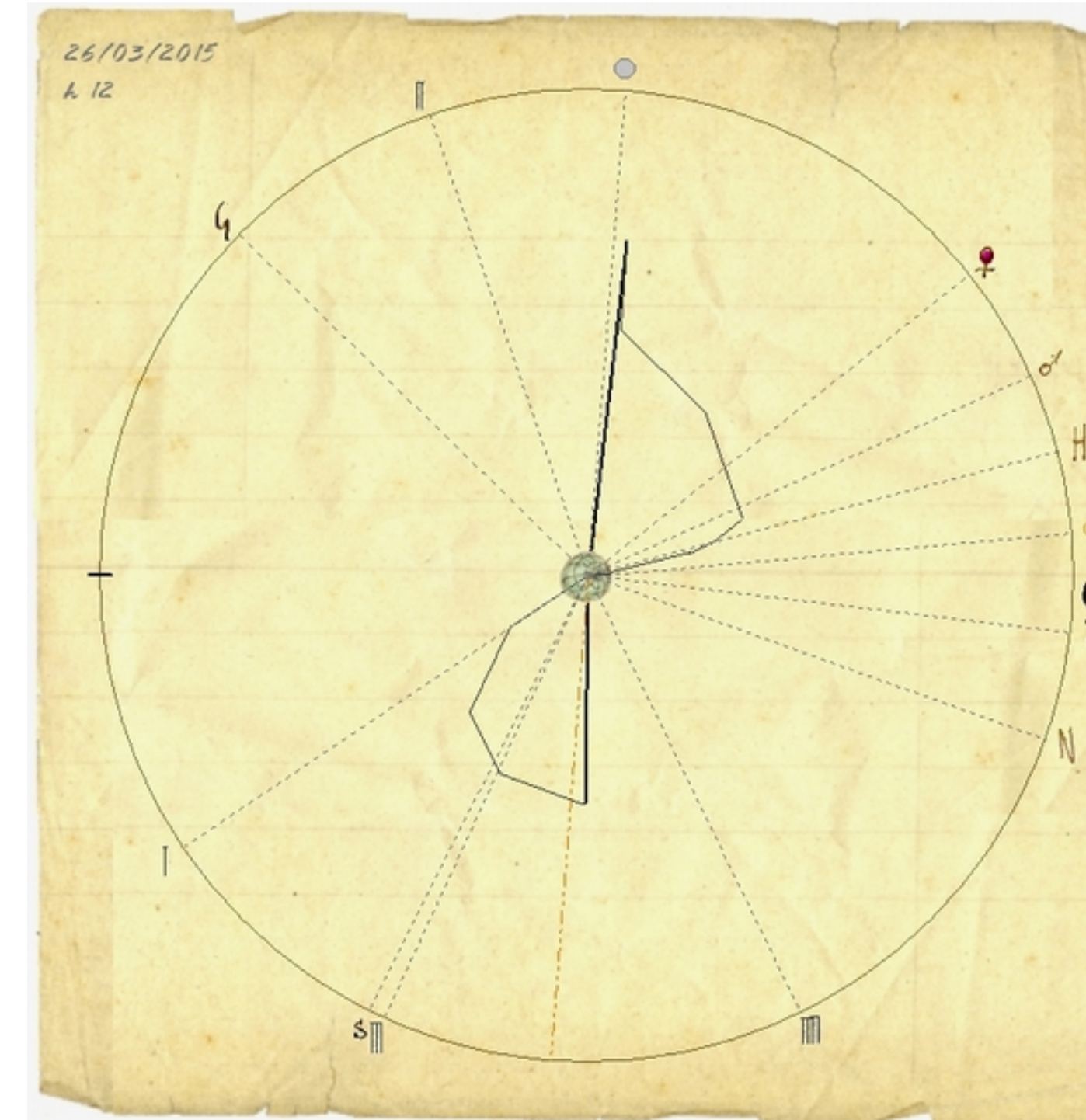
The first version of the software was seeking - in the past time - the same planetary configuration on May, 11th 2011.

Nowadays the software implements all clarified aspects of the geophysicist's theory from Faenza and it rebuilds the Bendandi's technical drawings with animated digital graphics.

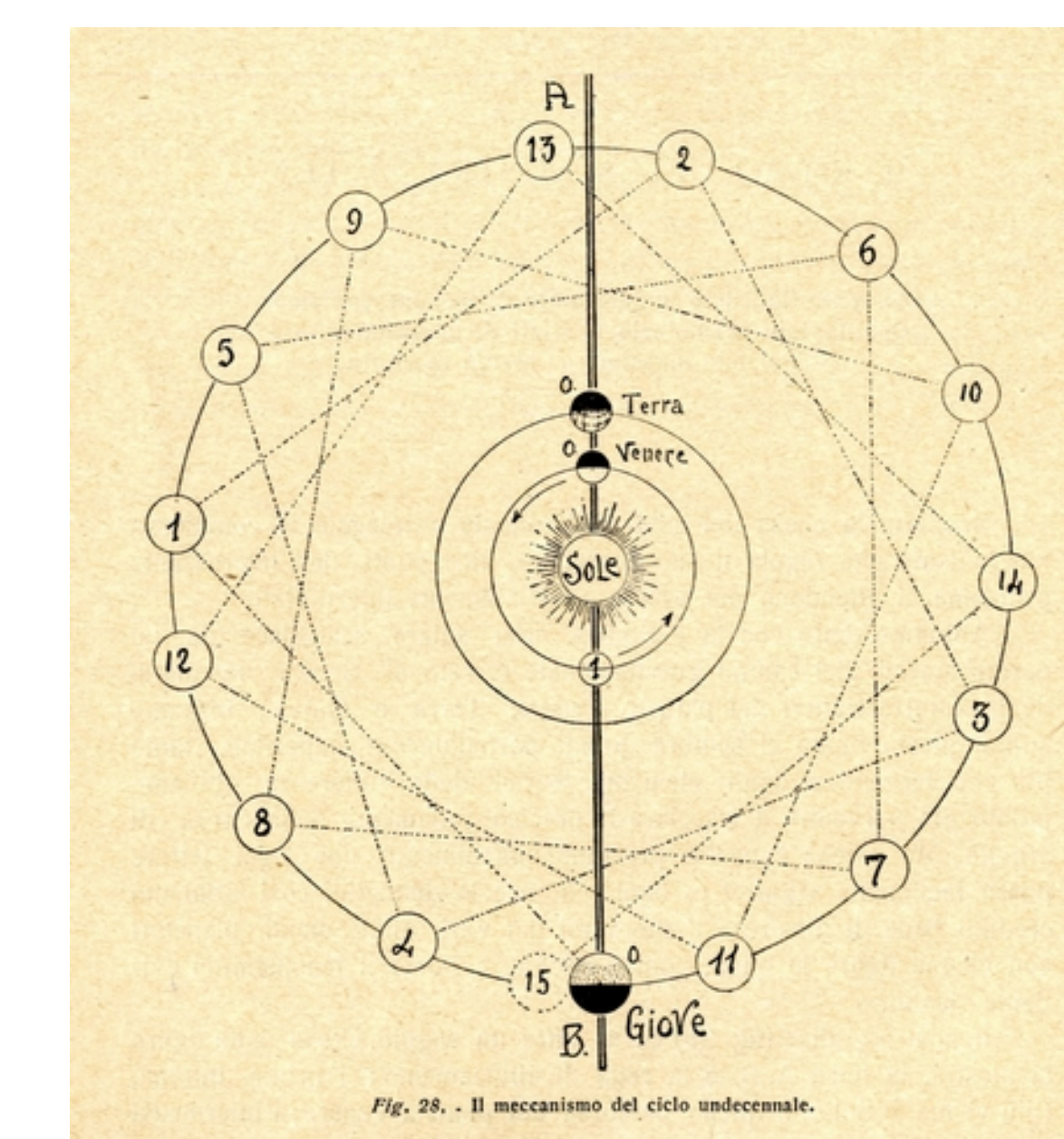
In particular, it is being considered that:

- the Moon and the Earth make up a double planet, given the relationship between the respective masses of about 1/81
- the entire Earth-Moon system is affected by the forces coming from the planets Venus, Jupiter and Saturn, which disrupt the orbit of its center of gravity
- the Moon, which rotates together with the Earth around a common center of mass, during its monthly revolution motion makes their barycentric conjunction quickly turn towards a variable set of planets - this in the course of a few days or at times of only a few hours

• "Up to date we have very few elements available concerning the properties of the gravitational force" (European Gravitational Observatory).



over and above: some windows software



above: the mechanism of the eleven-year sunspot cycle

The "cruscotto bendandiano" software integrates itself also interfaces and resources useful to the interpretation of the study regarding the eleven-year sunspot cycle. For this reason, it is based on three spatial reference systems: heliocentric, geocentric and topocentric - represented by the three hemispheres on the first window. The software focuses on the reading of the USGS and NASA databases as well as on the calculation of the ephemeris of an expanded solar system. The *geogrammi* are rebuilt in animated computer-graphic for any date and time in the present, past and future.

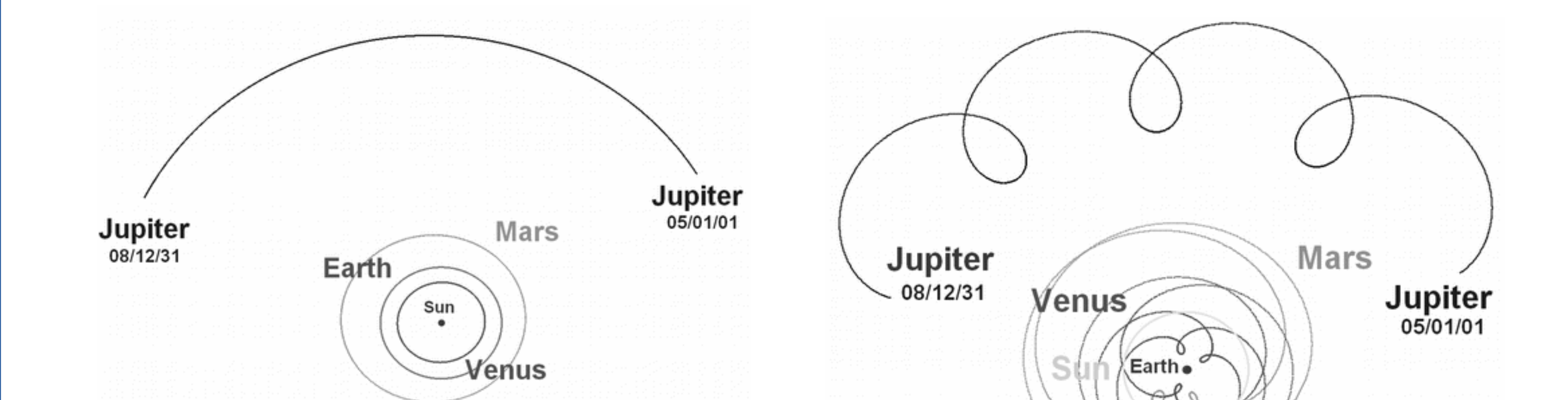
According to Bendandi, all configurations associated to the strong seismic events are characterized by the perfect alignment of the semi-resultants of the two polygons of planetary forces.

This particular configuration is quite similar to another one having two not-perfectly-aligned partial resultants, since the magnitude of the two forces is nearly equal.

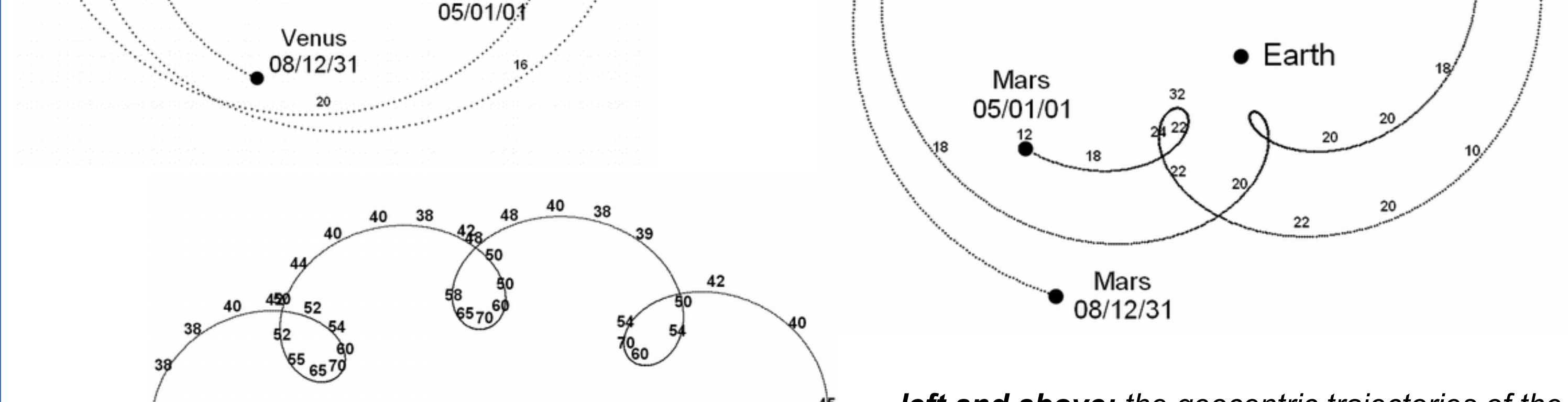
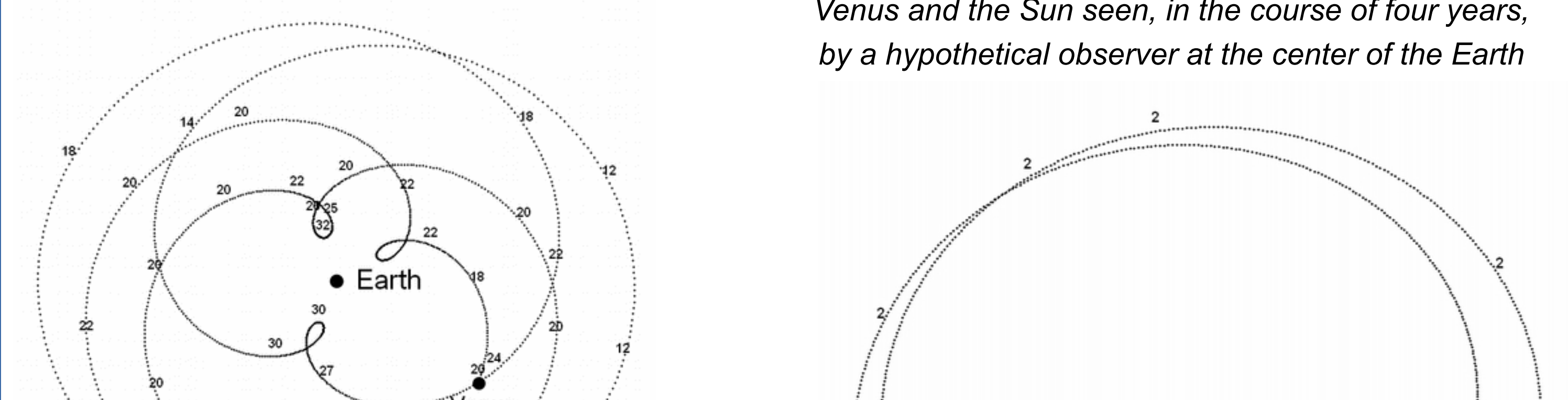
According to Bendandi, however, during the perfect alignment would be created the phenomenon of the beat, the phenomenon of acoustic physics and electromagnetism, which occur when you combine two slightly different oscillation frequencies. The carriers of the planetary forces must be considered therefore equal to trains of waves.

www.cruscottobendandiano.it

The forecasting method is based on the geocentric planetary trajectories. Each celestial body, over the course of time, approaches itself to and moves away from the Earth along with taking on variable values of distance, radial velocity, longitude and declination. *Geogrammi* are built up primarily on the basis of these parameters.



above: the heliocentric orbits of Jupiter, Mars, Earth and Venus over the course of four years



left and above: the geocentric trajectories of the planets Venus, Jupiter and Mars and the Bendandi's values of the planetary gravitational force, during the course of four years

Conclusions and References

Bendandi began to make predictions by setting out a scientific method and its tools. He did it by talking about his universal gravitational theory, the same theory that he placed on the basis of his study about the eleven-year sunspot cycle. He wrote only for newspapers with a wide circulation, without revealing the mathematical procedures of its predictive method.

He devoted himself in the same way to the prediction of solar activity.

Due to these concomitant factors, several erroneous opinions have been spread about Bendandi's forecasts. According to the popular opinion, Bendandi's earthquake forecasts would depend on the planetary alignments, on the solar activity and the lunisolar positions, both distinctly and in combination as well.

The study wants to clarify the method of forecasting and achieve a definitive statistic as to the real work of the geophysical scientist from Faenza.

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