

Bernardino Ramazzini Rests in Padua

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Summary

The founder of occupational medicine, Bernardino Ramazzini (1633-1714) was buried, according to contemporary sources, in the church of Beata Elena Enselmini in Padua.

In 1914 Arnaldo Maggiora, Professor of Public Health, examined the remains buried in that tomb, but failed to confirm the presence of the corpse of Ramazzini.

The current study aims to clarify the issue. Our investigations included an anthropological examination and radiocarbon dating of the exhumed remains, along with a careful review of written sources.

The discrepancies between the identification of 1914 and our own findings; the historical research; the burial site within a convent of nuns, for whom we know Ramazzini to have been the doctor; the age of the bones and the rarity of an octogenarian at that time and the radiocarbon results, confirm the traditional belief that the mortal remains of the great physician from Carpi rest "sine titulo" in the ancient setting of Beata Elena Enselmini.

Résumé

Selon des sources contemporaines, Bernardino Ramazzini (1633-1714), le fondateur de la médecine du travail, fut enterré en l'église de Beata Elena Enselmini, à Padoue.

En 1914 Arnaldo Maggiora, professeur de Santé Publique, examina les restes de ce tombeau, mais sa recherche fut incapable de prouver la présence du corps de Ramazzini.

Cette étude a pour but d'expliquer un tel résultat. Nos propres recherches ont inclus un examen anthropologique, une datation par radiocarbone des restes exhumés ainsi qu'une révision attentive des documents écrits.

Les discordances entre l'identification faite en 1914 et nos découvertes personnelles, la recherche historique, le tombeau localisé dans un couvent des sœurs (dont nous savons Ramazzini avoir été le médecin), l'âge des os d'un octogénaire (atteindre un tel âge était bien rare à l'époque), enfin les résultats de la datation par radiocarbone, confirment la croyance traditionnelle : les restes du grand physicien de Carpi demeurent bel et bien conservés « sine titulo » dans l'ancienne église de Beata Elena Enselmini.

Padua, seat of the ancient university dating from 1222, is the city where Bernardino Ramazzini (1633-1714), known as the founder of occupational medicine, died (fig.1). He was buried, according to the most reliable sources of the time, in an unmarked tomb ("sine titulo") in the church of Beata Elena Enselmini, site of the present-day oratory of San Francesco di Sales (fig. 2), still standing in via Belzoni. However, an identification conducted there in 1914, with the limited methods of the time, did not confirm the existence of the remains of the noted physician¹.

This study was undertaken to clear up the contradiction between what was reported by historical sources and what was discovered during the 1914 examination, which itself, was not without discrepancies. Our investigation proceeded with the evaluation and dating of the exhumed remains by means of an anthropological examination and radiocarbon dating; it included, in addition, a careful review of information handed down from other sources.

Bernardino Ramazzini: a biographical outline

"Convenient corporis symetria a natura dotatus fuerat Ramazzinus, calido & sicco constabat temperamento, habitus corporis gracilis non pinguis... Crines crispis & nigri, sed supra aetatem canis... oculi nigri, qui ei gratiam, & venustatem conciliabant. In vultus parte dextera eminentia quaedam ab aure parum dissita, porri ad instar prominebat, quae illius tamen faciem non dehonestabat.^{2a}

This is the description of Bernardino Ramazzini given by

his nephew Bartolomeo in the biography of the author that introduces the volume *Opera Omnia*.

The second of five siblings, Ramazzini was born in 1633 in Carpi, near Modena, to Bartolomeo and Caterina Federzoni. After having finished his studies with the Jesuits in his native town, he moved to Parma where he graduated with a degree in Philosophy and Medicine in 1659³. After his university studies and a period of internship in Rome under the direction of Antonio Maria Rossi⁴, he obtained, in 1660, an appointment as district medical officer for Canino and Marta, in the duchy of Castro, in the Viterbo countryside, where he worked until 1663. Malaria forced him to return to his native city in the same year. In 1665 he married Francesca Righi⁵. They had four children, Cecilia, Marcantonio, Francesco Clemente and Sigismonda. Marcantonio and Francesco died young, without leaving descendants. In 1671, after eight years in Carpi, Ramazzini moved to Modena where he became assistant to Antonio Ferrarini, the personal physician of Duke Francesco II of Este. In 1682 he was appointed head professor of "Medical Institutions and Theoretical Medicine" at the "Studio Pubblico di S. Carlo", the renowned University of Modena⁶. In 1691, together with Francesco Torti and Antonio Abbati, he obtained the title of "court physician". On 26 August 1700, after almost thirty years in Modena, Ramazzini was appointed by the Venetian Senate to the "Second Professorship of Practical Medicine" at the

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University of Padua. In 1708 he replaced Francesco Spoleti in the role of "First Professor of Practical Medicine" at Padua and became the "rettore" (dean) of the medical college.

Ramazzini's output during the Modena and Padua years was rich and varied. Besides writings of a strictly medical nature, he devoted himself to studies in hydrology, geology, physics, veterinary medicine, epidemiology and also to literary interests, expressed in Italian and Latin poetry.

Best remembered among his works is *De morbis artificiose diatriba*, which constitutes the basis of modern occupational medicine. The volume appeared in two editions: 1700 in Modena and 1713 in Padua. It is organized in forty chapters, each of them dedicated to a specific profession, or a group of similar professions, with regard to health issues of the workers. The second edition is enlarged by a supplement of 12 chapters (*Diatribae de artificiose morbis supplementum*) and a dissertation on the health of nuns (*De virginum vestalium valetudine tuenda dissertatio*)⁷.

Ramazzini's attention was drawn to the diseases of the working class by daily observation, during his appointment as district medical officer for Canino and Marta, of the extremely poor working conditions of local people, afflicted primarily with the scourge of malaria, and of sewer maintenance workers, at his own residence in Modena, who were subjected to noxious underground emissions⁸, and this led him to treat the issue in a systematic way.

In keeping with his clinical approach, he visited the workplaces in person, observing the sanitary conditions, materials and procedures that work involved and, by way of case history, interrogating the patient in detail on his activities¹⁰.

In 1714, after fourteen years of untiring clinical activity and teaching, the famous physician died in Padua of a cerebral haemorrhage, one year after the publication of the second edition of his most important work. Until 1703, having won the battle with malaria contracted in 1662, he enjoyed a period of good health. But the Padua years were overshadowed by many infirmities. There were various and recurrent disturbances like "heart palpitations", "tertian fever"¹², "fluxion of the teeth and pharynx",¹³ "headaches and heaviness of the eyes, back aches"¹⁴. Many letters to his nephew Bartolomeo give evidence of problems with his vision which gradually led to blindness¹⁵, forcing him to accept help from a copyist and from his nephews, who were living with him in Padua, for daily assistance with reading and writing.

The burial site and the negative identification of 13 July 1914

Historical sources concur on the location of the burial site of Bernardino Ramazzini in the former church of Beata Elena Enselmini¹⁶. In his last will and testament, dated 14 August 1713, he did not give precise instructions regarding his burial place, leaving funeral arrangements to his

nephew Francesco, designated universal heir, son of his sister Sigismonda Ramazzini and Carlo Antonio Medici. According to the documents, Francesco decided to bury his uncle in the church of Beata Elena Enselmini, situated near the Ramazzini residence¹⁷, in an unmarked tomb ("*sine titulo*"). This fact is confirmed, not only by the *Historic Gymnasii Patavini* (Venice 1726) by Nicolo Papadopoli, (where the author affirms that the doctor "*sepultus est in templo B. Helenae sine titulo*")¹⁸, but also in the introduction to the volume *Opera omnia* (London 1739), written by his nephew Bartolomeo Ramazzini, who declared that his uncle "*sepultus est in Ecclesia Monialium Beatae Elenae Patavii. VIII Idus Novembris, anno 1714*"¹⁹.

In 1914, the bicentennial of Ramazzini's death, Arnaldo Maggiora, Professor of Public Health at the University of Padua, received an assignment to proceed with the identification of the remains of Bernardino Ramazzini in the former church of Beata Elena. His investigation yielded negative results regarding the presence of the remains of this illustrious figure. He reported that, according to his sources, "in the church of San Francesco di Sales an inscription regarding Bernardino Ramazzini did not exist" (referring to the commemorative headstone that following other sources, his nephew ex *fratre* Bartolomeo Ramazzini had had inscribed and installed²⁰, but not at the burial place, which remained, as stated, "*sine titulo*"). Maggiora thought it best to proceed by opening the only tomb in the building, set approximately in the centre of the pavement.

He described his findings as follows:

"On the 13th of July 1914, at 7:00AM, in the presence of my assistant Dr. Domenico Ferron, Master Mason Vittorio Cortese, two able bodied workers as well as the Institute's mechanic Cesare Bredo, the heavy tombstone was raised, and I lowered myself into the underground tomb... its measurements were: length: 3.10m, height: 1.50m, width: 0.77m. To the right, facing the main altar, there was a niche in the shape of an arch dating to the 17th century judging by its construction. It had no front wall and was empty. Searching with my hands I found in a handful of earth, a fragment of occipital bone and two metallic buttons with a trace of gold dating from the late 17th century, but they were thoroughly rusted and disintegrated at the mere touch. The left side was closed by a wall in perfect state of conservation supporting the pavement, which could date to the mid 19th century. I discovered a wooden coffin, containing a body. Removing carefully the rotten fragments of the casket, the bones for the most part were found in a good state of conservation. This assessment was based on a complete and robust dentition and judging by the condition of the individual teeth, it had to be a man not older than sixty years. There was a considerable amount of adipose tissue, testifying to a more than satisfactory nutritional state. The skull was covered in part by a very recognisable three cornered cap of a priest, and at the height of the chest and abdomen

there was a black stole with a white border and a Greek cross decoration along both hems, similar to the stoles of the dead used nowadays."²¹

Maggiora ruled out the possibility that it could be Bernardino Ramazzini and identified the corpse as a certain "Abbot Peruzzi":

Unfortunately these findings exclude the possibility that it might be the body of Ramazzini who, at the age of eighty, could hardly have been in the possession of such robust and little worn teeth and whose lean body could not have produced so much adipocere. On the other hand, the black cap and the funerary stole indicate a priest, probably buried at this site during the second half of the last century, perhaps between 1852 and 1866... and according to what I was told by the Reverend Provost Sabbadini, it was probably the abbot Peruzzi who had been credited with the last restorations."²²

The abbot to whom Maggiora refers, was Giambattista Peruzzo, member of the Minor Order who, in 1832 assisted Giovanna Francesca Gesuati, a former nun of the Benedictine order, to purchase the church of The Beata Elena and its convent annex, built in 1520 by the order of St. Claire and occupied by the order until the early 19th century, for the purpose of establishing a boarding school. In 1852 Bishop Manfredini consecrated the church and dedicated it to San Francesco di Sales²³. On that occasion, according to Maggiora, the oratory was restored, the tomb opened to allow for the reinforcement of the church and some of the bones were removed. This provided reason to believe that the remains of Bernardino Ramazzini had been lost.

A new investigation: 5 June 2002

The perplexities regarding the investigation carried out by Maggiora led to a second investigation, carried out on 5 June 2002. The opening of the tomb (fig. 3) revealed numerous inconsistencies with respect to the 1914 report.

After his investigation, Maggiora had claimed: "Since no other bodies, or human skeletal fragments were found, and since there were no inscriptions, initials, crosses or other symbols on the remaining solid wall, the remains were put into place and the tomb sealed again with the stone"²⁴.

Contrary to his affirmations, however, there remained no trace of either the casket or the garments, excluding a few fragments of wood and a few scraps of fabric. Moreover, even upon first inspection, it was evident that the remains found, mixed haphazardly and partially hidden by earth (fig. 4), belonged to four different individuals.

The following remains were exhumed; a cranial segment, missing the anterior part of the frontal bone, joined to the right mastoid; part of another mastoid from the same side; 5 pieces of frontal bone from 3 subjects; 4

pieces of parietal bone of various dimensions; a mandible in 4 parts which could not be reconstructed; 5 inferior teeth (2 incisors, 1 canine, 1 pre-molar, 1 molar); 1 vertebra (first or second lumbar); a fragment of bone of the sacrum; 3 fragments of clavicle; 3 humeral diaphyses; the remains of 3 radii; 2 pieces of ulnar diaphysis; a fragment of metacarpal bone, perhaps the third; a first phalanx of the hand; 4 fragments of iliac bone; 2 femora from the same individual both missing the distal ends; 2 other femoral diaphyses from the same individual; pieces of diaphysis from 5 tibiae; a small fragment of fibular diaphysis; 2 fragments of heel bone; a navicular of the left foot; a fragment of infantile parietal bone; a fragment of infantile humerus; a piece of other animal bone.

The extremely brittle bones, with a desquamative surface, were very incomplete and difficult to reconstruct; they could be attributed to three adult males and a child of approximately three years of age. Some specimens attested to the old age of two of the three adults. There were several fragments of parietal bone as well as a cranial segment, their more advanced age being evidenced by the disappearance of the sutures, both on the in-and the outside. This is the analytical description:

"The cranial segment A is made up of incomplete parietals, the posterior part of the right temporal bone, the posterior part of the frontal bone and the anterior part of the occipital. The sex appears to be male based on the large frame of the specimen and the dimensions of the mastoid of a lengthened shape. The senile age is advanced: the sutures of the cranial vault have been completely reabsorbed both internally and externally. The cranium is brachymorphous, ovoid from the horizontal profile. An evaluation of its dimensions results in 138 mm in width and 118 mm in auricular height: the specimen would therefore be metriocephalous, according to the auricular-transversal index (65.5). Also observed: superior nuchal lines only slightly pronounced; auditory foramen small and round, cranium of medium thickness."

In conclusion

"considering that the tomb of Ramazzini contains remains of three adult males which cannot be successfully sorted individually, and that the markedly senile cranial segment can reasonably be attributed to Ramazzini himself, it can be asserted that he was an individual... with a rather wide, tall and voluminous head."

This statement seems to find confirmation in the existing iconography (fig. 1)²⁵. Hypothesising that the cranial segment might belong to Bernardino Ramazzini, who lived to be eighty-one, it was deemed advisable to subject it to radiocarbon dating. The results of the exam, from the University of Tucson (Arizona), to whom the specimen was sent, give a date 255 +/- 35 years ago²⁶. The calculation

therefore places the specimen, within the stated margins, in a period compatible with the date of Bernardino Ramazzini's death.

It is permissible therefore to suggest again that the remains are those of Bernardino Ramazzini. There are several reasons for this; the historical research; the privileged location of the resting place within a convent of nuns, for whom we know Ramazzini to have been the doctor; the discrepancies between the process of identification carried out in 1914 and our own discoveries; the age of the remains at the time of death being compatible with Ramazzini, who was an octogenarian, (a rarity in the population at the time); and finally, the results of the radiocarbon testing. These confirm the traditional belief, supported by sources at the time, that the mortal remains of the great physician from Carpi rest "sine titulo" in the ancient setting of the church of Beata Elena Enselmini, the site of the present day oratory of San Francesco di Sales in Padua²⁷.

Notes and references

1 Maggiora A. In *ricordanza del II centenario della morte di Bernardino Ramazzini (5 novembre 1714 - 1914)*. Modena: Societa Tipografica Modenese Antica Tipografia Soliani; 1918.

2 Ramazzini B. *Opera omnia medica et physiologica*. Londini: apud Paulum et Isaacum Vaillant; 1739: XXV The first edition appeared in Geneva in 1716, edited by Cramer and Perachon. English translation (by G.Z.): "Nature endowed Ramazzini with a harmonious and well proportioned physique, his disposition warm and dry, his looks graceful and not stout... He had curly black hair, prematurely turned white; black eyes which gave him a pleasant look. On the right side of his face, not far from the ear, he had a growth, something like a wart, which by no means affected his appearance."

3 For biographical references on Bernardino Ramazzini see Zorzi M. Vita di Ramazzini. In: *Vite degli Arcadi illustri*, IV. Roma: Antonio de' Rossi; 1727: 77-121; Maggiora A. L'opera igienica di Bernardino Ramazzini. In: *Annuario della R. Universita di Modena per l'anno accademico 1901-02*. Modena: Tipografia Della Societa Tipografica, Antica Tipografia Soliani; 1902: 19-170; Capparoni P *Profili bibliografici di medici e naturalisti celebri*, II. Roma: Istituto Medico Farmacologico "Seroni"; 1928: 73-77; Di Pietro P. Bernardino Ramazzini. In: *Scienziati e tecnologi. Dalle origini al 1875*, II. Milano: Arnoldo Mondadori Editore; 1975: 568-569; Di Pietro P. *Bibliografia di Bernardino Ramazzini*. Roma: Istituto di Medicina Sociale Editore; 1977; Palmer R. Ramazzini Bernardino. In: Porter R, ed. *Dizionario Biografico della Storia della Medicina e delle Scienze Naturali*, IV Milano Istituto della Enciclopedia Italiana; 1989: 16; Di Pietro F *Bernardino Ramazzini. Biografia e bibliografia*. Parma: Mattioli 1885; 1997; Zanchin G, Saia B. Bernardino Ramazzini. In Casellato S, Sitran Rea L, eds. *Professori e scienziati a Padova nel Settecento* Padova: Antilia; 2002: 443-454.

4 Son of Gerolamo Rossi, physician to Pope Clemens VIII, Antonio Maria Rossi was born in Ravenna in 1588. In 1617 he graduated in Philosophy and Medicine from the University of Bologna. After having practiced Medicine in his native city, he moved to Rome where he devoted himself to teaching and clinical practice. He died in 1671.

5 Pericle Di Pietro gives his wife's name as " Francesca Guaitioli alias Ricchi", referring to the work by Policarpo Guaitioli: *Iscrizioni per ricordo di medici e chirurghi in Carpi* (Carpi: G. Rossi; 1894 - 2nd enlarged edition). Di Pietro. *Bernardino Ramazzini. Biografia e Bibliografia*, 12.

6 Zanchin, Saia. Bernardino Ramazzini, 443.

7 There had been no previous systematic treatment of this material, other than an occasional mention. To cite a few: Hippocrates described a disease typical of mill workers; Galen took an interest in wrestlers and Falloppia wrote on disease of miners. Not until Charles Turner Thackrah's *The effects of the principal arts, trades and professions and of civic states and habits of living on health and longevity* (London: Longman; 1831) did a work appear, similar in structure and intention to *De morbis artificum diatriba*.

8 In chapter XIX of *De morbis artificum diatriba*, titled *De Morbis Foricariorum*, Mutinae: typis Antonii Capponi; 1700: 77-78., Ramazzini expresses himself in these terms:

"I will relate the incident that first gave me the idea of writing this treatise of diseases of workers. In this city, which for its size is thickly populated, the houses are naturally close together and of great height, and it is the custom to take the houses one by one every three years and clean out the sewers that run in every direction through the streets. While this work was going on at my house I watched one of these workmen carrying on his task in that cave of Charon and saw that he looked very apprehensive and was straining every nerve. I pitied him at that filthy work and asked him why he was working so strenuously and why he did not take it more quietly so as to avoid the fatigue that follows over-exertion. The poor wretch lifted his eyes from the cavern, gazed at me, and said: "No one who has not tried it can imagine what it costs to stay more than four hours in this place; it is the same thing as being struck blind." Later, when he had come up from the cesspit, I examined his eyes carefully and observed that they were extremely bloodshot and dim. I asked whether cleaners of privies regularly used any particular remedy for his trouble. "Only this", he replied, "they go back at once to their homes as I shall do presently, shut themselves in a dark room, stay there for a day and bathe their eyes now and then with lukewarm water; by this means they are able to relieve the pain somewhat." Then I asked him: Had they a burning sensation in the throat or any respiratory troubles or attacks of headache? Did that stench hurt their nostrils or cause nausea? "Nothing of that sort", he replied, "in this work our eyes only are injured and no other part. If I consented to go on with it any longer I should very soon

become blind, as has happened to others." Thereupon he wished me good-day and went home, keeping his hands over his eyes." Ramazzini B. *Diseases of Workers*. Translated from the Latin text *De morbis artificum diatriba* of 1713 by Wilmer Cave Wright. New York: Hafner Publishing Company; 1964: 97-99.

9 Evidence for this is the precise descriptions of the workshops and technical procedures in individual professions, which precede the treatment of every disease.

10 Loris Premuda points out that the empirical approach, the social engagement and the philanthropic commitment in the work of Ramazzini find their first source in 17th century iatromechanics, which was intent on furnishing medicine with a methodological approach, based on exact calculations and objective measurements. The second and third source is the nascent climate of the Enlightenment, in which the physician from Carpi is considered a pioneer, drawing much attention to working conditions; one is reminded of the hygienic and sanitary reforms started in the 18th century. Premuda L. Lavoro e malattia: i fondamenti illuministici della 'questione'. In: Premuda L, ed. *Lavoro e malattia: prospettive storielle e attuali*. Padova: Cedam; 1975: I 1-25; Premuda L L'istanza sociale in Ramazzini pre-illuminista. *Med Lav*; 1983; 74:433-441.

11 Ramazzini B. *Epistolario*. Di Pietro P, ed. Modena: Stab. Tip. RToschi; 1964:255,258.

12 Ibid.

13 Ibid. 312.

14 Ibid. 296.

15 Ibid. 270,271, 277, 278, 301.

16 From 1852 on an oratory, dedicated to St. Francis of Sales.

17 Zanchin G, Panetto M, Bellinati C, Terribile Wiel Marin V. La residenza padovana (1700-1714) di Bernardino Ramazzini. In: *Atti del XVI Congresso Nazionale di Storia della Medicina*. Bologna 24-26 ottobre 2002; in press.

18 "Obiit Patavii octogenario major validissima apoplexi correptus Nonis Novembris an. MDCCXIV. Sepultus est in templo B. Helenae sine titulo." Papadopoli N. *Historia Gymnasii Patavini*, I. Venetiis: apud Sebastianum Coleti; 1726: 387.

19 "Sepultus est in Ecclesia Monialium Beatae Elenae Patavii, VIII. Idus Novembris, anno 1714. Quoniam vero nulla ejus tumulo inscripta fuit memoria, quoad possum ego hisce chartis tanti Viri Nomen commendabo, inscriptione quam ita concinnandam censui". Ramazzini. *Opera omnia*, XXV.

20 With respect to the inscription, Arnaldo Maggiora claimed in 1918, that the tombstone intended by Bartolomeo Ramazzini, was never actually engraved. His affirmation is based on interviews with Prof. Perli, then assistant librarian of the Biblioteca Universitaria in Padua and author of careful historical studies of the town's churches, who refuted the existence of an inscription dedicated to Ramazzini. Moreover, Maggiora emphasizes the absence of any relevant reference in the archive of the

Museo Civico Bottacin, where all documents relating to the church had been collected. For these reasons he denied the statements by the Abbot Chiari da Pisa, who, in 1745 published an Italian translation of *De morbis artificum diatriba* (*Le malattie degli artefici di Bernardino Ramazzini*. Venezia: appresso Domenico Occhi; 1745), and of Arturo Casarini, author of *Le malattie e gli infortuni nella vita militare* (Roma: Tipografia E. Voghera; 1908). Both authors maintained that the tombstone in question did exist. We find confirmation of Maggiora's assumptions in a volume edited in 1835, *Cenni biografici di alcuni classici medici e chirurghi italiani* (Padova, 1835): "... buried in the church of the Blessed Elena, but there isn't a single stone with his name and the place where his ashes are resting". Maggiora. In ricordanza del II centenario della morte di Bernardino Ramazzini, 96-97.

In 1933, at the initiative of the Rettore Carlo Anti, a commemorative tablet was placed on the facade of the church, on the three hundred year anniversary of Ramazzini's birth:

*Bernardino Ramazzino
Carpensi
Philosopho ac Medico
in Mutinensi Academia
primum Medicinae Theoricae Professori;
Postremo in Patavino Lycaeo Practicae Medicinae
Professori Primario,
qui summa literarum jactura
octogenario major e vivis excessit
nonis Novembris Anno Salutis nostrae MDCCXIV.
inscriptionem banc posuit
amantissimus ex fratre nepos
Bartholomaeus Ramazzinus Medicinae Doctor.*

*Patavina Universitas Studiorum
quod Ramazzinus
de morbis artificum curandis optime meritis
editis libris omnium primus tractavit
anno saecul. ab eius nat. III redeunte
hunc titulum
tandem lapide incidendum et prope sepulcrum
conlocandum
IV non. OctobrA. M DCCCCXXXIII A R.F.XI
Carolo Anti rectore
decevit*

21 Translated from Maggiora. In ricordanza del II centenario della morte di Bernardino Ramazzini, 98.

22 Idem.

23 Belloni S. *Borgo Portello nella storia di Padova*. Padova: Panda Edizioni; 1998: 121.

24 Translated from Maggiora. In ricordanza del II centenario della morte di Bernardino Ramazzini, 98.

25 For the various portraits of Bernardino Ramazzini see Di Pietro. *Bernardino Ramazzini. Biografia e bibliografia*, 21-26.

26 The results of the radiocarbon dating were provided

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by Prof. Austin Long, Professor Emeritus of Geosciences, Laboratory of Isotope Geochemistry, Department of Geosciences, University of Tucson (Arizona).

27 A short report of these findings has appeared in *The Lancet* (15 November 2003, vol. 362, No. 9396, p. 1680).

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Fig 1 Bernardino Ramazzini



Fig 2 San Francesco di Sales

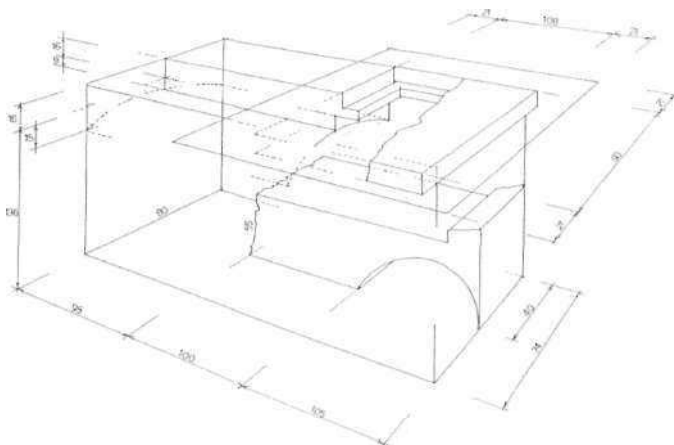


Fig 3 Opening of the tomb



Fig 4 The remains within the tomb