



L'arte delle infezioni

Roberto Esposito

Modena, 6 aprile 2011



“Pintar es otra manera de llevar un diario”

Pablo Picasso

(1881 – 1973)



**LA DIARREA NO MATA...
SI LA TRATAS A TIEMPO
USA VIDA SUERO ORAL**

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1994





L'apparizione di San Michele a Papa Gregorio Magno

Ignoto fiorentino
(seconda metà del XVI secolo)



La peste di Giustiniano

(541 – 750)



L'arcangelo Michele

Peter Anton von Verschaffelt
(1753)



Epidemia di peste citata dalla Bibbia

(1030 a.C. ? – 1067 a.C. ?)



La peste di Ashdod, Nicolas Poussin (1630 - 1631)

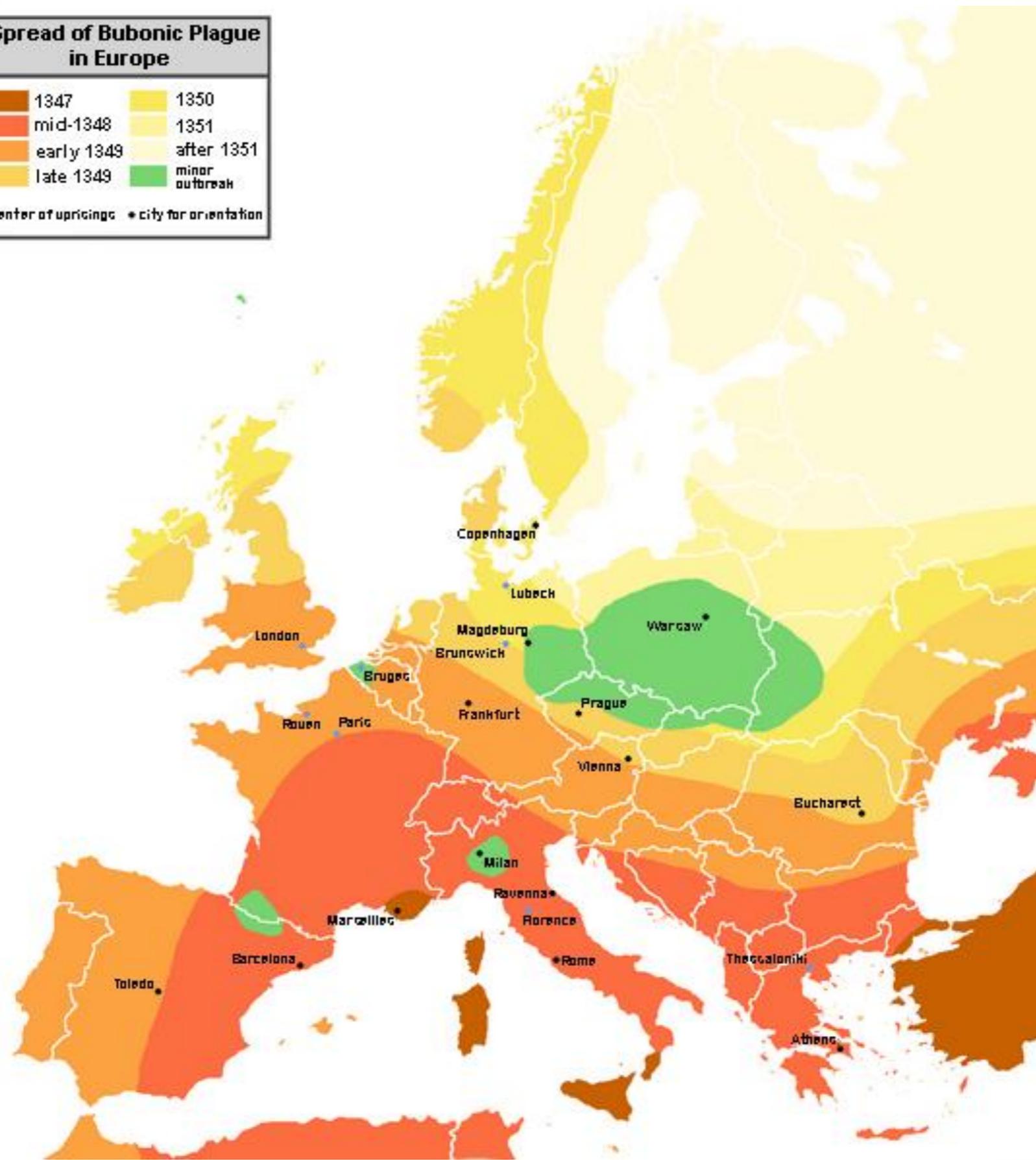
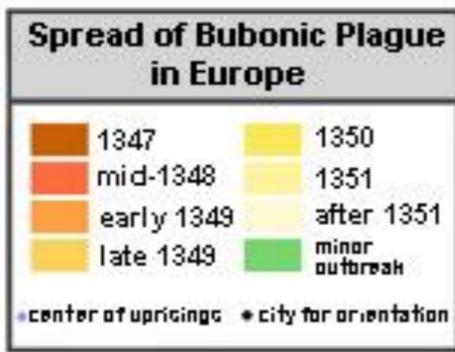


La peste nera in Europa

(1347 – 1351 e oltre)

Morti: 45 – 50% della popolazione
(75 – 200 milioni)

Firenze: popolazione nel 1338: 110.000 – 120.000
popolazione nel 1351: 50.000



La peste nera in Europa
(1347 - 1351 e oltre)

“Altri affermavano il bere assai e il godere e
l’andar cantando a turno e sollazzando e il
soddisfare d’ogni cosa all’appetito che si potesse
e di ciò che avveniva ridersi e beffarsi essere
medicina certissima a tanto male”

Giovanni Boccaccio, Decameron

(1349 – 1351)



Trionfo della morte
Clusone (XV secolo)



Giudei bruciati vivi durante il periodo della peste nera
Liber Chronicarum (1493)

ps vera est quoniam alij dicant.
nec debeatato inuistate sequit



Apud sabunum sic diffinit? inueni
est habitus cuiuscumque corpus cur

Benedizione di
monaci colpiti
dalla peste

James le Palmer
(1360 – 1375)



La morte strangola una vittima della peste
Codice Stiny, Cecoslovacchia (*XIV secolo*)



Trionfo della morte
Pieter Bruegel il Vecchio (1562)



San Rocco

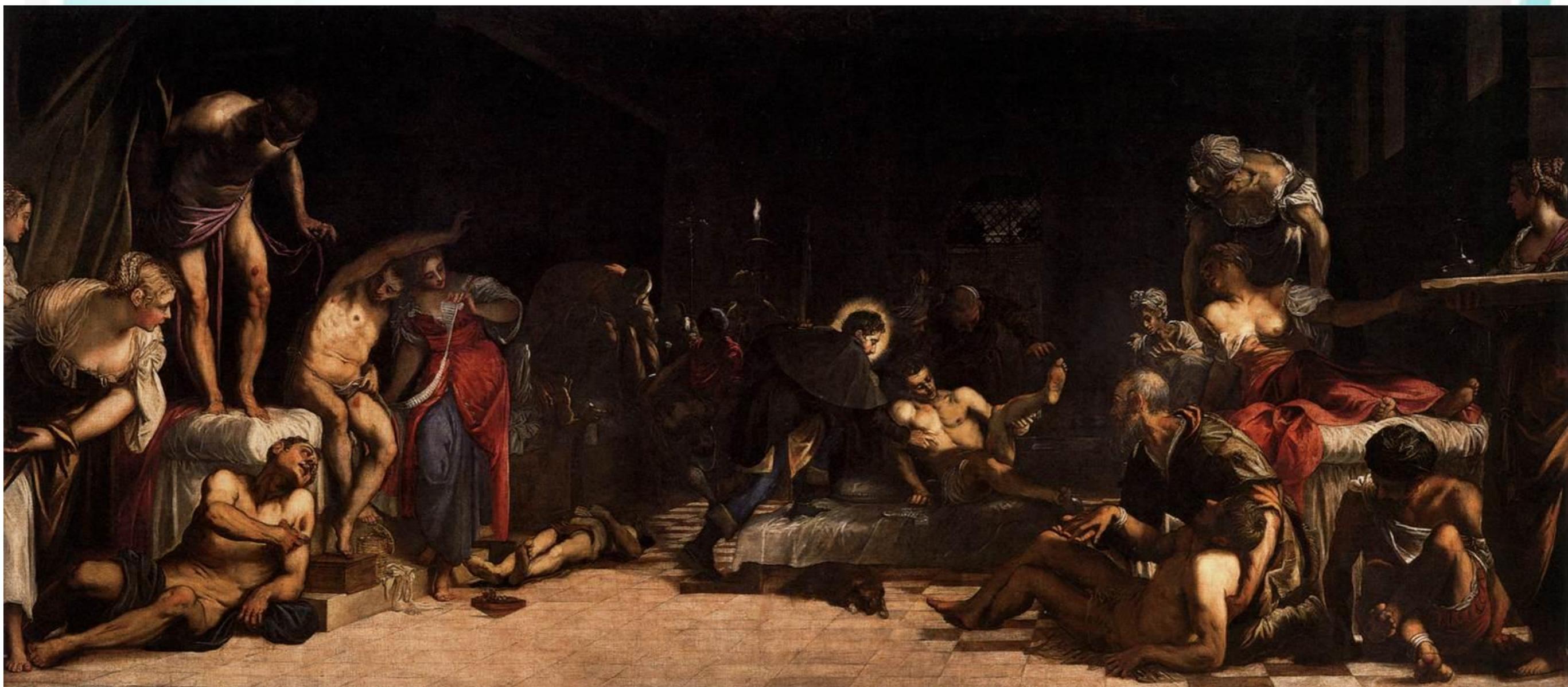


Chiesa di San Rocco, Venezia

Bartolomeo Bon e
successori
(1489 – 1771)



Scuola Grande di San Rocco, Venezia
Bartolomeo Bon e successori (1517 – 1580)



San Rocco risana gli appestati
Jacopo Tintoretto (1549)

A decorative graphic at the top of the page consisting of several overlapping, curved, teal-colored bands that create a sense of depth and movement.

Peste di San Carlo

(1576 – 1577)



Chiesa del Redentore, Venezia
Andrea Palladio (1577)



San Carlo comunica gli appestati

Tanzio da Varallo
(1616)



San Carlo Borromeo prega per la cessazione della peste di
Milano



San Carlo Borromeo comunica le vittime della peste, Sigismondo Caula



San Carlo Borromeo comunica le vittime della peste, Sigismondo Caula



Le vittime della peste a San Sepolcro
Tavoletta votiva, anonimo (*XVI secolo*)



La peste nel nord Italia

(1630)

Morti: 65.000 a Milano, 47.000 a Venezia,
29.000 a Mantova, 18.000 a Brescia,
15.000 a Bologna



Basilica di Santa Maria della Salute, Venezia
Baldassarre Longhena (1687)



Il Doge di Venezia a
Santa Maria della
Salute il 21 novembre
1630 mentre
commemora la fine
della peste

Francesco Guardi
(circa 1780)



Santa Tecla libera Este
dalla peste del 1638

Giambattista Tiepolo
(1758)



Chiesa del Voto,
Modena

Cristoforo Galaverna
(1634)



Pala della peste

Ludovico Lana
(1634)



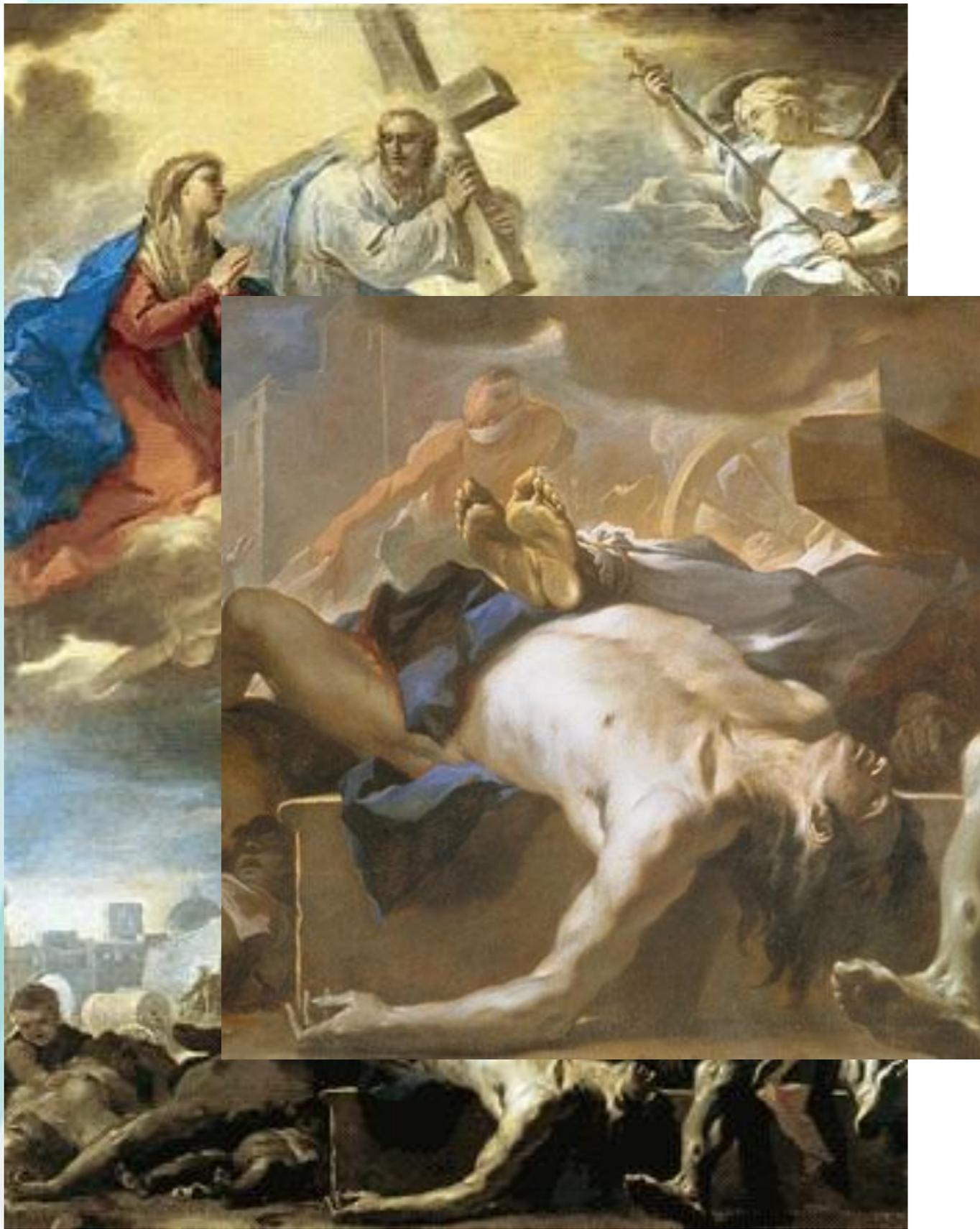
Peste del 1656 (Italia centro-meridionale)

Morti: 600.00 nel Regno di Napoli



La peste

Mattia Preti
(1657)



San Gennaro allontana
la peste del 1656

Luca Giordano
(1657)



Le ultime epidemie di peste

Grande peste di Vienna, 1679

Grande peste di Marsiglia, 1720

Epidemia durante la campagna napoleonica in Siria, 1799

Terza pandemia, 1855-1959



Peste di Marsiglia del 1720
Anonimo (*XVIII secolo*)



Bonaparte visita gli appestati di Jaffa
Antoine-Jean Gros (1804)



Desgenettes, Ufficiale medico capo dell'Armata francese in Egitto, si inocula la peste in presenza di soldati ammalati
Anonimo (*XIX secolo*)

La peste oggi

2003: in 9 nazioni, riportati 2118 casi (98,7% in Africa)
con 182 morti (98,9% in Africa)

Le epidemie più recenti

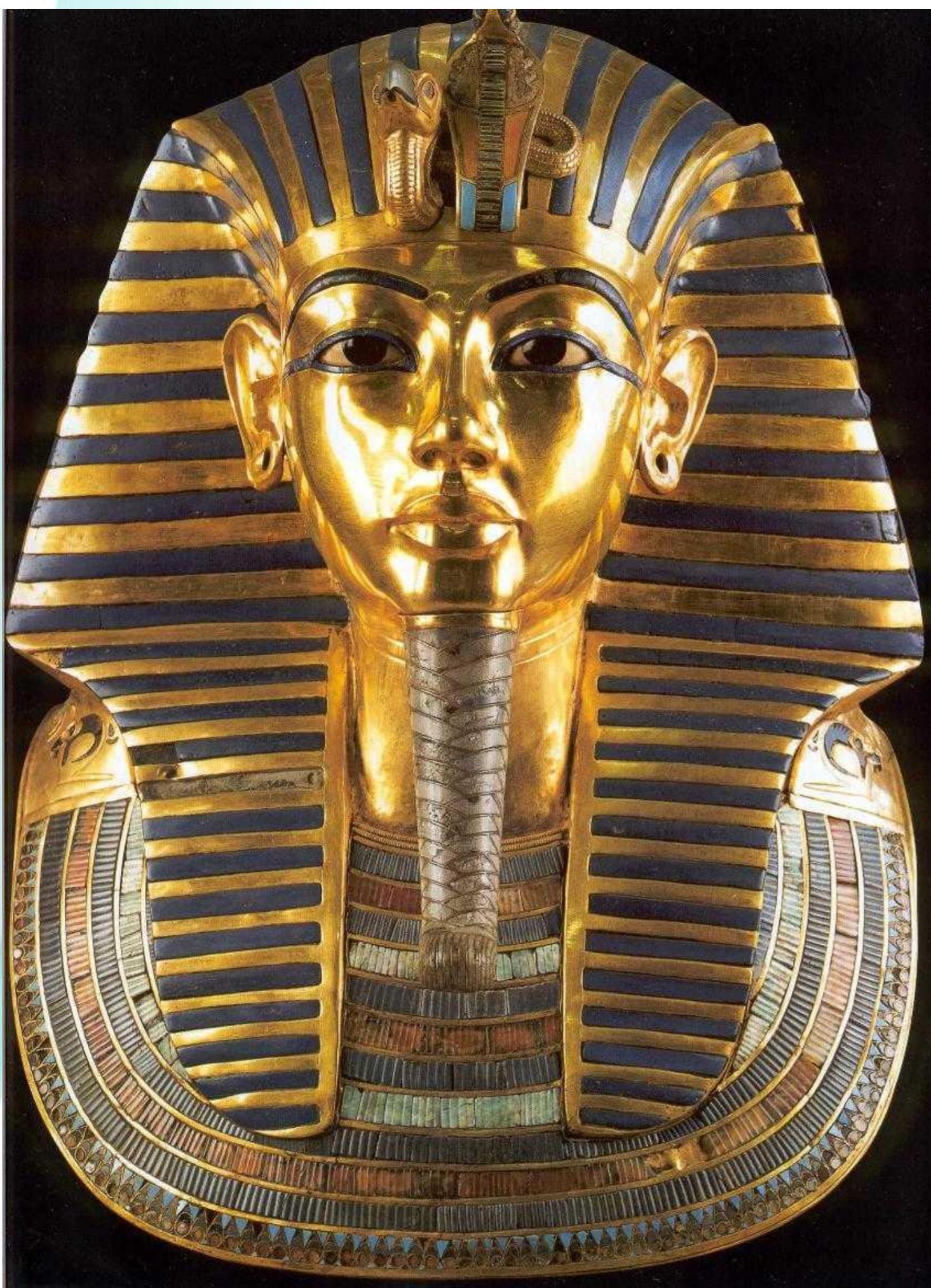
Perù, 2010: 17 casi

Cina, 2009: 11 casi

Rep. Dem. Congo, 2006: 1174 casi

Algeria, 2003: 11 casi

India, 2002: 16 casi



Tutankhamon

Maschera funeraria
(circa 1324 a.C.)

Ancestry and Pathology in King Tutankhamun's Family

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THE 18TH DYNASTY (CIRCA 1550-1295 BC) of the New Kingdom (circa 1550-1070 BC) was one of the most powerful royal houses of ancient Egypt. The pharaoh Akhenaten, who ruled from circa 1351 to 1334 BC, is considered one of the most controversial of the Egyptian pharaohs, because his attempt to radically transform traditional religion affected all facets of society and caused great turmoil.

Akhenaten's eventual successor, Tutankhamun, is probably the most famous of all pharaohs, although his ten-

Context The New Kingdom in ancient Egypt, comprising the 18th, 19th, and 20th dynasties, spanned the mid-16th to the early 11th centuries BC. The late 18th dynasty, which included the reigns of pharaohs Akhenaten and Tutankhamun, was an extraordinary time. The identification of a number of royal mummies from this era, the exact relationships between some members of the royal family, and possible illnesses and causes of death have been matters of debate.

Objectives To introduce a new approach to molecular and medical Egyptology, to determine familial relationships among 11 royal mummies of the New Kingdom, and to search for pathological features attributable to possible murder, consanguinity, inherited disorders, and infectious diseases.

Design From September 2007 to October 2009, royal mummies underwent detailed anthropological, radiological, and genetic studies as part of the King Tutankhamun Family Project. Mummies distinct from Tutankhamun's immediate lineage served as the genetic and morphological reference. To authenticate DNA results, analytical steps were repeated and independently replicated in a second ancient DNA laboratory staffed by a separate group of personnel. Eleven royal mummies dating from circa 1410-1324 BC and suspected of being kindred of Tutankhamun and 5 royal mummies dating to an earlier period, circa 1550-1479 BC, were examined.

Main Outcome Measures Microsatellite-based haplotypes in the mummies, generational segregation of alleles within possible pedigree variants, and correlation of identified diseases with individual age, archeological evidence, and the written historical record.

Results Genetic fingerprinting allowed the construction of a 5-generation pedigree of Tutankhamun's immediate lineage. The KV55 mummy and KV35YL were identified as the parents of Tutankhamun. No signs of gynecomastia and craniosynostoses (eg, Antley-Bixler syndrome) or Marfan syndrome were found, but an accumulation of malformations in Tutankhamun's family was evident. Several pathologies including Köhler disease II were diagnosed in Tutankhamun; none alone would have caused death.

Genetic testing for *STEVR*, *AMA1*, or *MSP1* genes specific for *Plasmodium falciparum* revealed indications of malaria tropica in 4 mummies, including Tutankhamun's. These results suggest avascular bone necrosis in conjunction with the malarial infection as the most likely cause of death in Tutankhamun. Walking impairment and malarial disease sustained by Tutankhamun is supported by the discovery of canes and an afterlife pharmacy in his tomb.

Conclusion Using a multidisciplinary scientific approach, we showed the feasibility of gathering data on Pharaonic kinship and diseases and speculated about individual causes of death.

Die drei gelbe Fleck-ist bald mit dem
finger demoff Virent do ist in der



Dürer malato

Albrecht Dürer
(circa 1520)



Autoritratto in veste di
Bacco (Bacchino
malato)

Caravaggio
(1593)



Malaria

Ernest Hébert (1848)



La mal' aria
Giuseppe Raggio (1864)



Malaria

Amedeo Bocchi (*circa 1920*)



La malaria nel 2010

- 247 milioni di casi di malattia
- 781.000 morti, il 90% nell'Africa subsahariana, in grande maggioranza bambini
- In Africa la malaria è causa del 20% della mortalità infantile
- In Africa muore per malaria un bambino ogni 45 secondi



Vaiolo, caso osservato durante l'ultima epidemia europea

Jugoslavia (1972)

Il vaiolo

- ~ 10.000 a.C.: comparsa nel genere umano
- ~ 1.000 a.C.: evidenza di infezione nelle mummie egizie
- II secolo: circa 5 milioni di morti nell' impero romano
- IV-V-VI secolo: epidemie in Europa e in Asia
- XX secolo: 300-500 milioni di morti nel mondo
- Anni ' 50: 50 milioni di casi ogni anno nel mondo
- Dicembre 1979: certificazione dell' eradicazione



Vaiolo nella popolazione Azteca
Codice fiorentino (*XVI secolo*)

一子九歲



毒湧掀腫痘形十六

Vaiolo

Cina (XVIII secolo)



Vaiolo

Cina (*XVIII secolo*)



Shitala Mata
India (*XVIII secolo*)



Shitala Mata
India (*XIX secolo*)



Ferdinando II de' Medici

Joost Susterman (*circa 1620*)

Medical iconography in the 17th century

Sir—In the first decades of the 17th century, before the work of Thomas Sydenham, smallpox was well known but not yet clearly distinct from the other infectious exanthems. When the Grand Duke Ferdinand the Second of the Medici contracted smallpox in 1626, the court painter Joost



Grand Duke Ferdinand the Second of the Medici on the ninth day of smallpox, by Joost Susterman

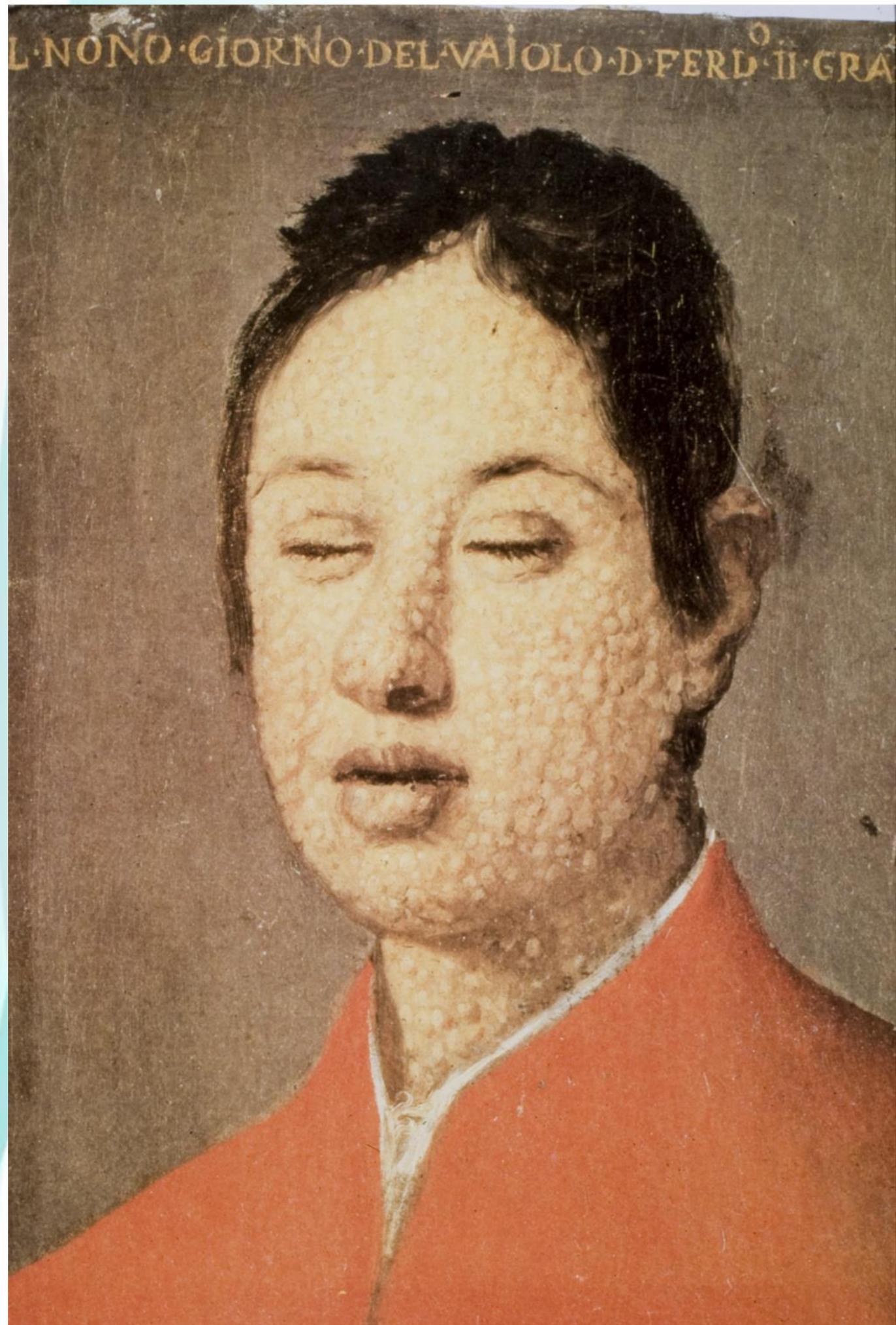
Florence, Depositi della Soprintendenza

Susterman was charged to portray the young gentleman on the third, sixth, and ninth day (figure) of his illness. The series of portraits, which reflects the intellectual curiosity of the great Florentine family for the natural phenomena, is an amazing artistic documentation of the clinical features and evolution of a severe disease. Luckily, the Grand Duke survived smallpox, and apparently the painter was not infected by his model.

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Il granduca Ferdinando II de'
Medici il 9° giorno del vaiolo

Joost Susterman (1626)

TB

A GLOBAL
EMERGENCY

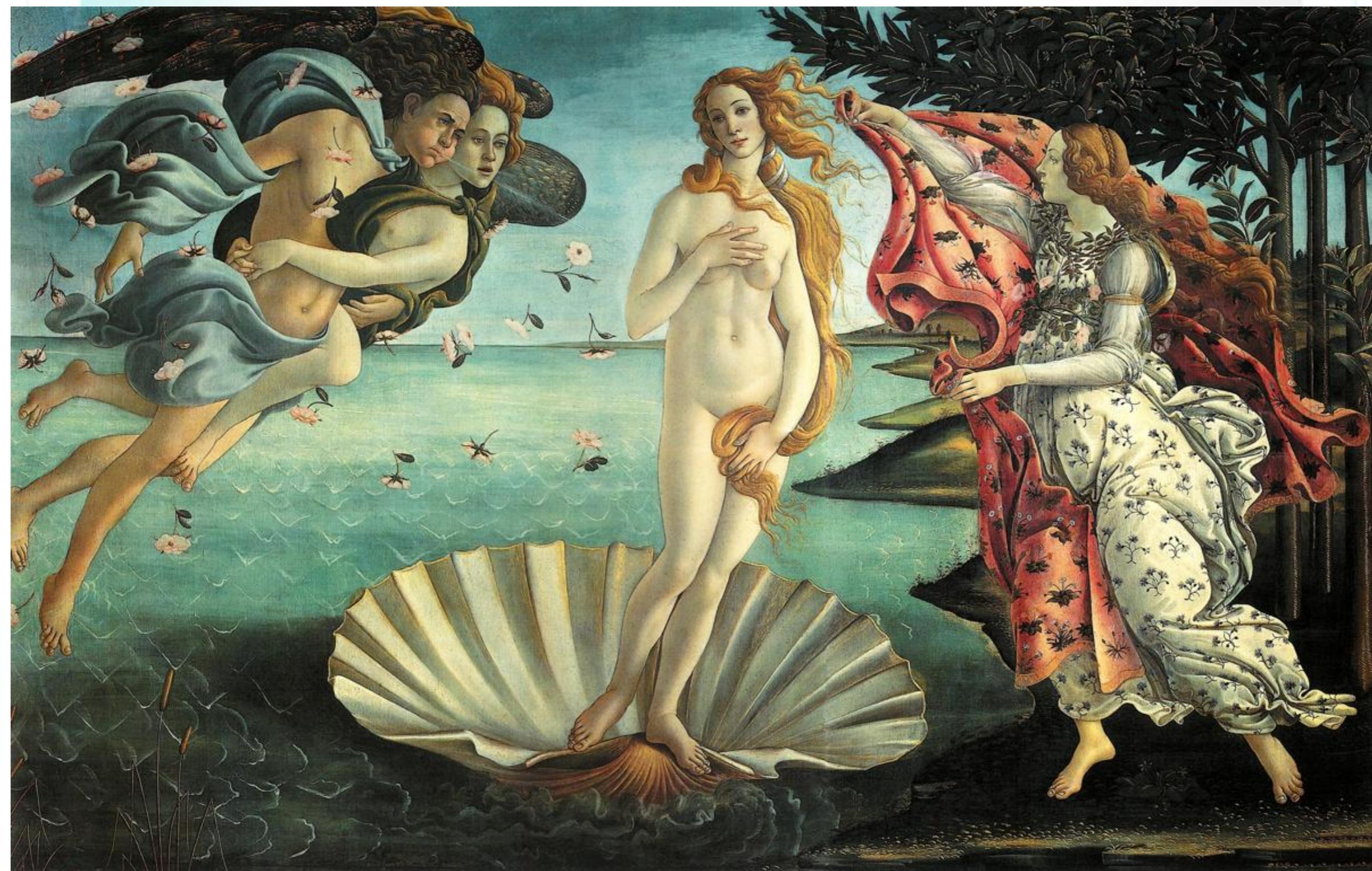


La tubercolosi nel 2009

- Casi: 9,4 milioni (11-13% HIV-positivi)
- Morti: 1,38 milioni HIV-negativi
380.000 HIV-positivi
- Casi notificati: 5,8 milioni (63% del totale)
- MDR-TB: 250.000 casi (12% notificati)



Laennec auscultata un tubercolotico di fronte ai suoi studenti
Theobald Chartran (1819)



La nascita di Venere
Sandro Botticelli (circa 1485)



Simonetta Vespucci

Sandro Botticelli (1476 –
1480)



Simonetta Vespucci

Sandro Botticelli (1480 –
1485)



Simonetta Vespucci

Piero di Cosimo (1480 – 1490)