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GEOGRAPHICAL SCIENCE

The Pantheon. Rose Petals and the Film "Roman Holiday"

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Earth proudly wears the Parthenon as the best gem upon her zone Ralph Waldo Emerson



Fig. 1. The Pantheon, Rome.



Fig. 2. The Pantheon's dome.

The appeal of the Pantheon (Fig. 1) for us has been its connection to the ancient world and as *Roman Holiday* (1953) [34] filming location at the café Rocca's next to the Pantheon (**video [4]**). We are very impressed with the brilliance of the Roman people in their ability to create such lasting structures. This tradition has not necessarily been continued into modern society, and thus fascinates us.

Rome's Pantheon, the temple of all the gods, was built between 118–125 A.D. by Emperor Hadrian. In the 7th century it was made into a church by early Christians and now is lined with tombs. The Pantheon's dome (Fig. 2) was the largest in the world for over 1300 years, until the title passed to Florence's cathedral in 1436. Today the world record is held by the National Stadium in Singapore however the Pantheon remains in 15th place (see video [25]).

The Pantheon is the best-preserved building of ancient Rome and today is surrounded by a pleasant and lively piazza, a nice place to sit during the day like our movie heros Princess Ann (Audry Hepburn) and American reporter Joe (Gregory Peck) (*Roman Holiday* (1953). The Princess Ann's first wish was to sit at "one sidewalk cafe". It was G. Rocca Cafe at the Pantheon (Fig. 6, 7, 8–15), **video [33].**

Princess Ann begins her day of freedom by ordering a gelati cone at a roadside stand and accepting a single flower from a flower vendor. Joe accidentally runs into her to keep in contact with her and get the inside information for his story. She confesses her predicament of playing hookey from school and her desire to "live dangerously":

Ann: I ran away last night, from school.

Joe: Oh, what was the matter? Trouble with the

teacher?

Ann: No, nothing like that.

Joe: Well, you don't just run away from school for

nothing.

Ann: It was only meant to be for an hour or two.

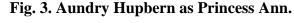
They gave me something last night to make me sleep.

Joe: Oh, I see.

Ann: Now, I'd better get a taxi and go back.

Joe: Well look, before you do, why don't you take

a little time for yourself



Ann: Maybe another hour.

Joe: Live dangerously. Take the whole day.

Ann: I could do some of the things I've always wanted

to.

Joe: Like what?

Ann: Oh, you can't imagine. I'd do just whatever I

liked all day long.

Joe: You mean things like having your hair cut, eating

gelati...

Ann: Yes, and I'd sit at a sidewalk cafe and look in shop windows. Walk in the rain, have fun and maybe some excitement. Doesn't seem much to you, does it?



Fig. 4. Gregory Peck as reporter Joe.

On the Spanish steps Joe proposes the Princess Ann to spend the day with her and experience everything she has always wanted to:

Joe: Tell you what.

Why don't we do all those things, together?

Ann: But don't you have to work?

Joe: Work? No. Today's gonna be a holiday. **Ann:** But you want to do a lot of silly things? **Joe:** (He takes her hand) ...First wish? (Fig. 5)

One sidewalk cafe, comin' right up. I know just the place. **Rocca's** [9].

(see video [32]).



Fig. 5. Ann and Joe begin their carefree tour of the city.

And so, after Joe runs into Ann eating gelato at the Spanish Steps, and the two of them agree to spend a holiday, "sit at a sidewalk cafe and look in shop windows, walk in the rain – have fun, and maybe some excitement," Joe claims to know "just the place. Rocca's"to fulfill her first wish. G. Rocca Cafe (Fig. 6, 7) next to the Pantheon (126 AD) at the northwest corner of its facade, is the place where Ann





Fig. 6. G. Rocca Cafe at the Pantheon. Fig. 7. Breakfast at a sidewalk café G. Rocca. drinks champagne, meets Irving Radovich, Joe's colleague and photographer, and smokes her first cigarette. At the corner of Via della Rotonda, it is no longer a cafe but a trendy fashion store [11].

At the cafe, Ann orders costly champagne for lunch, and then describes, in disguised terms, her father's fortieth anniversary of the day he got his job (Fig. 8, see video [33]):

Ann: Well, mostly you might call it public relations.

Joe: Oh, well, that's hard work. Ann: Yes. I wouldn't care for it.

Joe: Does he?

Ann: I heard him complain about it.

Joe: Why doesn't he quit?

Ann: Oh, people in that line of work almost never do quit, unless it's actually unhealthy for them

to continue [9].



Fig. 8. Ann's story about her father.



Fig. 9. Champagne for lunch.



Fig. 10. Ann indulges at the table.

To conceal his own identity to her, Joe describes his own line of work, falsifying that he is a successful businessman who sells "fertilizer, chemicals":

Ann: What is your work?

Joe: Oh, I'm, ah, in the selling game.

Ann: Really? How interesting. What do you sell?

Joe: Fertilizer. Chemicals. You know, chemicals. Stuff

like that [9]. (see video [33]).



Fig. 11. Joe as "a successful businessman".

When Irving arrives (Fig. 12, **video [33]**), he repeatedly tries to mention that Ann is a "ringer" for the Princess (Fig. 13), but Joe blocks him by kicking him under the table, dumping a drink in his lap (Fig. 14), and finally by knocking his chair over (Fig. 15):



Fig. 13. Ann is a "ringer" for the Princess.

Fig. 12. Joe, Ann, and Irving at a café.

Irving Radovich: Hey, er, anybody ever tell you you're a dead ringer for...

(Joe kicks him under the table)

Irving Radovich: Ow! Well, I guess I'll be going! **Joe Bradley:** Oh, don't do a thing like that, Irving. Sit

down, join us, join us.

Irving Radovich: Well, just till Francesca gets here. **Princess Ann:** Tell me, Mr. Radovich, what is a ringer?



Fig. 14. Joe dumps a drink in Irving's lap.

Joe Bradley: Oh. Er, it's an American term, and it means anybody who has a great deal of charm.

Princess Ann: Oh. Thank you.

Irving Radovich: (confused) You're welcome [12].

When Joe gets Irving away for a few moments, he tells his photographer friend about Anya Smith's ("Smitty's") real identity and the promise of five grand (including a percentage of the take if there are pictures) if they can keep it a secret:



Fig. 15. Joe knocks Irving's chair over.

Joe Bradley: She doesn't know who I am or what I do. Look Irving, this is my story. I dug it up. I've got to protect it...Your tintypes are gonna make this little epic twice as valuable...You're in for twenty-five percent of the take."

Then, he asks his friend to loan him thirty thousand lira ("that's fifty bucks") so that he can entertain the Princess for the rest of the day) [9].

Ann smokes her "very first" cigarette (Fig. 16), while Irving surreptitiously takes candid pictures of her with his hidden-camera cigarette lighter (Fig. 17). Meanwhile, "plain-clothes" men are retained to search the city for the missing princess, as Joe, Ann, and Irving begin their carefree tour of the city on a "fun schedule" [9].





Fig. 16. Ann's "very first" cigarette.

Fig. 17. Irving's hidden-camera cigarette lighter.

When Michelangelo first saw the Pantheon in the early 15th century, he proclaimed it of "angelic and not human design." Even today It's mathematical design and simple geometry still impresses architects and viewers around the world [25]. The Pantheon in Rome is a true architectural wonder. Described as the "sphinx of the Campus Martius" – referring to enigmas presented by its appearance and history [29], **see videos**

Intermediate block

Second pediment

Pediment

Frieze

Portico

Michelangelo intended to raise the Pantheon un Heaven with the dome of St. Peter's Basilica. It was the model, too, for St. Paul's London, as well as of the Capitol in Washington. That is why

[42; 43], Fig. 18.

Fig. 18. The façade of the Pantheon. every visitor to Rome, no matter how limited his stay, never fails to visit this monument and to be deeply impressed by it [22], **video [38].**

The inscription on the façade of the Pantheon translates to "Marcus Agrippa, the son of Lucius, three times consul, built this." Generally such an inscription clarifies confusion surrounding the origins of a monument; in this case, it has been the source of conflict in the debate over when and by whom the Pantheon was built. Descriptions of the Pantheon are not prevalent in ancient literature, and so for a long time scholars hypothesized about the origins of the building [40], **see video** [37].

The inscription was taken at face value until 1892, when a well-documented interpretation of stamped bricks found in and around the building showed that the Pantheon standing today was a rebuilding of an earlier structure, and that it was a product of Emperor Hadrian's (who ruled from 117–138 C.E.) (Fig. 20) patronage, built between about 118 and 128. Thus, Agrippa could not have been the patron of the present building [29], **see videos** [2; 11].

Sixteen columns (*a portico*) (The Corinthian columns) support the arcade above which stands the inscription in honour of Agrippa. The immense columns, which were transported from Egypt, are estimated to weigh 60 tons each [42], (Fig. 18, 28).





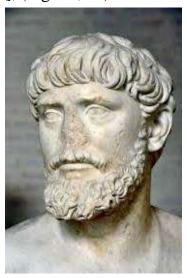


Fig. 19. The Emperor Trajan. Fig. 20. Marble bust of Hadrian. Fig. 21. Apollodorus of Damascus. In an act of pious humility meant to put him in the favor of the gods and to honor his illustrious predecessors, Hadrian installed the false inscription attributing the new building to the long-dead Agrippa. Most textbooks and websites confidently date the building to the Emperor Hadrian's reign (Fig. 20) and describe its purpose as a temple to all the gods (from the Greek, pan = all, theos = gods) [29].

Apollodorus of Damascus (Fig. 21) was the greatest architect in Greek history and the royal architect of Emperors Trajan and his successor Hadrian. Apollodorus' name surpassed the borders of the Roman Empire and was hailed as one of the greatest scientific minds of his time. Two of his most famous creations, Trajan's Forum and the Pantheon of Rome serve as Hellenism's eternal testaments to humanity [13].

The architecture only added to the confusion surrounding the Pantheon's origins because there is a certain degree of discontinuousness between the three parts: the porch, the intermediate connecting block, and the rotunda. The particular design of the Pantheon includes the unification of Greek and Roman style [40].

More startling, a reconsideration of the evidence of the bricks used in the building's construction – some of which were stamped with identifying marks that can be used to

establish the date of manufacture – shows that almost all of them date from the 110s, during the time of Trajan [45]. Instead of the great triumph of Hadrianic design, the Pantheon should more rightly be seen as the final architectural glory of the Emperor Trajan's reign (Fig. 19): substantially designed and rebuilt beginning around 114, with some preparatory work on the building site perhaps starting right after the fire of 110, and finished under Hadrian sometime between 125 and 128 [29], **see video** [41].

Imagine the shock of an ancient first-time visitor to the Pantheon. From the looks of the front of the temple, the expectation is that the inside will be a rectangular room with a flat roof and perhaps a statue of a deity in the center. Instead, one enters to discover an enormous spherical room with a seemingly impossible unsupported domed ceiling and niches in the outer wall for the statues of all the deities [3] (Fig. 22, 23).

The Rotunda is a huge cylinder-shaped space, covered by a coffered hemispheric dome (Fig. 23, 24). **The oculus** (Fig. 23) in the ceiling let in the strong Roman sun (**video 10; 35**], making the building into a huge sundial (Fig. 26) or letting an afternoon thunderstorm bring rain into the building that would eventually flow out through drains in the floor (**see video** [23]).

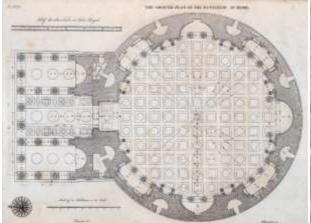




Fig. 22. The plan of the Pantheon.

Fig. 23. The oculus and the rotunda.

The height from the floor to the oculus, and the diameter of the dome are the same: 43.2 m. This means that a perfect sphere could fit inside the Pantheon, which is

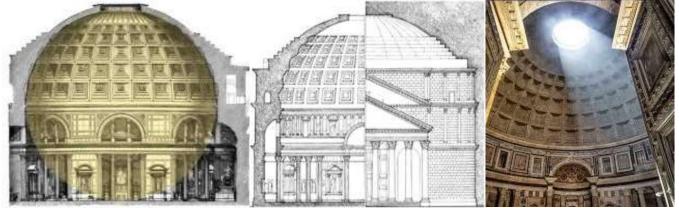


Fig. 24. Pantheon sphere. Fig. 25. Pantheon Elevation. Fig. 26. Sunbeam streaming. believed to be a symbolic reference to a sacred place, or quite literally, to the celestial sphere [42]. A **circular opening** 8.92 meters (29.2 feet) across, the *Oculus*, is located at the apex of the dome to provide natural lighting and ventilation to the hall.

The sunbeam streaming through the oculus (Fig. 26) traced an ever-changing daily path across the wall and floor of the rotunda. Perhaps, then, the sunbeam marked solar and lunar events, or simply time. The idea fits nicely with Dio's understanding of the dome as the canopy of the heavens and, by extension, of the rotunda itself as a microcosm of the Roman world beneath the starry heavens, with the emperor presiding over it all, ensuring the right order of the world [29].

The 21st of April is a special day to visit the Pantheon for a number of reasons. At midday on this date, light strikes the metal grill above the door and fills the outside courtyard with light, which is an extraordinary sight to see (Fig. 26). This is made all the more special alongside the fact that April 21st is celebrated as the day that Rome was founded. It is believed that when this occurred, the emperor ruling at the time looked god-like when surrounded by this rare sunlight [6].

The interior of the Pantheon is an impressive space due to its huge dome. With its 44 m in diameter was two times larger than any dome that had been built before. Its free space was also a unique design, as most of the temples at that time had the space populated by columns [48].



Fig. 27. Panorama inside the Pantheon.

Fig. 28. The interior of the dome.

The interior of the dome is coffered (Fig. 23): it has 5 rings of 28 coffers that shrink in size and thickness as they near the central oculus. The ingredients of the concrete mix used to make the coffers was adjusted as the rings narrowed: with lower density and therefore increasingly lighter materials (such as pumice) being used as the rings narrowed and grew higher. The visual effect is of a very striking symmetrical pattern but, more importantly, the architectural and engineering approach is one that vastly reduces weight [3].

It is not by chance that there are 28 coffers in each ring as this has special significance to the Romans because 28 is a 'perfect' number – the sum of its factors (which are 1, 2, 4, 7 and 14) add up to 28. At the time of the Romans it was one of only four known perfect numbers [3].

In antiquity, the coffers may have been decorated with bronze stars or rosettes as there is a patchwork of holes underneath the modern concrete rendering [3].

The entire structure is supported by 6 columns 9 m wide, but empty channels are embedded in order to help reduce its own weight, which were also used for maintenance (Fig. 29, 30). In the dome itself five different types of cement were used, making it lighter as the structure gained height, reducing the charges by 80%. They used a mix of concrete with pozzolana (a volcanic sand which added resistance) and *tufa* (a limestone). The walls used solid concrete in the first level of *tufa* and brick

in the second [3], video [38].



Fig. 29. The interior.



Fig. 30. Columns inside.

In 609 AD, Pope Bonifice IV received permission to convert it into a Christian church, at which point it was renamed Sancta Maria ad Martyres (or in English, St. Mary and the Martyrs). It was the first ever Roman Pagan temple to be consecrated into a Christian church. This is a crucially important factor regarding its preservation and is what saved it from being destroyed during the Middle Ages, as the papacy had the means and resources required to maintain it [6].

Since the Renaissance, the Pantheon has been used as a tomb for renowned personalities (hence in some countries the term pantheon is used as a synonymous of cemetery). Some of them are the painters Raphael (Fig. 31, 32, 33) and Caracci, the







Fig. 31. Raphael's Tomb Bust Pantheon Rome. Fig. 32. Raphael's Tomb. Fig. 33. Rafael Sanzio.

architect Peruzzi and King Victor Emmanuel II, among others [48]. The building was included in the UNESCO World Heritage list in 1980.

Raphael (1483–1520), a child prodigy and part of a trinity of Renaissance greats along with Michelangelo and Leonardo Da Vinci, died in 1520, aged only 37. He was buried in the Pantheon because he requested that he should be buried there. His death is compared to Christ's only in that both of them died on Good Friday.

Raphael's tomb was never moved, but was opened in 1833, when Pope Gregory XVI gave permission for Raphael's sarcophagus to be opened to verify if his body was in situ. This incident was memorialised in a painting by Francesco Diofebi in 1836. A cast was taken of the skull and a reconstruction drawing made based on its physical characteristics. A red rose graces his tomb in Rome's Pantheon all year round [16; 30; 47], see video [46], movie [4].

Each year, on Pentecost thousands of red rose petals are dropped from the oculus of the Pantheon (video [36]) upon a crowd gathered for Sunday Mass (Fig 35, 36). Pentecost commemorates the descent of the Holy Spirit upon the Virgin Mary and the Apostles during the Feast of Weeks in Jerusalem and the rose petals symbolize this poignant moment in Christian history. Incredibly, the tradition of showering rose petals in the Pantheon dates back thousands of years, probably to the 607 AD when the pagan temple became a Christian church [14].



Fig. 34. The fire fighters with rose petals.



Fig. 35. The Mass of Pentecost.

Fig. 36. The "rain of red roses".

Although nobody really knows its origins, it is assumed that it dates back to the times of the early Christians, though there are also people who believe that on May 13, 609 (AD) the first celebration of the rose petal ceremony took place, after the inauguration of the Pantheon as a church. In 608 the Byzantine emperor Focas bestowed the

Pantheon as a gift to Pope Bonifatius IV, who converted the building into a church dedicated to St. Mary and the Martyrs. After being suspended for many years, oddly enough only in 1995, Archbishop Antonio German resurrected this tradition on Pentecost Sunday and it is now called "la Domenica delle Rose" or the Sunday of the roses" (see video [1]).

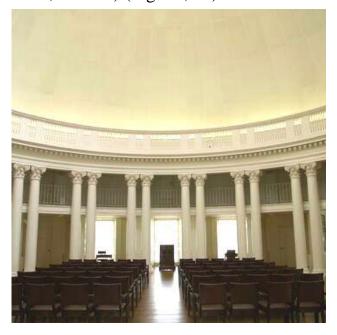
The ceremony starts with the Mass of Pentecost (50th day after Easter) that commemorates the descent of the Holy Spirit upon Mary and the Apostles. At the end of the Mass five vigili del fuoco (fire fighters) climb to the top of the dome with seven canvas bags containing red rose petals. After reaching the top of the dome (at a height of almost 44 meters) the five fire fighters begin to drop thousands and thousands of red rose petals through the large circular aperture of 8,92 meters in diameter, that radiates light and heat inside the Pantheon (Fig. 35).

The magical appearance of "La pioggia di petali di rose" or the rain of rose petals coming down from oculus of the Pantheon is beautiful and spectacular that produces effects that go far beyond the religious aspects (see video [36]).

The "rain of red roses" symbolizes the descent of the Holy Spirit in the form of flames on the day of Pentecost. The fluttering petals initiate a striking, almost magical sight. While the choir sings the hymn "Veni Creator Spiritus" the red rose petals slowly descend in rays of sunlight to create a drizzling rain that will form a red carpet on the floor of the Pantheon [1].

And so, the Pantheon is the best preserved building of ancient Rome and has inspired countless buildings throughout the centuries in Italy, Europe and further abroad. Even the Rotonda at the University of Virginia (the only UNESCO World Heritage Site University in the United States) was modeled after the Pantheon in Rome [14]. The College of William & Mary in Williamsburg, Virginia is the second oldest university in the United States and was founded in 1693 (only Harvard, founded in

1636, is older) (Fig. 37, 38).



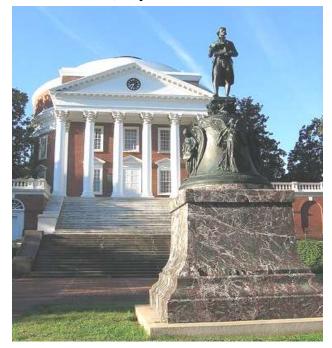


Fig. 37. The University of Virginia in Charlottesville (USA). Fig. 38. Thomas Jefferson's Rotonda at the University of Virginia (USA).

Monticello was the plantation home of Thomas Jefferson (1743–1826), author of the American Declaration of Independence and third President of the United States (Fig. 39). He designed both the plantation home (1769–1809) and his ideal Academical Village (1817–28).

Jefferson's Monticello (Fig. 40) and his Academical Village precinct are notable for the originality of their plans and designs and for the refinement of their proportions and décor. His house at Monticello, with its dome, porticos supported by Doric columns, and cornices and friezes derived from classical Roman buildings, and his Academical Village, with its Rotunda modeled on the Pantheon and its ten pavilions each offering a different lesson in the classical orders and architecture as drawn from published classical models, together invoke the ideals of ancient Rome regarding freedom, nobility, self-determination, and prosperity linked to education and agricultural values [59; 21].

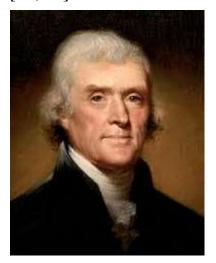




Fig. 39. Thomas Jefferson (1743–1826).

Fig. 40. Monticello.

As originally designed by Jefferson, the University was supposed to be an "Academical Village" where students and teachers lived in close proximity to each other. Today the University has grown far beyond that Jefferson vision.

Thus, over the centuries, the Pantheon had many functions. Following its conversion into a Christian church. In the modern day, it's a major attraction for tourists to visit. It's also still a functioning church, in which Catholic mass is held regularly [6].

The Pantheon still stands as a testament to the genius and skill of the Roman people. Its importance lies in the fact that it is the best preserved monument from ancient Rome [39].

The Pantheon is located in the heart of Rome, not far from Piazza Navona; the nearest underground station is Barberini (line A).

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