SPACE IN THE BAROQUE ROMAN ARCHITECTURE

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The architecture in Rome in the 17th century is usually described as baroque *par excellence* – as a sample for many early modern European architects. Furthermore the style of buildings erected in Rome was used to be described as overdecorated with fantasy both in plans and ornamentation. But the analyses of some scholars like Rudolf Wittkower and Jan Bialostocki enabled to describe the baroque style with a greater precision (what also made possible to see positive values of architecture outside the Italian centres). It is difficult to limit the character of art created in the Eternal City to a one group of features – if a conception of style still has a descriptive value. Nevertheless our attention is attracted by a specific attitude towards the concept of space by the 17th century Roman architects.

Earlier, in the art and architecture of renaissance, space was subject to an analyses of mathematical character. The third dimension in painting, but also in a way of perception of architecture, was subject to the principles of *costruzione legittima*, worked out in the treatise *De pinta* by Leon Battista Alberti (1404–1472). Space in a picture was supposed to be defined with a precisely drawn perspective, as can be observed in the *Trinity* fresco by Masaccio in S. Maria Novella in Florence (1426–1427), where its third dimension was drawn by Filippo Brunelleschi. The best known artist of that time fascinated in creating third dimension was Paolo Uccello (ca. 1397–1475), whose analytic preparatory drawings are a kind of symbol of the way of thinking of that generation of renaissance artists. Even Leonardo da Vinci, in his process of painting the surrounding world in the air perspective, used to begin with a precisely draughted network of co-ordinates, so utmost part of the picture could be located: as on the preparatory drawing for the *Adoration of the Magi* (ca. 1481, Gabinetto dei Disegni e Stampe, Uffizi) (Fig. 1). An example of the architecture, where that kind of space perception can be seen is the way Donato Bramante created the presbytery in S. Maria presso S. Satiro in Milan (1485) so the space illusion was convincing and clear in its every part – it was not the issue of an „optical game” but of lack of space behind the wall because of the street there (Fig. 2).

In the art of manierism the construction of space was of no interest: for example Pontormo painting the *Entombment* for the Capponi Chapel in S. Felicita in Rome (in 1525–1528), crowded all the figures in the foreground so the space is unidentifiable. On the other hand Parmigianino painted in 1534 the *Madonna of the Long Neck* where we can find so called „space flight”, typical also for Nederlandish manierists, who treated an illusion as the principle of art. They enjoyed optical games, playing with spectator, creating drawing studies of an imaginary architecture like those of Hans Vredeman de Vries (1527–1604). The real manierist architecture in Italy characterised sophisticated games of architectural details, what made its articulation a kind of perception game. An eminent example is the activity of co-operator of Raphael – Giulio Romano (ca. 1499–1546), architect of Palazzo del Tè in Mantua (erected in 1526–1534).

The end of the 16th century characterises new tendencies in art development. One of its main factors was the Council of Trent, came to the end after several years with the decree during the 25th session on 3rd and 4th of December of 1563. There was

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a neciesity of art and architecture clear for common people. Postulates of numerous theorists of *Post-tridentinum* concentrated on a rôle of emotions in influencing art spectators; in relation to architecture an important person was Cardinal Charles Borromeo (1538–1584, canonized in 1618), who wrote in 1577 *Instructionum fabricae et supellectilis ecclesiasticae libri duo*. At the beginnings of the 17th century the papal Rome was the melting pot of art and architecture.

The new stylistic tendencies can be seen on the façade of S. Susana by Carlo Maderno (1556–1629) built in 1597–1603. Opposite to the renaissance principle of co-ordination of all the elements, there was introduced the new one of subordination to the dominating central bay, using an effect of progressive concentration7 (Fig. 3). That principle of subordination became a kind of *basso continuo* of the baroque architecture. Maderno’s purpose was to influence spectator’s senses with subjective impressions.

Francesco Castelli (who after 1628 used name Borromioni, in honour to Cardinal Borromeo) was born in 1599 in Bissone, on the Lake of Lugano, a place where from originated many artists active all over Europe, like the above mentioned Carlo Maderno or Matteo Castelli (or Castello) working in Warsaw – both were actually Francesco’s relatives.8 Borromini arrived to Rome in 1619 or 1620. At the beginnings he worked mainly in the Vatican Basilica under Maderno and after his death in 1629 under (only one year older) Gian Lorenzo Bernini.

Borromini’s first independent architectural work was a small in size monastery and church S. Carlo alle Quattro Fontane for the Spanish Discalced Trinitarians. In 1634 he received a commission from the Procurator General father Juan de la Asunción, who in a time became an important patron of the architect. First Borromini created the monastery, including a unique courtyard, the construcion of the church started in 1638.9

The architect created one of the most extraordinary interiors in art history. Spectator is not able to describe the space he is in: the undulating bays full of niches and sculptures with columns attached at various angles produce an impression that the wall – a tradional caesura defining an interior – has been annihilated (Fig. 4). The outline of the small interior (ca. 20 x 10 mts.) seems to be defined by the shape of the entabulature – however its geometry is not easy readable, too. Sophisticated imagination and fantasy of the architect required creation of an appropriate vault. Borromini used an elliptic dome, introduced (between the undulating entabulature of the ground tier and the one of the dome) penditives and transverse niches giving an illusionist hint of a Greek cross.

The dome, hemispherical in section, looks higher than actually is because of the coffers of three shapes (octagonal, hexagonal and cross) which decrease in size towards the lantern, the same was effect was obtained in the Greek cross „arms“. No surface looks like its is – a spectator is confronted with a dynamic game of undefinable spaces, which ony dominant is the vertical movement to the brightliest part of the interior: the lantern – a traditional symbol of open heaven, where on the background of glittering golden beams can be seen the dove of the Holy Spirit. This sophisticated effect of creation of space can be situated in the main stream of the artistic quests of the epoch, when preferable artistic means were the dazzling theatralisations as expression of persuasisation based on the principles of classical rhetoric.10 It is symptomatic that Borromini achived all these results using basic geometrical patterns (as we can see studying the drawings kept in the Alber-tina in Vienna). The ground plan of the church is based on two equilateral triangles creating a rhomb, each of the triangles has a circle inside (Fig. 5). This figure is a skeleton of of the composition of the building.. The apexes of the triangles indicated the main axis of the interior leading from the entrance to the main altar, while the other two indicate the

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10 J. Białostocki, „Barok“: styl, epoka, postawa, op. cit., p. 239-247.
location of the side altars. Their diagonals indicate the axis of each triad of the ground bays defined by the columns – and only then the logic of the composition can be understood.

The interior of S. Carlino was of extraordinary interest all over Europe: „in the opinion of everybody nothing similar with regard to artistic merit, caprice excellence and singularity can be found anywhere in the world. This is testified by members of different nations who, on their arrival in Rome, try to procure plans of the church. We have been asked for them by Germans, Flemings, Frenchmen, Italians and even Indians (...) Everything is arranged in such manner that one part supplements the other and that the spectator is stimulated to let his eye wander about ceaselessly...”

The building was erected during 3 years, but without the façade, which was built in 1665–1667 (this was the year of the suicide of the artist). Final works of sculptural decoration lasted until 1682. Vibritating articulation of the façade structures in two storeys and three axis (the predilection to number 3 is characteristic for Borromini), is not an easy subject of any analyse (Fig. 6). The church is located at a narrow street what makes catching its „proper” perspective almost impossible, forcing to permanent changing the point of view. Its screen structure does not correspond to the body of the nave. The alternating concave and convex bays, which include niches and sculptures, make it difficult to determine where „ends” the space of the street and where „starts” the space of the church’s interior. Penetration and indefinitness of spaces, slipping out of perception is significant for the epoch when also painters experimented with the third dimension.

One of the excellent examples is the ouevre of Michelangelo Merisi, called Caravaggio (1571–1610, he was coming also from Lombardy). Figures and actions in his paintings emerge out of background, which enables to see precisely the space of the picture. We do not see the entire interior where Bacchus sits in the Uffizi painting (1595) or the room where is going on the Calling of St. Matthew (1597) from the Contarelli Chapel in S. Luigi dei Francesi. On these and many other Caravaggio’s canvases it is the light that builds the scene, plunged partly in darkness – like in theatre.

Borromini carries another type of game with spectator in the church S. Ivo, built in 1642–1660 for the Roman Archiginnasio (now University) La Sapienza. The order came from Urban VIII, who selected Brorromini „because of vivacity of his talents, knowledge of Vitruvius’ principles and customs of following the works of the greatest antique Greek and Roman architects.” The concave façade pul-sate, contrasted with convex apses of the monumental drum without copula but headed with a spiral lantern: composition of the architectural elements – pilasters, pinnacles, columns – enforce eye to follow the movement, which culminates in „accelerating” composition of the lantern, which symbolises the Biblical Tower of Babel aiming to heaven, in accordance with iconographical tradition, like in the painting of Peter Breugel (1525–1569) in Kunsthistorisches Museum in Vienna (Fig. 7).

The interior is astonishing because of the ground plan, which only after a deeper analyse seems to be a result of combination of two equilateral triangles forming a hexagonal star (Fig. 8). This figure contain further equilateral triangles and their apexes are radiuses of the curves. The geometry of concave and convex parts of the wall is not enriched with sculpture: instead of columns there are Corinthian pilasters, but the optical „plasticity” of the wall comes from a sophisticated composition of two levels of entabulatures surrounding the interior, broken in such a way that each time a spectator observes another set of tripartite bays. Objectively flat and linear articulation of the wall subjectively seems unusually spacy. The dominant part of the interior is the dome (without drum here), which flat ribs ascend as continuation of the vertical movement enforced by the pilaster of the grout tier, finding its culmina-
tion in the circular lantern. The entire compositional structure of S. Ivo symbolises the God’s Wisdom, in accordance with the name of the Archiginnasio.

12 Wittkower, op. cit., p. 43.
13 Borromini used the composition by Michelangelo of the bays of the façades in the Palazzi Capitolini – Wittkower, op. cit., p. 43.
It was Gian Lorenzo Bernini, who dominated over the artistic life in Rome of the 17th century. He was born in 1598 in a family of a Tuscan sculptor, who was active and Rome and Naples. His personality differed so much from neurotic Borromini: being an appreciated companion of popes (with the exception of Innocent X), cardinals and princes, Louis XIV cottoned up to him. Bernini effected the most important architectural and sculptural commissions in the Eternal City, what gave him both recognition and wealth. An exception was the problem of the towers of the façade of S. Pietro (he was the architetto della fabrica di San Pietro), nota bene with significant criticism of Borromini. Bernini died at the age of 82.

In the years 1658–1661 there was built a small church S. Tomaso di Villanova in Castelgandolfo. It was erected over the plan of a Greek cross, vaulted with a ribbed dome on pendentives, stylistically seems to belong to previous epoch. However inside the architect made upon a viewer impressions which are far from renaissance feeling of harmony (Fig. 9). Bernini astonishingly used sculptures as indispensable part of the entire composition of the dome: breaking the entablature between the drum and the vaulting, created broken pediments with seating putti thus annihilating the boundary between the two zones making the dome a predominant space of the church. Objectively the dimensions of the interior are relatively harmonic, but in spectator’s eyes the dome looks much higher.

Since 1657 Bernini was busy working at the Pantheon in order to restore its original view – at least as it was then imagined, but many of the plans were abandoned. Fascinations of that antique building can be traced in the architecture of the church S. Maria dell’ Asunzione in Ariccia near to Rome (1662–1672). Bernini applied basic geometric figures: cylinder and hemisphere, adding a portico, but with Tuscan pillars and no Corinthian columns. The church is surrounded at both sides with wings, which levell the contrast with the bigger façade of the palazzo Chigi which was then built on the opposite side by Carlo Fontana following the plans of Bernini. The wings at the same time hide sacristy and bell towers at the end of the church. Standing in front of the church one can expect a classic space on circular plan, but having entered inside the attention is focused on the altar in the deep apse: thus that axis portico-apse became the dominant of the interior space. Like in Castelgandolfo also in Ariccia the architect – regardless the objective dimensions – imposed the spectator an individual way of space perception (Fig. 10).

Teatralisation and presusasivness of architecture was eminently effected by Bernini in S. Andrea al Quirinale. It was a commision of the Jesuits but founded by Cardinal Camilo Pamphili. Close to the papal palace at the Quirinal the architect was to erect a new chapel for the noviciate. Bernini was selected by Alexander VII also because of his relations with the Jesuits (he practicised the Loyola’s Spiritual Exercises and participated every Friday in Il Gesu in special prayers for a good death). The pope wanted also that the chapel could be used for some of his numerous courtiers. The architect presented the pope with plans on 2 September of 1658: Alexander requested only to move the building to a distance out of the street (than Via Pia, now Via Quirinale), so it could be seen from the papal gardens. By the end of the same year Bernini made a wooden model, which was approved by the pope in October and the ground-work of started. The church was finished after a year, though some works lasted till the seventies.

The façade – surrounded with two wings at 3/4 of its height (like in Ariccia) – in a form of monumental aedicula, where from sweeps forward a Corinthian portico, which shape does not inform how the interior looks like (Fig. 11). The interior appears to be an oval with the transverse axis longer than the main axis between entrance and altar and vaulted with a dome. The nave is surrounded with eight chapels. A spectator’s eye is focused on the presbytery: it was flanked by 2 pairs of Corinthian columns, which as theatrical coulisses are showing the altar. The presbytery has its own source of light, coming from its little oval dome (Fig. 12). The play

16 Biography of his father wrote Domenico Bernini (The Life of Gian Lorenzo Bernini, ed. F. Morando, University Park 2011) and Filippo Baldinucci in 1682 (The Life of Bernini, ed. C. Enggass, University Park 1966; see also Dwuglos o Berninim, ed. J. Biastocki, Wroclaw 1962.
18 Wittkower, op. cit., p. 25
19 Marder, op. cit., p. 239-261. The author wrote that one of the inspirations of such a design were projects of Giacomo Lauro (1584–1637) and prints showing the temple of Honour and Virtue in Antiquae Urbs Splendor (1612) where reconstructions of antique Roman temples could be seen.
20 Ibid., p. 27.
of light and shadow is strengthened by the contrast of the sequence of the chapels, of which only two (at the two sides of the presbytery) have windows. The nave – covered with coloured marble – is illuminated during the day from respective windows in the dome, as well as from the lantern itself. The architect enforced theatrical scenography using sculpture and paintings. In the main altar there is the picture by Guillaume Courtois (Cortesi, called Il Borgogne, 1628–1679) showing martyrdom of St. Andrew; above at the level of the entablature there is a marble figure of the saint (by Antonio Raggi, called Antonio Lombardo, 1624–1686) being taken to heavens symbolised by the glittering angels and in the lantern by the dove of the Holy Spirit. The architecture is here the baroque Gesamtkunstwerk, where all the arts entertain senses of a participant of the misterium.

Bernini in a more double-dealing way created here an illusion of that interior: the transverse diagonal longer line is (optically) „stopped” by the pilasters between the chapels (St. Francis Xawery and Passion on the right side and St. Ignatius Loyola and St. Stanislas Kostka Potocki on the right) while the shorter diagonal line is optically „extended” from the entrance portico to the apse of the presbytery. The architect created here the optical dominant line in a paradoxical way: what is objectively longer is subjectively shorter and inversely, what is subjectively shorter actually is longer.

Architrecture as scenography in the art of Bernini has been subject of analyses by various scholars. Baldinucci wrote that architect – like many before and after him – not only painted and sculptured, but also created scenographies for theatrical performances and both liturgical and court ceremonies. Bernini wrote dramas himself, of which only one has been subject of analyses by various scholars. E.g. I. Lavin, Bernini and the Unity of the Visual Arts, New York-London 1980, describing that unity in case of the chapel Cornaro in S. Maria della Vittoria (1647–1652); also G. Warwick, Bernini: Art as Theatre, London-Yale 2012, analysing his sculptures.

Another example of architecture as scenography effecting on spectator’s emotions is the church S. Maria in Campitelli by Carlo Rainaldi (1611–1691). He worked with his father Girolamo (pupil of Domenico Fontana), while Borromini was out of favours, at S. Agnese in Piazza Navona. In the sixties and seventies Carlo Rainaldi was completing S. Andrea della Valle, creating its façade and also participated in construction of the churches at Piazza del Popolo.

In 1660 by a decision of Alexander VII the old church at then Piazza Campizucchi was to be replaced by a new building. Plans (kept in Archivo di S. Maria in Campitelli) were designed by Rainaldi, inspired at the beginning by samples of Bernini and Pietro da Cortona. The final version is an example of an evolution of the Roman architecture of the 17th century. The church was built in 1663–1674. The façade of two tiers and three bays, described by Wittkower as „aedicile” type, is an eminent example of use of columns, in Corinthian and Composite orders, super imposed and attached to the wall surfaces in appropriate ways, create an impression of a dynamic sculpture (Fig. 13). The spatiality of the articulation is however obtained by simple means: the columns are located in only 3 parallel rows (some of them in 3/4), the impression of profundity is enforced by breaking the entablature in accordance with the precise modular system described by Vignola in Regola delle cinque ordini dell’architettura (Roma 1562).

The interior of the church is even more astonishing: a viewer is not able to determine its form. Placing the monumental free standing fluted Corinthian columns, which do not support anything (except for a broken etabulature) makes impossible to figure out the ground-plan. Seemingly uniform nave is „extended” in various directions, exposing to a spectator gradually by the „column coulisses”. Only after analyse of the ground plan one can determine that the nucleus of the interior is rectangular main part where from are stretched side chapels forming boundaries between life and all that presented by artists was one of the dominating features of baroque style.

24 Warwick, op. cit., p. 3; also see L. F. Norman in essay Baroque Space and the Art of Infinite (The Theatrical Baroque, Chicago 2001).
26 Ibid., see T. Dziubecki, Nowożytna fasady kościelne typu albertiańskiego, „Architecturae et Artibus”, vol. 4, no. 2 (12), 2012, p. 5-12.
a kind of transverse nave and all that form a plan of a square with four chapels in corners (Fig. 14). From this part can be seen the presbytery formed by a sequence of square space vaulted with a dome – thus strongly illuminated like a scene in a theatre – and apse with the main altar. Light is the mean of creating both the hierarchy of particular spaces of the interior and atmosphere of emotional reactions to the liturgical mysteries performed in front of the spectator.

The influence of the experiments by the artists active in Rome can be traced in the art of Theatine friar, mathematician and succesful architect Guarino Guarini (1624–1683). Beside the famous church S. Maria della Divina Providenza in Lisbon (which after its demolishment during the earth quake in 1755 influenced via the treatise of 1737 *Architettura civile*), the most important objects were built in Turin, above all the chapel SS. Sindone at the cathedral. The House of Savoy was in apossession of the Holy Shroud for centuries and after the transfer of the capital from Chambéry to Turin, decided to erect appropriate church for it. There was intended to built a special church, but in 1655 Carlo Emanuelle II comissioned a local architect Amadeo di Castellamonte (1613–1683) to built a chapel at the San Giovanni Battista. However in 1667, when the walls were erected up to the entabulature, the king gave the comission to Guarini.

Guarini had to adopt his plan to the current circular ground plan, which obviously should be vaulted with a regular spherical dome, but such a solution must have been too common for the architect-mathematician. It was a common architectural practice that shells of the cupolas were made of surfaces of a determined geometry. Guarini decided to change it. Over the entabulature of the cylinder erected by his predecessor, spanned every two bays by an arch creating thus three large pendentives (Fig. 15). The entabulature and the „dome“ are based on them. The „drum“ (ca. 8 m. of height) is created of 6 large windows which pediments are segmental ribs which in turn are a base for a sequence of 4 rows of another segmental ribs on hexagonal plan creating the conic „cupola“ (of the same height as the „drum“). In the arches there are located windows. A light and diaphanous construction of the vault of the chapel verticalises it optically anihilating at the same time its surface. Guarini breaks out with classical architecture of vaults, which tradition can be traced back to the concrete dome of the Roman Pantheon. He considered – as he wrote in his treatise – that vaulting is the essential part of architecture, expressing surprise that so little attention is paid to the problem in theoretical considerations. The architecture of the chapel results of research on conic geometry effected by the architect, who studied the projective geometry of French mathematician Gérarda Desargues (1591–1661), author of *Brouillon project d’une atteinte aux événemens des reccontres du cone avec un plan* (1639). Guarini also studied Gothic architecture (like Borromini, what results can seen in the chapel Re Magi in Collegio di Propaganda Fide, built 1662–1664), comparing in *Architettura civile* constructions of antique Roman and Gothic builders. He indicated that Gothic architects wanted to acheive an impression that their churches appear structurally weak so vaults look miracously rising over interiors.

Artists in Rome of the 17th century, creating masterpieces of European architecture, responded in the specific way to concerns and questions of the „Men of baroque“. A human being of that epoch found himself in a new space. After centuries when the world had precise boundaries, both on Earth and in Heavens, now in the time of geographical discoveries and when the universe was being watched by the telescope of Galileo and the mathematical sign of infinity was worked out (John Wallis, 1655), a man found himself „at boundaries of two infinities – of the universe and of microcosm of human being, and also at the edge of time and eternity...“. Art of architecture, understood in classical terms as a finial of human genius, became the place where ideas of that unusual epoch found their artistic expression.

Translated by the Author

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28 Ibid., p. 35.
29 Ibid., p. 37.
31 Vitruwius in the 1st chapter Book I of his *De architrectura libri decem*; see also early modern personifications of Architecture Civis i Architecture Militaris in *Iconologia* of Cesare Ripa.
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