Stefan Grundmann (ed.)
**The Architecture of Rome – An architectural history
in 402 individual presentations**
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Architects and artists have always acknowledged over the centuries that Rome is rightly called the »eternal city«. Rome is eternal above all because it was always young, always »in its prime«. Here the buildings that defined the West appeared over more than 2000 years, here the history of European architecture was written.

The foundations were laid even in ancient Roman times, when the first attempts were made to design interiors and thus make space open to experience as something physical. And at that time the Roman architects also started to develop building types that are still valid today, thus creating the cornerstone of later Western architecture. In it Rome's primacy remained unbroken – whether it was with old St. Peter's as the first medieval basilica or new St. Peter's as the building in which Bramante and Michelangelo developed the High Renaissance, or with works by Bernini and Borromini whose rich and lucid spatial forms were to shape Baroque as far as Vienna, Bohemia and Lower Franconia, and also with Modern buildings, of which there are many unexpected pearls to be found in Rome.

All this is comprehensible only if it is presented historically, i. e. in chronological sequence, and therefore the guide has not been arranged topographically as usual but chronologically. This means that one is not led in random sequence from a Baroque building to an ancient or a modern one, but the historical development is followed successively. Every epoch is preceded by an introduction that identifies its key features. This produces a continuous, lavishly illustrated history of the architecture of Rome – and thus at the same time of the whole of the West. Practical handling is guaranteed by an alphabetical index and detailed maps, whose information does not just immediately illustrate the historical picture, but also makes it possible to choose a personal route through history. In order to clarify the historical development, the key buildings of each period and other major works are especially emphasized both in the text and on the maps.

The authors are a group of art historians who experienced Rome together years ago and then went their separate ways: as an on-the-spot guide, as research scholars at the University of Munich, and at the Zentralinstitut für Kunstgeschichte in Munich and the Bibliotheca Hertziana in Rome, respectively, as Professor at the Humboldt-Universität zu Berlin.

»Now, at last, I have arrived in the First City of the world! ... Across the mountains of the Tirol I fled rather than travelled. ... My desire to reach Rome quickly was growing stronger every minute ... Now I have arrived, I have calmed down and feel as if I had found a peace that will last for my whole life. ... As I rush about Rome look-ing at the ma-jor monuments, the immensity of the place has a quie-tening effect. In other places one has to search for the important points of interest; here they crowd in on one in profusion. Wherever you turn your eyes, every kind of vista, near and distant, confronts you – palaces, ruins, gardens, wildernesses, small houses, stables, triumphal arches, col-umns – all of them often so close together that they could be sketched on a single sheet of paper. ... No one who has not been here can have any conception of what an education Rome is. One is, so to speak, reborn and one's former ideas seem like a child's swaddling clothes. Here the most ordinary person becomes somebody, for his mind is enormously enlarged even if his character remains unchanged.« (Johann Wolfgang von Goethe, *Italian Journey*)

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Menges

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An architectural history
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edited by Stefan Grundmann

with contributions by
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Dorothee Heinzelmann
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Antje Scherner
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Foreword

No other city featured in travel guides as early as Rome. Pilgrims were able to refer to the famous Mirabilia and form an impression of the holy city for themselves as early as 1144. No city took up as much space in the most famous German-language guide on Italy as Rome. Jacob Burckhardt's *Cicerone* of 1855 is one long love letter to the eternal city. And no city is better suited than Rome to provide a true guide through the history of art, a guide that does not just give information about each item in isolation, but uses them as a basis for a history of art and arranges them to form a complete picture. Burckhardt did this in his day, and the present guide is going to try to work like this as well, as this approach seems to have been neglected for some time.

To this end, architecture was selected, as undoubtedly the most important genre in Rome (although the most significant paintings and sculptures in the buildings are always mentioned). The city of Rome made such an impact on architecture at almost all periods that the buildings of Rome form the scaffolding of architecture in general. Rome was the only ancient metropolis that did not go down with its empire, but played a leading role in Europe in post-ancient occidental history at most times. It is thus possible to assemble an unbroken chain of buildings in which certain developments took place. At every point it is possible to identify preceding or subsequent buildings, and also the origins or later history of the works (which has been done in detail). And at every point readers can form a clear impression of these other buildings from the copious illustrations in the guide, and if their curiosity is aroused they can go and look at them, as they are seldom very far away. Rough lines of development are traced for every epoch in an introductory text leading to the works, and also a few circular walks, moving readers on a few decades from one building to the next, meaning that they constantly move forward historically, without making unduly large detours in terms of space.

For the eternal quality of Rome can be experienced only by someone who sees how the main buildings in the city came into being, and who understands how architectural history came to be written here: naturally in the ancient Roman period, in which architecture as the art of enclosed space, of walls and interiors with different structures, first emerged; then with the early-Christian basilica, which developed in Rome in the 4th century, looking backwards to ancient Roman types, and which spread throughout Europe from there, becoming the basis of the Romanesque and Gothic movements; later with Bramante and Michelangelo, who created the flower of Western architecture in the High Renaissance, and whose architectural work is to be found almost exclusively in Rome; and lastly again with Bernini and Borromini, whose influence can be clearly seen in a very concrete way in almost every Baroque building, right down to the late 18th century. Rome also led the way in the field of fascist architecture, and its buildings have been much more interesting than many people imagine in the last fifty years. This sequence will be demonstrated by a new concept in this architectural guide: the 400 buildings are arranged chronologically (by the date of the design and the date when building started, sometimes according to the date of the most important section) and not – as is usually and rather randomly the case – alphabetically or topographically. And so we follow history, stage by stage, almost always illustrated – right down to the most recent times. The eternal city lives on. SG

The development of the city

Today the characteristic features of the terrain are not as striking for the visitor as they were in ancient times, or even 120 years ago. The eternal city's seven hills have been worn down by thousands of years of development, and they are no longer as steep and pointed as they were. In fact the point at which urban settlement started, the Palatine hill, did no longer have a pointed top even in imperial times, but formed a broad plateau, as considerable substructures were required for the palaces that were built here (see A27). Thus steep ridges like the one between the Capitol and the Quirinal hill were removed, in this case to make room for the imperial forum of Trajan (see A29), and Domenico Fontana, Sixtus V's architect and engineer, thought it particularly worth mentioning that hills were removed and valleys filled in the course of his extensive urban operations.

In the same way the Tiber is much less present in the urban picture than it was in the 19th century, at the end of which the high embankment walls were built to prevent the annual flooding (see K10). This meant not only the destruction of many buildings by the river, but above all direct access to the river from developments on the Tiber bend was cut off, as the older buildings were about 5 metres below the level of the roads along the banks.

If we also include the draining of the Forum marshes, which was brought about early in the ancient period by the creation of the Cloaca Maxima (see A1), then we have mentioned the three natural components that particularly affected urban development. These are first of all the river, which separates Trastevere and the Vatican from the rest of the city. Then come the seven hills, the Palatine and Capitol hills, which are central both in terms of space and their significance, and then (arranged to the east of the two, in a semi-circle round them, from south to north), Aventine, Caelian, Esquiline, Viminal, Quirinal (and later still in the north the Pincian hill and the Janiculan Ridge in Trastevere). And finally come the lower areas extending between the hills, especially those that run down to the river on the Tiber bend (west or north-west of the Corso, the ancient Via Lata, of the Capitol and the Palatine).

Antiquity

The beginnings

The settlement of Rome started on the Palatine Hill. It was here that the walled original cell that the Romans called »Roma Quadrata« was built – according to Varro in 753 BC. In fact Iron Age huts have been found, including the so-called House of Romulus, that can be dated to the 9th century BC by their funerary urns. There were unhealthy marshes in the Forum hollow at the foot of the Palatine at that time. The city border seems to have run along the later Via Sacra, as their are also buildings from that period on this side, for example the Shrine of Vesta (A40), but only tombs on the other side. In about 600 BC the forum was paved for the first time, which shows that it had previously been drained (by the New Cloaca Maxima). This was the work of the Etruscan kings, who had taken Rome over (according to tradition in 616 BC). And so if the valley was occupied from that time, then it is to be assumed that the other two adjacent hills, the Quirinal and the Capitol, were also settled about then as well. In fact the largest Etruscan temple came into being on the Capitol (for Jupiter Optimus Maximus), although this was not consecrated until 509 BC. The foreign kings were driven out in the same year, and the Republic founded.

The Republican period

The Forum became the first centre of monumental architecture in the Republican period. Numerous temples were built (see A1 for detail), and probably also the most important political centre, with the Comitium and the Curia (see A16), and additionally in the early 2nd century BC the basilicas as a specific form of forum building with stock exchanges and court functions (see A11 for detail). And in the 1st century BC, under Sulla, the Forum also acquired a magnificent show façade on the Capitol side, in the form of the Tabularium (A9). The Capitol had long been the cultic centre, and the state archives were housed behind the show façade. Thus at the beginning of the imperial period the Forum started to be a coherent area of Roman monumental architecture. At this time the Palatine hill was the preferred residential area of the Roman upper classes, as is shown by the so-called House of Livia. Augustus was also born here. Later he bought up more houses and linked them together. The – probably authentic – »House of Augustus« was built.

The second main development in the Republican period – alongside the further development of the nucleus of Palatine, Forum and Capitol – was that the city expanded and an appropriate infrastructure was created. At first, even before the middle of the 4th century, the Rebublican city wall was built, which fixed the so-called Pomerium. This created not only a defensive complex, but an area that was sacrosanct in many respects. Military authority was not valid in the Pomerium, no burials could take place (but see A29), and no temple to foreign gods could be built. An important part of the run of the wall is that it excluded the whole of the Tiber bend (called the »Campus Martius« in ancient times), and also the whole of the far bank of the Tiber, and the Pincian hill as well. Only the seven hills were enclosed. In 312 BC Appius Claudius Caecus, with the Aqua Appia and the Via Appia, laid the basis both for the network of aqueducts that gave Rome a unique position among European metropolises in terms of water supply (for the entire system see A22), and also for the system of main roads radiating out of the city. One of these, the ancient Via Flaminia, then later, when the city spread out in this direction, the ancient Via Lata, is still clearly visible today, the dead straight Via del Corso, which links the Piazza del Popolo and the Piazza Venezia.

Only two complexes have survived on any significant scale, both between the Capitol or the Palatine and the Tiber, of the development in the pre-Imperial period (outside the Palatine, Forum and Capitol): the (foundations of the) group of temples on the Largo Argentina (A3) and the group of temples on the Forum Holitorium and above all on the Forum Boarium (see A4, A6, A7), linked by the Velabrum, the hollow between the Capitol and the Palatine, through which the Cloaca Maxima also runs, to the Forum Romanum. Thus the Velabrum and the Forum Boarium permitted access from the Forum to the Tiber. However, the Forum Boarium was also in the middle of another important thoroughfare, thus at the intersection of the central axes of early Rome: near to the Forum Boarium the Pons Sublicius led over the Tiber and with it the trade road that continued to the south through the later area of the Circus Maximus (leading into the Via Appia at the end of it) and to which Rome owed its creation. First of all, Rome stood at a point where the Tiber could be crossed. Here too, according to legend, Romulus and Remus were stranded in their little basket. And the Forum Boarium, the ancient cattle market (now: Piazza Bocca della Verità) was the trading place at this crossing. The crossing of axes with the Forum Boarium, the trading square (and its extension to the south-east), with the Forum Romanum, the monumental zone with the political centre, with the Palatine as the most refined residential area and the Capitol as the cultic centre was thus fixed at the beginning of the imperial period.
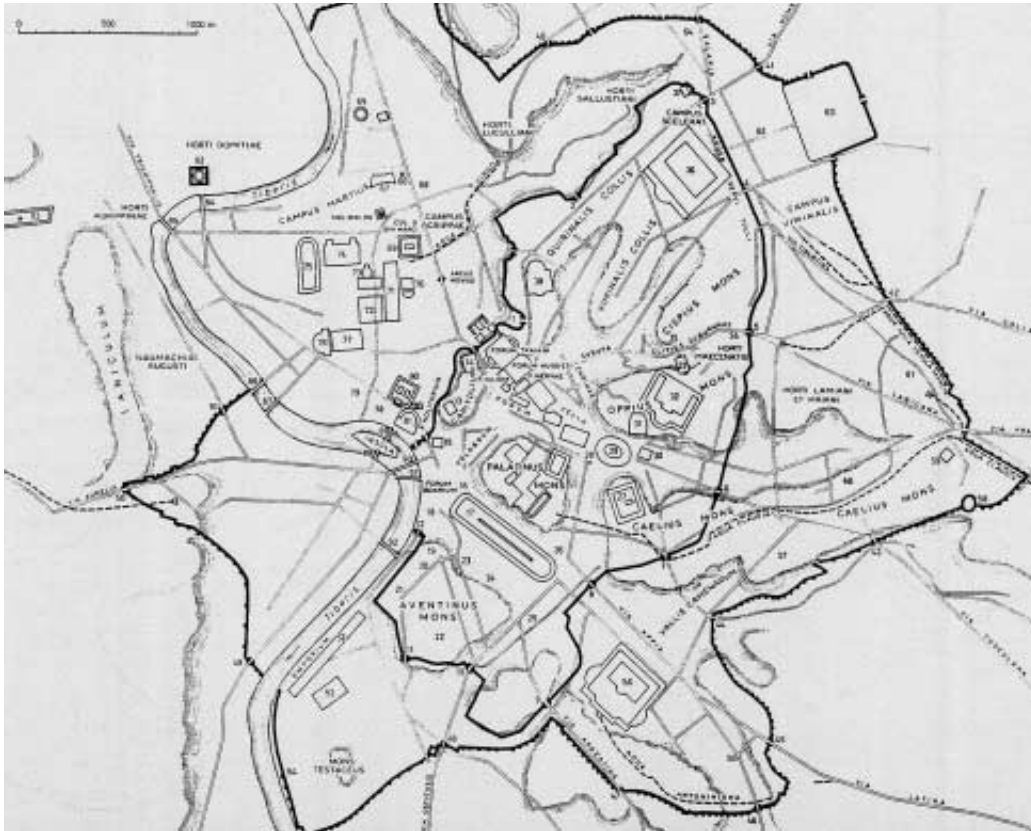
The Imperial period

In the Imperial period the focus of urban and architectural development fell in the period of almost two centuries from Julius Caesar (in Rome: 48–44 BC) to Hadrian (117–138 AD), in other words under the Julian and Claudian dynasty (Caesar to Nero, murdered 68 AD), the Flavians and the early adoptive emperors (Trajan, 98–117 AD and Hadrian). This is true first for the centre, the forum and the adjacent hills. Development was particularly intensive under Caesar and Augustus. The Forum, in terms of the remains visible today, goes back almost entirely to these two rulers, above all Caesar, and the measures they took to redesign it, both in terms of the complex as a whole and almost all the individual buildings. The Forum Romanum is the Forum of Caesar and Augustus (see A1 for detail).

Both also opened up the series of imperial forums (A13, A20), that begins to the east of the Forum Romanum and took up the remaining space in the lowlands on this side of the Esquiline and Viminal hills. A series of imperial forums were added on, the latest and largest being that of Trajan (A29). The monumental area at the heart of Rome was thus almost doubled in its extent under Caesar and Augustus. It also increased in quality. In his res gestae, or report on his life, Augustus not unjustly wrote that he had inherited a city of clay and left behind a city of marble. The adjacent Palatine hill was also subjected to fundamental change. Here, first of all under Tiberius, but on a much larger and more permanent scale under Domitian towards the end of the 1st century AD, the palace area of the Roman emperors (see A27) came into being, which was to be the model for palace building throughout the Western world.

Between Tiberius and Domitian the focus of building shifted to the southern end of the Forum for a time – the monumental centre began to thrust forward in this direction. The reason for this was Nero's efforts to express his claim to power by building an enormous villa – very diverse, but not yet monumental and block-like, as Domitian's palace was to be. This so-called domus aurea (A24) extended from the slopes of the Esquiline over the hollow containing the Colosseum, to the south of the Forum, down to the slopes of the Palatine. Nero was deposed, Vespasian, as the father of the Flavians, was less patrician in attitude. He had most of the villa pulled down and had a building for the amusement of the people built on the site of the great lake in the garden, the Colosseum (A25). Later the Flavians also placed the most important triumphal arch in this area (A26). The functional buildings – like the Colosseum, and later the baths – were increasingly to leave the temples behind from then on, and parallel with this, though not directly linked, building with cement and brick was increasingly to force out domestic stone. For after the fire of Rome under Nero the so-called urbs nova was built in this new material, largely with a number of storeys, as can be seen above all in the palace on the Palatine hill, and in Ostia, which developed considerably at this time. Rome also became a commercial city in building terms, and a large city, with a big population. Among the three great urban developers from the ranks of the dictators or emperors, who set out to redesign Rome fundamentally, the measures taken by Sulla left their mark in at least one striking place (on the Capitoline show wall), those of Caesar (and Augustus) clearly show more (in the whole of the Forum, the imperial forums and the Campus Martius), those of Nero the least, because most was built over.

Of the areas of Rome outside the original centre the principal ones to be developed were the Campus Martius (Tiber bend) and the area that was later to become the Vatican. The low Campus Martius, which was outside the Republican city wall, was not built on

Rome at the time of the late Imperial period

until the reign of Augustus. It became a second monumental zone (alongside the one in the Forum), particularly through the work of Augustus, and later extensively of Hadrian, over a century after. Augustus established the mausoleum for almost all the emperors of the 1st century AD here (A15), the Ara Pacis (A18), and a forerunner of the Pantheon (by Agrippa). Hadrian had the Pantheon (A31) built, and a whole group of temples in this context, extending from the Corso to the Pantheon (see A36), and also a second mausoleum on the other side of the river, to which access was provided by a bridge, the present Castel Santangelo (A33). The network of streets in the Tiber bend was immediately related to this bridge, or linked up with it. As well as the stadium of Domitian (81–96 AD), whose form has survived in the Piazza Navona (B61), two major axes from all this can still be seen today. One of these is the ancient Via Triumphalis (parallel with the Tiber), which Julius II was to revivify along with the ancient street linking the Vatican and Trastevere, on the other side of the river, in the form of his Via Giulia and Via della Lungara, creating such large axes again for the first time at the beginning of the modern age. The other ancient road axis, the so-called Via Recta, which ran from the Tiber right across the Tiber bend almost to the column of Marcus Aurelius (now the Piazza Colonna) by the Via Lata (the present Via del Corso), still cuts through the urban fabric today, but was never widened, and so tends to go unnoticed. Hadrian's mausoleum is the first of the changes realised in the Vatican area. The area was occupied by imperial gardens and the largest tomb city after the one on the Via Appia. Thus the majority of the ancient tombs and catacombs are to be found in these two areas. Even Piranesi's famous engraving of St Peter's Square is captioned: »Caesar's and Nero's gardens and circus«. In fact there was considerable building activity under Nero in the Vatican area. Nero did not just build a circus here, from which the obelisk in St Peter's Square comes; the Borgo, the core development in the Vatican area for the common population also dates from Nero's times, and it was here that homeless people who had not received any substitute accommodation settled after the fire in 64 AD. Most of these came from Central Europe, where settlements were given the name of a »Burg« (castle) or »Bourg«, hence »Borgo« here.

After Hadrian, in other words from the second half of the 2nd century AD, the development of the city slowed down, with some exceptions. These include Septimius Severus in particular and his son Caracalla, and the soldier emperor Aurelian. At the time of the Severans, about 200 AD, and from then on, the major buildings of the late-ancient period were erected, increasingly far from the city centre, above all the Baths of Caracalla (A43) and of Diocletian (A46). Of the Forum buildings the basilica of Maxentius (A50) belongs here, which was already part of the considerable upsurge in architecture in the early 4th century AD, at the time of Constantine, although the basic urban co-ordinates were little affected. The so-called marble urban plan, perhaps the most important source of our knowledge about the urban picture in ancient Rome, also came into being under Septimius Severus. Under Aurelian (270 to 275 AD), because Rome's military might was no longer sufficient to keep enemies far away from Rome, the Aurelian Wall was built; this shows the approximate extent of late-ancient Rome, and remained Rome's outermost border until after the First World War. It included the Tiber bend, the Pincian hill and also parts of Trastevere (cf. A33, A44).

Medieval Rome lay mainly to the south of the old city centre, and Renaissance and Baroque Rome north of it.

Christian late antiquity and Middle Ages

In ancient Rome a very simple distribution of the most important building types and residential areas crystallized out: the monumental centres were the Forum (down to the Colosseum) and (less densely built up) the Campus Martius (Tiber bend); the Capitol was first and foremost the cultic centre; the other hills were the smart residential areas, whose former smartest place became the site of the imperial palace; the simple population lived in the remaining, unhealthy lower areas. As well as this, the city area extended to the Aurelian Wall. Both these things changed fundamentally in the Christian Middle Ages. For one thing, the city shrank. One of the most important reasons for this was the shift of the capital city to Constantinople (330 AD). The building of the main basilicas had started earlier (the Lateran basilica in 313 AD, the Old St Peter's in 324 AD). There are no reliable figures, but even in the 5th century, Rome seems to have had only 250 000 to 500 000 inhabitants (as opposed to 600 000 to 2 000 000 in the imperial period), and from the 6th century scarcely more than 30 000 inhabitants. For in 537/38 AD, when the (then Byzantine) city of Rome was under siege by the Ostrogoths, the aqueducts had been destroyed, which also meant that the hill sites were without water from then on. The figure in the Trecento, in other words that of the papal exile in Avignon, can be relatively reliably estimated at 15 000 to 17 000 inhabitants, which is tiny in comparison with London, Paris or even Venice. Only just under a third of the area enclosed by the Aurelian Wall was even approaching being fully settled. The second important change is also addressed by the definition of the settled area: relatively soon after 537/38 AD the hills became deserted, and ultimately they were avoided altogether. Only mercenaries lived there, the French on the Esquiline, for example. The settled areas were now on the lower land, the Tiber has become the city's lifeblood. The medieval settlement area can be easily discerned on an engraving by Brambilla dating from 1590, by mentally removing the building inside the area starting with the Piazza del Popolo to about the level of Castel Sant'Angelo and Piazza Colonna. So the settled area was roughly in the shape of an oval with vertices in Castel Sant'Angelo and the Capitol, with one short side following the whole loop of the Tiber, the north eastern broad side running through the Piazza Colonna and the south western from the Sant'Angelo bridge along the Tiber to the Ponte Sisto and on in a curve to the Capitol. The Pincian, Quirinal, Capitoline and Palatine hills thus formed (still in 1590) a border for the settled area and were not included in it. It is significant that the Capitoline hill had now become known as the goat hill (monte caprino) and the Forum Romanum behind it was called the cow meadow (campe vaccino). The principal ancient sites were now grazing land.

The development of church building confirms this development impressively, both the shrinking of Rome and the withdrawal from the hills. If one considers the important church buildings in late-ancient Rome in the period of Constantine, of the so-called Sistine Renaissance (C7–C10) and to a limited extent from the time of Byzantine rule (C12–C14), then it is clear for all of them that they are either far away from the city centre, regularly even outside the Aurelian Wall, or on the top of hills. This shows: the city was still large, and people were living on the hills. But the latter is no longer true of the Byzantine period. If one excepts buildings that were erected on ancient houses belonging formerly to martyrs (C3, C4) or built into the ancient Roman Forum buildings (C11, C12), then this is true without exception. Such an assumption recommends itself because martyrs typically came from the poorer strata of the population, whose houses were in the lower-lying areas, and using them as starting points for cult sites suggested itself. The spatial distribution of the churches changed during the two dark centuries after the collapse of the Byzantine empire in Italy and before the Carolingian group of buildings came into being (C15–C21), in which the High Middle Ages proclaimed themselves stylistically as well, and which were very different from the late-ancient period (see C20, for example). The

built-up area of Rome decreased dramatically, new church buildings appeared only rarely near or outside the Aurelian Wall (C24, for example). And when in the 11th century the northern Italian cities started to be renewed, Rome was asleep. No cathedral was built in the Middle Ages that could have borne comparison with those in the cities north of the Alps or in northern Italy. S. Maria in Trastevere (C28), the largest Roman church of the period, seems small in comparison with those. And most of the churches were not built on the hills any more, but on the plains (even since the Byzantine period). Admittedly the sites were often dictated by older centres (see C18, C22, C23, C25, C30, C36), monasteries could have different sites (C34); to the extent the site could still be chosen, there was almost no new building on the hills (see for example C19, C20, C24, C27, C29; exception: C17). Once this had become the case, then it was frequently considered necessary to emphasize this exception with an addition like »ai monti« (for example C21). All the great churches built in the High Middle Ages were sited on the plains near the Tiber, S. Maria in Trastevere (C28), S. Maria in Cosmedin (C26, based on a Byzantine diaconate), S. Cecilia (C16) and S. Maria sopra Minerva (C37). The church sites are almost a dating criterion, so significant is the break between late-ancient times and the Byzantine or Carolingian period.

Besides the churches it is above all the bridges, two streets and the Papal residence that are important for the basic structure of the medieval city of Rome. Three bridges (one divided into two) survive in the Middle Ages, the Ponte Sant'Angelo in the north, the Pons Fabricius (A10) and the Pons Cestius in the south, both of which lead to the island in the Tiber and thus together form a Tiber crossing, and also, even further south, the Pons Maior, which collapsed for the first time in 1557 and finally in 1598, and was known from then as Ponte Rotto. If the Ponte Sant' Angelo was important for access to the Vatican, then the sites of the other bridges show that the southern section of the Tiber had become the heart of medieval life in Rome. With S. Cecilia, S. Maria in Trastevere and S. Maria in Cosmedin, most of the major new church buildings since the Carolingian period were in this (physically very limited) zone. To this extent it is not surprising that new church buildings on hills are to be found on the southern ones, the Aventine and the Caelian.

On the other hand, the Ponte Sant'Angelo (B96) provided access to the Vatican. And from it the two most important roads started, which entirely served pilgrimages and processions, and linked the Vatican with the important centres. Both ran in a longitudinal direction through the oval settlement area: the Via Papalis, somewhat further to the north, from the Ponte Sant' Angelo to the present Piazza S. Pantaleo with the Palazzo della Farnesina ai Baullari (H21), from there to Il Gesù (B1), running in the same way as the present Corso Vittorio Emanuele (K11), then branches off to the Capitol from the square outside Il Gesù; and the Via Peregrinorum, which led from the Ponte Sant' Angelo along the present Via dei Banchi Vecchi to the later Palazzo Farnese (H25) and the Theatre of Marcellus (A17), and on from there to the Lateran.

The latter was the actual papal residence, and had been a palace even in the Carolingian period (C15). This was entirely committed to the idea of renewing the greatness of ancient Rome, more particularly the palaces of the Roman emperors, and was to have a lasting influence on the palaces of the West. But it is important for the cityscape of medieval Rome that it was if anything further from the centre than the Vatican, where the only buildings on a monumental scale were Old St Peter's (and the Castel Sant'Angelo), and there was no large residence. The papal residence was thus a long way outside the settled area. Nicholas III, by building the Pasetto walls, which linked the core of the Vatican with Castel Sant'Angelo, in 1277, prepared for a shift of residence to the Vatican, but this did not happen until precisely a hundred years later, after the popes had spent the greatest part of the intervening period in exile in Avignon.

For as long as the pope was resident in the Lateran, the people of Rome were less exposed to his political and military power than they were from the moment that the Castel Sant'Angelo was at his disposal (from the Vatican). When another large church, S. Maria in Aracoeli (C36), was built (exceptionally) on the top of a hill, then it (and above all the open steps leading to it) was also a symbol of the city's bourgeoisie. The Commune of Rome has been founded in 1143/44. For this reason numerous family towers were built in the inner city (as in other Italian cities); these included the Torre delle Milizie (C35), and those of the Frangipani (in the Colosseum and on the Arch of Janus Quadrifons, A51), of the Colonna in the Mausoleum of Augustus (A15) and of the Orsini on the Theatre of Marcellus (A17). The formation of a strong Commune (and appropriate urban structures) had been prevented by the popes since their return from Avignon. Rome developed differently from other Italian cities.

Late Middle Ages and early Renaissance

In 1377 the papal residence was moved back to Rome from Avignon, but not to the medieval residence in the Lateran but (predominantly) into the Vatican. In fact it was not the medieval centre of Rome that was the starting-point for the new development, but the Vatican. Because of the Pasetto walls connecting it with Castel Sant'Angelo, the Vatican Palace was considerably more secure than the Lateran or the city, which some later popes, particularly Clement VII, 1527, came to be very pleased to know. Additionally the city could be completely dominated from the Castel Sant'Angelo. This new direction for planning in general shifted the Ponte Sant'Angelo to the centre of town-planning considerations, it was the papal city's actual access to the city of Rome. The first to hit on the plan of making the Vatican and Rome of a similar size to ancient Rome was Nicholas V (1447–55). In his day there were again about 40 000 people living in Rome. He had summoned Alberti, the most important architect of the early Renaissance (with Brunelleschi) to Rome. Alberti wrote his architectural treatise here, and planned a Vatican city with all the facilities, with gardens, theatres and a large chapel. He also went about some enlargements of Old St Peter's, though did not yet project rebuilding it (see H7). He also planned to renovate all the usable public buildings, and especially the forty most important churches. Nicholas V died too early. Even so, the nucleus of the later Vatican palace wings had been built in the form of the Cortile dei Papagalli (F1), and one of Nicholas's successors, Sixtus IV, realized the plan for a large chapel in the Vatican (F13; now named after him). Under this pope, who acquired the title Restaurator urbis, the great early-Renaissance churches also came into being (F7, F14, F16), the first streets cut through, and also, in the form of the Ponte Sisto, a first bridge between the Ponte Sant'Angelo (B96) and those on the lower reaches of the Tiber (in the south). Also the first monumental palaces since the ancient and Carolingian periods in Rome were built after the time of Nicholas V, in the form of the Palazzo Venezia (F5) and the Palazzo della Cencellaria (F19), probably built to plans by Alberti.

High Renaissance and Mannerism

But Alberti's ideas did not really bear fruit on a larger scale until the papacy of Julius II (1503–13). His architect Bramante now actually created – on the scale of an ancient imperial garden or stadium – the gardens of the Belvedere courtyard, which created and opened up an entire landscape (H6). He also created a palace façade for the Vatican, visible over a distance, open and »extrovert« (H11). However, he was above all concerned with rebuilding St Peter's, whose effect on the cityscape as a whole was not very great for as long as Old St Peter's survived, with its rectangular forecourt. And at that time the most important access road, the Borgo Alessandrino, named after Alexander VI (1492–1503), approached the palace and not the church. The straight Borgo Alessandrino was not only a model for later street axes of this kind, but also the starting point for the first ambitious further development: Julius II had the idea of making the Tiber the centre of a first system of streets and axes. To this end he laid out the Via Giulia (based on the ancient Via Triumphalis) and the Via della Lungara, on both sides of the river and largely parallel to it. These streets were cut almost at right angles from the Via Alessandrina in the north and correspondingly in the south from the Via dei Pettinari, which leads from the Ponte Sisto to Trastevere. This produced an extended rectangle of streets running north–south, with the two new streets on the long sides. The Via Giulia was planned as a magnificent prospect, framed by Renaissance palaces, though some important ones remained incomplete, like Bramante's Palazzo dei Tribunali.

Julius's successor Leo X (1513–21) commissioned the Via Leonina (now della Ripetta), a similarly straight axis from the Via Recta (and thus indirectly from the Ponte Sant'Angelo) to the Piazza del Popolo. Seen from the Piazza, this was the furthest to the right of the three great street axes that start here. The central one is the ancient Via Lata, now the Via del Corso. The Via del Babuino on the left followed under Paul III (1534–49). Northern Rome, in the triangle between the Castel Sant'Angelo (A33), the Piazza del Popolo and the Piazza Colonna, indeed even SS. Trinità dei Monti (H44), could now be reached with ease. And in fact the increasing amount of settled area in the 16th century, compared with that of the Middle Ages, was in that area in particular. This can be seen in Brambilla's engraving of 1590 (the year in which Sixtus V, the great urban developer, died). Paul III additionally completed the square at the end of the Ponte Sant' Angelo on the city side, the so-called Platea Pontis, by pushing the Via Trinitatis through to the Via Giulia, thus linking this early-Renaissance street to the Castel Sant'Angelo and at the same time completing the system of streets radiating from it. These were the first two stelliform complexes actually to be realized in the High Renaissance. The immediately surrounding area had acquired considerable significance because the banking area had grown up here opposite the Castel Sant'Angelo, which was the papal treasury, particularly the Zecca, the mint (H23), on the Via dei Banchi Vecchi, which acquired its name in this way. It was under Paul III that the first Renaissance squares elsewhere in Rome were created, outside the Palazzo Farnese (H25) and on the Capitol, where the epitome of a monumental and uniform square design for the early-modern period immediately came into being (H27). Pius IV continued to build long street axes, but now much more clearly to the south-east, the second area into which the city was to extend beyond the medieval settlement area. He built the Via Pia (the present Via XX Settembre), now starting at the Quirinal, i.e. another papal palace, whose square also had a particular aura of ancient Rome (as the Dioscuri had been discovered there). And additionally Michelangelo – and this is new – gave the square a definite focal point by designing the Porta Pia, in which the idea of (intersecting) routes and urban structures was to acquire intense pictorial expression (see H43).

Baroque and Rococo

The work of Sixtus V

So when Sixtus V (1585–90) embarked upon his great urban development projects, a great deal had already been devised: the concept of long, straight streets, as well as putting them together into systems radiating from a particular point, streets directed at a monument to catch the eye at the end, but also the formation of uniform, monumental squares. And yet Sixtus V was much more consistent in his efforts than his predecessors, and is thus considered the greatest urban developer of the 16th century. Before him most of the axes that had been created had been short and isolated. It is true that a start had been made on a coherent system, but it was not until Sixtus V that the whole city was analysed in terms of urban development, and this meant above all a network of streets for access to the south and east. Sixtus V wanted these areas to experience a population up-surge similar to that seen by the north in the early 16th century. Almost two thirds of the area inside the Aurelian Wall was in fact still unsettled, and in addition these were the healthier areas on the hills. And so

Rome in an etching by A. Brambilla, 1590
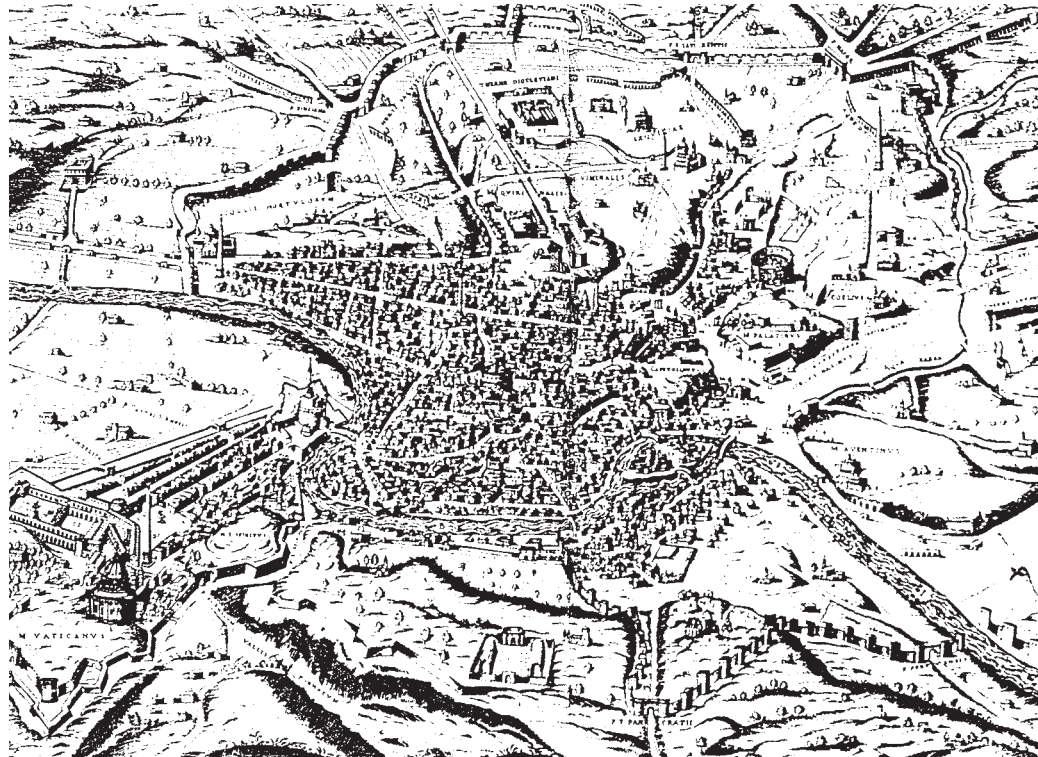
Sixtus V had the axes put further through into the more rural areas beyond the Capitol. Giedion has provided us with a masterly description of Sixtus V's urban development work, and has also presented it graphically. Sixtus V started immediately with the first axis, which ran right through the city from the ex-treme north to the extreme south-east, from the Pi-azza del Popolo to S. Croce in Gerusalemme (B134), 4 kilometres long, through very hilly territory, and dead straight. This was the so-called Strada Felice (now the Via Sistina etc.), never completed in its northern section. The Palazzo Barberini (B45), one of the main palaces on this road, shows in its diagonal placing how consistently (and uncompromisingly) this street thrust through urban areas. Sixtus V and his architect Domenico Fontana were also particularly proud of this masterpiece of town planning, and Fontana em-phasized that it had been Sixtus V who had removed the hills and filled the valleys, and thus made Rome into a city of more gentle waves. But Sixtus V's mag-nificent achievement was not just this single street, with which he began, but the simultaneity of his pro-jects, the fact that he started in many places at once. For a long time, during his »exile« in a vineyard near S. Maria Maggiore, in the reign of his rival Gregory XIII (1572–83), he had been able to reflect about his plan-ning of linking the parts together to form a coherent
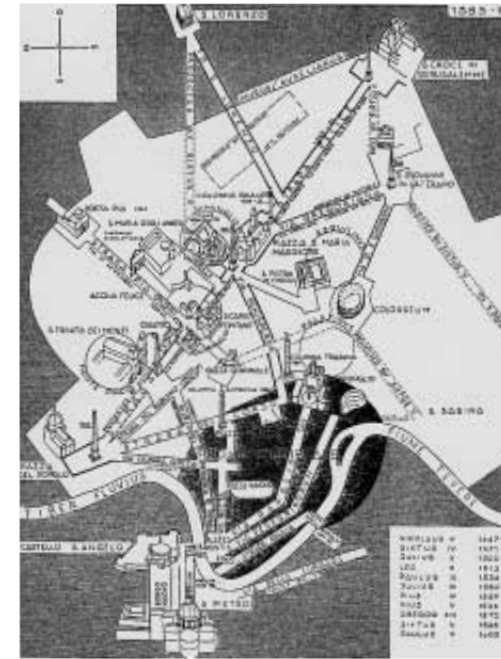
The planning of Rome by Sixtus V

network. There were probably iconographic consider-ations behind this overall concept as well. Sixtus wanted to make Rome into a »single shrine« (Pastor), and to make it easy to reach the most important churches. But this is only one aspect. His plans were no longer like those of Nicholas V and Julius II, who had built on to systems that already related to one of the main churches, like St Peter's, for example. And so it was no longer the old idea of similitude, accord-ing to which the earthly city was supposed to be built as a copy of the kingdom of God, that formed the ba-sis of his concept. He was also no longer thinking of the humanistically inspired ideal city concepts of the High Renaissance with their stellar complexes. It would be to misunderstand the arrangement of streets (also stellar) around S. Maria Maggiore (C7) to try to explain it with concepts of this kind. Sixtus V in fact came close to smashing the concept of the stel-liform, walled ideal city of the High Renaissance. He was concerned, even though his concept was church-related, primarily to relate his overall concept of urban access to function. And thus he was the first to lay the foundations of the modern city plan.

This general plan was flanked by a series of special measures. Sixtus V took up the newly developed tra-dition of squares in front of the principal buildings and made »space« in front of the Quirinal Palace and the Lateran Palace, for example, and started to do so in the Piazza Colonna as well (all admittedly less inter-

esting designs artistically). Then he had obelisks built to catch the eye at the ends of axes or in exposed places – and this then also affected the third papal palace, the Vatican. He had four of these obelisks built: in both the Vatican and the Lateran, at S. Maria Maggiore and in the Piazza del Popolo (and also the columns of Marcus Aurelius and Trajan). The Vatican obelisk was the first and biggest. With this Sixtus also inaugurated a new axis for the Vatican, which seemed to have been shifted so far to the side in terms of his thinking as a whole. For this new obelisk related to St Peter's itself, and not to the Palace. And under Sixtus V the building itself was also completed for the time being by the vaulting of the dome (in a mere 22 months). It also fitted in with the new defini-tion of the axis that Sixtus V again formed the plan of puling down the central row of houses in the Borgo, which led to St Peter's, the so-called Spina del Bor-go – like Nicholas V before him, with Alberti, and Julius II, and later Carlo Fontana (1694), Morelli (1776), Napoleon (1811), Pius IX (1850) and the general devel-opment plan in 1881, until ultimately under Fascism and later it was realized (1936–50) with the Via della Conciliazione. As another flanking measure Sixtus V also restored the water supply, which had simply laid damaged and completely useless since the time of Alexander Severus (222–35 AD), not only to the val-leys, but also to the hills. And the show façade of the Acqua Felice (B18), as contemporaries were already aware, may have been in bad taste, but made an un-commonly proud impression in the figure of Moses, with an almost Biblical sense of mission. And the Fontana di Trevi also got the Acqua Vergine back again (the ancient Aqua Virgo), although at the time this was only for the washing of wool.

The structure of the city of Rome, as fixed by Six-tus V, was already practically identical with that at the time of the Second World War, and in terms of popu-lation size with that in the early days of the kingdom (1870/71). It was not until the 1950s that the city started to extend over the whole area outside the Au-relian Wall. If we look at the population increase, then the time when the axes were cut through in the last two thirds of the 16th century represented an enor-mous upsurge. After the number of inhabitants had gone down again after the Sack of Rome (1527) to about 30 000, in 1599, not even ten years after the death of Sixtus V, it was 110 000, in other words four times as large. After that growth was steady until 1870, and clearly slower with about 147 000 inhabi-tants in 1799 and about 200 000 in 1870.

The further development in High Baroque and Rococo

The possibilities for urban development that remained for the great era of the Baroque and Roman Rococo therefore seem modest at first sight, but affects the

artistic side more, the side of life, while for Sixtus V function remained in the foreground. It was he who created the great axes, the traffic routes or the infra-structure, but his successors created pleasant spaces for lingering within the structure of the city. The greatest of these creations, the framing of St Peter's square by Bernini's Colonnades, is the most eloquent example of conveying the gigantic size of the church and the palace precinct to the more hu-man scale of the surrounding buildings, and using perspective and an abundance of visual axes to fuse an enormous ensemble (consisting of the church and parts of the palace, but also the adjacent streets and the Borgo development) together visually and make it open to experience. Until the pontificate of Alexander VII (1655–67), in which St Peter's Square was built, it is true that Rome had hardly any centrally sited proud squares, but then they came into being in rapid suc-cession over a period of fifty years. Alexander's pre-decessor Innocent X (1644–55) had made a start by designing the Piazza Navona (B61), and under Alex-ander VII there came the square in front of S. Maria della Pace (B79) and the Piazza del Popolo with its twin churches (B87/88) and – in the Rococo period now – the Spanish Steps (B115) and the Fontana di Trevi, together with the area around it (B126). And this omits a number of smaller squares altogether (see only B72, B85, B93, B95, B118). The characteristic feature of these squares built in the 1660s and 70s is the dense building around them, and not so much a sense of opening up into axes leading into the dis-tance. And they were also not (or if so, only periph-erally) related to a monument in the middle, like an obelisk, for example, but to all the surrounding monu-mental buildings. These typically showed, frequent-ly within themselves, but certainly from one square to another, a considerable range of design forms. Hans Rose spoke of a »lack of symmetry tantamount to genius« in this context. What happened here was that Maderno, in S. Susanna (B30) was the first to include the adjacent buildings in the façade design of the main building, and this idea was developed from then onwards. But what this produced was not, as in the cities of Upper Italy or north of the Alps, rectangular squares with largely linear limits, the phenomenon that Lotz called the »piazza salone«, but lively space with an uncommonly individual style to it.

It was not until the late 17th century that Carlo Fontana once more took up the idea of routes and axes (although only in isolation), which Domenico Fontana had launched so impressively a century ear-lier, under Sixtus V. He wanted to repeat the trapezo-id piazzetta in front of St Peter's on the other side of the oval piazza where the Via della Conciliazione starts today, thus giving St Peter's Square a long-drawn-out effect. Of course the complex would not have been anything like as cramped and squashed as it was in the late 16th century. The project was not carried out. But just under fifty years later, the high

Baroque tradition of creating squares as a space for lingering was brought into the most felicitous harmony with the idea of creating axes in the Spanish Steps (B115). The steps give access to the Pincian hill, but at the same time de Sanctis wanted to create a space that seems majestic but comfortable, and thus attracts people to linger. Another route that al-ready earlier became a place in which to linger was the Ponte Sant'Angelo, in the design by Bernini (who, with his own project, also had a considerable influ-ence on the realization of the Spanish Steps). Berni-ni designed the bridge, which was an important part of the processional route, to be a place of leisure as well, by providing the angels as objects of contem-plation, and all this already using the gracious overall forms of incipient late Baroque and Rococo (B96). This perfect balance between movement and repose finally showed even in the design of the Ripetta Har-bour, in which the river was given a flowing façade that was entirely appropriate to it, making a vivid im-pression (ill. p. 171).

Classicism and Historicism

Classicism's great town-planning project was the Piazza del Popolo. Here Valadier used existing fea-tures very skilfully, especially the twin idea, which had already been realized with the pair of Baroque churches and which expressed the vestibule or gate-way character of this square so well, but he also de-veloped some uncommonly modern ideas: by inter-linking green and built-up areas and by fitting together various planes (see p. 277 and K1). Thus the first large public park in Rome emerged on the Pincian hill in this context.

But two other 19th-century measures are even more important for the Roman cityscape. First of all there were excavations and exposure of fea-tures of the Forum Romanum, the Forum of Trajan and the Colosseum in particular. But a piece of town planning in the more restricted sense was a second bundle of measures. Their principal characteristic is above all that they shifted the gateway to the city of Rome: the early railway age did not lead only to build-ing up a considerable area on the Viminal, but also to the fact that the most important town-planning meas-ure started near the station: the first years of the king-dom produced a large east–west axis to complement the great north–south axis of the Corso (see plan with K11). It started at the Piazza Esedra (now Piaz-za della Repubblica), which was also designed in a monumental fashion towards the end of the building works (K16). From here the Via Nazionale (K9) leads to the Piazza Venezia, which was subsequently greatly enlarged, and the monument for King Vittorio Emanuele II (K15), visible for a considerable distance, was added. Starting from the Piazza Venezia, what had been started in the Via Nazionale was continued
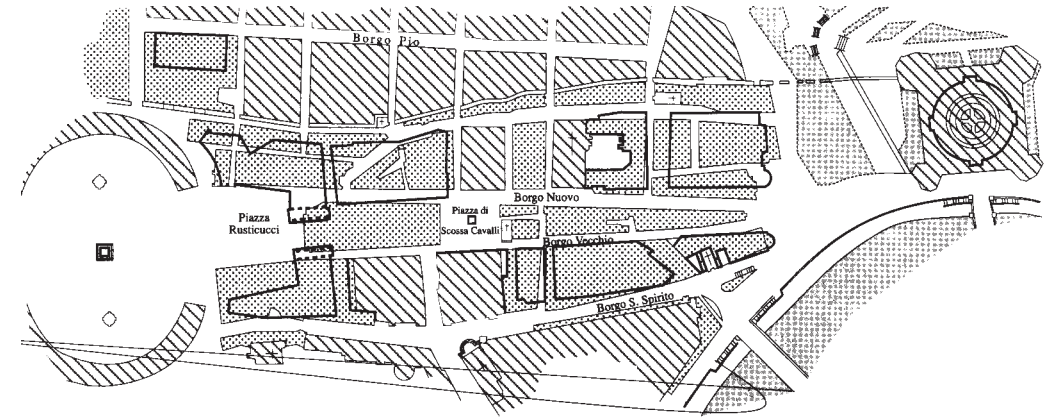
Fascist remodelling of the Borgo area (1938–50) with the Via della Conciliazione breaking through the urban structure

in the Corso Vittorio Emanuele (K11), which since then has cut through the Tiber bend in an east–west direction. Thus the Piazza Venezia became the point of intersection between the ancient Via Lata (the Via del Corso) and the 19th century Via Nazionale and Corso Vittorio Emanuele. Other new streets were created to do justice to the newly emerging traffic requirements, especially from the station via the Via Barberini and Via del Tritone to the Piazza Colonna. A great deal of attention was paid to monument pro-tection in the course of this work. The town-planning measures are effectively the core of architectural de-velopment in the second half of the 19th century and are thus described more specifically in the appropri-ate chapter (see pp. 278, 279).
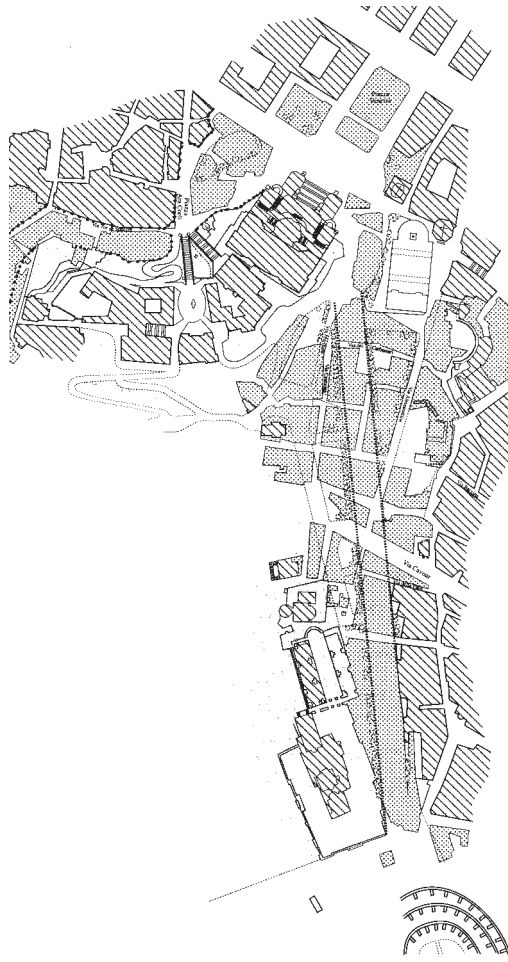
Modernism

Rome expanded enormously in the period after the First World War. After it became capital in 1870/71 the population doubled within 30 years to a good 400 000 inhabitants. Coherent settlement beyond the Aurelian Wall was established for the first time in the early 20th century, though at a measured pace. Workers' quarters came into being in the south-west, the Quartiere Testaccio (K22) and the Quartiere Gar-betalla (M2, M3) from the 20s onwards. A more re fined residential area formed by the Via Nomentana, near to the Porta Pia (H43), including many of the most interesting villas and small palaces (very early: K19, Ximénes). The expansion of Rome became a positive programme under Fascism: partly because of a conscious policy of reducing the population in the cities (see p. 297), and partly (and particularly visibly) with the aim of linking Rome to the sea. The E'42/ EUR centre (M24) was planned at the halfway mark,

and access to it provided by fast roads with many carriageways. Of the other large and prestigious pro-jects the Foro Mussolini (now Foro Italico, M5) and the university (M9) were built outside the Aurelian Wall, but close to it. Very dense expansion of the city did nor start until after the Second World War, largely in stages and rings: in the late 40s and 50s still quite close to the old town (for instance M40, M41), other-wise (largely workers' estates) on main roads out of the city like the Via Tiburtina (for example M37, M38), because that is where industry was sited; this phase of settlement was dominated by the Neo-Realistic de-sign mode (»rustically attractive«). Before the start of the second phase, because of the Olympic Games in 1960, the area around the Via Flaminia and the EUR became a focal point for building (see M45, M46, M48, M49). In the second phase, starting in the mid-sixties, settlement started near to the Grande Rac-cordo Annulare, the motorway ring that was being built; this was mainly in the form of large, block-like complexes with comprehensive infrastructure, very much in the spirit of the International Style (for exam-ple M53, M55, M64, M67, M68). The area beyond the motorway ring was settled almost at the same time, frequently (especially in the north) on the popular hill sites, but usually not in the form of large complexes, but as more fragmented development (for example M62, M65, M66). It is precisely these areas, which seem to have no particular order, that show that the almost revolutionary set of town-planning guidelines and instruments formulated in the law of 1942 in Italy were never followed consistently.

Building activity slowed down considerably from 1973 (because of the oil price shock and the world economic crisis), leading to a phase (as at the time of early-Mannerism, see for instance H31) in which a large number of projects originated that had no chance of being realized (often on the basis of Giam-battista Noli's famous town plan of 1748). The inner city in particular again became the site of many very carefully adapted building measures (see M63). There

well as the axis leading to the principal site of Catholicism, two more were created on the key sites of imperial antiquity. The first, and the more famous, the Via dei Fori Imperiali, leads from the Piazza Venezia past the left of the Capitol to the Colosseum (A25), through the middle of the Fori Imperiali, and the other, the Via del Teatro di Marcello, curves past the right of the Capitol, then passes the Theatre of Marcellus (A17) and on to the Forum Holitiorum, the commercial centre of ancient Rome. Thus these two axes opened up the entire core of the ancient city. The reference to the ancient Roman imperial period, and especially to the Augustan era, showed in many of the measures taken, from the uncovering of ancient buildings (excavation of the Forum Romanum was concluded in the Fascist period) to the choice of the so-called Stile Littorio (for detail see pp. 297–299). The new show boulevard of the Via dei Fori Imperiali is characteristic of the development of Fascism in Italy to the extent that this link with ancient times was very decidedly built into a fundamentally Modernist mood, a mood of new beginnings. The idea of taking traffic past the monuments of antiquity on a multi-laned dead straight fast road was rightly seen as part of the intellectual property of Futurism, as its ideal of technology and rapid movement was obviously a key feature. In fact, unlike German Fascism, the Italian version was by no means scornful of Modernism (see pp. 297/298). Comparable expressways were built to provide access to Mussolini's own large buildings, for example the E'42/EUR (M24). The present had found its way into the oldest centre of the Eternal City. SG

Two Fascist axes east and west of the Monumento Vittorio Emanuele II cutting through the ancient Imperial city (1936–38)

was even a plan at this time to break up the Via dei Fori Imperiali again.

This addresses the very heart of the city, which in fact was redesigned at two significant points in the three quarters of a century after the First World War, although the urban design given to it by Sixtus V and continued in the 19th century was largely retained. Mussolini's Fascist regime was responsible for both redesign operations, and both were very typical of it. In 1932 the principal architect of the Fascist era, Piacenti, carried out a measure that was in fact based on centuries-old ideas, the opening up of the Via della Conciliazione, a visible expression of the normalized relations between Italy and the Vatican State, introduced at the latest with the concordat of 1929. As

Antiquity (753 BC to AD 313)

It does not do justice to ancient Roman architecture to view it primarily in terms of the history of style. It is much more important that it was highly original in developing building types and forms, and the techniques necessary for this. It is this, and not the development of style that provides the key points in a chronological arrangement. The independence of Roman architecture, particularly in terms of Greek architecture, cannot be emphasized too energetically. A whole series of characteristic and fully independent features emerged, which was not the case in sculpture. Roman town planning, which is addressed only peripherally here, is discussed at some length in the entries on the Forum (A1) and on Ostia (A30).

Building types, forms and techniques

Numerous building types developed in Roman architecture, partly based on Hellenistic forerunners: from aqueducts via baths and amphitheatres (and freestanding theatres, see A17) to the triumphal arches. And the standard type of Roman square with its framing porticoes, with the principal building added on one side should also be mentioned here (see A13). One building type is particularly outstanding, the basilica. It represents Roman architecture's most important contribution to Western building history. This was where the form emerged of a structured and directed interior with a higher central section and adjacent side sections or aisles (see A11 for detail). This building type was used for non-religious purposes in the Roman world. There are three principal points that should be emphasized. Firstly, the basilica became the dominant type of church building, i.e. for the building task that was the most important until the Renaissance, which was then joined by (only) a second that was similarly important, the building of palaces. Thus the significance of its development was considerable. If one looks here at further elements like the apse, the ceremonial and the mosaics, then the effect Rome had on the Western Christian world becomes all too clear. In Rome the apse (which can already be found in Hellenistic predecessors) became increasingly significant as the place of greatest distinction (for the emperor's throne or the cult statue). Ceremonial, as continued in the West, went back to Domitian (A27), and mosaics were omnipresent in the Roman world. Secondly, the fact that a secular building type was adopted for ecclesiastical architecture shows how functional Roman architecture was, in that its types could be used for a number of purposes. Constantine may have taken over this building type for Christian church architecture for a number of reasons (see p. 67). But the very fact that it was taken over shows that building types in Rome were perceived to be able to fulfil various functions.

The basilica, the court building or market hall, became a church. The design of the imperial chamber in Domitian's palace on the Palatine was interestingly very similar to that of the halls in baths, but in the 2nd century AD also influenced the architecture of temple interiors, an entirely different problem (see A36). Forum, especially the imperial forum, and temple precinct had fundamentally the same structure, and they both comprised a temple. This flexibility of building types has been convincingly interpreted as being the expression of the very close link between religious and public life in Rome. But the most important point, thirdly, is that it was with the basilica that the idea of the designed interior made its breakthrough. When the Roman basilica was developing as a building type in the early 2nd century BC, the interior became the central design theme. Designed interiors had previously been found at most in Hellenistic antiquity, but they were far more modest. Anyway it was Roman interiors that radically changed the history of architecture. The entire later Western development would be unthinkable without it. In Rome itself the first important objects for interior design were the baths, then, as a related building form, palaces (A27), later, in the mid-2nd century AD, the cult room as well. In religious history this can be seen as the transition from the blood sacrifice, which was celebrated in the open air, to the rite of consecration.

The most important innovations in the realm of building forms are also associated with the increased importance of the interior. The column was adequate as the central expressive form in an architecture in which only the exterior was designed throughout. But if the interior was to be designed as well, then new building forms were needed for the walls. Ultimately the principal innovations in Roman architecture in terms of building forms always affected either the interior or the exterior wall, or its link with the column order. This applies first to the way in which the wall runs. In this respect the most interesting forms were those that went beyond a simple box shape. The first of these is the rotunda, the vaulted, cylindrical building form. In Roman architecture it was usually surrounded by a circle of niches. For the interior lighting was the principal problem here, and for the exterior the revelation of the rotunda form (and beyond this the form of the circle of niches). Lighting was achieved at first through the apex of the dome (in early examples in Rome from the Augustan period onwards; see also A31), later through windows in the drum or clerestory (in examples from the time of Hadrian onwards, but above all in the 3rd and 4th century AD); the openings became larger and larger. In the first rotundas, in the 1st century AD, the exterior was not yet fully revealed (see A24). Development in this respect was not concluded until late antiquity (see A31, A53). A second central building form for interiors was that of the groin vault, the vault created when two barrel vaults intersect at right angles. In Roman architecture

they were made of cast mason-ry – developing beyond previous Hellenistic buildings. In Republican examples the bays were further separated by transverse arches (A9). These had to be omitted when the groin vaults were intended for use as a system that could be extended at will in two directions; this step followed in the 2nd century AD (A29, A50). Because in Roman architecture circular lines so often occur in combination with straight ones, the concept of »architecture with mixed lines« was coined for this. Before Roman times, correspondingly curved building forms are found, even in Hellenistic architecture, only in transient small buildings, never on a large scale. It is obvious that architecture since the Renaissance, especially the »mixed-line architecture« of the Baroque period, owed everything to these developments in ancient Rome. Mixed lines in ancient Roman architecture can be seen even more clearly if one considers the second-mentioned element, the order of columns. Two developments are central to this: their connection with the wall and above all their connection with the round-arched form, both contradicting the Greek system of column order with horizontal entablature and not recorded in Hellenism until 100 BC. The Greek column order was connected with the wall by applying the orthogonal order of column and entablature to the wall, into which an arch was cut, the pier arcade; this continued in the Republican period (A9). Under Domitian a column order placed in front of the wall came to be taken for granted, it became a column »curtain« in front of the wall. The column came into even more intensive interplay with the wall as soon as it clearly replaced parts of it. In places it now replaced the piers in the pier arcade, and the wall arch was placed directly on top of it, and in places it replaced the corner pier of a groin vault and this vault was placed directly on top of it, thus creating the form of a baldacchino. Completely formed examples of both phenomena are not to be found until late antiquity (see A30 and A50).

The most important of these building forms were made possible only by the invention of new building techniques, above all of Roman concrete (opus caementicium). First mortar was taken from the Greek cities in southern Italy, a mixture of sand and burnt lime that reacts when water is added, creating artificial limestone. This technique was known in Rome in the 3rd century BC. Roman concrete was then derived from the chance discovery that the combination became waterproof and pressure resistant to an enormously high degree if the sand was replaced with (volcanic) Pozzolan earth. Even the greatest technical achievements of Republican Roman architecture could scarcely have been realized without this invention, for example the shrine in Palestrina (A8) or the aqueducts. Vitruvius describes this technique in detail in the early 1st century AD. Usually, but not always, the opus caementicium is clad, at first with opus incertum (polygon), then with opus quasi reticu-

latum and opus reticulatum. In the 2nd century AD brick cladding made a general breakthrough. This building technique was essential for many building forms, because it was easy (and cheap) to model walls and construct oblique surfaces and vaults. All that was needed for the shuttering was a good carpenter. After the fire of Rome in 64 AD the city was rebuilt using this technique. It appears very extensively in Ostia (A30), which experienced its heyday in the 2nd century AD. Lavish spatial forms like those used in the Domus Aurea (A24) and the palace on the Palatine (A27) would not have been possible without this technique, nor would it have been possible to build the Pantheon (A31) or the basilica of Maxentius (A50). But it was some time before the (brick-clad) »concrete« wall appeared on the outside without order or decoration, and the building derived its effect from the frugal aesthetics of light and dark, of wall and hollow. The functional buildings (A29, A37) were the first here.

Chronological survey

The Republican period (A2–A12)

Hardly any independent developments took place in Rome during the first three centuries of the Republic. Etruscan influence can be seen in the broad, flat, short proportions of the temples (for example in the Temple of Jupiter on the Capitol, see A1, or in temple C in the Largo Argentina, A3). This changed from about 200 BC, when Greek models replaced the Etruscan ones. Most significant is the change in proportions, which now became considerably more slender and tall (see first A7). An intensive process of Hellenization started in Rome. But this was only one trend in the last two centuries before Christ, which was not even the more consequential one for Western architecture, as it was in this period that the principal characteristics of Roman architecture were established. It has already been pointed out that the basilica developed as a type in the early 2nd century, and also the triumphal arch, and in the 1st century BC the amphitheatre and probably bath architecture as well. Central design forms developed, especially for the temples. This happened firstly under Sulla, or shortly before, when high, dominant terraces were developed for them – in Tivoli, Terracina and Palestrina (A8) – and when the column order was first connected with the wall (A9). Secondly this happened in a rather more general way in the two centuries when the Roman temple (under Etruscan influence) gained a clear orientation. Thus the round temple (tholos) was given a porch in almost all cases (see A3, A6, A31, A40), and the peripteros, i. e. the rectangular temple with columns running round all four sides, was modified to become a podium temple in the form of a pseudoperipteros, i. e. a temple whose rear section

(the cella) was clearly distinct from the front section (the columned hall); in this case the stylobate, the base with steps on all sides, was replaced by the podium, a base whose sides have no steps, but have a flight of steps to provide access at the front. A similar spirit can be detected even in ensembles of several buildings: all the temples in the largo argentina face in the same direction (A3). This continued in the Julio-Claudian period: when squares were designed (the fori imperiali, for example), the temple did not stand freely in the middle, but was linked with the framing buildings at one end of the square (A13, A20).

Early Julio-Claudian period (A13–A23)

The fori imperiali address two fundamental characteristics of the Julio-Claudian period. For Rome this was the beginning of a period of urban development intended to impose order and at the same time the period of imperial forms. In Rome this regularization (unlike Miletus, in the Greek classical period, or Roman provincial cities) never affected the whole of the city, but always just selected public centres. Thus Augustus and Caesar redesigned the Forum Romanum to impose order (A1) and at the same time devalued it as a political centre. It was enough for imperial pride that Augustus was turning Rome into a city of marble. He had 82 temples restored and built 10 new ones. The marble quarries needed to do this (in Carrara) were opened in 36 BC. If one also adds in the necessary preparation time, then it was probably Caesar who took the initiative. As well as the fori imperiali, the great monuments that in the Republican period had flourished as a building exercise for the whole of the upper class were now used to serve only the rulers, and at the same time monumentalized. This was particularly true of tomb building (see A15, A12). The triumphal arch found what was later to be its customary form in this period, in that here too column order with column and entablature was applied to building with mass and walls (piers, arch and attica), for the first time under Augustus in the Forum Romanum (see A1, A26). The high plinth on which the single temple was raised also gave an impression of grandeur. And at the time of Augustus the Corinthian order made a breakthrough in Rome, and from then onwards it was used exclusively. Here the Ara Pacis (A18) led the way, and the Temple of Mars-Ultor (A20). The model predominantly used by Augustan architecture, in the frieze of figures on the Ara Pacis, for example, was Periclean classicism (see A18, A20, also A31). The Hellenistic garland frieze was another frequent feature.

At the same time, the Augustan period was predominantly conservative, and so opportunities for innovation were ignored. It is well known that Augustus always emphasized old Roman values, and presented himself merely as primus inter pares. The con-

tent expressed by Augustan art and architecture can be reduced to a common denominator: Roman spirit in Graeco-Periclean clothing. They were also conservative in matters of building. There was scarcely an architect who would trust in the effectiveness of the wall alone (without column order). Column order was probably used extensively as well to maintain a sense of »decorum« (A17) in precisely those buildings and building types that had previously been considered a threat to Roman morality and, like stone theatres, had been realized only in isolation. Vitruvius, the great architectural theoretician of antiquity, embodied this conservatism. The opportunity of using opus caementicium, which was now completely mastered technically, to find a new aesthetic language was not taken. The impression of heavy walls, already conveyed by architecture under Sulla and even before that, did not come about. What was known as gravitas romana was frequently lacking. This did not change until the reigns of the last emperors in the family. Under Claudius, rusticated stone, left in its roughly hewn condition, became the most important expressive feature (A22, A23). Even more radical was the new start under Nero.

The 2nd half of the 1st century (A24–A27)

Two tendencies dominated the period from Nero to Domitian. Firstly, brick-clad concrete and thus the wall became dominant. Rome was rebuilt after the fire in 64 AD using this economical technique. The second tendency seemed to contradict this, but in fact did not: the first magnificent spatial complexes tailored especially to the person of the emperor came into being, the Domus Aurea (A24) and the palace on the Palatine (A27). Their builders, Nero and Domitian, who lived according to the image of the divine emperor, were assassinated for precisely this reason, and became victims of damnatio memoriae. But their buildings were masterpieces of a spirit that was to win through later. Nero and Domitian, unlike Augustus, no longer wanted to relate the unfolding of imperial magnificence to tradition and the community, but to the person of the emperor alone. Each built a residence, in the first case a villa that had been moved into the city and blown up to gigantic proportions, and in the second the prototype of the Western palace. Both ensembles showed a quite new complexity in terms of spatial sequences and the shape of individual rooms, varied, oblique-angled, and frequently lavishly articulated with niches. This was particularly true of the rooms that surrounded the central octagon of the Domus Aurea like »leftovers«. A lavish sequence of spaces also developed in the building of baths under Nero (see A28). Pleasure taken in complex spatial sequences, and partly also in playing with illusion, is paralleled in contemporary painting in Style IV in Pompeii. The fact that we know the names of

the architects, Severus and Celerius or Rabirius, speaks for the high quality of both building complexes. Imperial splendour was demonstrated even more vividly (for detail see A27) in the palace on the Palatine, in which Domitian lived out the Hellenistic idea of the divine Emperor and created the court ceremonial that was later to become customary in the West. The walls were lavishly articulated with niches, thus the fact that concrete can be shaped was used to the full, and the wall could be perceived as a mass; this was the beginning of Roman mass building (see also A25). In addition, an extravagantly rich play of columns was placed in front of the wall – like a curtain. This form of wall with a sense of movement (with niches and free-standing columns in front of the wall) remained dominant until late antiquity. Coloured stone was used for decoration. Rooms were immensely high and awe-inspiring. The column developed comparably under the Flavians, with each one being placed on its own high plinth (A25, A26). Spatial height and layered construction are also typical of the second masterpiece from the period of Domitian, the Arch of Titus with its high attica, and also of its relief style (A26). Both works are the epitome of what was called »Flavian Baroque«. The great political break, the fall of Nero, thus had no lasting effect on the history of architecture. Domitian took up the building style of the age of Nero. The only change was an interim one, under Vespasian, who was a Flavian, and thus the first person who was not a member of a noble family to come to power. Vespasian built modestly (in the case of his temple in the Forum Romanum, A1), but also ostentatiously, when erected for the people the largest building in Rome, the Colosseum (A25), over Nero's villa.

The adoptive emperors (A28–A38)

The largest imperial forum was built under Trajan, together with market buildings (A29), baths (A28) and a harbour, which led to the rise of Ostia (A30). These buildings represent considerable change. In the imperial forum and the markets Trajan was clearly turning more to the community as a whole again, and also to tradition. The Basilica Ulpa in the Forum of Trajan was the last and largest of these basilicas committed to the classical model, and also the last large secular building in Rome with a Greek row of columns and epistyle. But Trajan's period was also marked (in a different way from the Augustan period) by further advances in concrete and brick building. It saw the first group of buildings in Rome that relied solely on the frugal aesthetics of this material. In the mean time, designing large, complex spaces in concrete had become commonplace (A29). Ostia (A30) embodies this age better than Rome. Ostia is to the era of Trajan as Herculaneum and Pompeii were to the pre-Flavian era.

Commentators like to see Trajan's successor, Hadrian, as a phil-Hellene. But his love of Greece was substantially different from that displayed under Augustus, the moralizing element in particular being absent. Architecture under Hadrian can no longer be reduced to the common denominator of expressing the Roman spirit in Greek clothing. Numerous developments in the field of architecture fell into the age of Hadrian that do not show even the slightest Greek influence: Hadrian built the first temple that was dominated by its interior, and this was a concrete and brick building (A31). Three-dimensional forms in concrete and brick were developed in an almost virtuoso fashion under him (A32). Circular form dominated ground plan and elevation (rotunda), especially in the predominant type of arch, the Syrian arch. And even the Villa Hadriana, which seems eclectic in many ways, was specifically of its time in its shifted axes and highly innovative forms in terms of space, elevation and vaults. In the Pantheon, this period produced one of the most impressive »classical« spaces in Rome, but at the same time the Villa Hadriana was built, an ensemble of buildings with which Post-Modern architects have always felt a sense of empathy because of its complexity.

An era of great buildings came to an end with Hadrian. Domitian had established the palace as a type, Trajan left behind the great imperial forum, and in the Pantheon Hadrian found the quintessence of the Roman rotunda. His successor Antoninus Pius was an architectural classicist (A35); only two buildings have survived from his period in Rome. For the first time building activity outside Rome, in Baalbek, for example, put building in the capital clearly in the shade. Clearly the provinces were getting stronger – in fact they had been providing the emperors since Trajan.

The Severans, Maxentius and Constantine (A39 to A54)

Only the Severans built on a large scale in the period of just under a hundred years between the adoptive emperors and the Tetrarchs. The only exception here was the Aurelian Wall (A44). Under the Severans, the first non-European emperors, architects returned to tried-and-tested building types, but the nature of design did change. A tendency to megalomania, (in the building of baths) became stronger (A43), and a completely new atectonic approach can be sensed in the buildings of this period. The design of the arches in particular seems ornamentally atectonic: their articulation seems to be overrun by »carpets« of reliefs, thus losing the impression of lucid articulation (A41, A42). Also eastern cults were promoted for the first time at the highest levels of state, a (lost) temple of Serapis was built. All this was to bear rich fruit in late antiquity; its relief style was already starting to show

through (A42). The Severans were responsible for a whole range of buildings – baths (A43), sections of palaces on the Palatine (A27) and a triumphal arch (A41) – and thus the last large dynastic building programme before Maxentius and Constantine. Even before their day the Baths of Diocletian were built, the last large baths to be built in Rome (A46).

The Arch of Constantine is probably the best-known building dating from the first three decades of the 4th century, and it could convey the impression that architecture under Maxentius and Constantine was conservative. The arch is traditional in type and its reliefs were largely taken from other buildings and adopted (A52). But this impression is deceptive. Vaulting technique and mass building found their most expressive forms in the Basilica of Maxentius (A50). Here these forms were now transferred to the basilica itself. Articulated building, which was combined with mass building in this basilica, found forms that were bolder and lighter than ever before (A53). Openings had never consumed so much of the wall. The niches were now as close together as possible. Even the dome was no longer a simple hemisphere, but was articulated by ridges, first of all by mere reinforcements (see A47, A53), and not until later by ribs. Two central developments came to fruition in these decades: now the centrally arranged structure stood freely within the outer building, its lavish articulation recognizable down to the last concha. Now the form of the interior could be clearly recognized in the exterior (A53). And the »final fusion of the Hellenistic column apparatus into the structure of the wall« now took place »in the form of the columned arcade« (Rakob). The arcade was now placed directly on the column, not on the pier (see A30). And from then on the column, in combination with the groin vault could replace the (wall)pier, producing a baldacchino shape (A50). The highest stage of spatial differentiation and vaulting technique had been achieved. All this was to live on in Byzantium. But in Rome the simple, box-shaped space of the basilica, that had been developed under the Republic, was adopted once more for the new large churches. The reasons for this are unclear: did inventive powers decline when the residence was moved? Were the complex spatial forms considered to be too »coloured«, i.e. much too tailored to imperial and ancient and pagan building requirements? In any case a large proportion of medieval Western architecture was based on the rediscovery of the art of vaulting and handling space in ancient Rome. The old capital in the West was thrown back into a state that had already been achieved in Republican architecture, which had a strongly Hellenistic tinge. But Byzantium inherited Roman vaulted construction, the least Grecian building form that ancient Rome produced.

The independence of ancient Roman architecture

Richness of invention in terms of building types and forms was probably the most important characteristic of Roman architecture. The independence of this art, which contrary to a current prejudice did not get stuck in imitative dependence on Greek architecture, can also be seen in many other characteristics. Roman architects often thought in systems. This was particularly clear in town planning and the design of squares. It is probable that they saw enclosed precincts, the templum, for example, as sections detached from cosmic order. Orientation had qualities of the sacrosanct. Even in the Republican period this essentially Etruscan concept was already combined with an element of Greek origin, in that porticoes were introduced as framing sections of the building. Among the first surviving examples are Tivoli and the Julian imperial forums in Rome (A13, A20). The temple – as such already oriented – was once again specially bound into these squares and acquired further orientation, as it was placed on one of the narrow sides and connected with the framing porticoes, while in Hellenistic building complexes it stood freely in the middle (see A34). The significance of orientation can also be seen, particularly clearly, in isolated buildings. Circular buildings – the tholos or rotunda – were given a porch; this is different only in exceptional cases (A6) and sometimes also in tomb architecture (but see also A47). The oriented podium replaced the stylobate, which had steps on all sides. Ultimately entire landscapes were subjected to this orientation system, for example under Sulla in Palestrina (A8). The desire to impose order on the Forum Romanum also reveals a similar spirit (A9 and A1). The landscape became part of the architectural system in a large number of ways. These include gigantic terraces with substructures (A8 and A32), and also new designs for whole chains of hills (A29) and the fact that theatres were no longer built in natural troughs, even though there were plenty of these available in the city of seven hills (A17). Gardens (A32) and tumuli were increasingly brought into architectonic form (see A12, A47).

But there were also obvious breaks in this systematic thinking. Under Hadrian, discontinuity, along with richness of imagination, seems to have been almost a programme in its own right for a few years (A31, A32). At least in the Republican period one can detect a profound break between popular and high art (see A14). And with column architecture and wall architecture two strands ran alongside each other for a long time. It is precisely in this last point, so central to Roman architecture, that its power to bind things together and to create systems is shown. The wall could be combined with the order, and the column with the round arch. A similar synthesis of different details within one system can be seen in the fact that

elements of movement developed in Roman architecture and appropriate ideas were perfected. Spaces and buildings were designed in a great variety of ways and drawn together as a sequence within a complex. Changing spatial impressions, squares and interiors followed each other in complexes of this kind (A8, A29, A11). Many of these design forms had Hellenistic roots, though most of them were considerably more modest.

In Roman architecture the concept of the façade became a central theme. It was used to hide walls or rooms. Façades used in this way are found for the first time in Palestrina (A8). A design form used in Domitian's palace on the Palatine also fulfilled the function of a façade (A27, see also A51). Here dense colonnades, true curtains of columns, were placed in front of the wall, changing its character considerably. It was only in the later period that the interior or exterior wall was increasingly allowed to make an impact in its own right, for instance as a curved wall with openings (see A29, A49, A53).

Roman architecture aimed at functionality in many respects. When Frontinus praised the aqueducts (see A22), this was by no means an isolated case. The key building technique of Roman architecture, opus caementicium, was able to meet functional needs. Functional buildings – aqueducts, but also baths and amphitheatres, for example – were valued more highly than they had been in Greece, where many functional types – the theatre, or even the stadium – served cultic purposes, and were not there just for pleasure.

It is a fundamental misunderstanding of Roman architecture to suggest that its principal characteristic is an imitative dependence on its Greek precursor. The phase in which ideas were taken over directly was very brief, and affected mainly the 2nd century BC, of which scarcely anything remains in Rome. Even in the 1st century BC a process of romanization was taking place, under which Greek and Hellenistic roots increasingly diminished in significance. Roman art was independent above all in the phases from which the great monuments derive. Buildings travel only seldom, the craft relates to places. Thus a completely independent architecture came into being in Rome, on the basis of its own needs and an indigenous building technique. Wall (mass) and interior are genuinely Roman themes, and so are vaulted building forms with mixed lines (which are thus linked with mass and interior). Greek column building, which is conceived to be looked at from the outside, could achieve none of this. »Roman art stands at the beginning of Western art« (Kraus) is particularly true of architecture. SG

A1 Foro Romano
Via dei Fori Imperiali (plan V 1/B)

Many of the chief buildings of Roman-antique architecture stood in the Forum Romanum. They bear witness to different architectural ideas, structural tasks, and commissioners. This is how they will be described in their individuality and in their chronological context (A9, A11, A16, A26, A34, A35, A40, A41, A49, A50). However, the Forum Romanum is also the centre of ancient Rome, which was the dominating power in ancient Europe. The consistent and magnificent design of that ancient centre will, by way of introduction, be described here: an invitation to take a walk around it.

The first settlement in Rome was on the Palatine hill. At that time there were unwholesome marshes in the hollow where the Forum is located. The boundary of the town seems to have followed the course of the later Via Sacra, because buildings from that period – the Vesta shrine (A40) and the Regia (12) – are found within that limit, while beyond it there are only tombs. The Forum was first paved around 600 BC, in connection with two further events: the Cloaca Maxima, the main drainage channel which also drained the Forum, was built at that time, and the Etruscan kings took power over Rome (tradition has it that this was in 616 BC). Thus if use was now being made of the valley, it may be supposed that the other two adjoining hills, the Quirinal and the Capitol, were included in the settlement no later than at this time. The largest Etruscan temple, to Jupiter Optimus Maximus, was built at that time. It was though not consecrated until 509 BC, the year when the foreign kings were expelled and the republic was founded.

The temples of Saturn (5) and the Dioscuri (6), two important shrines, were erected at the very beginning of the republic. The Temple of Concord of C. Flavius (3) followed in 367 BC after his victory over the Gauls. When Rome took over the hegemony of the western Mediterranean following the Punic Wars, the building density increased. It was though still disordered, owing to the plurality of powerful Maecenases. Nonetheless, the basilica, the type of building necessary to Rome as a centre of power, was developed in the early 2C BC. Two of these basilicas also predetermined the later arrangement of the square (A11). But only one republican building survived into the imperial period. This was the Tabularium (A9), which also introduced a new development: its tall show wall gave the Forum a point at which to aim, and thus began to make it more orderly.

The work which Sulla, the leader of the Optimates' party, had begun by building the Tabularium was completed not much later by Caesar, who was the leader of the opposing Popular party, and by Augustus, Caesar's adopted son and successor. All the buildings in the Forum proper go back to their period of rule, apart from individual monuments (columns, etc., 9–11), the Temple of Vespasian (4), and the Arch of Septimius

Severus (A41). The Forum proper is the area between the Capitol and the Temple of Caesar (7).

When Caesar was setting out this area, he was helped by the fact that significant lines for the formation of a city square had already been laid down in the two flanking basilicas. These lines were more clearly emphasized under Caesar's supervision (A11). But Caesar made the decisive intervention when he moved the Curia (A16) away from the Comitium. The Comitium (1) was a circular open place where the people's assembly was held, with surrounding terraces for listeners and a speaker's platform, the Rostra, which formed a segment of the terraces. The Curia, the place where the Senate met, adjoined this exactly to the north, as points of the compass were regarded as magic in Rome (cf. also A30). Caesar now

built his own Forum (A13) here and relocated the Curia. The consequences were radical: by means of this relocation, he was expressing the fact that he was going to erect his own new Curia Iulia (A16) and thus take the Senate's own building away from them. The Curia was even attached to the corner of his own Forum like a vestibule. At the same time the Comitium was partly built over by the new Curia, and its chief feature, the speaker's platform, was removed: the platform was relocated and placed in front of the large backdrop of the Tabularium (2). This rearrangement was a direct attack against the two highest instruments of state. Their disempowerment was, by architectural means, made very apparent to the onlooker. Compared with such radical changes, the fact that Caesar was closing an open section by moving the Curia towards the
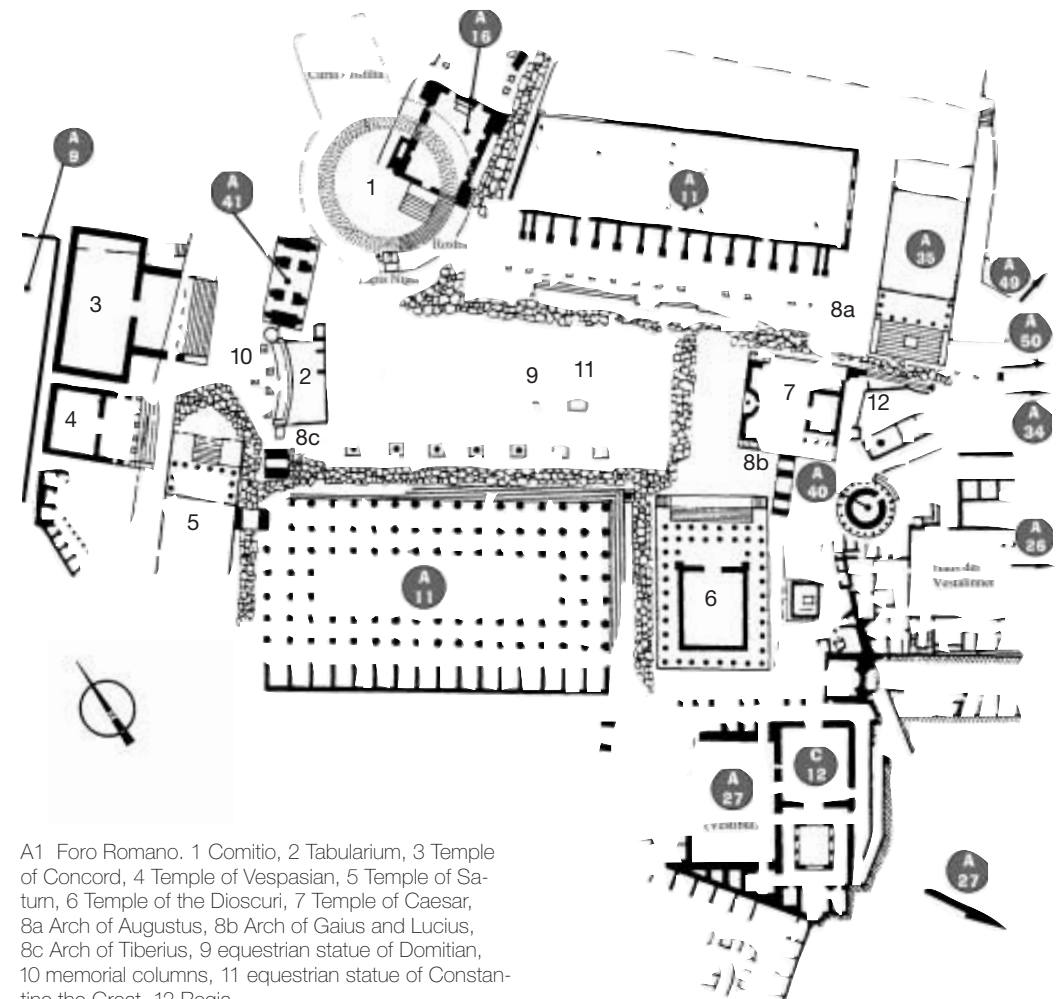
A1 Foro Romano. 1 Comitio, 2 Tabularium, 3 Temple of Concord, 4 Temple of Vespasian, 5 Temple of Saturn, 6 Temple of the Dioscuri, 7 Temple of Caesar, 8a Arch of Augustus, 8b Arch of Gaius and Lucius, 8c Arch of Tiberius, 9 equestrian statue of Domitian, 10 memorial columns, 11 equestrian statue of Constantine the Great, 12 Regia

A1 Foro Romano

nascent square appears of only secondary importance.

After Caesar was murdered at a session of the Senate, Augustus continued what had been begun, but more cautiously. The first commission which he ever awarded for building work in Rome is also his own really independent contribution to the design of the square. In the place where the people had, in a spontaneous ceremony, honoured and cremated Caesar's body as it lay in state, Augustus built a temple, a six-columned prostyle (consecrated 27 BC) (7). Caesar's statue was set up in the low cella where it could be seen from the outside, and an image of the comet which had appeared on the day of his death was placed above its head. The front of the tall temple podium was in the form of a rostra: that is, it was without the conventional central staircase, and only had narrow stairs at the side. In this way a new rostra was placed opposite the one which Caesar had moved to a new location in front of the Tabularium. Ships' beaks (rostra) which had been captured at the battles of Antium, 338 BC, and Actium, 31 BC, were attached to both structures. The temple was dedicated to the god Caesar, and is thus the first temple in Rome by which a dead person was deified. The duplication of the speaker's platform expresses the intertwinement of the state and the ruler's own dynasty, a notion which from now on was to be a central theme in Augustus' architectural propaganda (cf. also A20). The square became bipolar, with the Temple of Caesar dominating. The most significant factor from the point of view of city planning is that Augustus, by building

the temple, closed the Forum and formed it into a square. Such a square was also to be found in Caesar's Forum, and later also in that of Augustus. All that remained to be done under Augustus was to close certain gaps: some older structures which burned down in 12 BC were, over the following twenty years, either rebuilt (Basilica Iulia) or replaced by larger, marble structures (the temples of the Dioscuri and Concordia, both by Augustus' stepson Tiberius). The Temple of Saturn had already been erected by Munatius Plancus in 30 BC. A third element of Augustus' design of the square was the arches occupying three of the four corners of the square that had taken shape (8a–c): to the right and left of the Temple of Caesar the three-gate Arch of Augustus and the arch for his grandchildren and designated successors Gaius and Lucius; and the Arch of Tiberius on the Capitol, opposite his own arch and likewise spanning the Via Sacra. It was long before a comparable monument to an emperor was placed in the fourth corner, in front of the Senate's Curia (A41).

The temples all had those upright proportions, with majestic podia, which are typical of the Augustan period. The two which are still prominent today, to the left and right of the Basilica Iulia, had a particularly old and venerable origin. Although the Temple of Saturn (5), a prostyle, was consecrated for the first time only in 498 BC, it had also served an Etruscan deity who was greatly revered. The Saturnalia were among the main religious festivals in Rome. The state treasury was housed in the temple. The Temple of the Dioscuri (6), a peripteros, owes its creation to the legend which relates that two horsemen miraculously appeared at the battle of Lacus Regillus (499 BC) in order to help

the Romans achieve victory. The fact that Greek heroes were so prominently revered, and that this was done by using a purely Greek type of temple (cf. A34), probably goes back to the influence of the aristocracy, whose especial tutelary deities the Greek heroes were.

The platform which was created for the Forum is entirely independent. It differs from the standard Roman (and Hellenistic) form embodied by the imperial fora which were given a uniform (and monotonous) shape by the porticoes that framed them. In the Forum Romanum, by contrast, the square is formed by buildings which do not merely provide a frame, but have a very independent function of their own, and do not surround the Forum in a uniform way, but are of differing shapes, heights and widths. On the other hand, another distinction of the city-square shape taken by the Forum is that – in contrast, for example, to what normally happened in the Middle Ages – the square is framed not by normal buildings made up of small sections, but by specific Forum buildings, particularly basilicas. Both these factors taken together give the square its very individual character, which is though at the same time also lordly and regularized, and one feature brings both factors out very clearly: the square is almost rectangular, but narrows slightly towards the Temple of Caesar. The tension that lies in this trapezium shape given to the square was later to be utilized by Michelangelo on the Capitol (H27) on the other side of the Tabularium (and the Senators' palace).

The square and its buildings came into being under Caesar and Augustus. Although many of them had to be rebuilt in AD 283 after a major fire (cf. for example A16), the old forms were evidently preserved. The only temple to have been fitted in at a later date is also a subordinate feature, and it only filled a gap in the structure (4). Thus the appearance which the principate had given to the square for the benefit of the community being governed remained largely preserved. The only special features added by later emperors were monuments. The first to do this was Domitian, who ventured to set up his equestrian statue (9) in the square in AD 91. He was the emperor who built the palace on the Palatine, developed court etiquette and, for the first time ever, postulated the deification of the ruler while the ruler was still alive (A27). This emperor also gave the main square an entirely new character by placing the statue in it; he emphasized the centre and weakened the bipolarity. The ancestors and the community were no longer the centre of attention. Domitian was murdered and his statue removed. The second monument, the Septimius Severus arch (A41), did not follow until a century and a half later. Although this emperor's arch comes obtrusively close to the Curia, it is only a continuation of the idea already conceived in the three arches which date from the period of the principate and stand in the other three corners (8a–c). Diocletian, who was also responsible for the reconstruction in AD 283, ordered

five memorial columns – one to each emperor and one to Jupiter (10) – to be erected in an elevated position above the Rostra to celebrate twenty years of the system of tetrarchy. Now that the dominate was replacing the principate from the point of view of public law too, there were imperial insignia above the (republican) speaker's platform. The square was once again more strongly oriented towards the Capitol, as it had been in the period before Caesar ever since the Tabularium was built. The last monument, once again an equestrian statue, was built for Constantine the Great (11) in AD 334, when he was already residing in Byzantium.

The upper part of the hollow which extends upwards from behind the Temple of Caesar as far as the so-called Velia with the Arch of Titus (A26) is located outside the ancient Forum. Despite this, it houses the religious centre which includes the Vesta shrine (A40) and the Regia (12). The latter is the house of the pontifex maximus and, ever since early times, has repeatedly been rebuilt with the same oblique angles. Here there are also some splendid individual monuments commissioned by those emperors who evidently respected the Forum's orderliness once it had been created: the very modest monument by Antoninus Pius (A35) is diagonally behind the Temple of Caesar, and particular mention should also be made of the buildings by Hadrian (A34) and Maxentius (A49, A50), as well as of the Titus arch (A26) which is the distant, elevated lookout point for viewing the Forum. SG

Bibliography: M. Grant, *The Forum Romanum*, 1970; Ch. Hülsen, *Das Forum Romanum*, 2nd edn., Rome, 1905; P. Zanker, *Forum Romanum. Die Neugestaltung durch Augustus*, Tübingen, 1972.

A2 Mura Repubblicane
(plan VI 1/A)
mid 4C BC

The Etruscan kings of Rome evidently also provided the impetus for the city fortifications: Servius Tullius is said to have built the first wall in the 6C BC. Its ashlar stones made from the local Cappellaccio tufa are preserved in parts of the wall's foundations, and show that much of it followed the same course as the later republican wall. But the visible sections – in the Piazza del Cinquecento and Viale Aventino – of the so-called Servian Wall are from a later period, namely the mid-4C BC, when the republic, unsettled by the Gallic invasion of 387 BC, rebuilt the fortifications in a large-scale endeavour which was technically well organized throughout.

The ring of walls was 11 km long and encompassed over 400 ha, although the entire field of Mars was not yet included within it. Rome was at that time already by far the largest town in Italy. The wall itself was built of the solid, bright tufa from the quarries, known as Grotta Oscura, of Veji who had just been conquered. The blocks, which were about 60 cm high (2 Roman feet), became a typically Roman form of ashlar ma-

sonry known as opus quadratum: layers of stretchers (stones laid lengthwise along the wall) alternated with layers of headers (stones leading into the inside of the wall) up to a height of 10 m, with the wall attaining a possible thickness of over 4 m. There were evidently not yet any towers at this time. A ditch 17 m deep and 36 m wide was additionally built on the plateau, particularly exposed to danger, between the Quirinal and Esquiline hills. The earth excavated for this ditch was piled up on the city side of the wall to form an immense rampart, the so-called Agger.

The wall was no longer kept in good repair after the end of the civil wars, as by then no one was able to threaten the capital of the empire. UF

A3 Area Sacra dell'Argentina
Largo di Torre Argentina (plan IV 2/B)
from 300 BC

The Area Sacra on the Largo di Torre Argentina provides a view of the architecture of the republican period. It shows its architectural types and shapes in the form of a whole group of temples which are a consequence of the densely populated Roman world of gods and grew up over a period of centuries in repeated new campaigns of building work.

The temple of the Italic deity Feronia (C) was the first to be built in c. 300 BC. It is a typical podium temple (cf. A7) from the early period, being built of tufa stone and having three-dimensional terracotta decorations. Its cella was surrounded by rows of columns on three sides (a so-called pseudoperipteros). The Temple of Juturna the naiad (A) followed a little later. Its relatively good state is the result of later rebuilding work (columns from the imperial period, and the apses were only added when the structure was converted into a Christian church). The largest temple, which is that of the seafarers, called Lares Permarini, and is built of travertine (D), was begun in the early 2C BC and documents the later republican period. The parallel alignment of the temples indicates that city planning was taken into account from the very beginning. After 111 BC, the entire area was re-paved and surrounded with colonnaded halls which combined it into a self-contained group, the former portico of Minucia Velus. In

A3 Area Sacra dell'Argentina
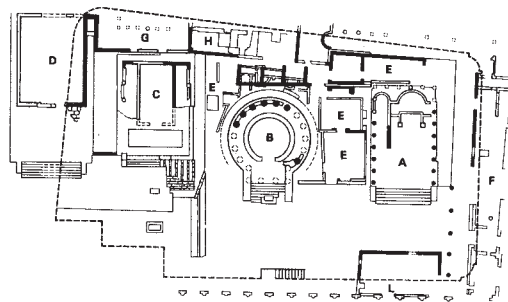
A4 Tempii del Foro Olitorio (today S. Nicola in Carcere)

the early 1C BC, the existing gap was filled by a round temple to an unknown goddess (B): it stood on a round podium, had a portico, a temple frontage and a flight of outdoor steps, and it fitted into the straight line formed by the temple façades.

All this was exposed from 1926 onwards in the course of demolition work in preparation for the construction of a large square, and in 1933 it was made the centre of that square, so that today's traffic now travels around this monument to the historic past. UF

A4 Tempii del Foro Olitorio (today S. Nicola in Carcere)
Via del Foro Olitorio (plan IV 2/B)
c. 200 BC, AD 1128 and 1599

Another characteristic group of temples from the republican period (cf. A3) was built on the Forum Holitorium, the Roman vegetable market near the Tiber. The three buildings standing close to one another can be identified as temples to Janus and Spes and, in the middle, a temple to Juno Sospita. The construction of the latter, in 197–93 BC, was ordered by C. Cornelius Carthagus.

The use to which this group was later put is of particular interest. It was probably in the early 12C (date of consecration: 1128) that the complex was, in a very rational way, converted into a basilica with a nave and two aisles, with the nave being of about the same width as the cella of the middle temple, whereas the aisles were extended beyond the middle temple as far as the adjoining rows of columns of the two neighbouring temples. The Ionic row of columns to the right, and the Doric row to the left, have been exposed again ever since restoration work was performed in 1932. The columns of the false arcades in-

side the complex are also spoils from other ancient buildings. In spite of later interventions (coffer-work ceiling under Pius IX, 1865), the medieval basilica is still the dominant feature.

In 1599, Giacomo della Porta was awarded the commission to convert the plain façade wall. Two surviving Ionic columns in the frontage served as an inducement for him to design the entire façade using a single motif: a large aedicule with two columns and a temple gable. He was though not concerned with archaeological reconstruction. The ponderous attic, and the motif of the façade panel between the columns, generate hard contrasts: their bulkiness and angularity opposes the roundness of the columns. The mannerism of the façade is shown in this and in the classical-style ornamentation consisting of small sections. UF

A5 Ponte Milvio
Piazzale di Ponte Milvio / Viale Tiziano (plan I 2/A)
109 BC

The Pons Milvius was one of the main means of access to ancient Rome. Coming from the north, people entered the city by proceeding along the Via Flaminia and through the Porta Flaminia, today's Porta del Popolo. The Via Flaminia was built as early as 220 BC, so that the bridge must have been usable no later than then. A piece of literary evidence in Livy (XXVII, 51, 2) confirms that it already existed in the 3C BC. The bridge was completely rebuilt in 109 BC by the censor Marcus Aemilius Scaurus. It became a historic milestone in AD 312, when Constantine the Great defeated his fellow-emperor Maxentius in the famous battle at the Milvian Bridge. After this, the emperors of Christian Europe, from Charlemagne onwards, traditionally marched into Rome across this bridge. In 1805, as part of a restoration of the bridge being conducted under Pope Pius VII, the bridge tower added at the northern end was rebuilt to a design by Giuseppe Valadier. The four middle arches of the bridge are all that survives today of the original ancient Pons Milvius. This bridge of stone, with its semicircular arches, is one of the trailblazing inventions of Roman architectural engineering. Its massive arched construction is a masterly technical achievement. Its prominent

A5 Ponte Milvio

A6 Tempio di Vesta

arches have become an architectural feature which shapes the landscape. Strong, statically solid piers in the river support the round arches, whose thrusting forces, operating diagonally outwards, are absorbed by massive abutments on the shore, which are on-land bulwarks. The asymmetrically shaped piers in the river are a characteristic feature. Breakwaters which taper to a point are to be found on that side of the piers which faces the current. Above the breakwater of every pier there is an opening, the aim of which is to prevent the bridge from being flooded by large masses of backed-up water surging against it. AG

A6 Tempio di Vesta
Piazza Bocca della Verità (plan VII 2/A)
late 2C BC

This round temple by the Tiber embodies, like no other temple in a Roman town, the type of the Hellenistic tholos, transplanted to Italic soil. Not only the building material, which was Pentelic marble from Attica, but also the builders, came from Greece. Hermodoros of Salamis, a Greek, may have been the designing architect. M. Octavius Herrenus, who had become rich thanks to the oil trade, ordered the temple to be built in the late 2C BC, probably in honour of Hercules Victor, also known as Hercules Olivarius. A Greek stylobate, low in height and with steps, supports the circular hall (peristasis) consisting of 20 unusually slender, fluted, Corinthian columns. They are placed so close together that the intercolumniations are equal to the lower diameter of the column shafts – a value lower than the measurements which Vitruvius gave for the pycnostyle, the temple with close-set columns. This means that the overall impression is shaped by the circular hall. The cella retreats almost entirely into the background behind the dense ring of columns. The purely Greek character of the temple is revealed in the fact that there is no portico aligning the structure; Roman tholoi and rotundae are usually distinguished by a portico. This elegant structure was one of the first pieces of marble architecture in the city. It

was only from the time of Caesar onwards that larger quantities of brightly shimmering marble were used in Rome. In addition to bronze, marble was the quintessential material of the Greek art which was so greatly admired. Before Caesar's time, it could not be expected that there would be any competent »marmorarii« living locally. The comprehensive restoration of the temple after the great flooding of the Tiber in AD 15 proves that, 100 years after the Hellenistic temple was built, Rome had developed its own tradition where marble was concerned. EJ

A7 Tempio della Fortuna Virile
Piazza Bocca della Verità (plan VII 2/A)
c. 100 BC
It was not until the 20C that an area of temples, the Area Sacra di S. Omobono, was excavated to the north and south of the Cloaca Maxima on the Forum Boarium. The latter was the cattle market of ancient Rome and was located immediately by the river port outside the city wall, in the valley between the Capitol, Palatine and Aventine hills and the Tiber. One of the temples in this area may have been dedicated to Portunus, the god of river- and seaports. This temple was probably the Templum Fortuna Virilis. The reason for its excellent state of preservation is that it was converted into a church in 872 (S. Maria de Gradellis, known since the 15C as S. Maria Egiziaca). This temple was built in the 1C BC from tufa and travertine blocks, and stood on the foundation walls of an older building. It was originally coated with a fine layer of stucco, which was replaced by an altered and rougher outer covering. The temple is an outstanding example of Roman urban architecture in the republican period, an architecture marked by the merging of Graeco-Hellenistic elements with Etruscan and Italic ones. The elements of a Greek peripteros with a surrounding ring of columns, an entablature, a gable and a cella were adopted, but they were converted into a pseudoperipteros, a structure oriented in a particular direction. Because the cella wall has been moved towards the outside

A7 Tempio della Fortuna Virile

and merges with the slender Ionic columns, the round structure, which would otherwise lack orientation, becomes a building with a front and rear façade. This lends much greater weight to the wall, and thus to the space surrounded. The shrine, which stands on a high podium, can only be entered via the frontal flight of outdoor steps. A vestibule known as the pronaos, which is four columns (a tetrastyle) wide and two intercolumniations deep, is situated immediately in front of the cella. It is in the distinction between the show façade and the rear side that the pseudoperipteros, in which the axes of the columns measure 9.20 x 17.76 m, shows the form of the Italic temple. AG

A8 Santuario della Fortuna Primigenia, Palestrina
Palestrina, Piazza della Cortina (plan G2 4/A)
c. 80 BC
In 82 BC, Sulla, the leader of the Optimates' party (the patricians), conquered the ancient Praeneste, the last bastion of the followers of Marius, the social reformer. He ordered the male members of the old families to be executed. The place became a colony for his veterans. Two structures were erected. They both lie along the same axis, but are not linked to one another by, for example, any staircases. The lower structure is secondary. It did not house a shrine as some authors think, but is a Forum. This is because in the centre there is a basilica, that is to say a building with a large interior (A11), and temples did not have a large interior until the time of the Pantheon onwards (A31). Before then the cult was celebrated outdoors.

The upper complex of seven terraces is well preserved in its load-bearing structure. It was dedicated to Fortuna Primigenia. Primigenia means (Jupiter's) »firstborn daughter«, but here it is more of an honorary title, as the first statue of Fortuna depicted her with Jupiter and Juno on her lap like a mother, whereas the statue from the Sullan period shows her in a suspended position (some remains are in the museum). The substructure of the complex is formed by three of the terraces, all of which are of conventional material. The two lower ones are of polygonal masonry (opus incertum), and the third is of tufa ashlar blocks. The ramps in the wings of the terraces give access to the shrine. Walls on the ramps block the view on to the plain, except in the middle. The upper terraces were already built in concrete (opus caementicium). For this purpose, limestone was mixed with sand (and later with pozzolana, which was still better suited). This material withstands great pressures and can be filled up with rubblestones. This technique made possible two basic structural forms of Roman architecture: substruction (particularly in the cryptoporticoes with their barrel-type and groined vaults), and vaulting. Via these terraces, a central staircase leads up to the orchestra and the shrine. The last two semicircular terraces are still part of today's surmounting Palazzo Colonna Barberini (11C, with alterations dating from 1493 and 1640; today museum with architectural fragments).
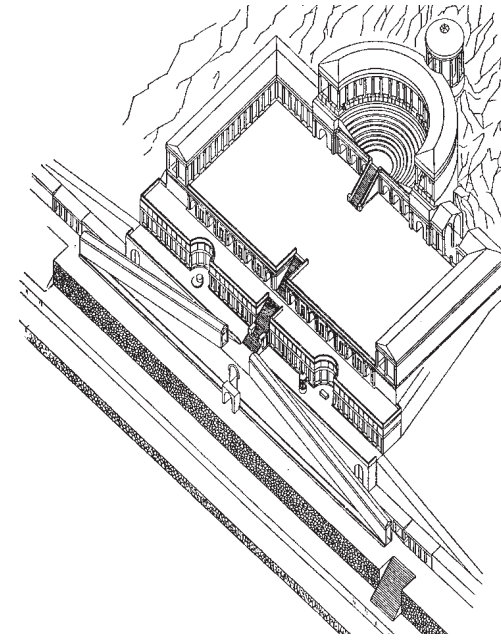
A8 Santuario della Fortuna Primigenia, Palestrina

The cradle of Roman architecture lies in Sulla's epoch. Shrines were now built on high terraces (this was also done in Tivoli and Terracina). They create a commanding and patrician impression (cf. also A9). They were also a great step forwards in the architectural design of entire stretches of land. The Greek classical age gave preference to autonomous individual structures, out of which the Hellenistic period then formed complexes and long axes. Only later did Roman-Italic architecture intensify the axiality and make it unshakeably symmetrical, thus more strongly constraining humans to come within the architecture, the intention being that they should walk across it (cf. also A29). All this can be felt in the ramps. The view of the valley is obstructed until the balcony in the middle is reached; the only view revealed is one of symmetry. For much of the way, people walked through penumbral, unified, colonnaded halls and did not come out into the light until the end. The shrine is revealed only gradually. A second pair of ramps flanks the first and is located diagonally behind it. This emphasizes the symmetry, and makes the architecture still broader and thus still weightier. The weightiness always so typical of Rome, the gravitas romana, thus begins here. The landscape is dominated.

The design of the individual structural members is also new. This applied initially to the idea of developing façades. In contrast to Greek column structures, Roman concrete walls had to be given a facing. It is true that for two centuries Greek forms, consisting

of columns, columned halls, and entablature, were used for this. But it was not only walls, but also parts of the inner area, that were faced over. On level IV, for example, the attic of the (surviving) eastern exedra masks the barrel vault which runs straight across behind it; this attic, with its row of pilasters, also feigns the presence of a second storey, which does not exist, inside the building. Thus this was a deceptive wall placed out in front for show – a »facciata«. At the same time the structure is marked by various combinations of column and round shape. Columns support the above-mentioned barrel vault on level IV. In addition, on level V, and in a similar way on level VI, columns stand in front of a row of arches and thus form what is known as the tabularium motif (A9). All that is still missing is arches which are built directly on to the column and are thus called arcades (cf. A30).

The two-aisled hall of columns at the top is in the form of an exedra and was surmounted by a tholos with a Fortuna Nike. Thus the building was a victory monument for Sulla, who defeated his last opponents here and called himself »Felix Sulla« after the goddess Fortuna. There was one feature of this magnificent terraced shrine which was not imitated for a long time: exedrae with a monumental appearance were not built again until the time of Trajan (A28, A29) and, later, in the court and villa architecture of the High Renaissance (H6, H16). SG

Bibliography: H. Kähler, *Das Fortuna-Heiligtum von Palestrina Praeneste*, Saarbrücken, 1958; F. Fasolo and G. Gullini, *Il santuario della Fortuna Primigenia a Palestrina*, Rome, 1953; see also at A9.

A9 Tabularium
Foro Romano (plan V 1/B)
78 BC
Sulla, the leader of the Optimates' party (A8), gave instructions to erect this structure, which is the best-preserved republican building in Rome and has an inscription giving its date. Consul Lutatius Catulus, Sulla's successor, ordered its actual construction. The building, intended as a state archive, stands in an elevated location in the Asylum, which is the small hollow between the two rounded tops of the Capitol hill. The

A9 Tabularium