Utopia and the well-ordered fortress:

J. M. von Schwalbach's town plans of 1635

by MICHAEL J. LEWIS

SCHWALBACH'S 'KURTZER BERICHTT'

Strangely, the ideal city of the Renaissance was promoted not so much by Venus, but by Mars — not by an abstract appreciation of beauty but by the necessities of war. Here was surely one of the great ironies made by the peculiar Renaissance belief in the intrinsic power of geometry. To Filarete, Leonardo da Vinci, and others who imagined ideal cities, geometry was a comprehensive ordering system to which streets, walls, and public buildings alike might be subordinated. These serene visions of Utopia, a name itself coined in 1516, pursued abstract and regular geometry for its own sake, but soon geometry became a practical concern, a matter of basic survival. For with the dawn of the sixteenth century a new type of fortification — made necessary by improvements in artillery — was introduced into the towns and citadels of Europe. This was highly geometric in nature, based on the angle bastion projecting from a polygonal wall. Opening clear lines of fire from within the walls, the bastion served systematically to eliminate any blind spot from which the wall might be undermined. These bastions were disposed regularly along the wall to form an interlocking system of polygonal form, a regularizing of the wall which soon invited a regularizing of the streets within, the contents becoming as regular as the container. The polygonal, radially planned Palma Nuova in Italy and Hesdin in France are but the best known of these geometric fortress towns of the sixteenth century. Well into the next century, the history of town planning is largely the story of fortification design.

Recently a remarkable treatise on fortification design and city planning has cast new light on Renaissance planning, and the complex relationship between abstract, formal considerations and pragmatic military issues. This is Johann Melchior von Schwalbach's lavish and sumptuously illustrated '*Kurtzer und gründlicher Berichtt wie alle undt jede, sowohl regular als irregular Festungen, auf geometrische Arth nach gegebenen Proportzen auffzureissen und zu verzeichnen . . . beschrieben und gelehret wirdt*' (1636), a copy of which is now in the Collection of the Canadian Centre for Architecture.[1] Although known to military historians since the nineteenth century, the treatise has never been recognized for its city planning. Earlier authors noted its progressive systems of bastions and outworks (Fig. 1) while neglecting its extraordinary series of five ideal town plans.[2] These plans reveal not only a confident assimilation of Renaissance planning ideas but

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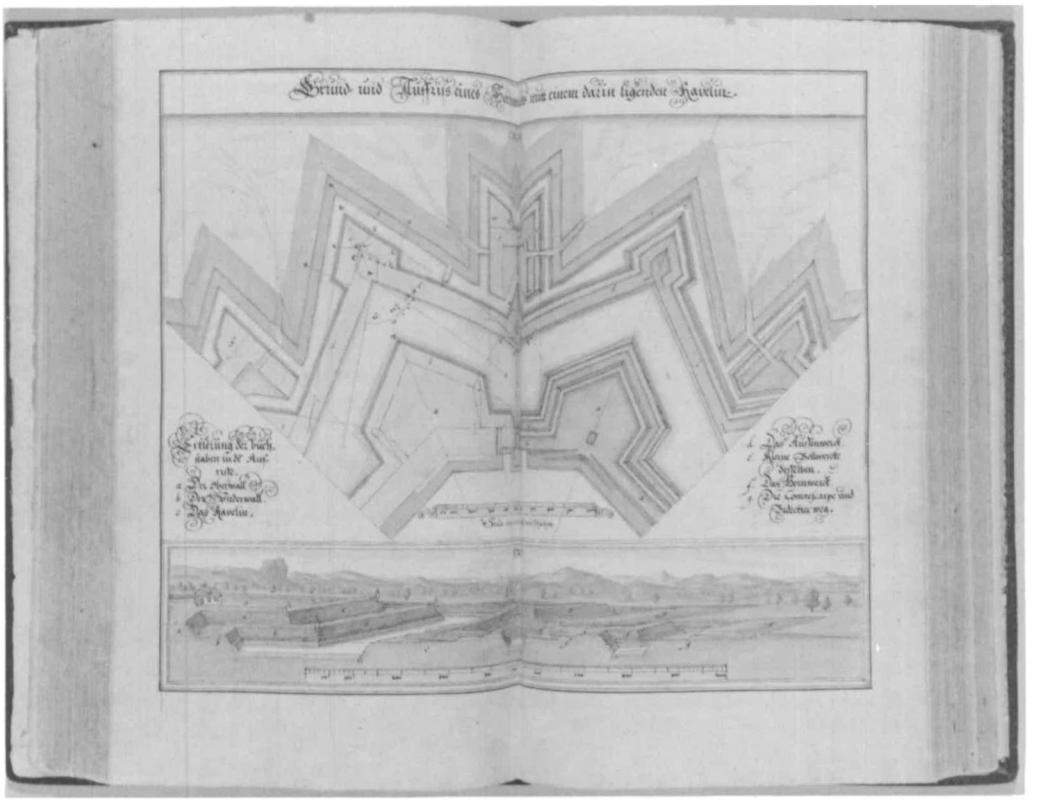

Fig. 1. *Johann Melchior von Schwalbach (and Wilhelm Dilich?)*, Grund- und Auffriss eines Hornwerkes und einem dazu ligenden Ravelin, *plate 115, 'Kurtzer und grundlicher Berichtt . . .' (1636). (Canadian Centre for Architecture)*

also the survival to a remarkable extent of medieval practices and, perhaps most striking, a comprehensiveness and freedom in the arrangement and siting of specific building functions that is unprecedented in sixteenth- or seventeenth-century planning, in Germany or anywhere else.

Johann Melchior von Schwalbach was one of those characteristic figures created by the Thirty Years War, part warrior and part philosopher, Renaissance ideas and medieval practices mingling in his career. He was born in Giessen in 1581, orphaned seven years later and in 1593 was taken into the court at Solm, where he was groomed as an officer, serving in the army of Maurice von Nassau.[3] Between 1602 and 1605 he travelled extensively through Europe, the Mediterranean, and North Africa, including Egypt and Syria. Beginning in 1616 he travelled again for three years, now in the service of the Hessian Landgraf Ludwig and once more in the Mediterranean, where he visited Malta with its important fortified town of La Valletta. During the Thirty Years War he rose to prominence, now serving in Saxony rather than Hessia.

Schwalbach served Johann Georg, Elector of Saxony, for whom he acted as a representative in 1619 at the coronation of the new Holy Roman Emperor Ferdinand II

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(who promptly knighted Schwalbach). Johann Georg was the principal Lutheran Elector and he played a pivotal role in the fractious Empire, his support sought by both Catholics and Calvinists. Throughout the embattled 1620s, this conservative figure tended to support the Hapsburg cause and the religious status quo, harbouring nothing but suspicion for the Danish legions and Dutch-paid mercenaries. For him the prevailing system of order counted for more than Protestant expansion. His forces were placed primarily in a defensive posture, and here Schwalbach rose to prominence. In 1621 he was made commander of an artillery division, and soon after was charged with the fortifying of the Electoral provinces. In 1626 he worked to fortify Wittenberg and by 1630 he held sway over *all fortifications throughout Saxony . . . which deter the enemy with their deep ditches and high walls . . .*[4].

During the last five years of his life, Schwalbach seems to have withdrawn to intellectual pursuits. His biographer speaks cryptically of an interest in natural history that was nearly alchemical: *now you examine the origins of things / and the deeply hidden secrets of nature / You analyse the virtues and forms of gems / the hidden power of green herbs.*[5] During these years, presumably, he compiled his manuscript of the 'Kurtzer Berichtt'. The surviving copy of the treatise, perhaps the original, would have been more or less complete at Schwalbach's death in 1635, when it was bound. With its frontispiece portrait of Schwalbach, its Latin panegyric by August Büchner, and its exquisite gilt binding, it is one of the handsomest manuscripts of the period.

In form and content, Schwalbach's treatise follows the scheme that had become standardized during the course of the sixteenth century. Fortification treatises generally began with an introduction to geometry and instruction on the construction and properties of polygonal figures, then proceeded to the design of the bastion, the section of the wall, and the complete polygonal wall system (the so-called *trace*). The regular polygonal fortification was then explored in its various five-, six-, and seven-sided forms, after which the text paid attention (usually cursory) to the irregular fortification, which was necessary for complex sites or for additions to existing towns. Only the most elaborate treatises would devote attention to such architectural features as gates, powder magazines, and guard houses, and the 'Kurtzer Berichtt' is noteworthy for the considerable amount of architecture depicted (Fig. 2).

Schwalbach obediently followed the conventional treatise format. At the same time it is clear he was not the illustrator of his work. As military architect, he was an autodidact, his knowledge acquired from travel and '*from illustrated works*'.[6] Instead, the superlative pictures were by his associate, the brilliant vedutist Wilhelm Dilich (1571/72–1650). Dilich owed a special debt to Schwalbach: in 1622 he had been imprisoned for certain irregularities committed while fortifying the town of Wanfried; through the intervention of Schwalbach, a fellow Hessian, Dilich was released.[7] In March 1625 he was given an appointment of true sweep at the Saxon court, serving as military engineer, cartographer, architect, and artist.[8] Dilich assisted Schwalbach on the fortification of Wittenberg in 1626 and in the following year he and his son began the fortification of Frankfurt.[9]

The superbly rendered vedutas in the treatise are certainly the work of Dilich. Even illustrations whose nature invites a technical treatment were made the subject of gentle landscape studies (Fig. 1). Apparently these drawings were kept in the Dilich workshop

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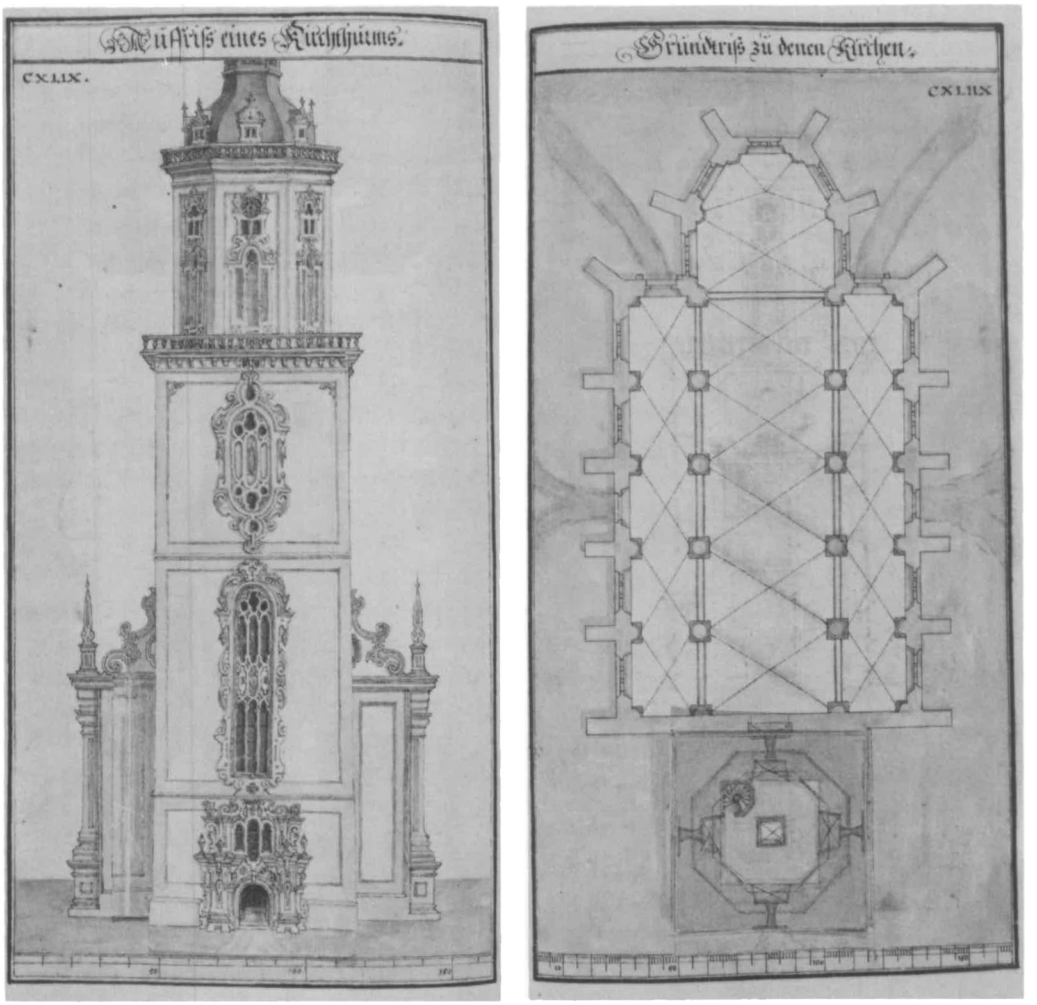

Fig. 2. *Plan and elevation of a church* (Aufriss eines Kirchthurms; Grundriss zu denen Kirchen) *Schwalbach, plates 148–49. (Canadian Centre for Architecture)*

for many were subsequently reused as engravings in his own treatise, *Peribologia*, which he and his son published in 1640.[10] None the less, Dilich was not credited in the manuscript which was, after all, compiled to honour Schwalbach, who was a knight as well as Dilich's patron. At any rate, the consequence was a fertile and distinctive collaboration between the officer and the artist, both of whom through travel and self-training had embarked upon second careers as military architects. Perhaps this is why their designs have none of the theoretical rigidity or frivolity that stamp the other ideal cities of the age.

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'YOU DEVOTE YOUR TIME TO GEOMETRY': SCHWALBACH'S IDEAL TOWNS

Near the end of the 'Kurtzer Berichtt', on plates 143 through 147, are depicted the plans of five ideal towns. All are regular polygons, ten- or twelve-sided figures, with bastioned walls and fully realized outworks (Figs 3–7).[11] Likewise all contain a regular arrangement of streets organized about a central market square, the major streets forty to fifty feet in width, the minor streets twenty to twenty-five.[12] A small river runs through two of them. In plan and form these designs are well within the tradition of sixteenth-century town plans, close in conception to that published by Daniel Specklin in his influential *Architectura von Vestungen* in 1589.[13]

But Schwalbach did not stop at the wall or street, and each of his towns was planned for a comprehensive arrangement of civic and municipal functions, from palace and town hall to chicken coops and wheelwright's shops. For such a meticulous treatment of function in a town plan Germany could boast a long and proud pedigree. Albrecht Dürer's *Etliche Underricht zu Befestigung der Stett, Schlosz, und Flecken* (Nuremberg, 1527), the first published treatise on the design of fortifications, presented an ideal town on a grid of sixteen squares, the central four reserved for a palace. Each building was shown, town hall and market, blacksmith's shop and tavern, all carefully aligned with the rectilinear geometry of the plan and subordinated to the central citadel. Dürer's design was enormously influential in Germany, particularly in the Protestant territories, and Heinrich Schickhardt seems to have drawn upon it for his Freudenstadt in Württemberg, an ideal town that was actually built in 1599 to shelter the Protestant refugees of the Thirty Years War.[14] Schwalbach surely knew it.

But Schwalbach differed from Dürer or Schickhardt, in whose designs symmetry was as inviolate as in a classical temple façade. In Dürer's town, the place of every building, however minor, was subordinated to the geometry of the town plan. Likewise Schickhardt subordinated function a higher geometric order, most strikingly in the Freudenstadt church, whose famous twin naves bend in L-fashion to fit the corner of his town square. But Schwalbach was no theoretician, twisting his buildings to fit his grid. His streets, squares, and wall hang on a formal geometric lattice, but within it his buildings move freely and easily according to expedience. In particular, his churches float within the street grid, all aligned to the east, respecting the solar orientation of medieval tradition rather than the geometry of the street. Tradition and function counted for more than abstract geometry. Nor did Schwalbach comprehensively delineate every structure as did Schickhardt and Dürer; rather he indicated the essential buildings while leaving the remaining lots unallocated, allowing for gradual growth and building lots of different sizes. He imagined the building of a town as a practical sequence, beginning with the planning of wall and streets, to be followed by various public and utilitarian buildings. Dürer and Schickhardt, on the other hand, made cities that could neither grow nor change.

At first glance, Schwalbach's five towns appear to be variations on the same formal theme, some showing radial plans and others grids, a set of capricious inventions to show the author's skill, a clever performance of architectural finger-exercises. In fact, they represent five distinct types out of whose variety emerges a rather complex typology. Plates 143 through 147 depict in turn a provincial town, a town with a fortified citadel, a market town, a princely residence with armament works, and finally,

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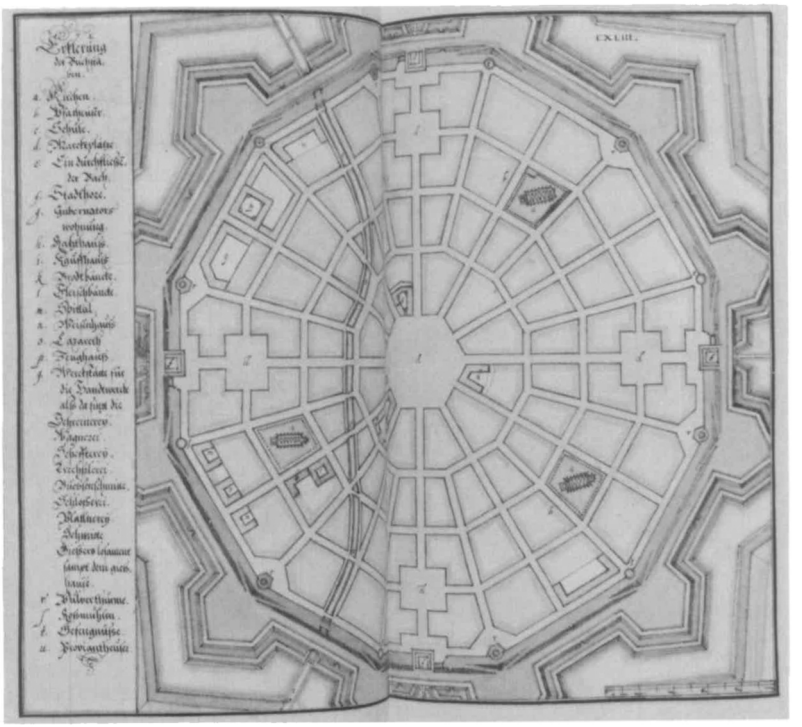

Fig. 3. *Design for a provincial town. Schwalbach, plate 143. (Canadian Centre for Architecture)*

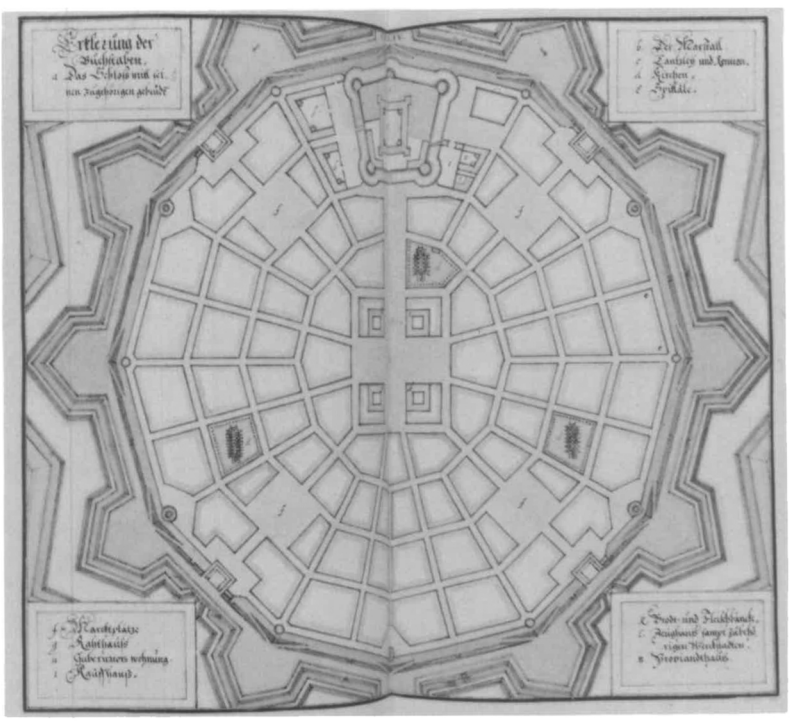

Fig. 4. *Design for a town with a citadel. Schwalbach, plate 144. (Canadian Centre for Architecture)*

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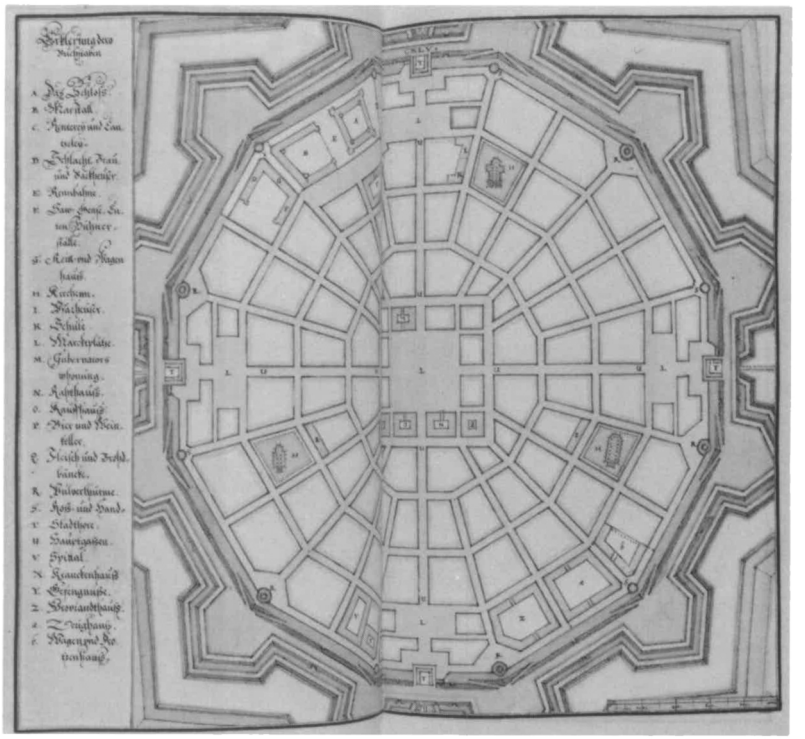

Fig. 5. *Design for a market town with a palace. Schwalbach, plate 145. (Canadian Centre for Architecture)*

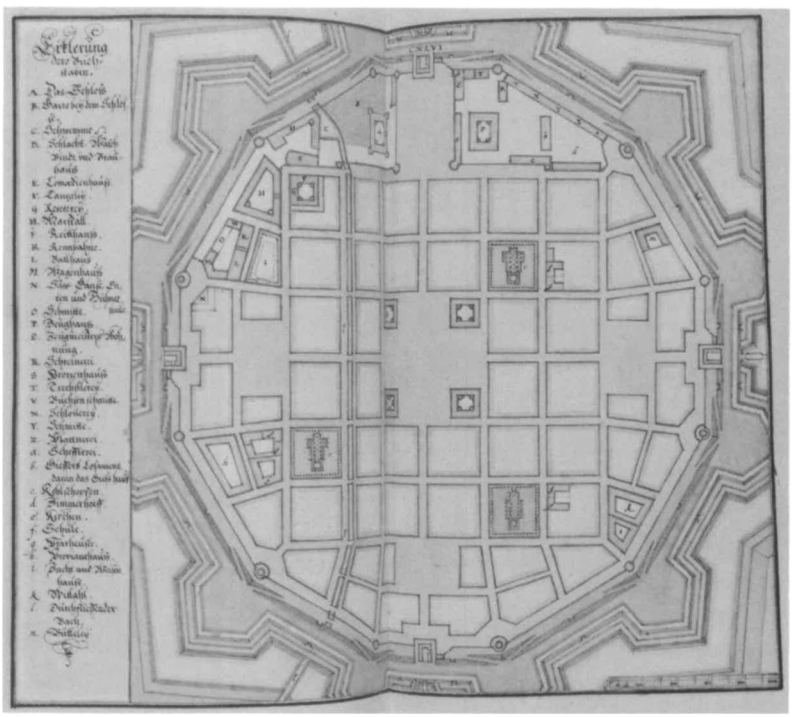

Fig. 6. *Design for a princely residence. Schwalbach, plate 146. (Canadian Centre for Architecture)*

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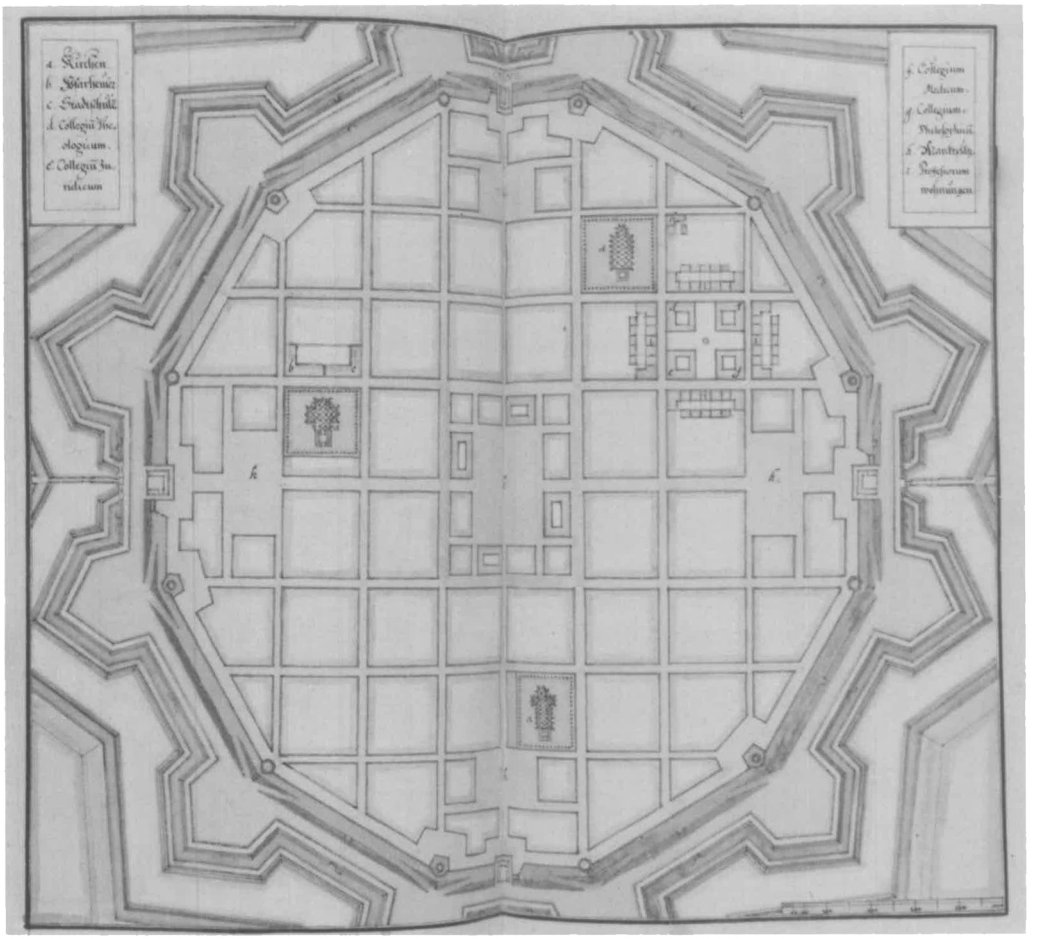

Fig. 7. *Design for a university town. Schwalbach, plate 147. (Canadian Centre for Architecture)*

a university town. Here were the principal types of towns in Germany — in Protestant Germany, one might add, for in none was any provision made for a bishop's residence or monastic buildings. Schwalbach's vision of society was emphatically Protestant, and his Protestantism stamps not only his plans and social order but even the architecture itself.

This is immediately apparent in the way in which political power is distributed across his towns. By its very nature the radial plan invites a celebration of the centre, all paths converging at the all-seeing, all-controlling hub, a feature which made it a favourite device of absolutist rulers. Karlsruhe is the best known of these towns, its streets radiating outward from the ducal palace. But in Schwalbach's towns there was no absolute ruler — neither bishop nor imperial lord. Schwalbach himself owed allegiance to his Saxon Elector (and ultimately to the Emperor); to imagine a town for another supreme power, even one unspecified, would have been undiplomatic. Instead,

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Schwalbach's image of the well-ordered town rested on municipal power. At the centre of each he placed a battery of buildings that served the town's civic and commercial functions, including the town hall, or *Rathaus*, a market, and a range of shops. These towns, in good medieval fashion, clearly had authority over their own internal affairs. While this centre was reserved for municipal power, princely power — in the form of a princely or ducal residence — was housed at the periphery of the town, invariably the east side. In Schwalbach's second design, for example, a palace dominates the east quarter of the town, flanked by stables and a chancellery and surrounded by a moat, forming a kind of pentagonal citadel (Fig. 4). From this citadel runs a mighty processional axis, in width a virtual boulevard, to terminate in the central square. Here was a monumental expression of the power system of late feudal society — the power of the prince and the power of the town, balancing one another in idealized equipoise. For a century which had already seen the medieval distribution of power shattered, this was certainly a nostalgic, even anachronistic, vision of society.

For Schwalbach, the experienced siege warrior, the town contained a third pole of power. This was the *Gubernator*, the military administrator of the town, whose lodgings stood on the central square.[15] This Gubernator was no *Burgermeister* or *Schultheiss*, or any other such elected official. Rather he was an appointed official, in charge of the town fortifications and garrison, and his duties were distinct from those of municipal officials. His presence in each of Schwalbach's towns testified to the growing importance of fortifications, whose enormous cost and administrative complexity so profoundly influenced the political power of towns in the course of the century.

But while *Rathaus* and palace — town and crown — occupied formal positions in the geometric hierarchy, Schwalbach depicted most of his town squares as undeveloped, leaving room for the workshops, dwellings, and patrician houses that would come. None the less, there were certain functions that were essential to the well-ordered town, and these he showed. Typically functions were grouped in distinct quarters or neighbourhoods. These included an administrative compound (including a chancellery and stables), a military precinct (comprising an arsenal, gun foundry, and armourer), and a social welfare complex (hospital, almonry, and orphanage). The three churches were distributed evenly across the town, and were associated with a parsonage and, frequently, a school. A few other functions might be housed independently, such as the prison, generally placed in a tower at one of the bastions.

Rather than follow the formal geometry of the plan, these lesser buildings took their place according to expedience.[16] Here the considerations were not much the co-ordinates of the geometric plan as those ancient determinants of town organizations: proximity to the wall or gate, relationship to other buildings or trades, and so forth. Olfactory offence, to put it delicately, does not seem to have troubled Schwalbach, who happily placed brewery, chicken and duck coops, and slaughterhouses close to his palaces (Fig. 6). Apparently convenience to the princely table counted for more than stench. But if odour did not matter, symbolism did. Schwalbach left the streets nearest the central space and those leading directly to the gates undeveloped; presumably they would serve for large patrician houses. Churches on these major streets were pushed to the edge of their squares in order to free more lots on these coveted sites (Fig. 7). Conversely, the irregularly shaped lots, the 'leftover' spaces along the perimeter, were

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reserved for more mundane functions, which often required larger sites. For example, the hospital and almonry were placed at the outer perimeter of the town to the west, far from the courtly buildings at the east end. These were functions that in the medieval town would have been associated with monasteries; in a Protestant state they were municipal affairs. Typically, Schwalbach presented them in schematic fashion, either U-shaped in plan (Fig. 3) or grouped about courtyards (Figs 5 and 6). The variety with which the same building type is depicted in the different plans is unexpected. Clearly Schwalbach treated them as vernacular types, which required no fixed façade scheme and which could be adjusted in dimension and inner partitioning to fit a lot of any shape. This free and confident treatment of planning in such a vast range of building types is one of Schwalbach's striking traits, distinguishing him from those armchair theoreticians who dabbled in town planning with no other qualification than their dexterity with the compass.

The quarters of the arsenal, or *Zeughaus*, varied in size and importance. It might consist solely of a large building for the storing and distribution of weapons (Fig. 5). (Since gunpowder was too bulky and dangerous to be concentrated in one central repository, it was distributed for ease of access in cylindrical towers along the bastions.) On the other hand, the arsenal might also be the centrepiece of a vast armament works (Fig. 6). In Schwalbach's fourth town the princely residence and arsenal, both of which are walled and fortified, address each other across a formal parade ground. The arsenal was at the core of an elaborate walled compound which comprised the lodgings of the *Zeugmeister* himself and a series of workshops for a joiner, turner, gunsmith, fitter, a foundry and others: in fact, all the trades necessary for making and repairing small arms and cannon. Reinforcing the town's martial character is the gridded plan, recalling the prosaic engineer's grid of the Roman castrum, suggesting a garrison town. For this there was ample recent precedent, both in published designs and in the fortified town of La Valletta which Schwalbach would have known from his trip to Malta.

If plate 146, Schwalbach's fourth town, represented a garrison town, it also contained his most lavish princely residence, containing the full range of facilities for formal representation and display that was expected of a prosperous court. Besides the apparatus of war-making this also included a brewery, slaughterhouse, baths and so forth, as well as a *Comoedienhaus* (theatre) and a *Ballhaus* (most likely referring to tennis courts, long before the term was appropriated by the dances that would take place there). But in a princely residence, horses loomed larger than the arts, and here there was a full range of facilities for riding, including carriage houses, royal stables, an enclosed riding hall, and an outdoors riding ground. This entire precinct, the equivalent of four city blocks, was enclosed by an interior wall, accessible only through a few well-controlled gates. And like Schwalbach's almonries and hospitals, all these buildings were shouldered into the irregular lots along the wall, leaving most of the regular, more formal squares available for lucrative sale. Seldom has so comprehensive an urban vision been so thoroughly marinated in thrift and frugality.

Schwalbach's final town, plate 147, is also his most specialized. Gridded like its predecessor, it dispensed with palace and citadel and instead represented a university town (Fig. 7). At the core was the customary town square with market hall and Rathaus, but the real focus of this town was the group buildings in the south-east corner

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of the town: a university divided into a *collegium juridicum*, *collegium theologicum*, *collegium medicum*, and *collegium philosophicum*. These four university buildings were to be set at the corners of a square, leaving a public space shaped like a Greek cross and marked at its centre with a fountain or monument. On the four blocks adjoining this central square were to be the lodgings of the professors, seven to a street, apparently grouped according to faculty. Schwalbach's formal inspiration was quite likely Christianopolis, the imaginary Protestant city designed by Johann Valentin Andreae (1619).[17] This too was a rectilinear town whose central square was lined on four sides with a *Collegium*.

Schwalbach's university town completed his series. Bound into his manuscript, but neither discussed nor keyed in to the accompanying text, his five designs seem somewhat of an afterthought. Perhaps they were incomplete at Schwalbach's death in 1635 and were incorporated into the manuscript rather haphazardly. Or Dilich might have been responsible for the town plans, which were meant to illustrate in rather general terms the ideas of the 'Kurtzer Berichtt'. At any rate, Schwalbach presented his towns without commentary. Any speculation about their ultimate meaning must rely on the internal evidence of the designs themselves, and comparison with contemporary German town plans. In this respect, the plans are hardly mute. Even the most cursory glance at the plans reveals the astonishing vitality of medieval ideas and forms, which invites at least some tentative conjecture about the ideology upon which Schwalbach's peculiar towns rest.

'O BOOK MOST RARE, ENDURE': THE MEANING OF SCHWALBACH'S CITIES

One tends to see the development of town planning in the Renaissance as a relentless process of geometrification, as ever more regular plans were used with ever more regularity, springing from the guarded pages of treatises to the plains of Europe and even distant America. From this standpoint, Schwalbach's curious mixture of old and new was rather backward-looking. Yet there was not one channel of development but many, just as there was not one kind of geometry. Besides the regular contours of the Utopian city such as Christianopolis, whose lines were ordered to reflect a divine order, were the regular contours of the fortress, whose lines were ordered to thwart the ricochet, the sapper, and the siege trench. Schwalbach's real achievement was to temper the Renaissance belief in abstract geometry with the practical lessons of a siege warrior, who knew how towns were provisioned, how they functioned, and how a well-appointed town survived, even in extremis, as in a siege. Here was Dürer's comprehensiveness with none of his arid intellectual precociousness. But inevitably, Schwalbach's bows to reality gave rise to forms which seem anachronistic.

The most striking anachronism in Schwalbach's manuscript is his series of Gothic churches. All of these, it is true, show a certain admixture of Renaissance elements, such as the columns raised on square plinths and the use of orders in place of buttresses. None the less, in the ubiquitous towered façades, polygonal apses, and fan vaulting, these churches are outstanding examples of the late German Gothic, a tradition that had been passed on intact into the seventeenth century. This is apparent in the one fully developed church design in Schwalbach's manuscript, nominally a proposal for the

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strengthening of a church tower but apparently an original design (Fig. 2). While the façade was encrusted with Renaissance cartouches and fronted with a classical portal, this was surface detail; in substance and in plan the building was a fully vaulted late Gothic German hall church. Nor was Schwalbach a dabbler in Gothic architecture, for he conjured a variegated assortment of church plans that was of truly encyclopaedic scope, a virtual catalogue of late Gothic plan types. The churches shown on his town plans, fifteen in all, included hall churches and basilicas; polygonal apses, square apses and continuous ambulatories; Greek-cross plans, Latin-cross plans and churches without transepts — all presented, it seems, for no deeper reason than a love of variety for its own sake. Here, surely more than anywhere else in the town plans, is suggested the hand of Dilich, the well-travelled vedutist, whose town views would have contained churches representing most of these types. (Incidentally, the idea of incorporating the plan of individual buildings in a town plan — choreographing architectural plans with urban plans — is now a convention of German city planning. Perhaps there are more links yet to be traced between the urbanism of early modern times and the present.)

Schwalbach's churches are startling, vividly documenting the vitality of the mini-Gothic Revival that touched Germany around 1600.[18] Perhaps stoked by the flames of religious strife that blazed in the Thirty Years Wars, this was a nostalgic architecture that evoked the Middle Ages, when Europe was not so rent by religious division. In this there was surely a nationalistic component as well, a deliberate rejection of things Italian (and Catholic). Certainly in Italy the Gothic had already been dubbed by Vasari a *maniera tedesca*. At any rate, some churches of this era, such as that of Freudenstadt, begun after 1599, adopted the Gothic as a badge of Protestantism.[19] Schwalbach's churches, like his town designs, are saturated with such conservative symbolism.

Behind his modern system of fortifications, Schwalbach preserved intact a medieval structure of society. The formal apparatus of the planning, the comprehensiveness of the scheme were absolutely new; but the impulse behind the designs was conservative, to conserve the substance of the medieval town, with its complex system of shops, markets, and town government, and its non-absolutist distribution of power. Here in the midst of the Thirty Years War is an astonishing glimpse into the image of the German city, poised between the Middle Ages and modernity, yet already pointing ahead to those characteristic concerns for comprehensiveness and pragmatic planning that would make Germany the cradle of modern city planning 250 years later. Like Thomas More's *Utopia*, a similar vision of a perfect city, Schwalbach presented no fully imaginary new world, but rather an idealized and well-ordered view of an existing society, the late medieval society which they both knew and sought to defend.

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NOTES

1 The CCA treatise (CCA–DR1986:0761) is the only known copy of Schwalbach's manuscript. It appears to be a version of Manuscript c–102 in the Handschriftsammlung of the Dresden Bibliothek: '*Bericht, wie alle und jede, sowohl Regular als Irregular–Vestungen auff Geometrische Art nach gegebenen Proportionen auffzureissen und zu verzeichnen, auch wie dieselbe hernach auffzubauen, zu muniren, proviantiren, besetzen, und mit aller anderen Nohtdürftigkeit zu versehen*'. The Dresden version was apparently lost during the Second World War and no photographs survive. There is no reason to suppose that the CCA manuscript and the Dresden version are one and the same.
2 For example, the German military historian Max Jähns, perhaps out of pardonable national pride, viewed Schwalbach as a forerunner of the legendary Sebastien LePrestre Vauban. In Schwalbach's treatise he saw 'die reichliche Anwendung von Traversen auf allen längeren Linien, aus welcher unverkennbar herzorgeht, dass schon damals in Hessen und Sachsen der angeblich von Vauban erfundene Ricochetschuss sehr wohl bekannt . . . war.' Max Jähns, *Geschichte der Kriegswissenschaften, vornehmlich in Deutschland*, 3 vols (Munich and Leipzig, 1889–91), p. 1117. Jähns also cites Schwalbach for pioneering the use of free-standing parapeted walls at the foot of the escarpment at the outer ditch.
3 Much of this is recorded in the biographical poem that introduces the 'Kurtzer Berichtt'. Written in Latin verse by the distinguished Saxon philologian and poet August Büchner, it is a splendid example of courtly panegyric during the Thirty Years War. I am indebted to Leszek Wysocki of McGill University for his translation.
4 Ibid. For a recent account of the politics of the Electors during this period, see Geoffrey Parker, *The Thirty Years' War* (London, 1984).
5 From Büchner's poem.
6 Ibid.: 'The time which others devote to luxury / you devote your time to geometry / you raise fortifications in the cities.'
7 In the Hessian Staatsarchiv in Marburg is a sketch of 1622, almost certainly by Dilich, for a bastion at Wanfried (Bestand 4h, Nr. 07). I am indebted to John Thiebault of the University of Oregon for this reference.
8 Born in Wabern, Hessia, Dilich studied at the universities of Wittenburg and Marburg where he soon became accomplished at topographic views in pen and ink. During the 1590s, serving as *Abreisser* at the court of the Hessian Landgraf Moritz, he executed numerous panoramas and views of Hessia, Saxony, and several Hanseatic cities. Even before serving with Schwalbach he had authored a short treatise on military architecture, the *Kriegsbuch* (1607). His chief architectural work was the so-called Riesensaal in the Dresden palace, now destroyed, a commission that Schwalbach helped to arrange. See the entries on both Dilich and his son in Thieme-Becker.
9 Johann Wilhelm Dilich (1600–60) was trained by his father as an engraver and military engineer. His drawings are preserved in the Frankfurt Stadtarchiv. Matthias Merian's famous engraving of Frankfurt (1646) depicts the city as fortified by the younger Dilich, including the unbuilt line of the fortifications at Sachsenhausen, across the Rhine, presumably also designed by Dilich. Wilhelm Dilich's 1640 *Peribologia* presents on plate CCXCII what appears to be an idealized version of the fortifications at Frankfurt.
10 Wilhelm Dilich, *Peribologia, oder, Bericht Wilhelmi Dilichy . . . von Vestungsgebewen vieler Örter, vermehrett wie auch mit Gebührenden Grundt und Auffrissen versehn und publicirett durch Johannem Wilhelmum Dilichium* (Frankfurt, 1640). Many of the plates are taken directly from the drawings in the 'Kurtzer Berichtt'; virtually all of these are reversed. For example, plate CCLXXIIX in Dilich is a reverse of CXXCIX in Schwalbach.
11 This type of town was already widely published in the 1560s in the works of Pietro Cataneo, Girolamo Maggi, and Giacomo Castriotto. See Michael J. Lewis, *La géométrie de la fortification: traités et manuels, 1500–1800*, catalogue of an exhibition at the Canadian Centre for Architecture (Montréal, 1992). None the less, it seems that Dilich and Schwalbach were working from Dutch, French, and German sources, that is, the second generation after the Italian authors. At least this seems to be the case from the authors cited by Johann Wilhelm Dilich in his introduction to *Peribologia*, including, among others, Jean Errard Bar-le-Duc, Jacob Perret, Samuel Marolois, Adam Freytag, and Georg Günther Kroll.
12 Schwalbach, p. 186.
13 Daniel Specklin, *Architetura von Vestungen* (Strassburg, 1589)
14 Hanno-Walter Kruft, *Städte in Utopia. Die Idealstadt vom 15. bis zum 18. Jahrhundert zwischen Staatsutopie und Wirklichkeit* (Munich, 1989), pp. 68–81.
15 Schwalbach, p. 186. He sometimes uses the term *Stadtobrist*.
16 Ibid., chapter 20, pp. 186–94.
17 Johann Valentin Andreae, *Republicae Christianopolitanae descriptio* (Strassburg, 1619); reprint of 1741 German translation (Hildesheim, 1981).
18 Hermann Hipp, *Studien zur 'Nachgotik' des 16. und 17. Jahrhunderts in Deutschland, Böhmen, Österreich und der Schweiz* (diss., Tübingen, 1979).
19 Kruft, *Städte in Utopia*, pp. 76–79.

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