CITY PLANNING IN FRANKFURT, GERMANY, 1925-1932
A Study in Practical Utopianism

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Fifty years ago, one of the most remarkable city planning experiments of the twentieth century was undertaken in Frankfurt-am-Main. With unique land use, city planning and management concepts, revolutionary design elements, and a strongly leftist ideological thrust, this experiment had a lasting impact on the evolution of city planning in the western world. While its contribution in a holistic sense has been long recognized,1 few have attempted to probe the experience in any depth.2 This article will help eliminate this shortcoming by analyzing the problems, approaches, design application, and implementation of Frankfurt's city planning experience in the 1920s.

The Antecedents

The cauldron developed by Germany's architects and planners at the end of World War I was not the only major stimulus to Frankfurt's revolutionary planning approach. The roots of many stimuli that influenced the experience date from the Bismarckian and Wilhelmian Reichs, namely in the work of the Oberburgermeisters Johannes von Miquel and Franz Adickes.3 During the 32 year span in which these two men held office, Frankfurt
became a focal point for city-planning reform and experimentation. Measures designed to promote cooperative housing, control land speculation, implement zoning, tax land speculators, stimulate master planning, and provide social assistance programs for the lower income groups were all undertaken within a strong common-man framework.4 The net result of these measures was that by the beginning of World War I the citizenry looked to planners and planning as being essential for its well-being. This condition, coupled with the social upheaval caused by the war, provided a strong foundation from which radical measures could be undertaken.

With the formulation of the Arbeiter und Soldatenräte (workers' and soldiers' councils) following the upheaval at the end of World War I, city planning in Frankfurt received a further reform stimulus.5 No longer was housing controlled by the wealthy few, no longer was the conservative Prussian yoke serving as a constraint for humanitarian-oriented social programs, and no longer did nationalism play a role in the physical design of key structures.6 It was a period in which for one brief moment the outsider became insider.7

The city of Frankfurt suffered gravely from effects of the war. Its stock exchange, newspapers, night life, and entrepreneurs had relied extensively on customers in the West. Thus, when these areas became inaccessible the city went into decline.8 At the same time the Frankfurt population expanded as refugees relocated within its boundaries and soldiers returning from the war created new families.9 At the end of the war (1918), housing production was less than 1% of the last prewar year (1913).10 Housing was so scarce that military barracks were released for public use.11 The problem became even more complicated with increasing inflation. Between the end of the war and late 1923, the currency was so devalued that few civil projects were implemented. Out of this chaos came an increased realization that only through large-scale comprehensive planning could a sense of normality be realized in Frankfurt, a position held by Mayor Ludwig Landmann, the city council, the press, and the people themselves.

With a massive influx of new residents, runaway inflation, high unemployment, and a national government beset with
problems concerning external reparations and internal public safety, some legal measure to stimulate the economy at the local level was needed. The passage of the Hauszinssteuer Act in 1924, which enabled local municipalities to tax homeowners whose homes had been made essentially mortgage free by inflation, alleviated this need. Designed primarily as a general economic measure to facilitate home construction of all types, it was quite successful until 1930. Indeed, between 1924 and 1930 over 1,650,000 units were built throughout Germany using these funds. Perhaps more importantly, the economic impetus for the city planners to develop and implement large-scale planning was provided. For Frankfurt this was the last key ingredient necessary for the new program. With public, political, and newspaper support as well as the ability to raise funds, opportunity presented itself for the right man. Mayor Landmann selected the architect Ernst May.

**ERNST MAY**

May, prior to coming to Frankfurt, was an admirer of Theodor Fischer, an apprentice under Sir Raymond Unwin, a designer of military cemeteries, a planner in Breslau, and a member of the Deutsche Werkbund and Der Ring. His work incorporated elements from these spheres with neither a sense of zealousness nor disjointed perspective. From Fischer and Unwin came an acceptance of many of the garden city ideals. From the Deutsche Werkbund and Der Ring came an aesthetic understanding of and appreciation for the need for a Neue Sachlichkeit. Yet, May's philosophy was more moderate than that of his contemporaries, Mendelsohn, Gropius, and Taut. In fact, May's contributions to these groups are not apparent in the development of fresh concepts and ideas but in the synthesis of other men's ideas into practical application. However, the spirit of revolutionary change present in much of the early postwar architectural writings was also supported by May. He viewed his assignment as extending beyond the actual planning and development of the physical city. The plans and programs created under his direction were to serve as stimulants in support of creating a new social milieu. Planning, which was to reflect the perceived needs of the citizenry rather than their attitudes,
was to introduce and lead them to an era in which the new just society was to be formed. The attempt was to create a new concept of living—a wohnkultur.\textsuperscript{17}

May was a socialist and saw that planning was one means of creating a more equitable society. He also advocated the planning for people concept rather than a more democratic approach. This apparent paradox can be explained at least partially by the fact that German planners, unlike North American planners, were not expected to consider the tastes and desires of their citizenry. The German official thought of himself as a well-trained professional who knew what was best for the people.\textsuperscript{18} American planners recognized this attitude as early as 1915 and considered it to be a tremendous asset in undertaking successful planning.\textsuperscript{19} Also, as Toll has pointed out, “In a culture like Germany’s, public controls tended to beget obedience.”\textsuperscript{20} This attitude had been firmly set from the time of Bismarck and changed little during the Weimar Republic.\textsuperscript{21}

**MECHANISMS**

May was given a broad range of powers that included control over zoning, plan development, financing, implementation, sign control, and building inspection. He was also in charge of the municipally controlled limited-dividend house construction cooperatives and edited a slick architectural magazine called *Das Neue Frankfurt*.\textsuperscript{22} He immediately assembled a staff that was also eager to use architecture and planning as instruments for social change and that began to develop a general plan to overcome the city’s physical problems.

The lack of attention given city planning between 1913 and 1924 had an overwhelming negative effect. Housing shortages, overused facilities, and unsanitary and unsafe structures were commonplace. City planning as a bureaucratic activity virtually had ceased to exist. The first assignment was to assess residential housing needs, for there was no statistical base from which to begin planning.\textsuperscript{23} From this survey, the planners then could focus on the greatest needs and could endeavor to meet them. Housing for small families was exceptionally scarce, and therefore required the greatest attention. Thus, the question of where to put these people became critical. Building the typical prewar,
dank, disease-ridden, six-story hollow-block mietkaseren reflected the approaches of the old order, and certainly would not result in improved living conditions or support for the new regime. Further, because of the narrowly defined and cumbersome expropriation powers of the municipality, this approach ultimately would have increased the profits of speculators. The planners rejected this alternative and decided to look for land that had not been designated for development, was inexpensive, and was not of prime agricultural interest.

THE PROBLEM

Frankfurt evolved from medieval times in a series of rings. These included the Zeil Ring (the city’s main street), the Anlage Ring (where Napoleon’s troops pulled down the walls and filled in the moat), and the Ringstrasse, designed during the Adickes’ administration. Within each of these rings large plots of open land were virtually nonexistent. Industry was concentrated along the edge of the River Main in the eastern and western sectors of the city leaving neither room nor desire to locate residential settlements in these areas. To the south, a few plots of land were available for development but the 13,000 acre Stadtwald (municipal forest) served as a barrier to additional large-scale growth.

By process of elimination, clearly the best alternative was to place the new settlements in the scattered sites along the urban fringe. The only area in which immediate large-scale developments could occur was to the north and northwest of the ring road in the direction of the Taunus Mountains.

After selecting sites away from the urban core, the planners began to develop designs that reflected the influences of the writings of Fisher, Fritsch, and Unwin and the existing works at the Krupp colony of Margarethenhöhe (designed by George Metzendorf), and the Deutsche Werkstätten-sponsored settlement at Hellerau (designed under the direction of Richard Reimerschmid and Heinrich Tessenow). Their plans called for settlements that maximized sunlight, air flow, and allowed for gardening. The fringe location also allowed the planners to reserve a green belt separating the old and new sections of the city.
Cost was also a factor in decisions beyond the purchase of land. According to May's mandate, housing was to be constructed as inexpensively as possible. To meet this goal he advocated using standardized designs: "Dwellings are articles made in the mass. To supply them in good quality and cheaply one must adopt the methods invariably followed by industry when producing goods for mass consumption." To this end, he commissioned his architects to create housing in which every function was considered and included—but no more. The dwellings were to be as totally functional as possible. Further, he assigned his structural designers the task of developing a prefabrication system and factory to build the standardized parts within the city itself. By designing the houses as standardized units, May's intent was to cut costs to the absolute minimum.

Having decided to pursue the creation of a new wohnkultur, the planners developed a scheme that allowed for a maximum sense of community in the settlements, although still generating a feeling of relatedness to the municipal organism as a whole. May conceptualized these settlements as being daughter towns. Each settlement was to be tied to the central city by roads, infrastructure, and transit lines. Still, the mother center city would provide very few of the requirements for daily living. Consequently, the planners were given the task of not only building houses but schools, churches, community centers, shops, playing fields, gardens, and work places. Also, space was to be allocated for artisans, lawyers, and medical people. To free the housewife from some of the drudgery of the day-to-day chores, workers were to build a central heating plant and provide for day-care facilities and a central laundry in each settlement. Last, a green-belt link was to be created between the new settlements themselves to foster the new sense of community; in this way, it was hoped that a major step toward the creation of wohnkultur could be achieved.

The general objectives were to systematically eliminate the housing shortage, provide for the additional required housing that would result from new immigration and marriages, and after reducing the demand, upgrade the altstadt. More specifically, the planners were to accomplish the following tasks:
(1) To build as much housing as possible within the funding limitations of the Hauszinssteuer.

(2) To build this housing to fit the needs of the people of Frankfurt in such a way that the maximum utilization of all housing was attained.

(3) To select sites that were the least expensive and that, in the short run, would not cause an increase in the demand for existing housing.

(4) To develop plans for housing that were designed as functionally as possible and that were for the minimum existence.

(5) To create housing that was as inexpensive as possible, but that would reflect the values of the new society while not destroying community icons.

(6) To develop housing that would be healthy and sanitary.

(7) To develop settlements that were as completely independent as possible, providing for places of living, learning, working, and recreation.

**The Program**

The program, developed in less than a year, was designed to be completed in a ten-year period that began in 1925. The initial funds were made available within a matter of months after May arrived in Frankfurt. For the first three years (1925-1928), the planners received over 16 million marks per year from the Hauszinssteuer, over five million marks each year from municipal grants, and approximately five million marks per year from loans. May's organization served as a broker for these funds. His planners and architects developed the total program for each settlement, designed the structures, determined the site plan, and even selected the tenants. The actual construction work was turned over to public-utility building organizations. Since the time of Bismarck, these organizations were in essence housing construction arms of the local municipalities. The combination of a large available labor pool due to high unemployment and the simplified prefabricated construction procedures provided the conditions necessary for swift implementation.

Within one year of the start of the new housing program, 2200 units were built while 1200 were anticipated. The next year an
additional 3000 were developed while 1200 were anticipated.\textsuperscript{32} Indeed, between 1926 and 1927, Frankfurt had the greatest building activity of the seven largest cities in the nation.\textsuperscript{33} The city constructed 20.4 units for every 1,000 people. By 1933, the program resulted in more than 15,000 new dwelling units scattered mainly along green belts on the fringe of the city, a figure that represents 90\% of all housing built in the city between 1926 and 1933. With May's extensive powers and with approximately 90\% of the housing under his direct control, one can understand why the authorities could exercise such a far-reaching influence on the design and construction of the structures.

The Projects

There were 24 siedlungen (settlements) planned. All bore the stamp of the Neue Sachlichkeit, and all represented a radical departure in terms of planning and design concepts from any existing housing projects in the city. This was particularly evident in the Bruchfeldstrasse Siedlung. One of the first completed (1926), its flat roof, zig-zag site layout, reflecting pool, sun loggia, and wide bands of colors were a startling statement that an age of new designs had arrived. That the local municipal government sponsored these projects was equally important. Less dramatic projects begun at that time were influential in that they served as reinforcements for the new approach. Among all the settlements, those placed along the Nidda River valley came closest to meeting both the practical and idealistic goals of the Frankfurt planners.

The Nidda River valley was nonproductive swamp land located in the northwest corner of the city. Using the strong zoning powers inherited from the Adickes' administration, May designated the area for agricultural use, and thus insured that it would serve as a green belt separating the older city from future expansion. Large, underdeveloped tracts located along the north and west slopes of the valley were purchased through existing expropriation powers. This land became the site of three contiguous settlements, Römerstadt, Praunheim, and Westhausen, which collectively housed over 12,000 people.
NOTE: As can be noted, most of the settlements were proposed to be on the fringe of the built-up portion of the city and were to be separated from the core by a green belt.

Figure 1. The Frankfurt Settlements

Römerstadt

Römerstadt was built on the site of one of the largest Roman towns on the north side of the Rhine. In modern times the area had been used for small gardens. The site was nestled along a two kilometer strip between two long-established villages. Its location was along a slope adjacent to a flat, open area of the valley, and provided the opportunity for broad vistas. To separate the project from the valley floor, the Frankfurt planners created a fortress-like wall capped with promenades and rest areas. This served two functions: (1) it distinctively separated the community from its regional surroundings giving the project an appearance of standing apart\textsuperscript{34} and (2) it protected the lowlands against flooding. The street pattern, designed to separate neighborhood and through streets, was laid out not only for utility but to provide a sense of form to the area. The local streets were established sparingly in a gentle curvilinear pattern with minimal width. The through streets, on the other hand, were important
NOTE: Perhaps the best example of the settlements built by May. It offered modern design, high densities in a natural setting, and well defined borders that were designed to create a sense of community.

Figure 2. The Römerstadt

design features: in In der Römerstadt street was a major inter-village connector and formed the northern edge of the settlement while Hadrianstrasse, the main road to the center city, formed a sloped curvilinear swath through the project. At the highest point where the Hadrianstrasse began, a combination apartment-house cooperative store was so situated as to serve as the focal point of the community. This structure paralleled the curve in the road and was modeled after the sailing ship superstructure design so popular during that time.35

Two-story row houses predominated in the project. These units were developed using both the einzelreihen and doppelreihen (single and double rows) pattern. The flat roof, bare-facing, and multicolored walls of earlier projects were also found here. Unlike Bruchfeldstrasse, there were no dramatic bands of colors but each building was painted with soft hues of red, gold, and blue as well as white. May's use of paint as a cosmetic feature to dramatize the site does not appear to be an original concept, but was probably based on the earlier experiments of Otto Haesler in his Italienischer Garten at Celle36 and on the work of Bruno Taut at Magdeburg.37 Each unit had a water closet, bath, kitchen, and closets. The inclusion of the bath in worker housing was a totally new approach in Frankfurt, and the kitchen design was unlike any other previously created in
Europe. Designed by Frau Grete Lihotsky, the kitchen included all the normal appliances and fixtures and was standardized and mass produced.\textsuperscript{38} These kitchens were so durable that only during the last few years, over 40 years after installation, have they had to be replaced.\textsuperscript{39} With a compact spatial arrangement, the stove, cold storage, sink, cabinets, and counter tops resembled a pullman-car kitchen.

Standardization did not end with the kitchen but was an integral part of the entire interior. Specially scaled, mass-produced furniture was designed to fit the small spaces. This furniture became so popular that furniture makers often advertised the merits of the frankfurter bett, the frankfurter tür, the frankfurter schrank, and the kramerofen (named after Ferdinand Kramer, the designer of the oven, and an architect and colleague of Ernst May).\textsuperscript{40}

The writings of Mart Stam, another of May’s colleagues, provide critical insights into the ideological basis for the furniture design:

The right scale is the minimum scale, for it would be wrong to design our chairs larger or heavier than they need be, or for reasons of display. All they need to do is meet our requirements, that is to say, they should be light and mobile.

Our objects are to be on a human scale, they ought to be but they are not yet, for there is still something nineteenth century about our furniture, rooms, and homes, in our layout of public places and town planning too. Modern architecture is therefore fighting against prestige designs, against excess (Übermasse) and for the human scale.[Menschenmasse]\textsuperscript{48}

In addition to the kitchen, the furniture, and unit sizes, the Frankfurt planners also developed layouts for gardens. Throughout World War I and the food shortages that followed, German citizens were allowed to use vacant public lands for gardening. The people responded to this program so overwhelmingly that architects and planners had to include provisions for kleingartenkolonien (small garden colonies) in their designs.\textsuperscript{42} Such a measure was also a critical element in the pursuit of the new wohnkultur for it linked man with the land in a cultural sense, provided a means for the urbanite to have the opportunity to
associate with a natural environment, and allowed the resident to grow his own foodstuffs. Ideologues on both the right and left, including Damaschke, Fritsche, Kropotkin, and Riehl, all proposed such an idea in various forms. Under the direction of one of Europe’s most respected landscape architects, Leberecht Migge, provisions for gardening were carefully integrated into the project. To make the best use of the land, Migge developed typical layouts to help the resident maximize his yield.

Migge was also responsible for the landscaping of the entire Nidda River valley. He designed walkways, bicycle paths, sport fields, and forested areas. One of the most impressive elements was the creation of walkways and bicycle paths along the river. Set in acres of parkland along the river edge, these paths continue uninterrupted for several kilometers. At key spots adjacent to these paths sports areas were placed. In some areas a terrace-like design is evident. Bicycle and pedestrian walkways were along the first step at the river’s edge, sports fields were one step above, the garden area composed the next step, and finally, the housing units were placed at the highest level.

The plan also called for several communal features that were designed to support the wohnkultur ideal. These included a local consumverein (cooperative store), day-care centers, common washing areas, community centers, playgrounds, guest houses, shopping areas, schools, and a theater. All were designed to create a positive sense of community and desirable living conditions in a relatively short time. Some of these improvements are interpreted differently today. At a recent museum exhibition of the housing improvements in Frankfurt brought about by the May-sponsored program, a caption on one of the photographs of the kitchen stated with a degree of levity: “What May foresaw as aiding the emancipation of women is today considered by many as being a golden cage.” Nevertheless the quality of life was greatly improved.

PRAUNHEIM

Praunheim was located adjacent to Römerstadt. Built in two parts, it was begun in 1926 and completed in 1930 along a 1.5
NOTE: The area to the east of the Hindenburg-Allee represented one of the first efforts by May’s staff. The area to the west shows the beginnings of the doctrinaire schematism that was to evolve as the experience came to a close.

Figure 3. Praunheim

kilometer strip connecting Römerstadt and Westhausen. In this project May employed a prefabrication system called the May system or the massivblock. Far more sophisticated than any other system in use at that time, it was quite effective despite many implementation problems. Using large precast concrete units with dimensions of 3 by 1.1 by .2 meters, the planners could build a complete unit within two days. The mixture was two parts bimsand, five parts bimsgravel, and one part Portland cement; the aggregate was a locally obtained pumice. To set up the system, the planners established two factories. Unskilled or semiskilled unemployed workers were hired because the work was so simple that it did not require highly skilled construction workers. The slabs developed from this system were strong enough to bear the load of a three-story structure without requiring the support of pillars. One American housing expert who examined the settlement in the late 1920s compared the Frankfurt houses to the assembly line Ford!

The structures in Praunheim, as at Römerstadt, were mainly two-story row houses. They were painted subtle hues of red, gold, and blue. The subtle integration of land contours and structures that marked Römerstadt did not occur at Praunheim. In the first phase the structures were mainly placed rigidly parallel to, and on both sides of, the road. However, the designs of the structures were functionally similar to those of Römerstadt with one new unique feature. May placed a radio signal-receiving tower on top of the community restaurant. He then placed a
radio outlet in each of the units allowing the residents to listen to the one radio station in operation.

As the Praunheim settlement developed changes were made in the designs and facilities. The second stage (Praunheim 2) included the first primitive form of *zeilenbau* or superblock concept in Frankfurt. The typical German regarded privacy, the movement of air, and provisions for sunlight and green space as key ingredients associated with his home. The lack of these provisions in the prewar mietkasernen made people desire them all the more. To provide for these elements in the designs of the new structures, single open-ended rows of apartments, spaced so that the sun was not blocked from the adjacent row in the settlement, were provided. Also, no apartment could be more than two rooms deep in any part to insure that each room obtained a certain amount of sun per day. Further, to insure cross ventilation, no more than two apartments were located on one landing.

Praunheim 2 had all the provisions of the *zeilenbau* except that small local streets for vehicular traffic were placed parallel to the apartment blocks. These small streets were named for some of the greatest architects of the time. These included among others the Camillo Sitte Way, Theodor Fischer Way, Hermann Muthesius Way, Fritz Schumacher Way, and the Heinrich Teessenow Way.

Provisions for parks and recreation, as at Römerstadt, could be found at Praunheim. Also like Römerstadt, the project included heating and laundry facilities, and like Bruchfeldstrasse, included sun loggias on the roof tops.

Praunheim was designed with a top-heavy appearance as the upper one-third of the row house facades were windowless. This feature, coupled with the bright-colored (rust, blue, black, yellow, and green) walls, helped create a unifying scheme for the project. In comparison with prewar architecture, the effect was, as Lane has written, “gay, bizarre, and radically different. The new community looked indeed like a ‘new Frankfurt’.”

**WESTHAUSEN**

Separated from Praunheim by the *westfriedhof* (west cemetery) and a garden complex was the Westhausen settlement,
which consisted of 1100 dwellings and was the first settlement developed completely under the zeilenbau concept. The apartments were located perpendicular to through streets. These streets were connected to each other by pedestrian walkways that were parallel to the apartment units. Most of the rows of units were open-ended, and spacing was arranged so that each unit obtained a maximum amount of sun.

Many assets resulted from the use of the zeilenbau. Courtyards were open-ended and therefore were reached by the free flow of air. Vehicular traffic was prohibited from permeating the project area and was forced to stay on the perimeter. This resulted in cleaner air, a quieter environment, safer pedestrian movement, and a financial savings due to the need for less pavement. Vistas from the apartments provided a relatively wide perspective that contributed to a feeling of openness which was reinforced by the introduction of balconies to the units. Also, the limit of two-room-deep apartment complexes insured that each side of the unit could obtain some sunlight. The uniformity of design also resulted in infrastructural savings, as the Frankfurt city planners found it contributed to the systematizing of water, gas, and sewer pipe layouts. By placing these pipes under the road pavement and
the gas and water mains in the basements of the dwellings, repair time and costs were substantially reduced.51

As evidenced by the work at Westhausen, the Frankfurt planners became increasingly enamored with the position of the sun as a determinant of site planning—almost to the point of making this the most important site design influence. Under the direction of Walter Schwagenscheidt, later the planner of the new satellite town of Nordweststadt, they carried out a series of elaborate tests to pinpoint the exact position on which the Frankfurt apartments should be placed.52 In time, the results of these tests were distributed throughout Germany. The key element in their test was a hypothetical first-floor dwelling of a four-story apartment complex in a project with other apartments parallel to and approximately 150 feet away from it. Within these constraints, all the apartment buildings were positioned so that each first floor dwelling would achieve maximum sunlight exposure in winter and spring. If the first-floor unit achieved this goal, then naturally all units above would achieve the same. From Schwagenscheidt’s studies, the optimum location for apartments in Frankfurt was found to be in a row direction of north-northwest to south-southeast. The living room and kitchen in each unit were then oriented toward the west to obtain the afternoon sun, while the bedrooms and bathroom were placed on the eastern side to obtain morning sunlight.

The application of this approach in Frankfurt represented the last phase of an evolution in site-planning design. At the beginning of World War I, Frankfurt, like Berlin and other large urban areas in Germany, was amassing high density, unsanitary, eclectically designed, high rise, hollow-squared structures in which only limited sun and air could penetrate. These conditions were rejected by the end of the war when the Neue Sachlichkeit began to influence architects and planners. Shortly thereafter, a second phase evolved which was of a less dense character and which was bisected by more streets. The third phase, the modified zeilenbau, then evolved in which sun, light, air, and greenery became available qualities for the residents to share. Praunheim 2 was an example of this phase in Frankfurt. The zeilenbau came last improving the qualities associated with Praunheim further by extracting roads from the interior, placing housing at
right angles to the street, and creating extensive plots of greenery. The Frankfurt planners even moved into a more sophisticated form of the zeilenbau by adding heliotropic housing principles to the concept. This entire four-step evolution took place in less than 10 years.

Many innovations in the Frankfurt program were not only for the sake of change or improving living conditions, but also were prompted by necessary cost of living considerations. While the miracle of the rentenmark did stabilize the currency, the cost of living was not reduced to prewar levels. Construction costs between 1914 and 1929 nearly doubled, while interest rates increased 250%. The net result was that the tenant paid higher rents. This created an inequity since most of the housing was for working-class families and had to be within the reach of their
ability to pay. Throughout the development period, the planners tried to cut costs, but this task was made all the more difficult by the fact that national unemployment dipped below one million only once between 1926 and 1931. Indeed, by 1931 over five million were unemployed.\textsuperscript{55}

One of the easiest ways to alleviate this dilemma was to tailor the dwelling unit to a fixed budget. That is, after establishing a fixed cost per dwelling the size of that dwelling would increase or shrink according to the cost of materials and labor. For example, the average four-room unit decreased from 94 square meters (sm) in 1926, to 90 sm in 1927, to 78 sm in 1928 and 1929, to 75 sm in 1930.\textsuperscript{56}

In time, rising costs combined with the doctrinaire schematism of \textit{licht, luft und sonnenschein} created a rigidity in many of the later designs.\textsuperscript{57} However, the spirit of wohnkultur was still pursued, and the building program continued unabated through government and economic crisis alike.

Other settlement projects were also significant. The formal layout of the Bornheimer Hang with its Martin Weber designed Heilige Kreuz Kirche,\textsuperscript{58} the garden settlements Im Teller and Strahlenberger which served as models for the peasant-oriented settlements that came with the National Socialists,\textsuperscript{59} and the tight miniature dwellings at Hellerhof\textsuperscript{60} designed by Mart Stam all were exemplary. Yet, the Nidda valley settlements were those which by and large captured the attention of architects and planners, and which contributed most to the evolution of modern urban design and city planning.

The arrival of the depression and the increased power of the National Socialist party ended the experiment. Ernst May went to Russia in 1930 with a mandate to build 200 large cities.\textsuperscript{61} His replacement was forced to adapt to decreasing funds and increasing pressure to stop the program. Two years later with the fall of Chancellor Brüning in March 1932 the program died.

\textbf{SUCCESS?}

Was the Frankfurt program a success? Yes, in the sense that most of the practical objectives were met as well as possible under changing social and economic circumstances. Also, Frankfurt came the closest of any German city with a population of
over 100,000 to overcoming its housing shortage.\textsuperscript{62} Nevertheless, in terms of the desire to create a new wohnkultur, Frankfurt was a failure. As Kropotkin rightfully pointed out, the development of socialist communities cannot take place at a local level.\textsuperscript{63} They must occur regionally. Even the acceptance of the new designs by the populace was questionable. Articles with headlines such as “\textit{Der Geschmack der Mieter ist nicht der Geschmack der Architekten}” were commonplace.\textsuperscript{64}

No means exist to measure the degree of satisfaction in terms of the user for he had little choice. Since the city was responsible for 90\% of all housing, with the other 10\% primarily for upper-class families, the person in need of housing was forced to accept that which was available.\textsuperscript{65} However, today, despite the lack of spaciousness and car parking problems, units in these settlements are in great demand. They have been well maintained and hardly reflect the fact that many of them are almost 50 years old.

The program has received a great deal of praise from historians and scholars. Mumford, writing in 1937, called it one of the best results in planning up to that time.\textsuperscript{66} Giedeon favorably compared planning in Frankfurt in the 1920s to planning in London between 1800 and 1850, Paris between 1850 and 1900, and Amsterdam between 1900 and 1930.\textsuperscript{67} Similar acclaim was given by Catherine Bauer Wurster,\textsuperscript{68} Leonardo Benevolo,\textsuperscript{69} Henry Wright,\textsuperscript{70} and Reyner Banham.\textsuperscript{71}

The impact of May’s work on the city of Frankfurt was surpassed only by Napoleon’s decision to destroy the city’s walls and fill in its moat. May’s program was essentially the skeleton on which further development could expand. It has had such far-reaching implications that some of his concepts remain as guiding principles for development. These can be directly noted in the development scheme for the new town of Nordweststadt (adjacent to Römerstadt) and in the Goldstein area (south of the Main River). His basic objectives concerning decentralization, housing for the worker, \textit{siedlungen im grünen}, and site planning are still used.\textsuperscript{92}

Before World War II the development of Frankfurt had little direct impact on the planning experiences of other cities with
the exception of Berlin. In Berlin, Martin Wagner endeavored to duplicate the Frankfurt experience and partially succeeded. The Frankfurt experience became initially known to architects and planners throughout the world through Congrès Internationaux d'Architecture Moderne (CIAM) which met in that city in 1929. Because of the great interest expressed in the Frankfurt program by architects and planners as a result of the CIAM meeting, the city decided to develop a short course to teach the Frankfurt process and technique. (Catherine Bauer was the first American to attend.) Also, the city was examined as part of the Comité International pour la Réalisation des Problèmes d'Architecture Contemporaine’s (CIRPAC) preliminary studies that led to the Athens Charter of CIAM. While no direct cause and effect relationship can be ascertained showing the singular contribution of Frankfurt to the Athens Charter, many tenets are similar to those of the Frankfurt experience.

After World War II the Frankfurt experience became a model for cities throughout Germany. Especially noteworthy in the furtherance of the Frankfurt concepts is the later work of Ernst May. May became chief planner for the Neue Heimat housing combine. This firm is one of the world’s largest developers (it builds housing at the rate of one unit per every 24 minutes—22,000 in 1973), and many concepts developed in Frankfurt became standard features in its work. Rudolph Hillebrecht, one of Germany’s most respected planners, wrote that the Frankfurt experience is of “epochal importance” in the evolution of Germany’s modern planning.

Also, after World War II, the influence of the Frankfurt experience spread to other nations. Gerd Hatje maintains that the English new-town planners reviewed it and, in turn, adopted many of the key elements. Hillebrecht has written that its influence spread to Holland, Sweden, Finland, and Denmark. Finally, even the Soviet Union may be included since relationships can be demonstrated between May’s work at Magnitogorsk and Tirgan and Frankfurt.

The success and promise of the Frankfurt experience is summarized in the words of Count Harry Kessler. In 1928 he visited the Römerstadt with the sculptor August Maillol and a friend.
After completing the trip, he made the following entry in his diary:

Another example of this new feeling for life is the new architecture and the new way of living. To show him what I meant I drove with him and Mlle. Passavant to the Römerstadt. Maillol was practically speechless with astonishment. I explained to him once more that this architecture is simply an expression of the same vitality which impels youngsters to practice sport and nudity. It lends warmth in the same way as Medieval buildings gained such from the Catholic interpretation of life. This German architecture cannot be understood unless it is visualized as part of an entirely new Weltanschauung.81

The new weltanschauung, new wohnkultur, new sachlichkeit, new planning concepts, and new spirit of outsider as insider did not exist for more than five years after Count Kessler's revealing experience. The centralizing controls of the Third Reich rejected the modern concepts and life reverted to a more authoritarian atmosphere. Much was lost, little was gained, but a great deal should be remembered.

NOTES

1. Among those who have praised the Frankfurt experience in general are Lewis Mumford, Sigfried Giedeon, Henry Wright, Catherine Bauer Wurster, Reyner Banham, and Leonardo Benevolo.

2. This topic was analyzed in depth as part of the author’s Ph.D. dissertation. See John R. Mullin, “German City Planning in the 1920's: A North American Perspective of the Frankfurt Experience” (unpublished, University of Waterloo, Waterloo, Ontario, 1975). Over 300 primary and secondary sources directly related to the topic in German and English were reviewed. In the author's opinion, the most impressive analysis published in English is Barbara Miller Lane, Architecture and Politics in Germany 1918-1945 (Cambridge: Harvard University Press 1968), 90-103. The most impressive source found in German was an exhibit and documentation of the experience on display in the Twentieth Century Room of the Frankfurter Stadt-Historisches Museum in July 1974 entitled Frankfurter Wohungsbau in der Weimarer Republik, created by Dr. Almut Junker.

3. Johannes von Miquel was also a politician of national prominence. Of particular importance was his work with Richard Baumeister concerning national health improvement legislation. His work provided a key stimulus to major improvements in water and sewer facilities in cities across the nation. See Thomas Ronnebeck, “Baumeister, Reinhard,” Handwörterbuch der Raumforschung und Raumordnung (Hannover: Gebrüder Janecke Verlag, 1970), 1, 9.

5. Frankfurter Stadt-Historisches Museum, "Arbeiter und Soldatenräte in Frankfurt-am-Main," an exhibition in the Twentieth Century Room (Frankfurt, July 1974). The stimulus was also felt by many of the modern architects. For example, in 1918 Bruno Taut founded the Arbeitsrat für Kunst. Made up of architects, artists, and intellectuals, its major intent was to examine the role of the artist in the new society. See Rosemarie Bletter, review of Kurt Junghann's *Bruno Taut—1880-1938*, in Journal of the Society of Architectural Historians, 32 (1973), 257.

6. The best example of nationalist-influenced architecture in Frankfurt was the Hauptbahnhof (main railroad station). Finished in 1888, it was one of the largest stations in Europe. Meeks wrote about the symbolism of the structure as follows: "The triple shed perpetuated the identity of the three regions formerly served separately and the single headhouse symbolized the unity of the German state. Between the sheds and the headhouse extended a capricious midway which could accommodate huge crowds—even armies for military concerns lay behind the lavishness of this layout, extensive far beyond the needs of civilian traffic." See Carroll L. Meeks, *The Railroad Station: An Architectural History* (New Haven: Yale University Press, 1856), 116. Perhaps quite fittingly, Daniel Burnham was quite impressed with the structure and even asked for drawings of it to take back to the United States. See Charles Moore, *Daniel H. Burnham: Architect: Planner of Cities* (New York: De Capo Press, 1968. First published in 1921), 154.

7. This term was used by Peter Gay in reference to the actors who were responsible for the burst of artistic creativity during the Weimar years. See Peter Gay, *Weimar Culture: The Outsider As Insider* (New York: Harper & Row, 1968).


12. By 1930 the act was having a ruinous impact on home ownership because of the constantly increasing need to find funds to finance welfare payments. William Harlan Hale wrote of this impact as follows: "The Wohnungsnot of three years ago has so completely disappeared that the best modern cooperative settlements cannot begin to rent their flats—while in Berlin alone no fewer than 125,000 families are living in huts . . . The dreaded Hauszinssteuer exacts ruinous tribute from all owners of occupied premises. The burden is so great that property values are virtually vanishing . . . The best homes are being deserted by their inhabitants just for the sake of spiting the government and preventing it from getting the taxes due." See William Harlan Hale, "From the Heart of Germany," *The Nation*, 83 (1931), 555.


15. May also greatly admired the Krupp worker colony Margarethenhöhe and the Tessenow and Reimersschmid designed Deutsche Werkstätten settlement at Hellerau. See Bueckschmitt, Justice, Ernst May (Stuttgart: A. Koch, 1963), 37.
16. A summary of many of the ideas and concepts that were of major concern to these
groups has been translated into English in Ulrich Conrads (ed.), Programs and Manifes-
toes on 20th Century Architecture [trans. Michael Bullock], (Cambridge: MIT Press,
1970). Of particular merit are the sections entitled “Herman Muthesius: Aims of the
Wing of a Great Architecture,” 44-48, and “Eric Mendelsohn: The Problem of a New
Architecture,” 54-55.

17. The term wohnkultur can be translated as meaning “living culture.” It was one of
the key utopianistic concepts used by the modernist architects in their attempt at using
architecture and planning as instruments for the restructuring of society. The concept was
still being discussed in Germany as late as 1968. See Hans Bahrdt, Humaner Städtebau

Housing Association, 1929, 21.

19. This approach was noted in German planning even before World War I. For
example, see Charles Mulford Robinson, Modern Civic Art or the City Made Beautiful
“Discussion of City Planning in Europe,” Proceedings of the Seventh National


21. For a further explanation of this tradition see Herbert Jacob, German Adminis-

22. Ernst May and Fritz Wichert (ed.), Das Neue Frankfurt: Monatschrift für die
Probleme Moderner Gestaltung (Frankfurt: 1926-1932). [Bewteen 1932 and 1934, it was
edited by Joseph Gantner under the title Die Neue Stadt.]

23. This measure was undertaken in all major cities across Germany at the request
of the Federation of German Municipal Statisticians. See “Germany’s Housing
Shortage,” Housing Betterment, 15 (1927), 46.

24. Theodor Fischer’s analytical writings appear to be few. The only English transla-
tion of his work found by the author was a short monograph entitled City Building
(Boston: Metropolitan Improvements Commission, 1908). His most noted written work
is Sechs Vorträge über Stadtbaukunst (Munich: Oldenburg, 1922). He was quite influen-
tial in the furtherance of garden village concepts in Germany as can be seen in his designs
for the worker colony Limburgerhof (Ludwigshafen—1913), Siedlung Alte Heide
(Munich), Siedlung Bauverein (Schweinfurt—1919), and an industrial village at
Gmindersdorf. For a more comprehensive view of his life and works see Rudolf Pfister,
Theodor Fischer; Leben und Wirken eines deutschen Baumeisters (Munich: Verlag
Callweg, 1968).

25. Theodor Fritsch was one of the leading volklich ideologists active between 1890
and 1933. He is credited with creating the first German conceptualization of the garden
city. While there are many similarities between Fritsch’s design and that of Ebenezer
Howard’s, there are also major differences. The most notable differences centered on
Fritsch’s inclusion of class and racial factors as important variables. See Theodor Fritsch,
Stadt der Zukunft (Leipzig: Hammer Verlag, 1896). Also see Thomas A. Reiner, The
Place of the Ideal Community in City Planning (Philadelphia: University of Pennsylvania
Press, 1963), 36-37.

26. Prior to World War I, May worked under Unwin’s direction on the Hempstead
Garden suburb project. The relationship between the two men was quite strong in terms of
both ideology and personal feelings. In fact, when May was impounded by the British in South Africa at the outbreak of World War II, Unwin graciously volunteered to provide funds to educate May's children. See Ernst May, "Unwin as Planner for Social Welfare," Town and Country Planning, 31 (1963), 428.


28. Richard Reimerschmid and Heinrich Tessenow were two of the founding members of the Deutscher Werkbund. Their work and ideas represent important links between the eclecticism of the turn of the century and the Neue Sachlichkeit of the 1920s. They were far more conservative than the new architects that became active after World War I. In fact, Tessenow served as a teacher to Albert Speer. See Albert Speer, Inside the Third Reich (New York: Macmillan, 1970), 11 ff.


30. Ibid., 3, 5.

31. Among these were several that were first organized during the Miquel-Adickes administration: Aktiengesellschaft für Kleine Wohnungen, Hellerhof A. G., Frankfurteralle A. G., Gartenstadt A. G., and the Nassauische Heimstätte A. G.


34. The dramatic separation of Römerstadt from surrounding areas was also noted by Frederic Gibberd. See Frederic Gibberd, Town Design (3rd ed., revised; New York: Praeger, 1962), 27.


36. This project is reviewed in detail in Otto Haesler, Mein Lebenswerk als Architekt (Berlin: Henschelverlag, 1957), 5-17. Also see Lane, Architecture, 61-63, 89-91.


38. Grete Lihotsky, "Rationalisierung im Haushalt," Das Neue Frankfurt, 5 (1927), 120-123.

39. Interview with Rolf George, Professor of Philosophy, University of Waterloo, Waterloo, Ontario, (1 July 1975). Dr. George is a former resident of Praunheim.


42. These are described in Mumford, "Machines for Living," 88.


47. This feature of May's program was greatly criticized by the National Socialists. Spokesman for the party commented that the lack of artisanship was a major shortcoming and a key reason for the lack of work for these skilled people. See Jean Jorges, “Im Interesse des deutschen Volkes,” in Joseph Wulf, ed., *Die Bildende Kunst im Dritten Reich: Eine Dokumentation* (Gutersloh: Sigbert Mohn Verlag, 1963).


49. This restaurant was called the *Neue Adler* (the new eagle) and was most likely named after one of May's other projects—the design of the eagle that was depicted on the city's crest. It was one of his most controversial projects and stimulated a great deal of debate. Several prototypes developed by May are displayed in the Frankfurter Stadt-Historisches Museum, Twentieth Century Room.


51. The Frankfurt planners found that the zeilenbau system, as used at Westhausen, resulted in a total savings in infrastructural repair costs of 15% over a comparative non-zeilenbau development. See Bauer, *Modern Housing*, 181.

52. A typical schematic for the Frankfurt setting can be found in Internationale Kongresse für Neues Bauen, *Rationelles Bebauungswesen* (Stuttgart: Julius Hoffman Verlag, 1931), 47.

53. For a further explanation of this evolution see Ernst May, “Fünf Jahre Wohnungsbaätigkeit,” *Das Neue Frankfurt*, 4 (1930), 34.


55. Pawley, *Architecture Versus Housing*, 35. Also see “Wirtschaftliche Not und Arbeitslosigkeit,” *Frankfurter Wohnungsbau in der Weimarer Republik*, Exhibit card 52.01.


58. Hugo Schnell has written that this church represented an important step in the evolution of modern church design. Schnell also wrote that Frankfurt's church architecture was among the best in Germany in the 1920s. See Hugo Schnell, *Twentieth Century Church Architecture in Germany* (Munich: Schnell & Steiner, 1974), 46.


63. Interview with Rolf George; see note 39.
64. For example, see the Frankfurter Stadt-Historisches Museum, Der Geschmack, Exhibit Card 51.08.
65. There is some argument as to the popularity of these dwellings. The geographer Peter Nash, a native of Frankfurt, recalls that the housing was acceptable only because it was available (Interview with Peter Nash, Waterloo, Ontario, [5 July 1975]). The planner Hans Blumenfeld maintains that the high quality of the design work was the reason that people moved there (Interview with Hans Blumenfeld, Toronto, [23 June 1975]). Nevertheless, when other housing became available, residents did move out. The key reason for moving appears to be that lower rents could be found elsewhere. See Wolfgang Klotzer, Frankfurter Geschichte (Frankfurt: Gesellschaft für Handel, Industrie und Wissenschaft, 1970), 12. Another reason was that the National Socialists attempted to vilify these structures and succeeded in placing a stigma on them. See Lane, Architecture, 143; and Mumford, “Machines for Living,” 87.
68. Bauer, Modern Housing, 182.
72. Interview with Frankfurt City Planner Dirk Zimmermen, Frankfurt (23 July 1975).
73. Lane, Architecture, 112.
78. Rudolf Hillebrecht, a personal letter to John R. Mullin (5 November 1974), 1.
80. Hillebrecht, personal letter.
81. Ostrowski, Contemporary Town Planning, 95.