

THE FIAT COLONIE:
ARCHITECTURE OF AUTHORITY

By

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ABSTRACT:

Between 1925 and 1937 the Italian car manufacturer Fiat initiated three building projects that featured a distinctive architectural form. In two quite different building types the Fiat designers employed an uninterrupted ascending spiral ramp in a way that determines both the internal volume and the external form.

This paper will argue that Fiat first adopted this form for practical reasons and then applied it to two building types that represented their wider place in contemporary Italian society. Further the paper will argue that the form was associated with a tradition of social conditioning - parallel with the rigorous organization of the highly mechanized mass-production factory - that would be appropriate in their welfare and recreation building.

It is the main argument of this thesis, first, that Fiat's factories and children's health camps were organized by the spiral ramp motif representing a clear, palpable imposition of authority, and second, that Fiat's social services were conceived as integral elements in the process of production - the "Colonie" buildings,

built to house children, were conceived of as a form of factory: evidently the architects who designed Fiat's Colonie buildings intended a formal reference to the factory since both differ markedly from contemporary Colonie erected under Fascist authority.

A brief introduction outlines a historiography of the subject. Chapter One gives some background of Italian architecture contemporaneous to the projects, introduces the issues of Fascism and makes reference to the place of Fiat. Chapter Two will focus on the Colonie buildings of Fiat and how they relate to Italian Modernist architecture. The institution of children's health camps in Italy will be defined and Fiat's examples will be compared with other examples of the type, some of which were state-sponsored, and others privately funded.

Chapter Three addresses the specific circumstances under which the Fiat Colonie were designed and constructed. In Italy the power of Fiat, and the Agnelli dynasty, spanned industry, finance and significantly, the political world. This section seeks to define how the firm operated within Fascist policy and also how the Agnelli family, like a feudal barony, sought to define and sustain traditional networks of power. Although this is not the main thrust of the thesis it will be suggested here that the use of the formal organization of the

"Lingotto" auto factory may be considered as one of the ways in which Fiat sought to divert worker militancy, fabricating buildings with physical as well as institutional affiliations that would establish a network of links to the firm.

Chapter Four considers the specific design features and functioning of Fiat Colonie. Part of this process, it will be posited, was the development of a distinctive formal motif. Fiat-Agnelli's buildings will be shown to be a sort of "middle-of-the-road" architecture, indeed the buildings appear more proto-modern than revolutionary, despite their advanced technology. This separates them from contemporary Colonie, which are more abstract functional in design.

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Eric and Michael and to my wife Denise
who provided my reason for carrying on
and the time to do it.

INTRODUCTION

In April 1988 the exhibition Cities of Childhood: Italian Colonie of the 1930's, opened in London. Under the auspices of the Architectural Association of Great Britain the exhibition introduced the international architectural community to an institution almost unknown outside Italy¹. The documentary material and propangandistic photographs presented in the catalogue illuminate a fascinating and distinctive architectural and sociological phenomenon, thus far tainted by association with Fascism². This despite the fact that the Colonie remained in operation until the 1960's³ and that many of the institutions of Italy today, it's laws and constitution also derive from the generation under Fascism⁴.

The Colonie of Italy lay in obscurity in 1953 when Bruno Zevi first published his monumental Storia dell'Architettura moderna⁵ and apparently too obscure to warrant mention in G.E. Kidder-Smith's Italy Builds⁶ in 1955. During the 1950's scholarly and cultural opinion generally deemed there to be little of value in Italian modern architecture⁷. In his 1959 "Neoliberalty" article Reyner Banham stated that:

...before the war modern Italy hardly existed

out of earshot of the railway line from Milan to Como...(and even) within that narrow zone "modern" was practised as a style, since it could not be practised as a discipline"⁸.

This sentiment was widespread and was later characterized as "orthodox" by Robert Venturi⁹ while studying at the American Academy in Rome during the 1960's.

The study of what lay beyond Banham's "railway line" did not begin until the 1970's, beginning with Peter Eisenman's fascination for the architect Giuseppe Terragni¹⁰ and then in 1976 with Ellen Shapiro's translation of the polemical essays of the Rationalist "Gruppo 7"¹¹. Shapiro's interest was sparked by the reappearance of the term "architettura razionale" at the 1973 Milan Triennale. Not until the publication of Dennis Doordan's Building Modern Italy:-1914-36 in 1988 was the orthodox view of Italian modernist architecture challenged¹². Two years later Richard Etlin in Modernism in Italian Architecture fully examined issues of architecture in Italy through it's period of industrial development, 1890-1940¹³.

One factor in the reluctance of architectural historians to examine Italian architecture of the period was the spectre of Fascism, described by Benedetto Croce

as "that unfortunate incident"¹⁴. The only architect to have largely escaped that taint was the somehow neutral figure of Pier Luigi Nervi, who was, moreover, regarded more engineer than architect. Where writers dealt with Italian modernism or Terragni, they usually eradicated reference to the political context, thereby absolving them of Fascist responsibility and constructing a Partisan identity, claiming a cultural left-wing¹⁵. Ernesto Rogers later said of this relationship:

..We based ourselves on a syllogism which went roughly thus: fascism is a revolution, modern architecture is revolutionary, therefore it must be the architecture of fascism¹⁶.

The opprobrium attaching to Fascism has contributed to the absence of analysis of all three buildings discussed in this paper, the Fiat Lingotto auto factory, but moreso, the Fiat "Torre Ballila" Colonia at Marina di Massa and the Fiat mountainside Colonia at Salice d'Ulzio. By extension, the architectural history of modern Italy has been affected negatively by Modernist polemics and first-generation histories (Siegfried Giedion's Space Time and Architecture, 1941 for example¹⁷).

Recent literature of Italian Modernism has helped

redress this lacuna. Victoria De Grazia, author of The Culture of Consent: Mass Organization of Leisure in Fascist Italy, 1981 focuses on the "dopolavoro" or organization of leisure time¹⁸. She traces a gradual increase of officially sanctioned leisure activity and their endeavours thereby to build a society of consent. No such study of the other large-scale social organization, the Colonie, exists.

Turning from the broader political spectrum to the Fiat company, Martin Clark in Modern Italy 1871-1982¹⁹ has clarified the place of the company in Italian politics and society, while in Agnelli: Fiat and the Network of Italian Power, Alan Friedman explores the corporate character and objectives of Fiat from the 1890's²⁰.

The publication of these three authors provide an especially valuable matrix from which to reconstruct the motivation behind the company's construction of two Colonie buildings and by extension its interpretation of the Nationalist agenda espoused by the Fascists. Such factors enlighten the evident difference between Italian and international modernism and between Italian Fascism and the other totalitarian regimes of that era in Germany, Russia and Spain.

CHAPTER ONE**ITALIAN ARCHITECTURE 1920-40,
BACKGROUND TO THE FIAT COMMISSIONS**

This paper seeks to break down the definition of "fascist" architecture. The pervasive sense of frustration in almost every aspect of post-Risorgimento Italy - culture, politics, art and architecture - were most evident in the years immediately following The Great War¹. Seizing upon the political corruption, the Fascist party under Benito Mussolini retrieved much of the original manifesto of the Risorgimento and in particular the original promises of national resurgence and a return to independence and prominence in the world community. The Fascist party stressed the necessity for powerful centralized leadership, by contrast with the vacillations of the Giolittian years and allied itself with both social and technical revolution, claiming to be the progressive culmination to the ideals of Garibaldi and Mazzini.

Any analysis of "Fascist" architecture must weigh those differences and the fact that, the period of Fascism in Italy occurred in stages. It spanned almost a generation and changed with time. Beginning with

Mussolini's seizure of power with the March on Rome in 1922, the next phase was initiated with the kidnapping and murder of Matteotti, the Socialist opposition leader on June 10, 1924. The abolition of opposition and of Parliament in 1926 marked yet a further phase. More significant change came in October 1935 with the invasion of Ethiopia and the resultant sanctions imposed by the League of Nations and "Autarchia". The proclamation of Empire after the fall of Addis Ababa in May 1936 and the racial laws of 1938 mark a decline into a more vicious phase interrupted by the declaration of war on France on 10 June 1940. The arrest of Mussolini on 25 July 1943 and the 45 days when Italy surrendered to the Allies on 8 September 1943, then the subsequent German occupation and Resistenza culminating in the Liberation in 1945 close the period².

Italian architecture of the twenties and thirties was certainly affected by the system known as Fascism yet the underlying motivations for both Fascism and modern Italian architecture are to be found in the heightened Nationalism of the Risorgimento in the 19th century and unification under King Vittorio Emmanuel II³. The king (Victor Emmanuel III after 1900) represented stability and this stability was an important aim of the avant-gardes in Italy of the late 19th and early twentieth centuries, between the aesthetic disputes

brought on by the International Style, the "Stile Liberty" and the Futurist movement had begun to upset bourgeoisie tastes⁴. Hence, it is an important notion to understand that much of what we see in the inter-war years in Italy is an attempt to reestablish stability. The Italian blending of influences can best be illustrated by comparing a set of building whose formal properties as read on their exteriors could be seen to belie their interior functions.

The well-known Casa del Fascio of 1932-36, of Terragni in plan resembles a Renaissance "palazzo" and would appear reactionary. The plans of Del Debbio's Sports Complex of 1937 for the Foro Mussolini are typical of modern plans to be found contemporaneously in Germany, and would appear the more "modern". In facade the reverse is true. Terragni's all-white building is stylistically far more modern. Only in Italy would such a confusion of stylistic intentions be found in the thirties in Europe⁵. Both buildings merit comparison with contemporary Northern European Modern architecture and use the same vocabulary of strip windows, flat roofs and new materials in glass and metals. But, this was not immediately apparent to the first generation of architectural writers of the post-war period. There is a general tendency evident in the literature to concentrate on Northern Europe (Philip Johnson and H.R. Hitchcock The International Style, MoMA, 1932⁶).

Nonetheless, the modern movement in architecture truly can be said to have been born in Italy in December 1926 with the publishing of the so-called "Rationalist Manifesto"⁷. Four articles appeared in "Rassegna Italiana" with theoretical statements in admiration of ideas imported wholly from across the Alps, and were signed by seven young graduates of the Milan Politecnico - the "Gruppo 7", led by Giuseppe Terragni. Yet when the opportunity to build arrived the group vacillated between the "International Style" of the North and traditional Italian building traditions, such as the search for "stability". Even though Futurism was decidedly the most important Italian movement since the eighteenth century, in Italy it was also the most de-stabilizing. The Rationalists wrote of Futurism:

The Futurist and early Cubist experiences, even with their advantages, have stung the public and disillusioned those who expected better from them ...the legacy of the avant-garde that preceded us was an artificial impulse - an empty, destructive fury that confused good and bad⁸.

The International Style and Classicism would seem to be at odds but in the aftermath of the Great War there was a natural caution against "excesses". Classicism finds

fuller expression in the second group of Italian modernism the "Novecentisti". Again from Milan, the Novecento movement launched in 1923 allied itself with the painters Fumi, Sironi and de Chirico. This was the period of de Chirico's most famous paintings in the metaphysical style⁹. All these currents of thought predated the Fascist era and the state-sponsorship of Modernist Italian architects. The chronology of these events is especially important in understanding corporate and professional motives. The Classicism which intrigued the architects and grew out of the Risorgimento, also influenced the Fascists. Classicism of course was associated with Italian tradition and hence nationalism. Indeed, nationalism, whether in the language of tradition or in the cause of modernization through technology is the one unifying factor in all Italian architecture of the 1930's. The important Gruppo 7 articles affirm nationalism while simultaneously reflecting ambivalence towards the revolutionary nature of the Modern Movement in Europe¹⁰.

Ambivalence is also expressed in the other major architectural production of the 1930's, as in the work of Marcello Piacentini, often called Mussolini's Albert Speer, because of the lavish monumentalized state architecture most often recognizable as "Fascist", whose modernist theory also to some degree affirmed modernism,

but with his own reservations. Piacentini is best known for his monumental style, such as the Bolzano War Monument of 1931, calling up associations with Roman archetypes of the Renaissance and hence Empire. But this image is incorrect and incomplete. Piacentini ascribed such affinities for monumentality to regionalism:

Amongst the Roman predominates, as would be natural an ample and solemn sense: amongst the Milanese, a major reserve, a major circumspection...the first find inspiration in the art of the cinquecento... their guru is Sangallo... the second disclose their most direct relations with the classicism of the last century that was largely developed in northern Italy... their guru is Palladio¹¹.

Further, Piacentini cites the Italian geography and climate as the main reason for the refutation of German Modernist practice as eventually typified by the aesthetic and technical purism of Mies van der Rohe:

We Italians ultimately cannot accept the new fixed formulas of completely glass walls and low ceilings; we must defend ourselves against burning sun and excessive heat six months out of the year... we must still use natural and heavy materials¹².

Piacentini moreover stressed the evolutionary nature of "our [Italian] modernism"¹³, clearly representing the overwhelming Italian distrust of all things German after the, still recent, Austrian occupation and ouster of Northern Italy. Indeed Italy had been occupied almost entirely for hundreds of years until the Risorgimento.

The notion that a clearly identifiable "fascist" architecture existed is dubious in the extreme. Dennis Doordan makes the point well in reiterating that:

In the absence of any clear contemporary definition of what constitutes fascist architecture, historians and critics have tried to identify the specifically fascist elements within Italian architecture, as well as to define the relationship between fascism and progressive architecture...but the difficulty remains the same: the (defining has been done only) in terms of a single set of formal characteristics, that is, in terms of style¹⁴.

Mussolini certainly fostered the notion of the modernization of Italy, and at such times the modern style was used¹⁵. At other times the rallying point was nationalism through cultural identity and then the monumental was used. Fascism meant to be all things to

all people and thereby fascism as represented by architecture was meant to be seen as the manifestation of hopes, ideals and all good deeds of the centralized state¹⁶. Architects then were called upon to be fluent with all the languages representative of the symbolic forms of the progressive and yet traditional state. As Thomas Schumacher remarks:

If Italian architects had shown the propensity to adopt the Benthamite attitude that architecture was the central variable in the creation of social well-being for twentieth century Italy, they would have committed political suicide¹⁷.

The debate in Italy was complex, neither side ever clearly won the battle for the Duce's support. "To the mature regime, all philosophies were acceptable, provided they acknowledged the supreme genius of the Duce"¹⁸. The debate, ran essentially unheeded because Mussolini sought to bolster his power by exploiting any idea or policy that held the prospect of greater legitimisation.

Agnoldodomenico Pica, an architect working in the 1930's summed up the issue in this manner:

...it must be said that under Fascism everybody competed to prove themselves more Fascist than the next, from Piacentini to Terragni - the anti-Fascist

propaganda that followed was rubbish. In the end we were primarily interested in architecture, and whether a commission was from the Pope, a Turk or Mussolini, it did not matter. What was an architect to do - fly around for twenty years?¹⁹.

Rationalism, Futurism, Monumentalism, Novecentism, Modernism, Nationalism, Internationalism: the disputes of the Fascist period resemble a Pirandello play, in which reality is masked by polemical and structural ambiguities. The definable break from the past that modernism is supposed to have effected - and which never even occurred in Germany - is a myth fostered by orthodox modernists privileging a machine aesthetic. The confusion of style and politics in Italy in the 1930's underlines the danger of associating International Style Modernism too closely with either radical politics or liberal democracy.

Such complexity of inspiration and intention will be found in the Fiat Colonie and recalls Vittorio Gregotti's discussion of:

...a constant and steady interaction between ideology and language. There is an attempt, on the one hand, to make them include or grow out of each other and on the other hand, to contrast them,

giving rise to opposing solutions, outweighing political, technological, methodological, and socioeconomic considerations which are frequently outmoded or contradictory²⁰.

We must recall, in this regard that Italian architects saw their work as both revolutionary and as participating in the "Fascist Revolution." Cesare de Seta in 1972 reminds us of the pragmatic reasons for such a response, implicit in Pica's assertion that architects "competed to prove themselves more Fascist than the next." de Seta's evaluation echoes this remark:

Le Corbusier's "availability" was supported by the immense pride to save mankind; Terragni and the best Italian (architects), at most aspired to save themselves²¹.

The propensity for architecture to be regarded as representatives of a society of social well-being was not politically viable to Italian architects of the 1930's²².

Yet there is one institution for which this was a necessary component, where architects were actually encouraged to do so, whether working for the government or private industry - the institutional building of seaside and mountainside camps for children: the Colonie.

CHAPTER TWO**THE COLONIE OF FIAT**

The Colonie, first established as seaside hospices at the end of the nineteenth century, were part of a tradition of utopias of the Enlightenment and social experiments in collective living for the urban poor and the health concerns of the industrial city. Under fascism the emphasis shifts from curative to preventative¹. This redefinition featured new values on ceremonies, sports and recreation which aspired to foster community health, through physical, spiritual and moral development. These aims clearly were directed at ideological means of anticipating children as participants in the "civil life of the collectivity"².

The new desires of thematic structure for the Colonie stimulated experimentation within the architectural community. As noted above, despite "rational" and "modern" features the Colonie repeat traditional forms, and in facade express static monumentality. Giuseppe Pagano, publisher of Casabella, commented of the new projects in 1935:

Modern architecture means first an architecture for people belonging to contemporary civilization; an architecture which is morally, socially, economically and spiritually tied to conditions of our country; it means building to represent the ideals of the people, to satisfy their needs, to "serve", in the true meaning of the word"³.

These commissions represented an opportunity for the architects to work with the regime in forging the commodity which, beyond guns, they valued highest: young men and women, the future soldiers and mothers and participants in the "revolution" under Fascism.

The Colonia emerged in Italy in the late 19th century as part of a growing medical and social awareness of the backwardness of the nation and its severe health problems. Imbued with "humane and patriotic aims" doctors and philanthropists advocated isolation from the urban setting to fight the widespread tuberculosis, malnutrition and malaria⁴. Along with sun-therapy and sea-water they saw an opportunity to mould the spiritual and moral development of the young and impoverished.

At first the church organized such camps, and early in the twentieth century public and private industry see their interests intertwined with the growing institution.

Until after the second world war the aims of the Colonia were varying degrees of education, welfare and therapeutic aid. However until the 1860's existing structures were employed and the Colonie were not expressly built for these purposes. Between 1920 and 1922 child welfare conventions were held to determine the purpose of the institution, the number of attendees having risen, from 2500 to 100,000 since the turn of the century⁵. As there is nothing really comparable to the scale of this enterprise, the Colonie may be seen as a singularly Italian expression of reforming ideals, which had an architectural perspective.

The Colonie became regulated to monitor the physical and social effects on children put into an alien, total environment for three to four weeks, removed completely from family. In this institutionalized segregation the rituals of communal life, shaped by order and discipline, were flag-raising, roll call, marching, group gymnastics and ordered ritual sunbathing⁶.

In the buildings now being planned to house such therapeutic and pedagogic criteria this segregation was expressed internally in rigorous subdivisions of spaces and, equally conventionally, formal, functional and symbolic divisions of boys and girls. The sites were isolated further defining a separation from the outside

reality - there was a reluctance to grant family visits which when exceptionally granted took place inside the colonia. The figures of authority were inevitably, the doctor, the priest, and the teacher. The community was subdivided into "squads", which incidentally reflected the terminology used on the shop floor in the Fiat factories and in the military. The militaristic regimen increased under the fascists and the institution remained virtually unchanged until the 1960's⁷.

The chief executive was the doctor, who made scrupulous files on each child upon arrival, in residence and upon leaving. Corporate operators, such as Fiat, boasted of sending the children home to Turin, "not just clean, brownish, and indoctrinated with respect for their surveillants, the Duce and the church" but also, "on the average two to three pounds heavier"⁸.

When the Catholic Boy Scouts, a similar but competing organization, were closed down by the fascists in 1928 the children were placed in sports groups arranged by age reflecting the consensus sought by the regime. The "sons of the she-wolf" was for boys six to eight; the "ballilla" for boys eight to eleven; the "ballilla musketeers" for boys aged eleven to thirteen; the diminutive "little Italians" denoted girls eight to fourteen and the "avanguardisti" for thirteen to fifteen

year olds, and so on up to the age of twenty-one⁹. A large number were children of Italians living abroad such as Edoardo Palaozzi in Edinburgh who describes his experience of the Colonia:

...all of the uniforms were of good quality stuff. I had a black shirt, sailor's hat, white trousers. We we also had a kind of workaday thing - buff-colored like fatigues. You were allowed to keep the uniform. I remember you too had a shaved head. It was wonderful. When you are very young you don't articulate experience. I just thought it was a very happy atmosphere. I was glad I was sent. It was...a wonderful world¹⁰.

This quote works to dispel some myths about Fascism. Though we today might cringe at children being herded to indoctrination camps, at the time it was an honor and a luxury for many of the poor families whose children went.

The bulk of the Colonie were built between 1935 and 1939, mostly in the North on either coast centered on Tuscany and Romagna. Their plans were divergent and no consensus of design was reached. Most were low slung and recognizable as International Style Modernism at a glance - one thing is certain, not a single one displays the pompous monumental style most often associated with

Fascism, again dispelling Fascist myths in a format where they so easily could have. Yet it was the language of technological innovation which came to best suit most educational commissions.

The term "colonia" or colony is in itself interesting as the buildings did function as complete almost-utopian settlements - acting as school, hospital, town hall and hostel all while attempting to open the eyes of the young urban poor to supposed prospects far-removed from their usual reality.

Obviously, the two Colonie that Fiat built fit within this general outline. Yet they exhibit significant variations in form and plan. These revolve around the manipulation of the tower and the heliocoidal ramp - a continuous, rising spiral; an uninterrupted dormitory. This paper emerges from two questions: why are Fiat's buildings so similar to each other and unlike any other Colonia buildings and why did no similar repetitions of formal structure occur in the dozens of other examples?

The Colonia "Edoardo Agnelli", named for the first son of the founder of Fiat was designed by the Fiat engineering department, under the direction of architect/engineer Vittorio Bonade-Bottino and realized in 1933. The site straddles the Viale a Mare at Via San

Francesco in the small seaside town of Marina di Massa located on the Tyrrhenian Coast of Tuscany. The property was purchased by Fiat specifically for the purpose of building a seaside summer camp. The site is 55,000 square metres and the volume of the building comprises 35,000 cubic meters. At capacity, the Colonia could house 750 children at one time.

The dormitory space is accommodated in a single tower building containing a continuous spiral of reinforced concrete, rising uninterrupted to a skylighted ceiling. There are no stairs within this concentric configuration of void surrounded by coiling ramp, which is expressed directly on the external form. Each "floor" is punctuated at regular intervals by small square windows separated by twenty-eight encircling mullions, reminiscent of American skyscrapers such as Raymond Hood's Chicago Tribune Building of 1922, which span the height of the building. The windows actually rotate up the spiral but appear level from the exterior. The optical illusion created by the recession into depth on the round form, masks the fact that the windows are several feet above, from the left side to the right.

The tower rises out of a two storey block. The first is the entrance, twice the height of a "floor", the second a slightly shorter second storey, whose windows

fill the space between the mullions. Above the entrance in large stylized letters is the Fiat logo: FIAT, with one letter between each rib on the smooth face between the entrance and the second floor. The horizontal theme of the base is echoed on the top of the building, an attic is expressed by a slightly larger horizontal ring above the last set of windows. Here the mullions end above the roofline with rounded tops which form the posts to a railing.

So as to keep the perfect symmetry, the tower is reserved for dormitory, except for the lower section entrance hall and dining hall on the second level - tables fanning out along the radius lines of the slices and spokes above. All other services, from staff offices and housing to medical clinics, refectory, kitchens and laundry, are contained separately in two low side wings. The wings rise to the same level as the roofline of the dining hall and continue the ribs punctuated by the same square window articulation of the tower on their surface.

The main front entrance is more conventionally monumental and faces the seashore. It is reached up a set of stairs, a kind of plinth, which follow the curve of the building, which when viewed with the pilasters above is somewhat reminiscent of a peripteral temple. This archetypal allusion is further echoed on the interior of

the entrance hall by a set of plain concrete columns which form a cela-like court encircling the circumference of the void of the spiral, two floors up above the second floor. Further access is provided at the rear of the building, doors to left and right leading toward two flanking sets of spiral staircases which span the height of the tower within a semi-circular mass on the exterior. These units are, likewise, adorned with the mullion motif and engage the tower like two cogs against a massive gear. Within the main tower there is also a lift which begins at the base of the dormitory, attached to the outside wall, between the two stairwells. These stairs functioned as the daily access for the children.

The beds of the dormitory are arranged in sets of four between the mullions, one on either side of the window and two similarly positioned against the edge of the central void where each "slice" of the pie-shaped plan meets an interior railing. The only unused space at the perimeter not used were occupied by the lift, where staircase entrances and washroom facilities of each "floor" are contained. Though the ramp creates an ingenious use of space and a picturesque symmetry, the central void would appear to be essentially dead space almost equal to that which is being used. However, although the central well would appear to be "dead space", it is a fulfilment of stipulations of the

government regulations for the Colonia buildings, the Direzione Generale della Sanita. A volume of twenty five meters per bed was required and easily achieved as the cube roots of each "slice" diminishes at the center, where their volumes is lowest¹¹.

Looking up the void from below, however, one encounters a spiral which recedes into the distant skylight far above - a complex web of concrete ribbing with a strong central "axle". Each rib of the ceiling is separated like the "slices" of the dormitory below. The rectangular windows are thereby separated into two sets of four, echoing the plan's arrangement of beds, separated into eight squares with thin tracery between them - one rectangle of eight at the centre, then two together in the next concentric band, then three, then four, then five together at the edges which are only partly exposed. This type of expressionist ceiling recalls such proto-Modernist structures as Max Berg's Centenary Hall, Breslau of 1913, and more directly of pierced ceilings in religious buildings.

The attached wings are exactly equal in length to the diameter of the tower block with rounded ends which if joined would form another circle. That circle is exactly equal to the central void of the dormitory. Such a complex structure of successive spirals reminds us

again of the historical nature of Italian interest during the Renaissance in the manipulation of the circular plan. The wings extend straight out perpendicular to the beach and define the site between Viale a Mare and the seashore as territory.

The remainder of the site was given over to the uninterrupted area of the beach where all the activities of the camp, outside of sleeping, eating, washing and medical and church services, took place. The Colonia backs directly onto Viale a Mare. On the beach, marking the length of the building's wings are displaced at each corner, a flag-pole where the morning flag-raising ceremony, the "alza bandiera"¹², was held, all the children arranged in military like rows singing the Fascist song, much as Canadian children used to stand beside their desks in school and sing "God Save the Queen".

In section, the tower is laterally divided in three - the void on it's ascending slant, flanked on either side by the ramp. Inevitably this arrangement recalls the tradition of ascending ramps in Italy in architecture, such as the tower at Pisa or Bramante's Belvedere staircase in the Vatican. Moreover, the ramps correspond with earlier structures conceived by the Fiat designers, especially the helicoidal distribution ramps at the firm's Lingotto automobile plant.

The circular form of the Fiat Colonie were nevertheless unique. Quite justifiably the writers of the 1988 London exhibition catalogue commented on the uniqueness of the Fiat Colonie in reference to other built examples:

The departure from all other projects lies in the relating of each bed space to the volume of the building so that (the) continuous dormitory... determines both the external form and the internal volume¹³.

As shown the Fiat Colonie followed more unconventional plans. They were unique first in that there were very few Colonie built in a tower form and the only employing this uncommon ramp device.

There can be little doubt that the idea of experimenting with the tower form in the Colonie derives from the earlier work of Bonadè-Bottino. Witness the 1929 ski-lodge/ hotel built by Fiat in the mountains at the base of the Italian Alps at Setrières. This project marks the first attempt at marketing ski-holidays in Italy. At Setrières, however, the floors are flat, adjoining a spiraling staircase in the center. It is said that it was the director of Fiat himself, Giovanni Agnelli, who

suggested extending the helicoidal section into the dormitories themselves after Sestrières. According to Bonade-Bottino:

Abbozzato un progetto di torre, con rampe eliocoidiale del Lingotto, il Senatore[Agnelli] propose di estendere la superficie eliocoidale all'intero settore della corona e sviluppare le cabine [camere "dormitore per sciatori"] a piani sfalsati di una quota del passo dell'elica; nacque così la Torre di Sestrière. La soluzione accertata economica e pratica per l'intensità dello sfruttamento del volume e facilità dei servizi suggerì al Senatore le iniziative di un'altra torre-albergo a Sestrière e due torri a Salice d'Ulzio e ad Apuania per la colonia montana e marina¹⁴

Between Sestrières and Marina di Massa, Bonade-Bottino added two floors, bringing the number to twelve and added the exterior ribs.

The uninterrupted room created by the ramp, if unfolded would stretch 420 meters long and eight meters wide. The floor of the "room" is, of course, on an incline and therefore, placing beds on such an incline creates a problem - the beds are all on a slant. This

minor inconvenience was solved however by varying the lengths of the legs of the beds from left to right. This is however, "a constructional advantage that remains extraneous to architecture. We do not know how comfortable, in practice, it would be to sleep on this sloping floor"¹⁵. Perhaps this essentially theoretical "practicality" is due to it's having been built by engineers and not architects.

In terms of function the building is entirely appropriate. These dormitories were meant for short-term, one month, stays. All other activities took place outside or at the base of the building. Once the child has slept, the very form of the building encourages them to vacate the dormitory and join the communal outdoor activities. Activities within the dorm were essential, only in so far as they allowed sleep, which acoustically, they did. The building also could be seen to reflect Fascist mythology regarding children in that each child is equal, at least all the boys, and therefore there was no preferential or rank distribution within the Colonie and the different age groups used the facilities at different times¹⁶.

Such a purpose might have been in Bonadè-Bottino's mind conceiving the plan of the Fiat Colonie. The architect-engineers, used to designing cars to perform at maximum performance and their company management wished

to achieve with the buildings a sense within the children of massive identical numbers but also possibility and appreciation of design aesthetics, of modern materials and the process of efficient production. The children attending this Colonia were, after all, the children of the Fiat plant workers, and would one day take their father's place on the assembly line - all romantic stuff.

Further, Bonade-Bottino was probably thinking along the lines of the profession, such as architect Mario Labò, one of several Colonia architects of the 1930's with regard to their effect upon the children:

Everything in them, from their abstract lines and volumes to their ground plans, which trace the itineraries of communal life...to make up the plastic form and visual image with which these children will identify the memories of periods spent in a Colonia. Having come from poor or very modest homes, the majority of these boys and girls will feel disposed here, for the first time, to accept taste; they will be stimulated for the first time to appreciate architectural form seen not just from the outside, but adapted for living within¹⁷.

The seaside Colonie, of which Fiat's Marina di Massa

represents one of hundreds, establish a rapport between built form and a relatively flat horizontal band. They are in some senses architectures of the strip - not unlike in some ways the built up strip of Las Vegas.

As Robert Venturi, the American architect points out, the strip is punctuated by signs, which the Fiat towers rising above all else in the strip town can be seen to represent. Not wanting to engage too seriously in the polemic of post-modern semiotics, the tower at Marina di Massa can be seen to function as a "dominant sign"¹⁸, which stands out above the landscape all around, much like the giant neon signs of the strip. The specific design issues of the mountain Colonia are different and yet also conform to that which we have defined as generally belonging to the Colonie.

The programme remains "a compromise between a hostel and a sanatorium" and like the seaside Colonia, "comes closer to a boarding school"¹⁹. The building still operates as an evening shelter, however, given the Alpine nature, the building requires more indoor space to account for less predictable weather. The cooler temperatures and high winds play a part in determining orientation and materials. Bonade-Bottino in designing the Fiat Colonia, "Torre Ballila" at Salice D'Ulzio in 1937, seems to have taken the specific mountain programme

into consideration while at the same time perfecting many of the experiments we witnessed at Marina di Massa.

At first glance, the tower block of the mountainside Torre Ballila seems to adapt that of the seaside "Edoardo Agnelli" Colonia. Salice d'Ulzio is just outside Turin the location of Fiat's headquarters in the rolling hills between the Po Valley and the lower Italian Alps. It is located on via della Torre on a hillock above, not coincidentally, the resort of Sestrières. Fiat financed the entire project and again commissioned within their own firm to chief engineer Bonadè-Bottino. In an interesting switch, suggesting Bonadè-Bottino's confidence with the scheme and increasing ability to maximize the efficient use of space, the built volume of 28,000 cubic meters exceeds the site area of 25,686 square meters. However, whereas Marina di Massa housed 750 on twelve floors, Salice d'Ulzio had a maximum capacity of 494 on nine floors, indicating immediately a significant shift in the interior use of space, necessary in the mountains.

The original drawings reveal a progression in the architect's concept of the function of the main floor, enlarging this space, which accounts for a compacting of the ramp section above. The original drawings reveal other details which tell of the evolution of the firm and it's relationship with the Fascist party in the 1930's.

The drawings were inscribed "Colonia Tina Agnelli", referring to Giuseppe Agnelli's oldest daughter, marking a second nepotist association. The pressure of the Fascist government may have played a part in the name change to one so closely associated with the regime, or it may have been an attempt by Agnelli to mollify the Duce or the Opera Nazionale Balilla, ONB. The Balilla was the name given to the Fascist youth groups who used the facilities and was a term common in many aspects of the "linguaggio" of the regime. The ONB was named in honour of a popular figure of Nationalist mythology stemming from the Risorgimento. Balilla was the name of a young boy who threw the first stone which, reportedly, hit an officer of the occupying Austrian army in Genoa in 1746. The officer had ordered common people to help free a cannon from the mud. The little boy's brave action began the popular revolt which freed Genoa from the Austrian domination²⁰. The important story exemplifies the mythology around children acting as full citizens in the Fascist state.

At Torre Ballila the tower is again highly distinctive with similar small square windows and a dormitory section raised above the ground on a plinth. Regarding the interior, the ramp system is identical, culminating in a similar web of concrete tracery. However, there are important changes as well.

First of all, from the exterior, the tower, less three floors, is more squat-looking, not coincidentally, a perfect cube. The rib treatment which furthered the perception of height at the seaside is gone and instead of a white stucco finish, the mountainside Colonia is faced with a reddish brick. Set in the alpine flowers, the earth color of the finish is quite beautiful. The real difference, though, is that the tower is the only structure - there are no subsidiary appendages such as the stairwells and services wings at "Edoardo Agnelli". Within the building this separation is articulated as three distinct levels of usage.

A sub-basement contains all the services, including kitchens. A second area is demarcated around the entrance, more contiguous refectory which doubles as recreation area. The third, accessed by two facing semi-circular stairwells, is the dormitory ramp occupying the bulk of the building. These levels are further articulated on the exterior by brick facing that separates the dormitory zone from the lower entrance register marked out within a peripteral ring of surface columns.

Again the tower is visually terminated by an attic, surmounted by a single flagpole centred directly in the

middle of the glass-tracery roof. Within, the arrangement is similar except, no lift, in fact, no stairs at all, only a peripteral ramp ascending to the top, by which the children made their way up and down. Significantly, in neither building are the "surveillants" bunked with the children but in separate quarters alongside the service areas.

Here at Salice d'Ulzio, Bonadè's latest spiraling tower, seems consciously to perfect the form, making it yet more absolute and pure. The purity exceeds the relative functional advantage of the form in the winding mountainside location providing the most efficient solution for dealing with wind-resistance. However, in an article on the Colonie published in an 1941 issue of Casabella Mario Labò attributed the architect's gravity to aesthetic values:

...this architectural contrivance, so rigid as to become ingeniously simple, reveals more aestheticism than Rationalism; and this is all the more evident in this latest variation²¹.

Furthermore, the small windows appropriate to the more rigorous design could have been insufficient in the sometimes dark cloudy valleys between the Col Basset and Fraiteve mountain peaks.

There is also one question of a functional nature which needs to be addressed. The "Torre Balilla" was completed in 1937 but according to records²² never actually housed anyone until 1981 when the project was transformed as a residence. Therefore, the "Torre Balilla" was a culmination of design strategies, which, for reasons unknown, never fulfilled its promise. However, its similarity to "Edoardo Agnelli", where children of Fiat did attend well past the end of the war, would suggest that it would have operated in very similar ways.

We can now return to the issue of the difference between the Fiat Colonie and those created under the Fascist regime. In two 1942 Casabella articles Mario Labò dealt with the different "types" of Colonia, in an early attempt to define what had been built in the thirties²³. As noted before, he made distinctions between the seaside and mountain programmes, as well as the less frequent, "elioterapiche" Colonie. He classifies four basic types which were built for the various uses. First, the "village", such as that designed by Ettore Sottsass near "Edoardo Agnelli" in Marina di Massa, second; the "tower", such as we have seen, and by Nardi Greco at Chiavari, third, the "monoblock"; the most common, such as Pica's at Marina di Ravenna and the "open plan", such as Lenzi's at S. Severa. Labò classifies a fifth type as

"contaminations", where a vertical element finds it's way into a horizontal sceme, such as Peverelli's scheme at Rimini. The essential difference is in "in the debate, or more exactly, the rivalry, between vertical or horizontal development"²⁴.

The Colonia at Marina di Massa of Sotsas, of the "village" type, is organized and appears like an industrial factory. It is a very long horizontal building with the "factory" facing the ocean. Four rows of horizontal windows stretch the length, equal in height. Behind are secondary buildings, displaced like "auxiliary plants"²⁵. It was designed in 1938, could house 1,016 children and was financed by the Federazione dei Fasci di Combattimento di Torino: the PNF. What is significant here is that it really does look like an International Style modernist factory and Fiat, if they had wanted to could easily have designed their Colonie in such manner - which would be quite fitting. That Fiat did not choose this more obvious allusion is of decisive importance, because in truth they did design their Colonie to resemble a factory - their own.

A tower form was used on only for one other Colonia, Nardi Greco's Chiavari. Nardi Greco's building is in plan a rectangle with a semi-circle, similar to the wings at "Edoardo Agnelli". It was built in 1935, two years after

Fiat "Edoardo Agnelli", housed 450 and was commissioned by the PNF of Genova. The possibility that Nardi Greco's design emulated aspects of Fiat's Colonia is not documented but would appear likely. It is nine stories, the floorplan repeated with a concrete spine and side wings, much like Fiat's seaside camp. However, the signature ramp system of Fiat is removed, in favor of a traditional floor arrangement, but the similarity between the two lies in the efficient use of site: 30,000 m³ on a site of 100,000 m². Labò, in this regard makes an interesting point:

The saving in the built area certainly does not compensate for the greater cost of foundations and structure, and the dependence on mechanical circulation is substantial²⁶.

Fiat's ramp might have seemed not only expensive but perhaps even eccentric or even functionally irrelevant. Why then did Fiat build the Lingotto ramps, the Sestrieres hotel, and then the two Colonie with this method, which with the complex concrete construction of the ramps, must have been doubly expensive?

A third type was established by A. Pica, one of the

several architects who made submissions for a proposed Colonia for the woods near Ravenna in 1936 for 500 children sponsored by Montecatini. It was never built but Pica's drawing eloquently elucidates the third type. It is a single building without wings, additions or subsidiary "plants". "A single window" faces the sea, "divided only by mullions and horizontal spandrels"²⁷, rigorous and monumental. In the lovely chiaroscuro drawing, relevant to Fiat's Colonie, Pica breaks the horizontality of the scheme with an expressionistic device which recalls the ramps of Fiat - a coiling bridge ramp is his solution for the village children accessing the site without crossing the busy lido strip. This ramp is the closest thing to Bonade-Bottino's heliocoids in all the Colonie and moreover in all Italian design of the 1930's.

Nevertheless, the rounded or tower form is seldom found in any of the Colonie. Where it does appear, it is incidental such as at Ravenna and non-functioning as at Mazzone's Calambrone water towers of 1935. Lenzi's S. Severa Colonia of 1933 has a tower block of four stories but is of the "contaminated" type mentioned by Labo, employing characteristics of all the types employing series of buildings, wings, and a "tower" within an open plan. But the tower is small and integrated into the rest of the horizontally inclined building, hardly "dominant". Nardi Greco built a second "tower" Colonia at Rovigno in 1934, but

the tower portion of a building primarily of the "monoblock" type is really a stylized clock tower, and not really functional either. Eugenio Faludi built the Colonia Marina Montecatini in 1938 with a rectangular open frame water tower with an ascending ramp, and in many senses this is the closest to what Fiat did, but again it was not a dormitory. This an interesting comparison also because we see the different solutions reached by another private industrial concern, the giant Montecatini company. In an interview for the 1988 catalogue, Pica was asked about his unique ramp at Ravenna. He said of it:

The requirement was specific and functional, because there was a need for a ramp to keep the children's circulation clear of the road²⁸.

Therefore it is clear that the intentions of Bonade-Bottino for Fiat and Pica were different in regards to their ramps. He was also asked about the Montecatini water tower. Was this expressing something? "That" he said, intriguingly, "was for the architect to decide, not the client"²⁹. Would the same assessment hold true for the Fiat commission as well? What was the input of the firm on such matters?

Therefore it is surprising that the literature on the Fiat projects is so spare, and these questions of intention unanswered. The Exhibition Catalogue of 1988 took the first

step toward including these buildings in the history of architecture, and answering these questions. The article begins, "The work of Bonadè-Bottino represents the most radical attempt to provide a typological identity for the Colonie"³⁰. Though we must be extremely careful when we use such a term, we should also recall that Labò, writing in 1942, used the term, "type", to define the formal and stylistic differences in the Colonie. The second significant reference to Fiat's Colonie in the 1988 catalogue concerns Bonadè-Bottino himself. The passage almost reads as mundane, yet it precisely defines the direction of this paper from this point forward, for the first time connecting the Fiat Colonie to the use of the heliocoidal ramps at the Lingotto plant:

Bonadè-Bottino collaborated with Matte-Trucco on the Fiat Lingotto works in Turin (1926-7). This building was to remain an important point of reference, in terms both of organization of the programme as a process, and of the formal solution of the spiral ramps³¹.

This sets the central question of the remainder of this thesis, namely the reason why the Fiat company and its architect's and designers decided to use the circular configuration and internal curving ramp against all current thinking on resolving the design issues of the Colonia.

CHAPTER THREE**FIAT AND ARCHITECTURAL PATRONAGE**

The Agnelli family, founders of Fiat, were part of an emergent class - already well established in Western Europe but practically non-existent in Italy before the 1860's - the petit bourgeoisie. The family had been small land holders around the town of Villar Perosa, thirty miles from Turin. Their small scale farming was transformed in the nineteenth century by advances in production of silk weaving and in 1853 purchased the traditional Villa and holdings of the della Perosa's, one of many noble families in Italy who did not make the transition into industrial production¹. Friedman commented that, "the acquisition of this villa was the start of a process of upgrading the social status of an historically undistinguished family"². Tomaso di Lampedusa's novel Il Gattopardo documents the change of power that typifies the rise of families like the Agnelli's and the passing of the traditional aristocratic families. The Sicilian Prince of Salina recognizes the passing of the old world to the new with an all important distinction - the new man in Italy, he said, "he has more than what you call prestige, he has power"³.

Intent upon establishing aristocratic credentials, Giovanni Agnelli, the founder of Fiat, served as an officer in the cavalry of the House of Savoy, centered on Turin, under whose king, Vittorio Emmanuel II, the peninsula came to be unified⁴. The Savoy capital attracted intellectuals and middle-class bourgeoisie who became statesmen, like Count Cavour. Turin became a magnet for all the new power brokers of Risorgimento Italy, and Agnelli was soon associated with the future leaders of the modern Italian state⁵. That Turin, the first capital of modern Italy, in the 1890's became the home of Fiat, which soon became Italy's largest industrial concern is no coincidence.

Thirty years saw Italy go from occupied nation of backwardness to bold innovator. The change occurred so swiftly that new fortunes were made by those who rose quickly enough and embraced the future. Until 1861 Italy was, as Metternich said, "only a geographical expression"⁶.

In Il Gattopardo Lampedusa identified this new class as, "the jackals" who come at the end of a glorious era of monarchs and dynasties. The Sicilian prince, Don Fabrizio, aristocratic protagonist of Lampedusa's novel tells a man of the "new modern administration":

...it will be different, but worse. We were the

Leopards and Lions, those who will take our place will be little jackals, hyenas; and the whole lot of us, Leopards, jackals and sheep, we'll all go on thinking ourselves the salt of the earth⁷.

As the capitol moved south from Turin to Rome, Turin momentarily seemed to lose it's centrality, but in 1898 came news of a new invention, "the horseless carriage" and in July 1899, four years before Henry Ford set up his auto company in Michigan, Giovanni Agnelli and his partners opened Fabbrica Italiana Automobili Torino: FIAT. Cesare de Seta states:

Torino...essa e soprattutto già dagli inizi del secolo, la città della Fiat e di Giovanni Agnelli. Il capitalismo italiano ha qui le radici piu profonde e presenta il suo volto piu efficiente nel campo dell' industria meccanica⁸.

Agnelli, the Piemontese, also had extremely good political foresight and "saw from the start the need to cultivate good relations with the politicians in Rome"⁹. The Turin connections from the heady days of Risorgimento soon paid off. Agnelli in those days had befriended a local politician in Turin. By the 1890's the friend, Giolitti, was Prime Minister. This relationship

paid huge dividends in the Libyan conflict in 1911. Fiat was one of the major manufacturers of war material for the troops fighting the Ottoman Turks: from trucks and ambulances to machine guns and airplane engines in what transpired to herald a heightened sense of nationhood and achievement of the much desired "great power" status, a central promise of the Risorgimento¹⁰. Fiat thus became associated with the great national victory as well as receiving substantial government orders¹¹. The relationship, between industry, power and government grew closer in 1914 with Italy poised to enter the "Great War".

Italian industrialists in general supported the entry of Italy into the war, seeing even greater profits, and can be seen as partially responsible for propelling Italy into a conflict the majority of the populace, outside of the "excessive" interventionists, such as the Futurist group, did not support¹² - but such was the power now held by the new industrialists. Agnelli, along with many other industrialists now backed an ex-Socialist interventionist who equally desired war, another connection on the rise: Mussolini, before he ever came to any great prominence. "Thus began the fat years for Fiat"¹³.

With munitions and vehicle orders pouring in, a new

factory was necessary for Fiat and a large plot was purchased on the outskirts of Turin, in place of the original and now hopelessly outdated plant within the city on Corso Dante¹⁴. The noted historian, Martin Clark, says that Agnelli became the "de facto Royal Family" with this move, which was sparked after visiting the new Ford plants in Michigan in 1912¹⁵. On his return a fellow-industrialist asked him whether he thought the American methods of mass-production of cheap cars and efficient factories would work in Italy. Apparently, "...Agnelli avoided answering. His eyes lighted up briefly but his face which I was scrutinizing, remained impassive. He changed the conversation rapidly"¹⁶. This new building was of decisive importance, and realizing that, Agnelli built not just a factory but a monument to the moment. Concurrently the record attests to significant shifts in company policy towards their workers which coincides with the enormous disruption following the war and the growing labor movement in the factories in the now industrialized north of Italy. Moral and social welfare begins to enter the terminology of the firm, with it's massive work force now experiencing the social ills of nations already industrialized, such as Germany and England.

Fiat begins to show signs of a growing awareness of literature to handle these new aspects of the firms

growth. At this early stage it is not clear specifically which texts Agnelli came in contact with but there was a plethora of material from which to extract solutions. One such well-known study was the Englishman Budgett Meakin's 1905 study Model Factories and Villages. Meakin, a self-proclaimed "lecturer on industrial betterment" begins his preface by defining the purpose of such a study as, to "promote the moral and social welfare of ...employees, in hope of provoking others to like good works"¹⁷. The examples he cites are he says, "the actual experience of money - making men". Herein we encounter the notion of morality through labor:

...the three most important matters for attention should be health, morals and education...because a vigorous employee can do more work¹⁸.

Though such concerns appear relatively innocuous recent writers have become increasingly critical of the power the new industrialists had to do ill as much as to do "good works".

"The factory is a system of regulation as well as a system of production," Robin Evans opens his article "Regulation and Production" in the 1976 Lotus special issue¹⁹ on factories. But the conventional wisdom has it that the factory came as a consequence of industry,

and the great inventors serving only society's progress. Challenging this notion, Evans asks, "is it not possible that the factory was brought into being as a social organization" and that the new machines "only rendered this arrangement more purposeful and more profitable"²⁰? Evans' article proposes that:

...the prisons set out to create a disciplined, orderly and submissive body of labor through the use of authority and force alone, yet the factories were filled with echoes of this same effort toward moral control²¹.

The late industrialization of Italy, furthermore offers some interesting reflections upon this discourse. The factory in Italy came as the most potent signal of the new economy and nationhood, and Agnelli, looking at the British and American experiences came to recognize that whomever ran these new machines could run the whole nation. Therefore the specific technology for the new factory and the degree to which it would aid production while engendering regulation was seen by Agnelli as being of considerable importance in addressing these issues in the built form.

The Fiat Lingotto works was started in 1920 by Fiat's own engineer-architect Giacomo Matte-Trucco. The

main functions were up and running by 1924. It was clearly influenced by the work of French concrete architect Auguste Perret, and its multi-storey concrete frame and continuous ramps recall his Paris garages. It was controlled, in terms of its interior layout and facade, by a grid of columns and beams. But it possessed a powerful symbol of modern technology: an elliptical concrete test track that encircled the factory roof. The rooftop track became a popular point of reference for Northern architects and for this reason Lingotto has figured to some degree in the development of the machine aesthetic in architectural history. But its credentials were immediately accepted because of the praise of one of modernist architecture's primary figures, Le Corbusier. In 1925 Le Corbusier referred to the factory as "one of industry's most exciting spectacles"²² and it formed an important starting point for the Radiant City in 1935. In 1923 in his seminal work Vers Une Architecture he had included three photographs of the Fiat test track celebrating its dynamic, aesthetic virtues - on the concluding pages. In that respect those underscore one of Corbusier's opening sentences. "Aesthetic engineering - Architecture", Le Corbusier wrote, "two integral, related arts, one in full flower, the other in painful decline"²³.

But the Fiat track was moreso especially remarkable

because it surmounted the massive factory, noisily inhabited by some 10,000 workers laboring in daily shifts. Hans Hollein the "Postmodern" Austrian architect said that "its size can best be judged by combining the ground plans of Versailles and the Crystal Palace"²⁴. The sense of Lingotto's authoritarian allusion had been stressed in the 1930's by Italian architect Edoardo Persico who saw in it "an ancient order of obedience"²⁵, while Reyner Banham attached another meaning to the track writing that "the Lingotto above all needs Metal! Petrol! Noise! Smell! Proletarian Curses!"²⁶.

The structure of the factory depended upon a rigid grid three modules across the width of the building's ground plan. These defined the different shop functions each linked to "connection and distribution" modules which further connect with each successive floor, originally by vertical elevators but from 1925, by heliocooidal ramps at each end. Those ramps became key to the whole production system and by a series of experiments aimed at developing further what Fiat must have seen as being a system of production of the highest possible efficiency.

The assembly process begins at ground with raw materials and progresses through body work, coach work,

finishing etc. from north to south, ramp by ramp, ending up a finished product on the rooftop testing track. Here the car would be put through its paces and then brought down to the nearby railyards by way of the flanking, immense south exit ramp. They were large enough to allow the great number of cars in production to move efficiently up through the different stages of production in this unique multi-storey structure. Lingotto received so much attention because of the popular image of the track and yet the ramps which made it all possible and are equally, if not greater, engineering feats have remained in relative obscurity, partially explaining the neglect of the later Colonie buildings of Fiat, which are clearly derived from the Lingotto ramps.

The reasons for the building of the ramps is equally important in understanding the inherent meaning in the later multi-storey vertically inclined Fiat buildings. In 1923 after a year of production at full speed in the new facilities:

...emerserò alcuni inconvenienti di ordine funzionale, probabile conseguenza dei tempi di collaudo variabili per le singole automobili: il permanere in pista dei veicoli per tempi maggiori di quelli previsti teoricamente deve aver provocato ingorghi davanti ai montacarichi e, quel che piu contava, scompensi nei

tempi delle operazioni successive. Il fatto non s'accordava con il rigido "taylorismo all'italiana", al quale doveva uniformarsi ogni singola operazione nello stabilimento²⁷.

The Fiat engineers were set to the task of resolving the backlogs and Mattè-Trucco apparently presented the idea for the oval-shaped heliocoidal ramps²⁸.

The ramps were necessary due to the unique nature of the multi-storey factory which previously had relied on lifts and circular heliocoidal ramps distributed throughout the plant of a much smaller smaller size. Both of these designs will be discussed at a later time in terms of their contribution toward the eventual use at the Colonie of simliar ramps.

This example of plant organization reflects the industrial doctrine of "Taylorism". What later came to known as "scientific management" was developed by F.W.Taylor while a gang boss in a Philadelphia steel factory in the 1880's. A controversy with workers led to an accurate measurement of what constituted a day's work or any single operation²⁹. The standardized work process in Lingotto is an adaptation of this theory, which had an enormous international impact.

In the Italian text Venti Progetti: il futuro per

Lingotto, documenting the 1984 redevelopment process of the plant, the production process is described in some detail. The workers were subdivided into two shifts. The total number would have exceeded ten thousand. In each of the main shops, defined by the distribution modules, worked, on average, 1000 employees including the technicians (engineers etc.) and the general shop workers. Above them was a shop foreman in the hierarchy of the plant, the "capo reparto".

Within each department was a production shop with time tests, the "analisi tempi" which established and verified the pace and production objectives. What is interesting is the minute detailed specifications for each process and documentation for workers who rarely worked in other departments. The work cycles were recorded on cards "on which each employee signed personally for the time of production...in minutes and hundredths of minutes". Further, those on the assembly lines were required to also mark daily in the obligatory "brogliaccio", or notebooks, the completed production. Every shop was divided into three or four departments and each department was formed by 4-8 squads of 50-120 shop-workers³⁰. The use of the term squads is the first sign of Agnelli initiating specifically Fascist terminology if not ideas onto the shopfloor.

The analysis of the Fiat factory must also include analysis of the broad political context and the impact of labor unrest, especially to comprehend the huge disparity between the financial status of the Agnelli and their workforce. The Anglo-American social history of modern Italy tends to portray factory labor as what historian Victoria de Grazia calls, "freely accepted and heroically experienced discipline"³¹. There was, however, noted examples of labor unrest denoting an awareness of the deep exploitation.

In July 1919 Fiat workers took part in rioting, demonstrations and strikes, subsequently in April 1920 Fiat workers took part in the ten-day "general strike"³². At the time, the Marxist leader Antonio Gramsci wrote that, "Turin is a modern city. Capitalist activity throbs in it with the crashing din of massive workshops which concentrate tens of thousands of proletarians into a few thousand cubic meters... the human race is here divided into two classes ...we don't have democrats and petty reformists"³³. By far "the most famous example of labour militancy was the "occupation of the factories".

In September 1920 over 400,000 workers "took over their factories or shipyards and expelled their managers and carried on working - sometimes at making barbed wire

or guns"³⁴. The occupation of Lingotto forced the new working class into a more powerful position than they had ever experienced before, and implies a new conception of the relations between the worker and the factory³⁵. This was because, paradoxically, it concentrated in one large space what was scattered and unorganized outside it in the ghettos. It seemed at the time a heroic victory for the workers. So few years after the Russian revolution, it appeared the same might happen in Italy.

The reaction of industrialists was predictably the "call to order" which shortly found expression in the Fascist "squadristi" who broke workers rallies with clubs and fists³⁶. The "padrone", who before industrialization had controlled the peasant farmer had not been lost in the shift to the factories, and now begin to reappear when the masses were roused by militant Socialism. The tradition of the "padrone" has carried on right up to the present labor situation in Italy, then as now, still part feudalist in many ways. The monopoly on power is what Italians call "strapotere" - all-encompassing power.

Among the methods of control, there were several methods of "persuasion" available to the employers and the most discussed was "Fordism"³⁷. Agnelli and Ford paid visits to each other's factories over the years.

Ford had accustomed his workers to the drudgery of the standardized work process using his "doctrine of high wages". Many Italian employers, unwilling or in many cases , unable to pay more, rejected the ideas outright³⁸. Agnelli was one of the few to see a way around the issue by exploiting another aspect of "Fordism" - the provision of social services, of which the Colonie would become the largest. After the collapse of the workers movement after the 1920 factory occupations and the onset of Fascism, Fiat's management can be seen slowly beginning to implement social initiatives as incentives³⁹. However, now wanting to control more firmly the workers and erradicate work slowdowns and strikes, Agnelli implemented more Fascist initiatives - as Victoria de Grazia has said, "no longer in the context of liberal reformism, but as powerful extensions of an authoritarian system of labor control"⁴⁰. Agnelli can be seen as allied with Fascism, and for this relationship after the war was hunted down by vigilante bands of the Resistenza, narrowly escaping the same fate as Mussolini.

During the war however, the workers could not be allowed to disrupt the production of the plants because Agnelli's "modus operandi" was to reap the maximum from the unprecedented oportunity for profit presented by the war. All other considerations were secondary and he

insisted that his workers were totally loyal to Fiat. As a further example of this corporate philosophy, during the war Fiat apparently also maintained contacts with not just the Fascists and the Nazis, but later the Allies and even the Resistance gained substantial financial support after Mussolini's arrest and the German occupation in 1944⁴¹. There was no consideration of ideology, scruples or morality: the company's profits were all and Agnelli was in contact with whomever might need his product.

By the late 1930's Fiat had become a virtual state within a state, in many ways above mere governments⁴². They used Giolitti for his influence when he was in power. Mussolini the same. When the regime faltered, like the Christian Democrats, they were already brokering with the members of the next likely power base in the position to grant favors next. To maintain its position Fiat used politics, financial protection and legislation⁴³. A Fiat executive during the Fascist era has said, "we would be good Germans, we would be good Fascists, but we had to save Fiat. That was the company policy"⁴⁴. thinking back to Il Gattopardo the shift from aristocratic prestige to economic power it seems did produce what Don Fabrizio saw as the successors to the "lions and leopards", what he called "hyenas and jackals".

By the 1930's the power wielded by Fiat and Agnelli

was, like an "arlecchino" in the Commedia masked by many layers. The House of Agnelli in Turin could be seen as more powerful than the Turin-based House of Savoy, who's king, Vittorio Emmanuel III, was a puppet to the Duce. Indeed the Agnelli were viewed the natural successors⁴⁵. The family was becoming so powerful that they rivalled not only the Savoys but even the Medici, the Gonzaga, Sforza or Visconti dynasties. The automobile became so successful a product that the powerful wealth accumulated by Giovanni Agnelli, by his death in 1945 was \$1 Billion⁴⁶.

The state within a state of Agnelli is like a feudal barony, a clan. They became the most powerful of the "Razza Padrone" - the race of patrons, who's position within Italy is below the surface, not unlike a mafia, but equal to the Catholic Church, the corruption of patronage politics, or the masonic lodge. This is a nation which places it's ultimate faith, not in government, but in the structure of the family and by 1945 the most powerful of all was the Villar Perosa Agnelli's⁴⁷. Fiat's built statements of the inter-war period, the Lingotto and the Colonie, reflect this new power and contain other currents which might disrupt production. Production, being the main theme of Fiat, was to read in their buildings from a distance, towering above even the local church spires.

CHAPTER FOUR**THE SIGNIFICANCE OF THE FIAT COMMISSION**

These buildings, in the final analysis, must be seen as Agnelli's buildings. Through the insular design team of Bonadè-Bottino and Matte-Trucco, Fiat's architecture was haute-bourgeois, defending in their built form the conservatism of Agnelli's class against revolutionary tendencies and radicalism. This architecture is not unlike Piacentini's - a sort of middle ground between revolutionary and traditional¹. Yet Agnelli's conservatism was Northern and Piacentini's that of Rome. Therefore the values the buildings upheld were unique to the emerging bourgeoisie of Turin. Thomas Schumacher said of Piacentini:

...[he] praised the "older generation" of modern architects over the young International Style architects, Bonatz, Bohm, Ostberg, Saarinen, Perret architects who from the thirties onward, have been considered transitional figures in the history of the Modern Movement².

Perhaps this is what is also at work beneath the surface of the Colonie buildings of Fiat - that the design notions which inform them reflect Perret, and are

therefore Proto-modern, despite their late date. Perhaps this is what separates them from the dominantly Rational aspect of the institution. Fiat's Colonie are complex, Northern and radical technologically - but also not too modern, needing to contain such tendencies due to the class of the projected users and the ever present potential of Socialist uprising. The buildings, then are a political statement? Liberal thought was intended to be extracted from them. The use of precedents, such as Perret's multi-storey garages is not just stylistic but part of a deeply entrenched political philosophy, and historical tradition.

Piacentini published only one building by the predominantly abstract functionalist Gruppo 7, and it happened to be a Colonia project - Carlo Rava's 1928 Colonia Pavillion at the Milan Fair but, as Schumacher points out, "shown at night to minimize the whiteness of the volumetric expression"³. Agnelli and the Fiat architects similarly advocate a "middle of the road architecture" - advocating change while adhering to traditional, politically stable values. This distinction brings to mind Piacentini's oft-repeated phrase, that there be, "two architectures, one in underwear, the other in evening dress"⁴. Fiat's Colonie's association with the more monarchist, state-oriented Piacentini buildings are a statement of political and philosophical preservation of conservative mores.

Yet the association of values goes deeper than this surface comparison of the Fiat buildings and those of Piacentini. In his article, "Where Rational Architecture is Unreasonable," Piacentini argues for the symbolic associations of the vertical versus the horizontal⁵. The vertical was the direction of traditional styles, the horizontal was the direction of the modern style, made possible by the cantilever and frame construction. "The horizontal suits domestic architecture, intimate, modest; the vertical suits monumental architecture"⁶. This is the type of statement which so enraged the modern movement and caused Piacentini to be cast as Mussolini's lackey. In the light of "post-modernism", the statement has a new resonance. Piacentini also argued for the use of reinforced concrete - all of Fiat's buildings revel in their love for the material.

Now, when turning back to Fiat's buildings of the thirties, the same arguments seem to hold. The vertical was stressed and the nature of such height necessitated the building of ramps. The very nature of the Fiat Colonie is verticality. Is this another political statement that theirs was a "traditional" architecture and therefore, legitimate? The concrete preference equally looks back to the stable association of Perret and the proto-modern stance. If nothing else, the Fiat

buildings were expressions of confidence for the ductile material. Again, without it the ramp structures and the verticality would not have been possible.

The dilemma, is of course, how to maintain modernity in technology without adopting a machine aesthetic, for reasons of political association, but also, that it not devour national characteristics. This was, curiously, also the debate we recall from the "Rationalist Manifesto"⁷ and in this sense such a characteristic could be considered a generally Italian disposition. However, the way in which the groups resolved the issue were entirely different.

Obviously the ramps at Lingotto informed the Fiat Colonie buildings, even if no such connection has been explicated. Significantly, while the Lingotto plant was designed by Matte, few people have recognized that the ramps, added in 1925, were designed in tandem with the architect of both the Fiat Colonia buildings, Vittorio Bonadè-Bottino. In his book Centenario Bonadè makes a statement, which seems to confirm my suspicions:

Mi pare abbastanza curioso che questa
 "affiliazione" (tra)...le rampe alla Colonia
 di Marina di Massa..e Lingotto non abbia
 trovato posto in tutte le storie
 dell'architettura italiana...questa affiliazione

rappresenta uno degli aspetti insospettabili
di cui⁸...

Yet, it is in the original source for these ramps and the multi-storey design of Lingotto itself where it is possible to deconstruct the meaning and intention behind their use in a type it had never been used in before: the tower. Or had it?

As noted, there is a strong Italian tradition of revolving ramps. An early example of a similar structure is in Bramante's revolving stair at the Belvedere. Palladio did similar constructions and drawings as did the 18th Century Venetians. Of course, Turin itself would have been a source for its centrally-planned buildings by Guarini, such as at San Giovanni - part of the conservative bourgeoisie culture of Fiat and its architects that would undeniably inform their philosophical and their design aesthetics. There is a strong northern Italian tradition of interchange which is part of the "stable" vocabulary of forms to which the modern architects in Italy in general looked to, with the Risorgimento mentality as their inspiration. Indeed, the architectural culture of the day would have had a rich history of the form. Specific to Matte and Bonade⁹, though, the form reached them in a very specific way.

The specific technology for building the ramps in reinforced concrete and the affinity for the multi-storey or intensive building belongs to the engineer Enrico Bonicelli, a teacher at the Turin School of Engineering. The importance of Bonicelli we find in Matte's first design for Lingotto of 1914, designed on Bonicelli's "wheel system", which has enormous implications in the later buildings. The similarity in the Bonicelli drawings and the Matte proposal are undeniable. Such a radial configuration also was part of the traditional philosophical and design history.

Thinking back to the similarity in prison and factory designs, which were being developed simultaneously in Italy as institutions in the late nineteenth and early twentieth centuries, scholars of architectural history will immediately recognize a similarity in Bonicelli's plan to 19th century workhouses and prison plans such as Baltard's 1829 example from his Architectonigraphie. These well-distributed ideas would equally have been part of the material taught to the architectural and engineering professions also emerging as institutions at the same time.

The notion of a commonality of design between prisons, workhouses and factories would pose grave questions as to the purpose and specifically the

treatment of worker and inmate were the commonalities of the types not already part of a discourse which relates regulation and production. To repeat for emphasis, Robin Evan's 1976 article asks, "is it not possible that the factory was brought into being as a form of social organization and that the new machines of the industrial revolution only rendered this arrangement more purposeful and profitable?" Could it be that the built statements of Agnelli-Fiat engendered methods of "persuasion" which made little distinction between modern factory and modern prison - perhaps the only two modern institutions the working class of Turin might ever set foot in?

But did the prison and by extension the factory form Fiat's children's Colonie? At Marina di Massa what possible sources could Bonade, trained and schooled under Bonicelli and Matte, have possibly referenced for the unique form of this building? One historical precedent in radial plans, in the prison type, which looks uncannily similar is William Cubitt's Radial Prison Plan of 1824. We see a similar articulation on the surface reminiscent of "Edoardo Agnelli"'s pilasters, similarity in the division and distribution of the interior and a central opening. Looking at the Colonia at Salice d'Ulzio, again we see a similar distribution and articulation.

Another indirect source which enjoyed widespread

print was Jeremy Bentham's Penetentiary Panopticon of 1791. The Panopticon had originally been devised by Bentham in 1787 for a factory at Critchef in Russia. The panopticon's great claim was the universal surveillance of the prisoner work force by the master in the central kiosk⁹. The character of a convict judged by the quantity and value of their work: profit, thereby becomes the measure of redemption. Similarly profit was Agnelli's measure of the factory worker's worth to Fiat.

Where the plans of the Fiat Colonie and Panopticon differ is in the central kiosk and the discreet surveillance - but as has been seen already the Colonia, particularly Fiat's with their regimentation and militarized atmosphere was a place of intense scrutiny at all times; so perhaps the comparison is valid in this regard also. But, what is important is being cognizant of a vocabulary of forms available to Bonicelli and passed on to his students Matte and Bonade', one of which they surely would have known being the panoptic option. Such types would have formed the basis of traditional thought which industry, in the 1920's still grappling with technology, would have entertained as a resolution of how to deal with the new institutions, arriving all at once in Italy, and the changing technological needs for the various building programmes, while at the same time needing to stay clear of the revolutionary language of form and style inherent in the International Style.

These comparisons are not to say that Bonicelli, Matte or Bonadè studiously applied Cubitt or Bentham to their plans but that they were trained in an architectural theory and practice which worked with models of successful and distributed plans of the past, and that they were all aware that maintenance of the status quo had been powerfully affected by the use of such forms. The issue, after the International Style, with a supposedly new canon of forms, is that such antecedents were part of a discredited past, associated with a culture undermined by the war. The issue today could be that they were part of an architectural culture which found such associations acceptable. These associations have been seen to further exemplify the unwillingness or inability of traditional positions, even among the supposed avant-garde within architectural discourse to substantially address the role of architecture as economic and cultural commodities¹⁰.

If the ascending ramp is the leitmotif of Fiat, further symbols of production can be read on the exterior of the 1933 tower at Marina di Massa where the central axle seems inserted into giant cogwheels in the low wings in which are located the services and communal facilities: the abstraction to a giant machine if not intended is certainly read as such, to say nothing of the

phallic reference of this "dominant sign." The whole facility functions at peak engineering efficiency while incorporating a formal abstraction Fiat felt to be not only efficient but engendering regulation and minimizing disruptions of the system of any kind. Therefore the Fiat Colonie must be seen as a form of factory building. Why else would they use such a loaded but encoded industrial "linguaggio"?

The 1937 tower at Salice d'Ulzio furthers the abstraction to a pure geometry by accomodating the facilities in the semi-basement, so that here we see Bonicelli's "wheel system" having been integrated into the function of dormitory by way of the factory function ramps of the 1914 Matte design, the 1922 circular heliocoid distribution modules, the 1925 North/ South ramps, the Sestrières ski-lodge and the first Fiat Colonia at Marina di Massa in 1933. The central void allows low ceilings thereby permitting a maximum number of revolutions of the ramp. Intending the maximum efficiency, the maximum production must be the end result. Bonadè with his spiral towers now seemingly capable of containing any function seemed to march his aesthetic and social goals higher with each attempt. Indeed the unrepeatabe opportunities for total enviroment afforded by the design of these buildings seemed to embody the reformatory hopes of Colonia

architecture as a whole, and to a certain degree, the modern movement generally.

However, the technology of Lingotto was outmoded in 1939 with the building of the horizontally planned Mirafiori plant. The inefficiency of the ramps versus the continuous conveyor was acute within ten years. Did Fiat suddenly become less endeared with what until 1937 seemed the embodiment of Fiat's corporate philosophy? Could this explain Salice d'Ulziio's abandonment? The shift to horizontal structures, necessarily represents a shift in the corporate philosophy, which requires some speculation as to why such a shift occurs. Albert Kahn designed a structure similar to Lingotto for Ford using the "intensive" factory, but his Highland Park was a reverse of Lingotto¹¹. Goods flowed downwards, in "gravity feed", where Lingotto worked up to the roof, Highland Park started at the top and worked down. Yet by the mid-twenties Ford can be seen shifting to horizontal factories. Did Agnelli first build in this manner in emulation of Ford and American-Taylorism? Kahn's Ford Highland Park could be seen as Fiat's model for multi-storey buildings, but Fiat seems to have adopted the concept too late. By the time Lingotto was underway, Ford had begun The Glass Plant in 1922, which with the horizontal emphasis was of another era entirely than the "intensive" type. Nonetheless Fiat built in the intensive manner until 1937.

That Fiat's 1939 replacement for Lingotto, the horizontal Mirafiori, rejected the tower and the ramp system would suggest that by that time they had become aware of the drawbacks of the once revolutionary design system. The years of Fiat's "intensive" buildings roughly parallel those of the Fascist regime - 1923 to 1937. By 1939, the climate had changed dramatically in Italy, the Fascists like the heliocoidal ramp were in decline.

Neither could Lingotto withstand the increased loads imposed by the modern heavy machinery on its multi-layered floors, and after 1939 and until its closure in 1984 manufactured only body parts¹². The technology had begun to pass Fiat by, and, if for no other reason than what we understand to be the company philosophy, "do anything to save Fiat", it would be probable that by 1939 the war against union militancy was perceived to have been won and the practicalities of business demanded practical responses over more philosophical ones. After the Colonie no other Fiat building took this form, and since the war only one other Italian building, Franco Albini's 1950 INA Offices, took this unique form. There was, it seems, a period of 10-15 years where this technology appeared to Fiat the peak of efficiency and the embodiment of the age.

Italy between the years 1925 and 1937 witnessed a passage from the control of company productivity to the control of social productivity - buildings of this period are documentary evidence of the capitalist monopolies in Italy in formation, and during the period of Fiat's intensive buildings they became Italy's largest. So perhaps in the final analysis they were indeed the embodiment of the age specific to Italy and perhaps the corporate form of Fiat's interwar buildings did make the impact that they were designed to. The buildings of Fiat signify, in this sense, a unique treatise on the social and ideological shift in the nature of modern Italy. For Fiat each phase of plant reorganization and expansion during the period was accompanied by a corresponding growth in the company's welfare and recreational facilities¹³. Fiat's social services were conceived as integral elements in the production process. The Fiat Colonie at Marina di Massa and Salice d'Ulzio advocated a military-like discipline consistent not only with their, and the regime's, notion of an orderly society, but also with the rigorous organization deemed necessary in the highly mechanized mass-production firm. This is a classic ideological clash from which the capitalist-imperialist Fiat emerged, like the Fascists, almost-totalitarian, equating their proletarian elite employees with the front-line soldier in battle on the front-line of class-warfare: the factory. However, the Fascists passed

into history, whereas Fiat grew more powerful with each passing year. Fiat's social welfare constructions were a second front: where even organized rest became work.

The children of Fiat workers attending such camps in essence perform the factory functions of both worker and product, inhabiting the structure in a microcosmic manner not unlike their father's in the factory and coming down the ramp a "finished product", as the paternalistic employer prepares the next generation of assembly line workers for the realities of the "new Italy" while simultaneously developing the consumption cycle toward an affluent society.

"Lingotto" in Italian means, "ingot of gold". Agnelli obviously did think of his corporation as a precious commodity. Fiat's buildings of the Fascist period are crafted as if by hand by a master goldsmith spinning the ductile materials into a work of great art, with all the inherent political messages of power which patronized Italian art had always represented. These buildings represented precious valuables and investments in the family fortune. The social hierarchies set up by these buildings with their working class users reinforce the fabric of traditional values by displaying the unattainable aspect of their abstract value. With a few pieces of "gold" Fiat reestablishes the "razza padrone",

looking down from the villa on the laborers toiling in the fields.

Perhaps the unique nature of the Fiat Colonie within the institution of the Colonie as a whole can be better understood if the ideological attitudes of the firm and it's founder are taken into account. And perhaps the significance of these hitherto poorly documented buildings can not only illuminate the intentions of the Fiat system and the firm's place in Italian culture of the inter-war period but also better explain the nature of industrial power during the Fascist period.

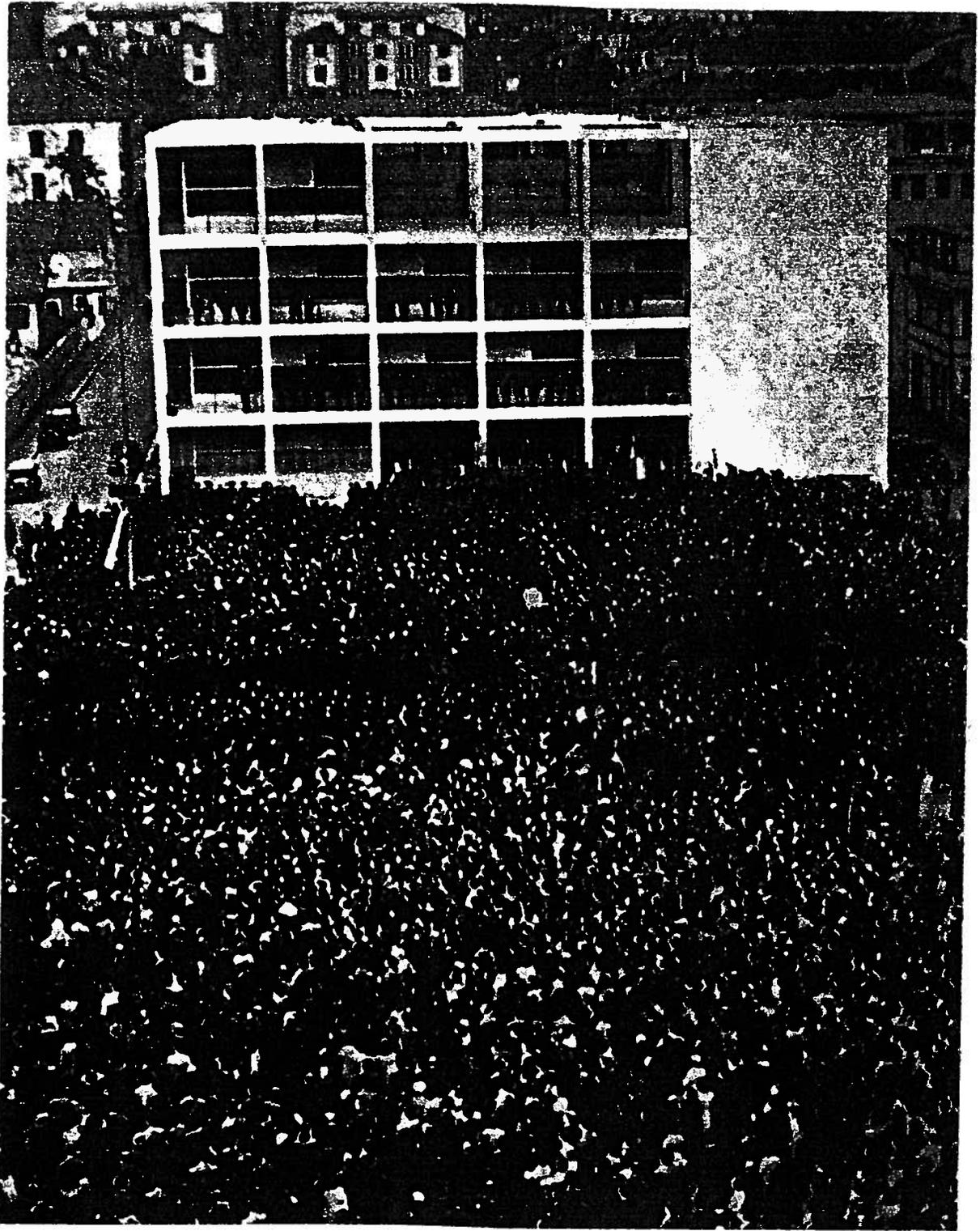


fig.1 Giuseppe Terragni, Casa del Fascio,
Como, 1932-36. Fascist rally in front of
building 1936.

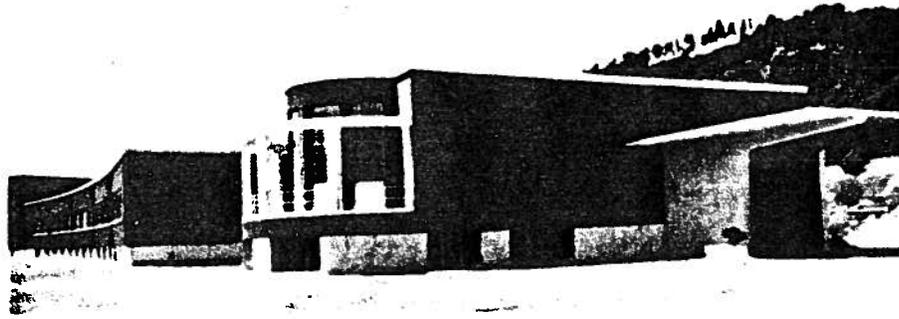


fig.2 Enrico del Debbio, Sports Complex,
Rome, Foro Mussolini, 1937.

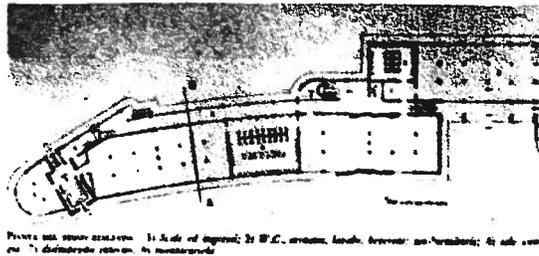


fig.3 Enrico del Debbio, Sports Complex,
Rome, plan.

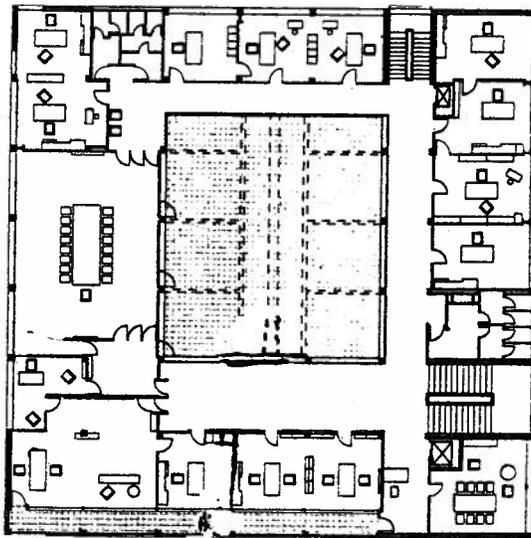


fig.4 Terragni, Casa del Fascio, Como,
plan.



fig.5 Marcello Piacentini, Bolzano war Monument, 1928-31.

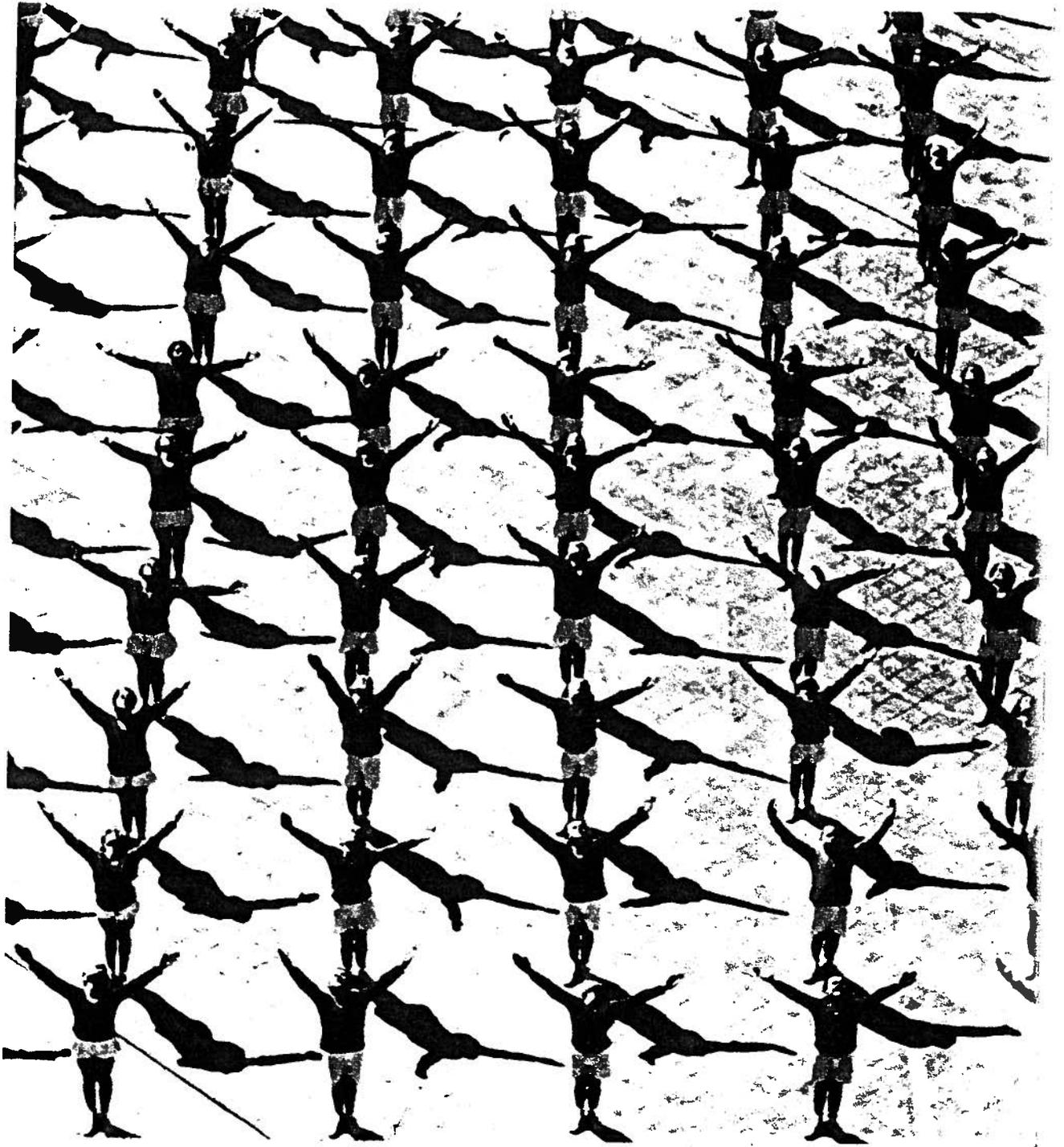


fig.6 Open air gymnastics at the Colonie.

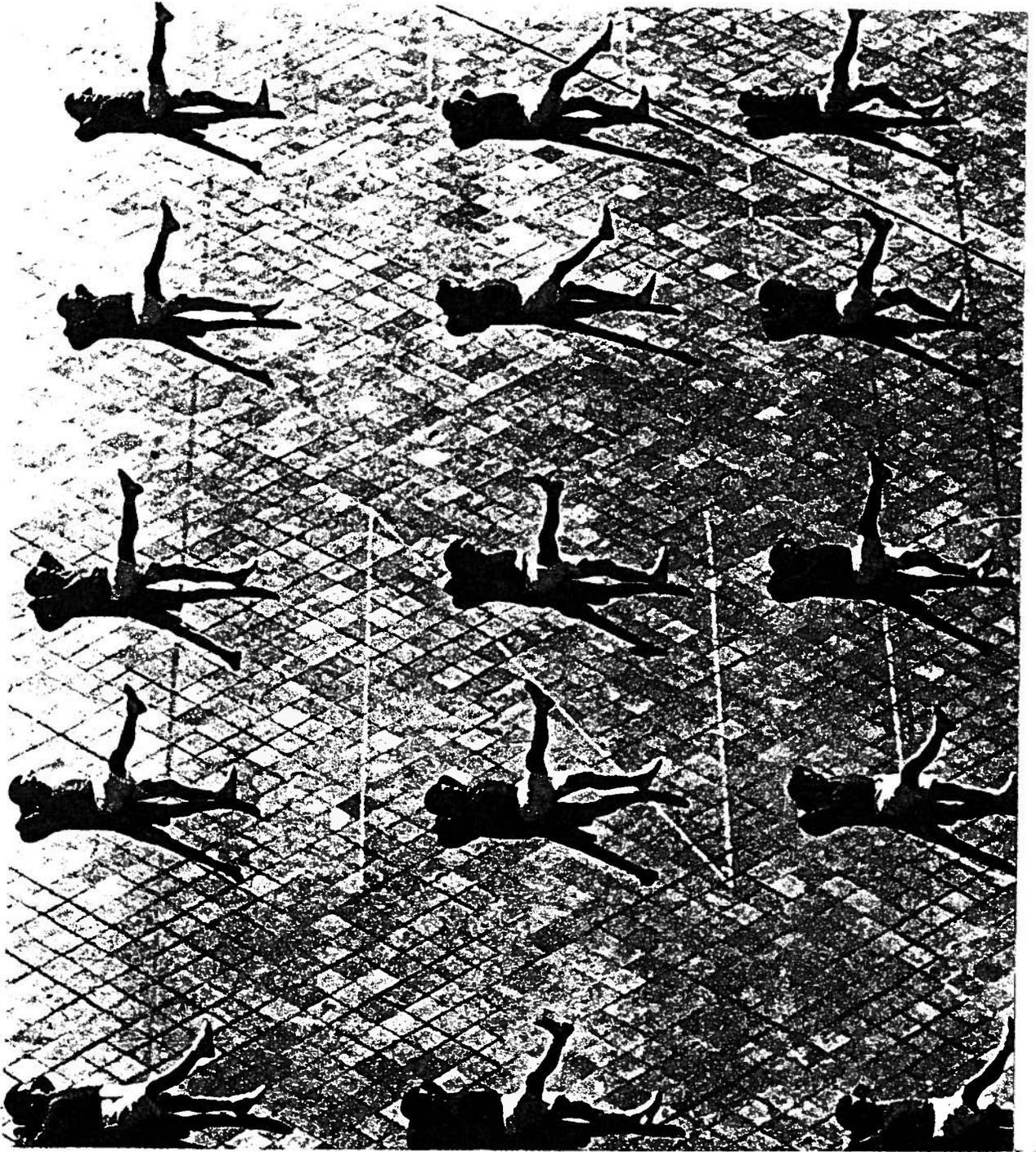


fig.7 Military precision on flagstones.

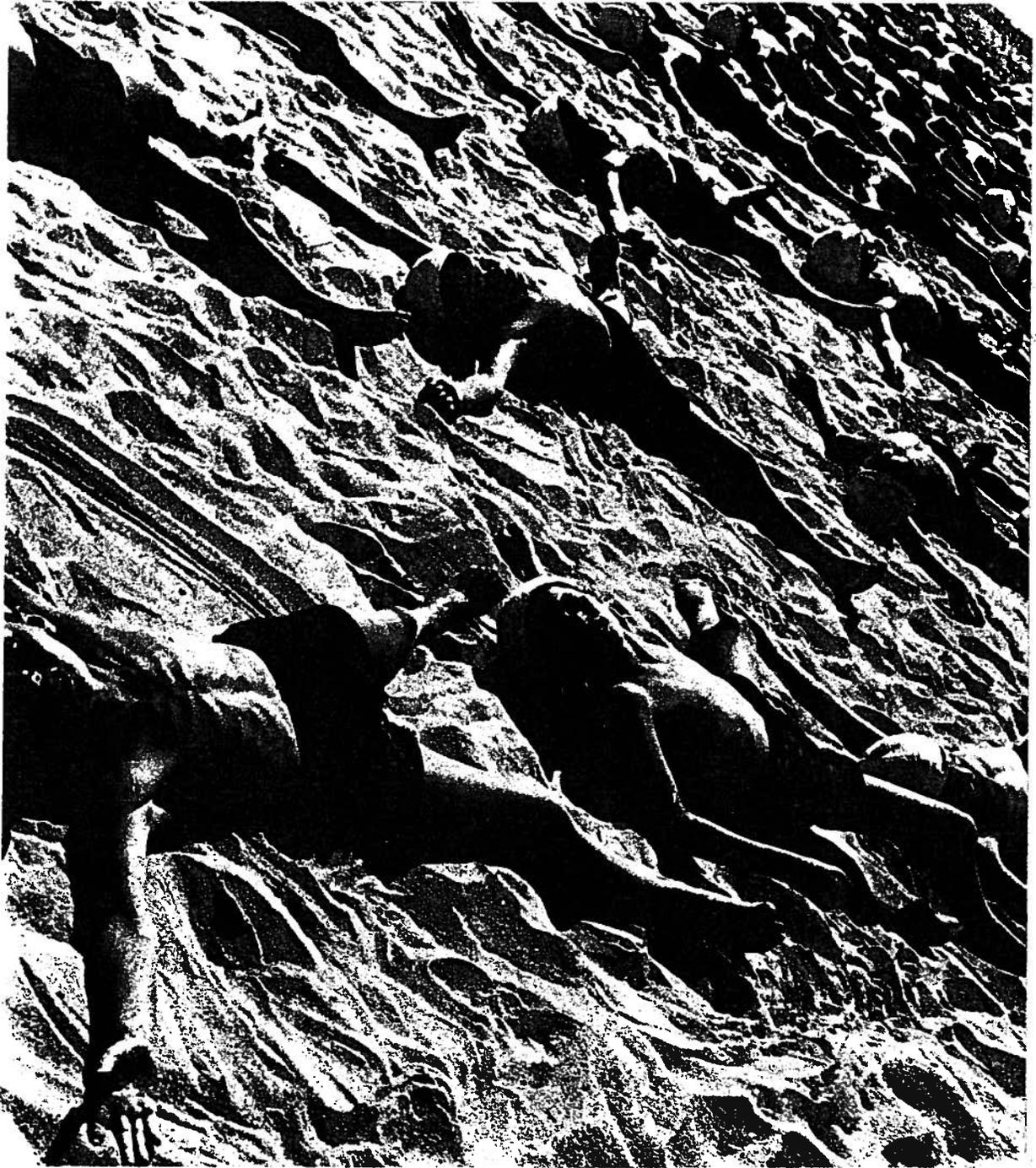


fig.8 Gymnastics and sun-therapy before the water.

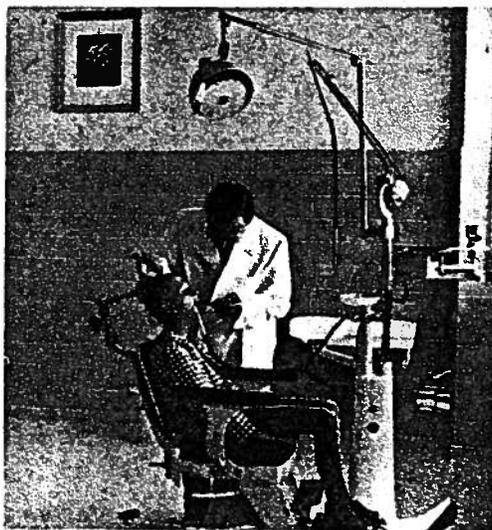
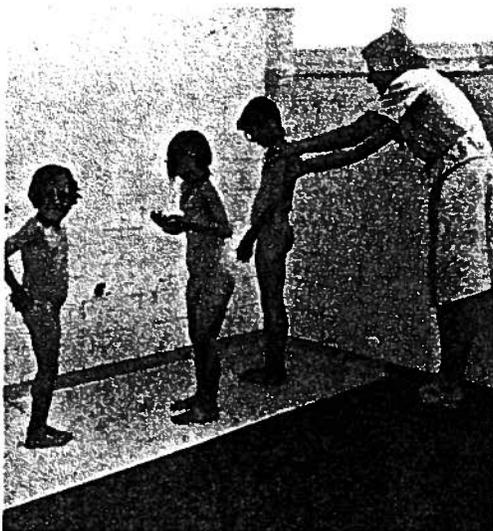


fig.9/10/11 (top) Uniformed marches,
(middle) hygienic cleansing,
(bottom) free dental work at the Colonia
Marina Montecatini, Cervia, 1938, Eugenio
Faludi architect.

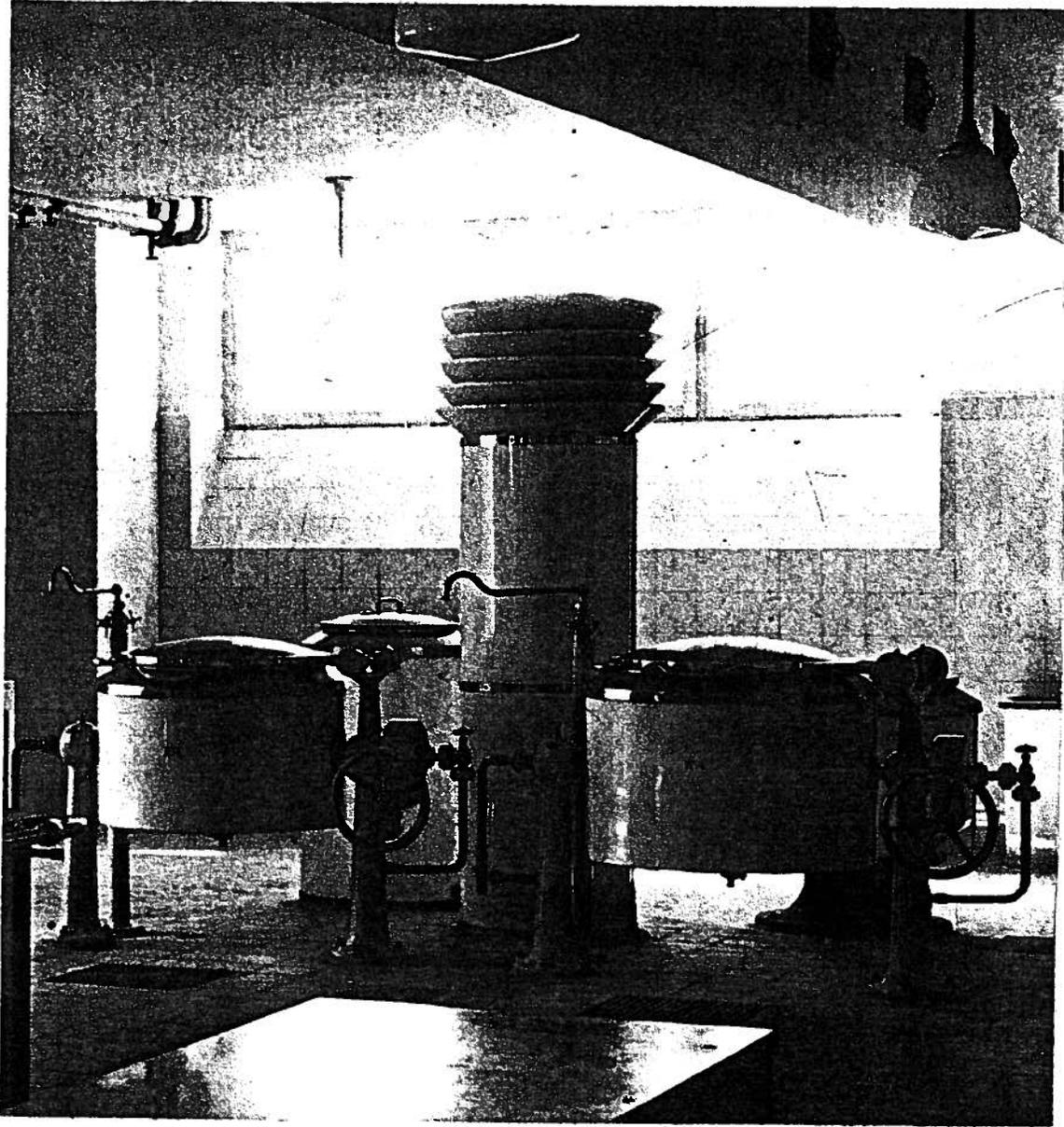


fig.12 Sterilizers at the Colonia
Climatico-Balneare, Formia, 1937, Giulio
Minoletti architect.

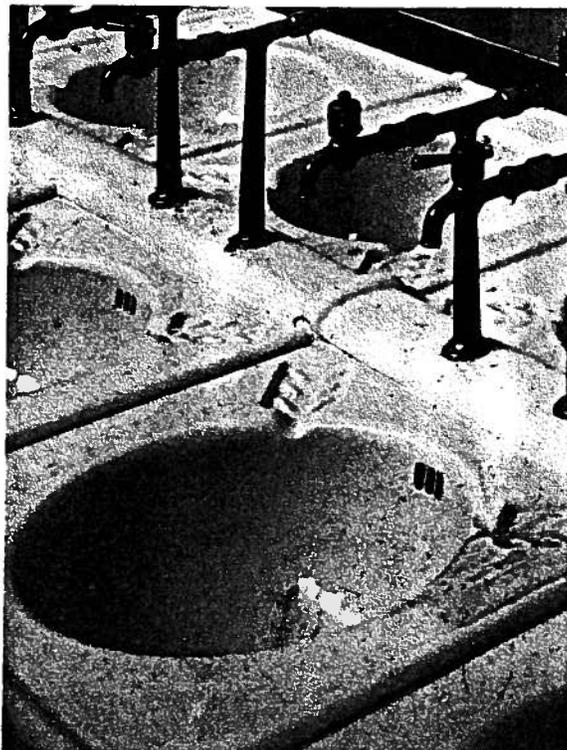


fig.13/14 Canteen and Wash basins at the
Colonia Rosa Maltoni Mussolini,
Calambrone, 1925-35, Angiolo Mazzoni
architect.



fig.15 Outdoor showers at the Colonia Elioterapica, Legnano, 1938, BBPR architects.



fig.16 Inspection at the Colonia Montana
Rinaldo Piaggio, S.Stefano d'Aveto, 1939,
Luigi Carlo Daneri architect.

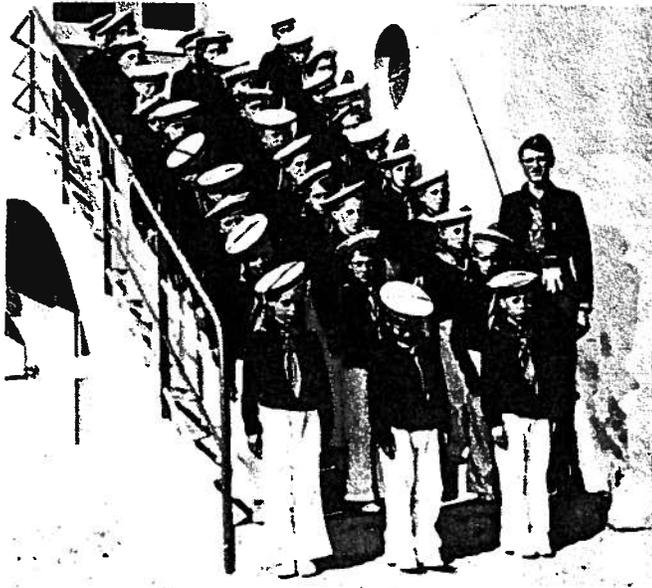


fig.17 Sculptor Edoardo Paolozzi in group photo at the Colonia XXVIII Ottobre at Cattolica, 1932, Clemente Bursiri-Vici architect.



fig.18 Children at play before the tower of the Fiat Colonia Edoardo Agnelli, Marina di Massa, 1933, Vittorio Bonade-Bottino architect.

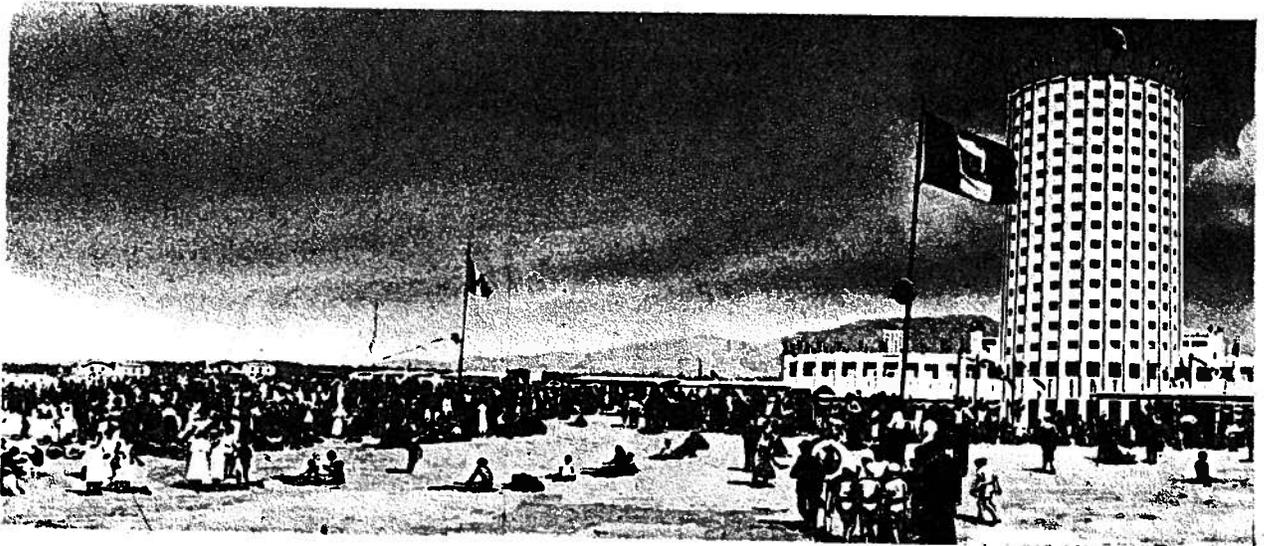


fig.19 Site of Fiat Colonia Edoardo Agnelli, Marina di Massa from the beachfront with tower rising on the right.

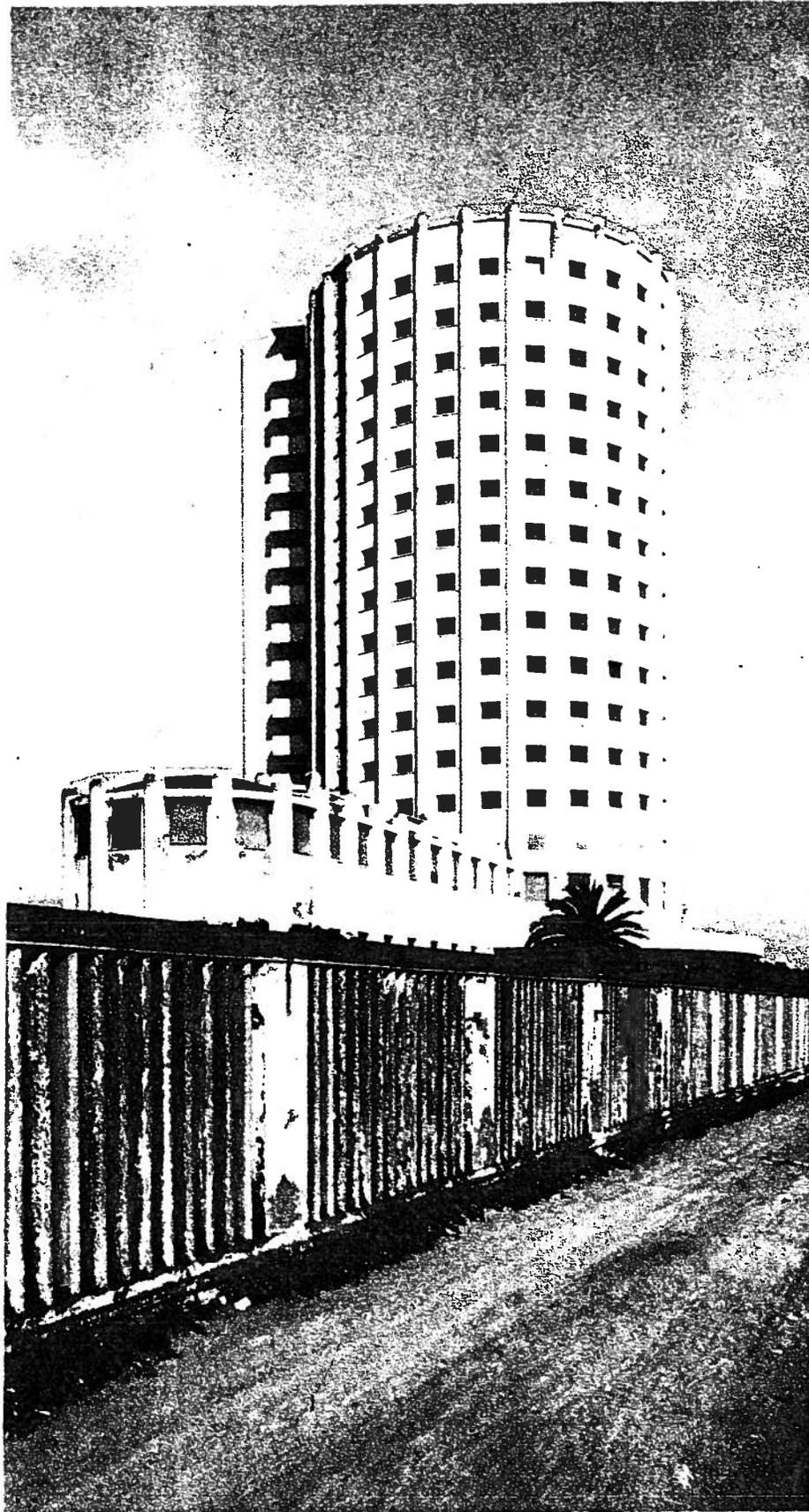


fig.20 Flat Colonia Edoardo Agnelli
dilapidated but still standing in 1985,
with view of service stairwells at left.

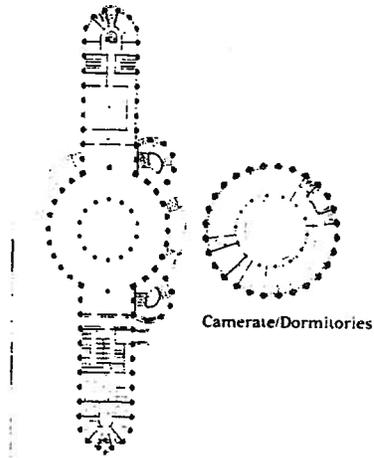
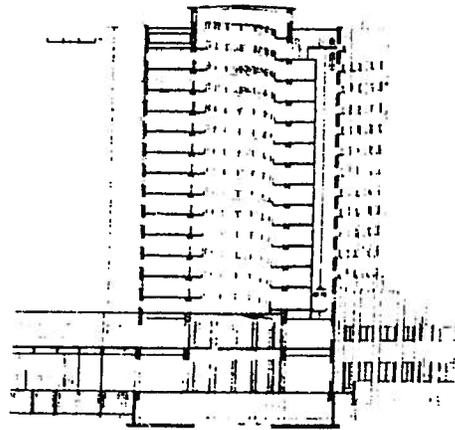


fig.21 Fiat Colonia Edoardo Agnelli,
ground plan at left and tower section at
right.



Sezione longitudinale/Longitudinal section

fig.22 Fiat Colonia Edoardo Agnelli,
Section.

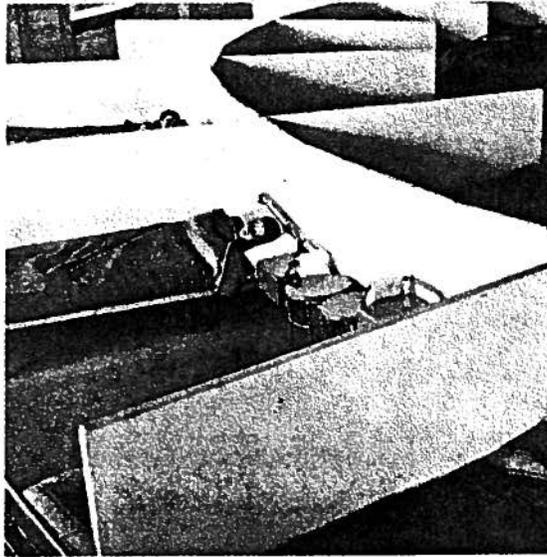


fig.23 Fiat Colonia Edoardo Agnelli, interior view showing "room" sections and bed arrangement.

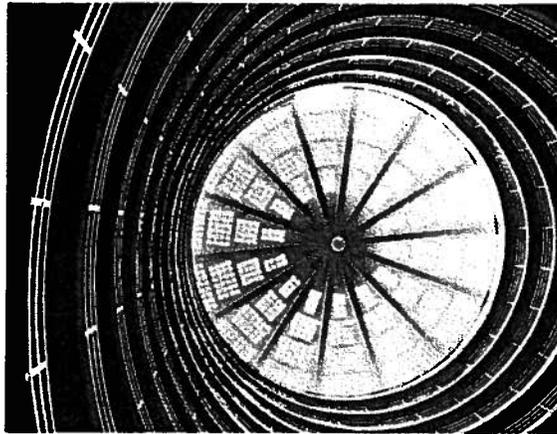


fig.24 Fiat Colonia Edoardo Agnelli, looking up to skylight roof through central void.

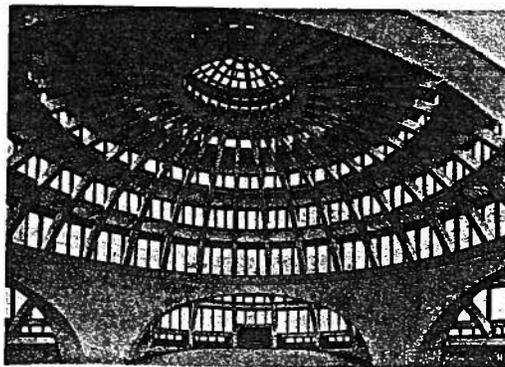


fig.25 Max Berg, Centenary Exhibition Hall, Breslau, 1913. Interior view looking up to pierced concrete roof.

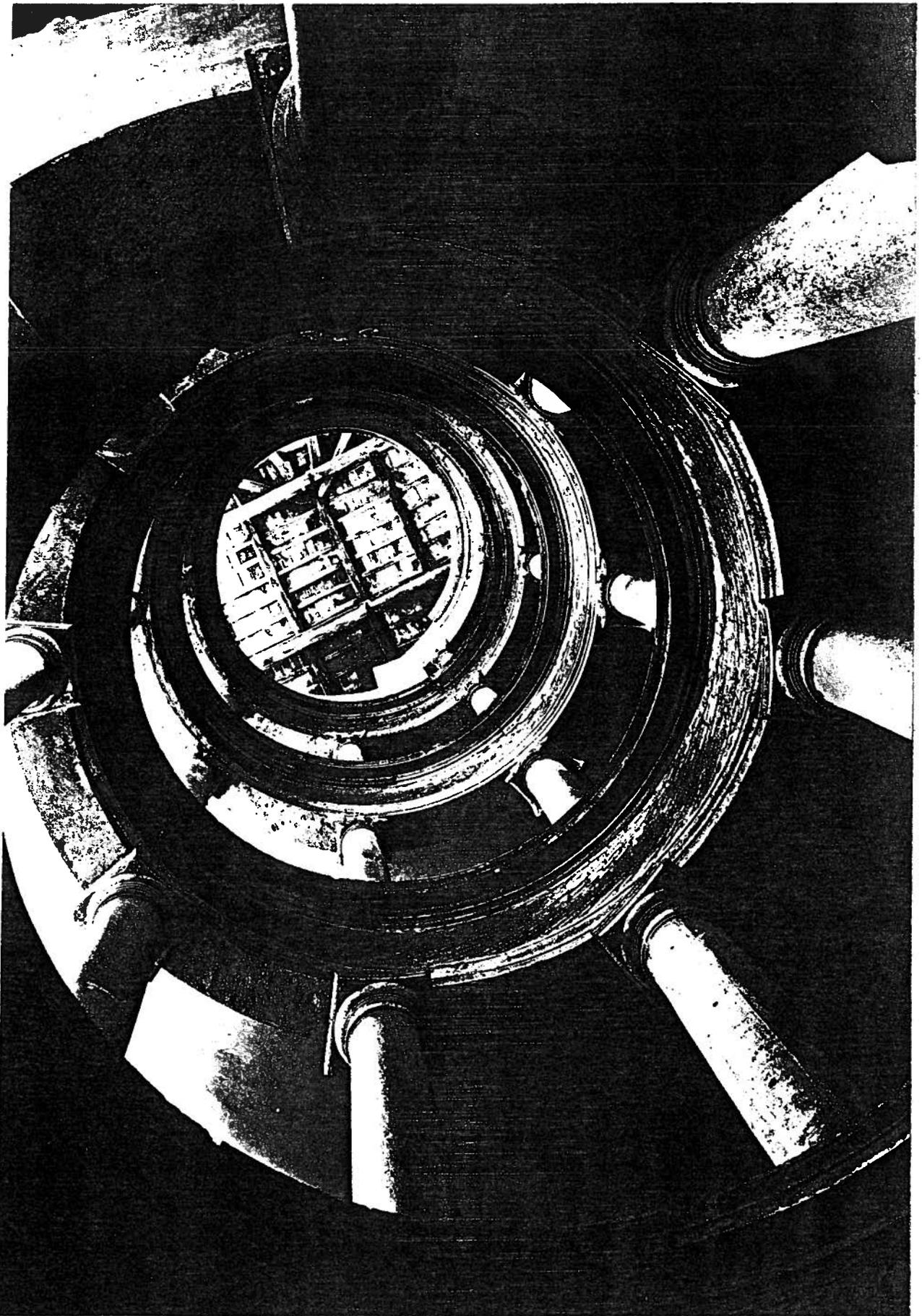


fig.26 Donato Bramante, Staircase at the Belvedere, Vatican, Rome. Interior view looking up central void.

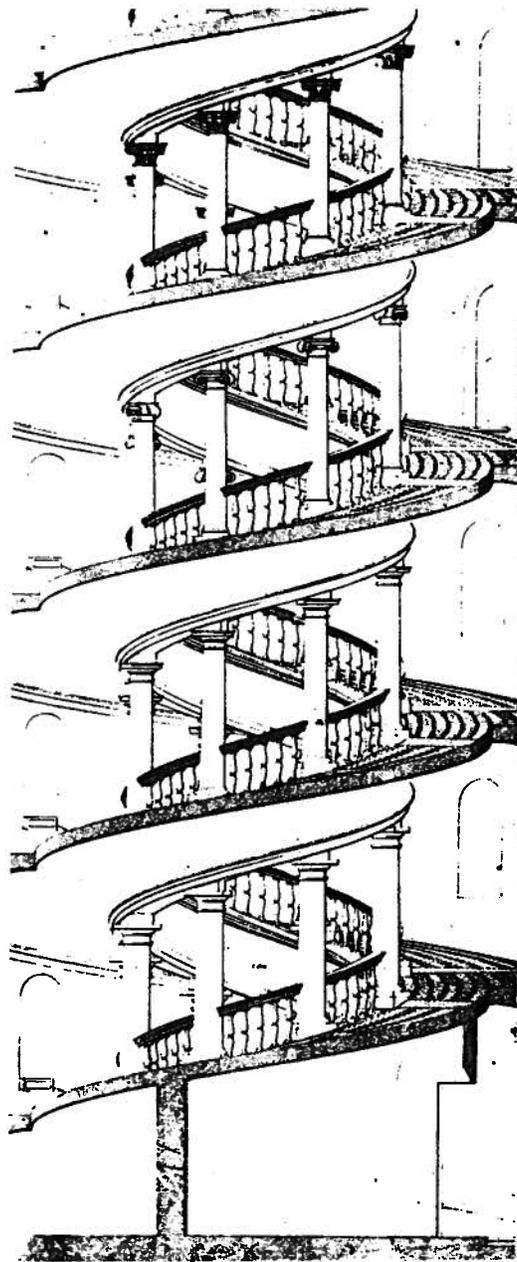


fig.27 Bramante, Belvedere Staircase,
cutaway (Letarouilly) showing spiral ramp.



fig.28 The ceremony of the "Alza Bandiera"
as carried out on the beach at all the
Marine Colonie of the 1930's.

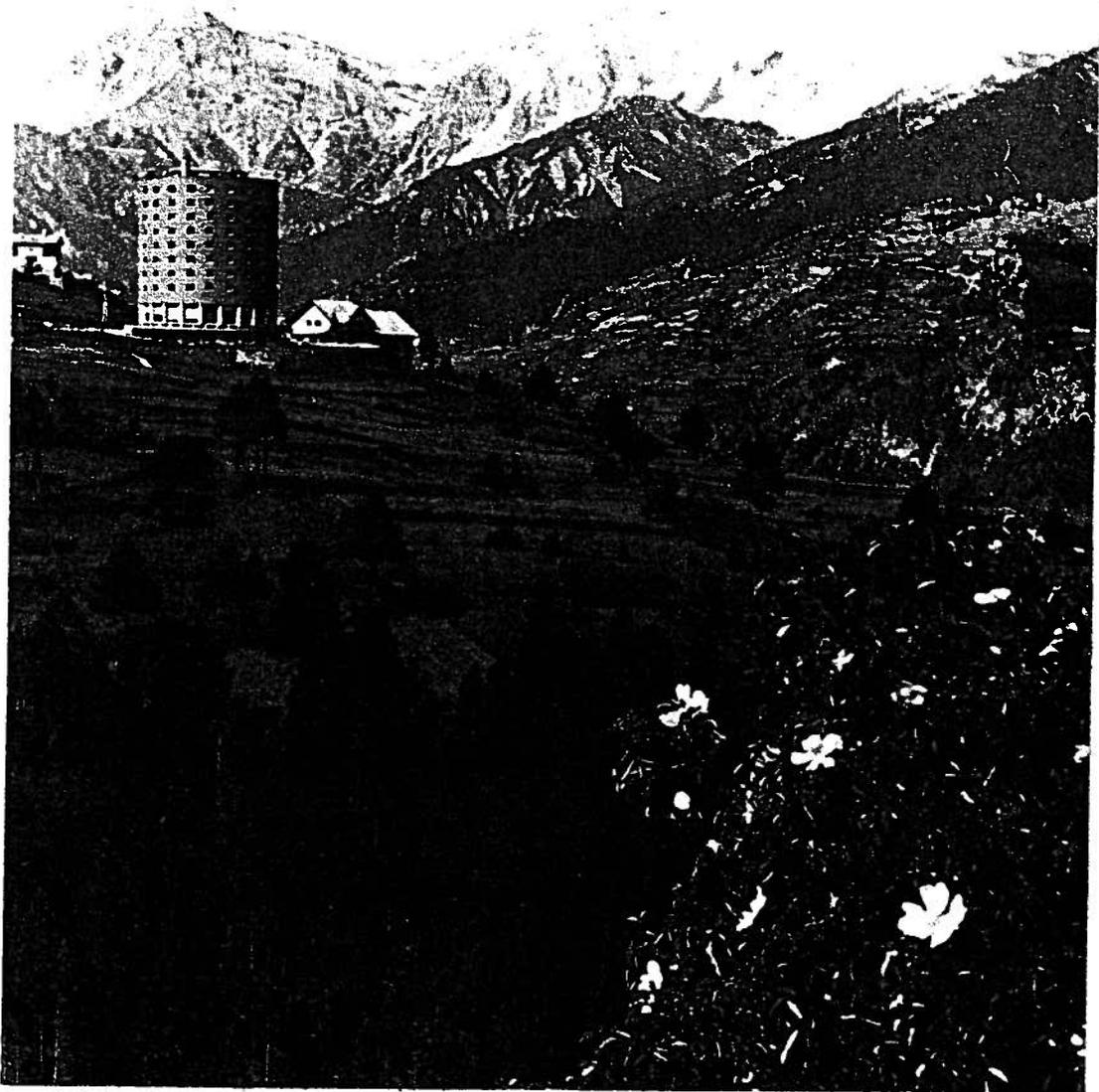


fig.29 Fiat Colonia "Torre Balilla",
Salice d'Ulzio, 1937, Vittorio
Bonade-Bottino architect.

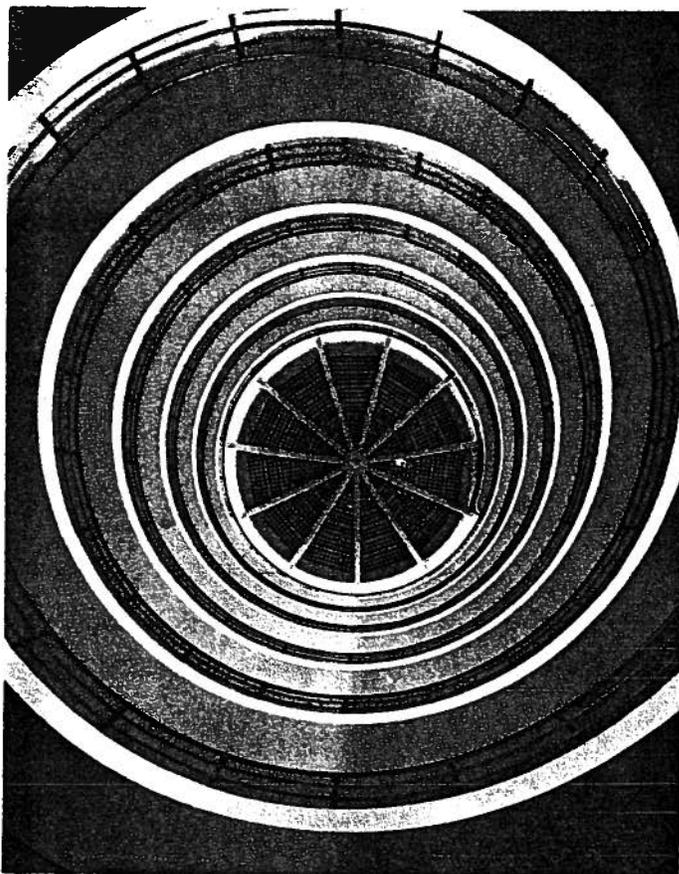


fig.30 Fiat Colonia Torre Balilla,
interior view looking up central void to
the segmented skylight roof.

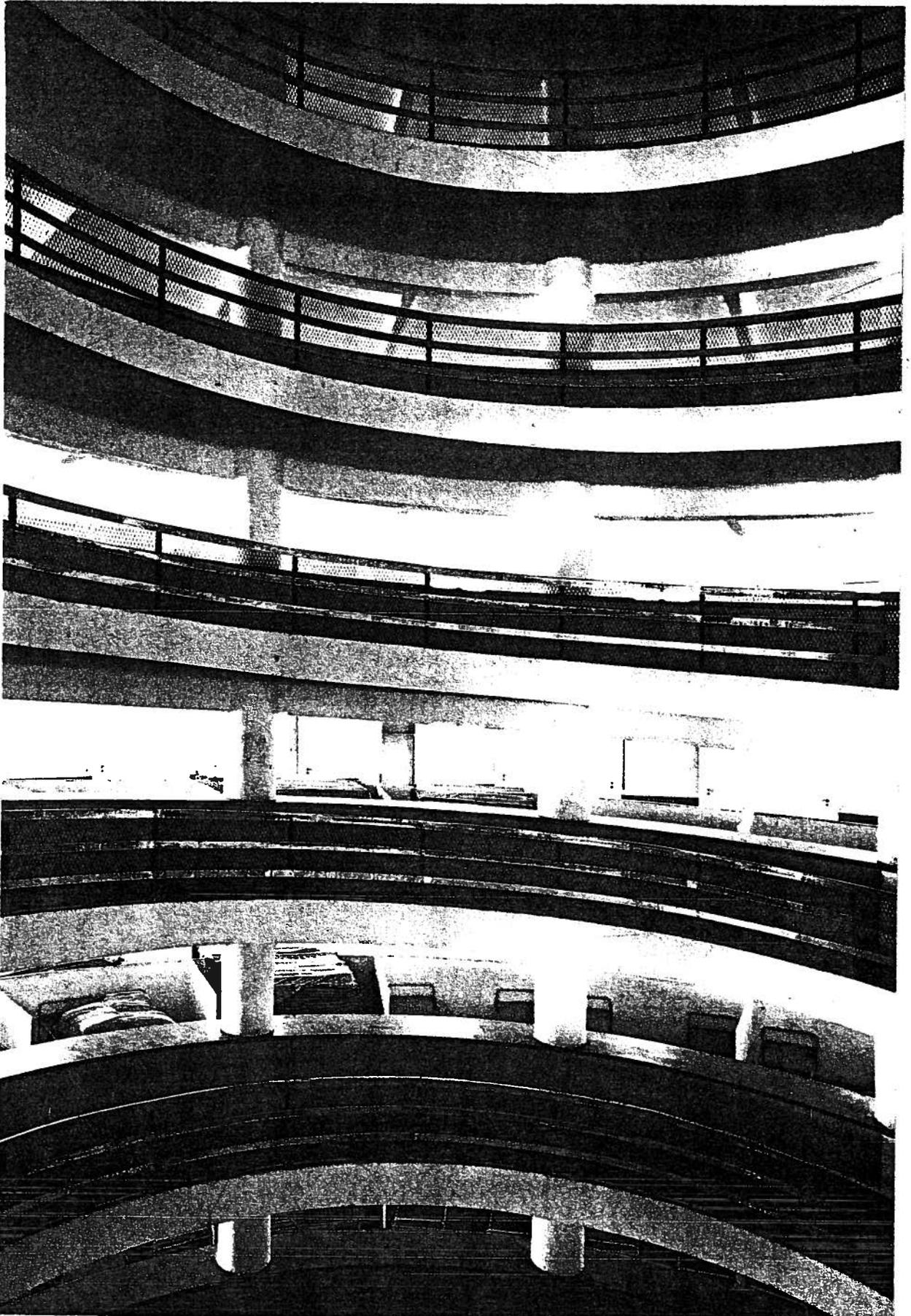


fig.31 Fiat Colonia Torre Balilla,
interior view looking onto railings at
edge of the central void with bed
arrangement in the background.

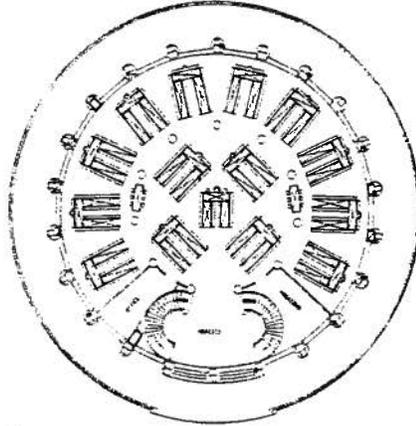


fig.32 Fiat Colonia Torre Balilla, plan showing bed arrangement in the sub-basement.

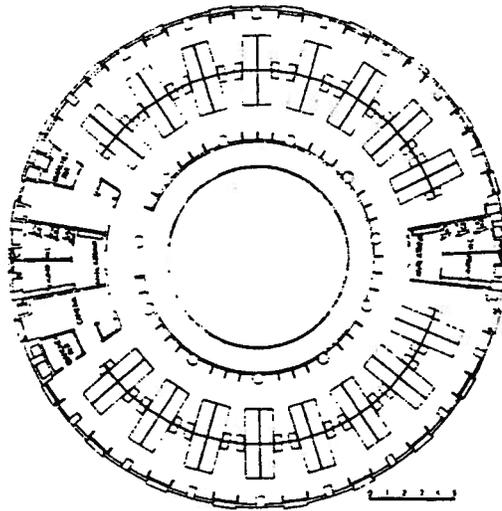


fig.33 Fiat Colonia Torre Balilla, plan and arrangement of beds on the tower ramp.

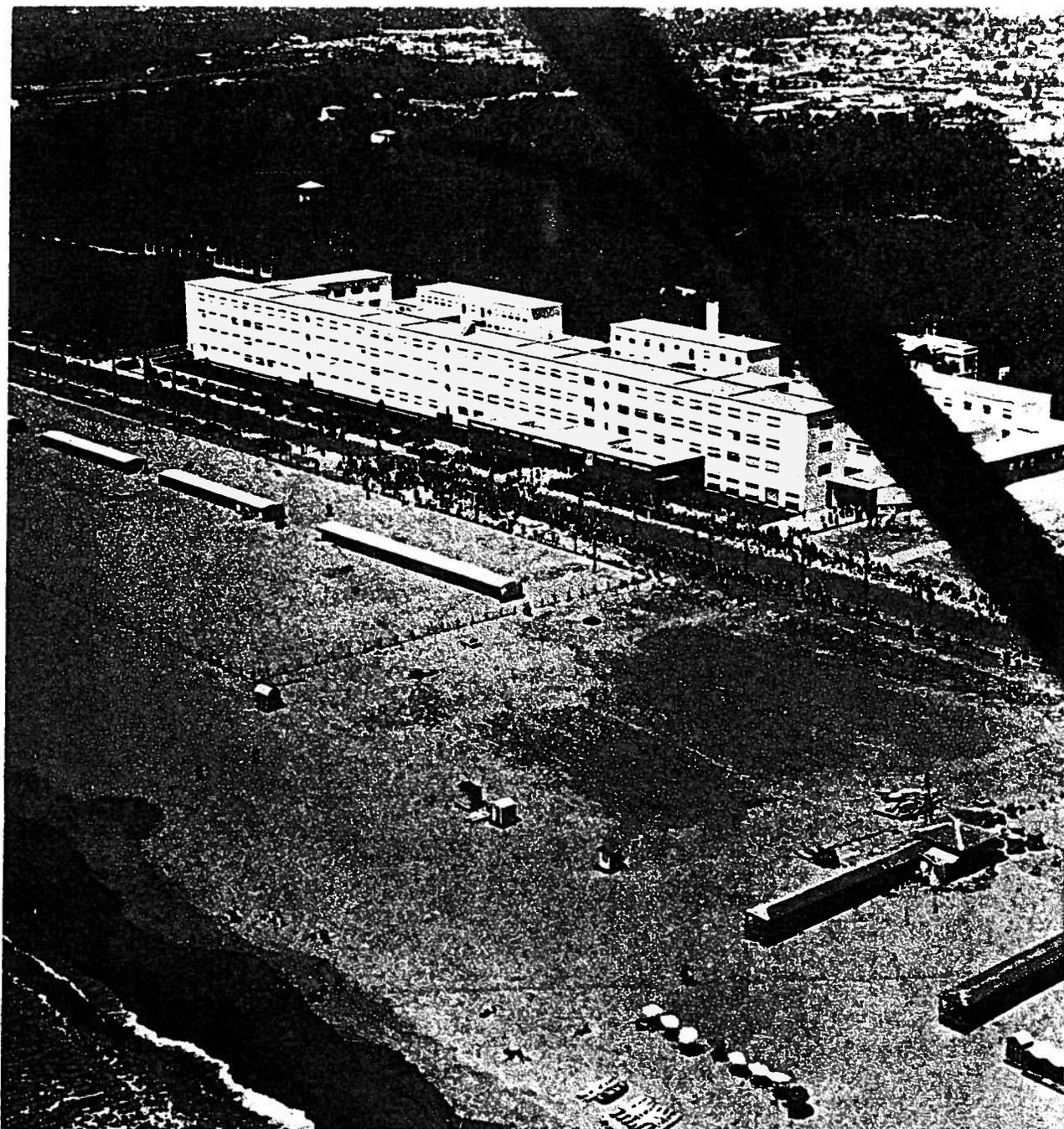


fig.34 Colonia Marina XXVIII Ottobre,
Marina di Massa, 1938, Ettore Sottsass and
Alfio Guitoli architects. Aerial view
showing site with beach in front and Viale
a Mare between.



fig.35 Colonia Marina, Chiavari, 1935,
Camillo Nardi-Greco architect.

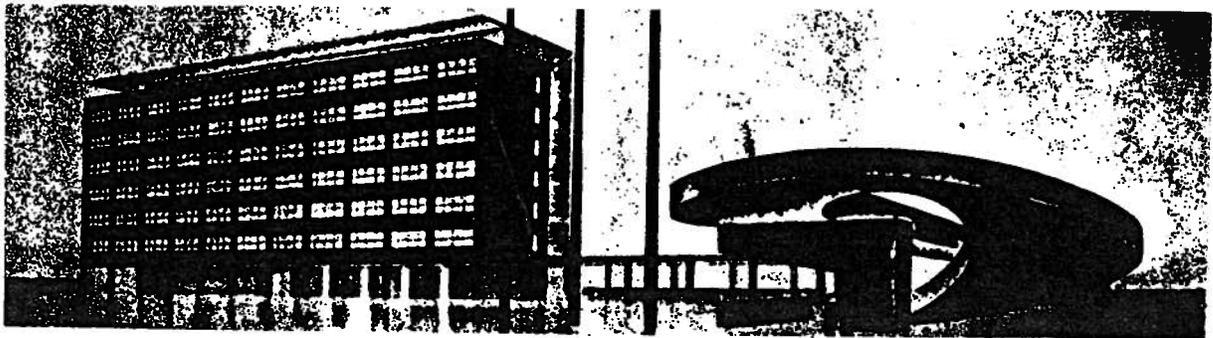


fig.36 Colonia Montecatini Competition
1936, Agnoldodomenico Pica architect,
project drawing.

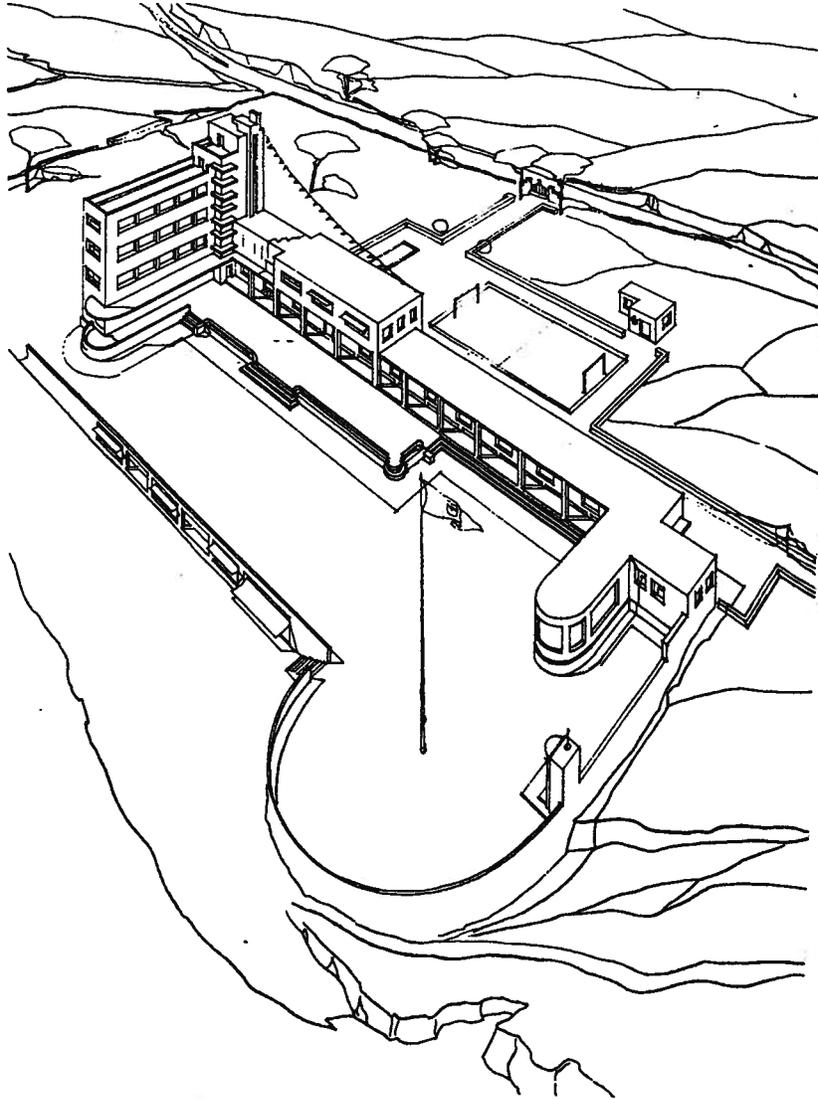


fig.37 Colonia Principi di Piemonte,
S. Severa, 1933, Luigi and Gaspare Lenzi
architects. Axonometric site drawing.

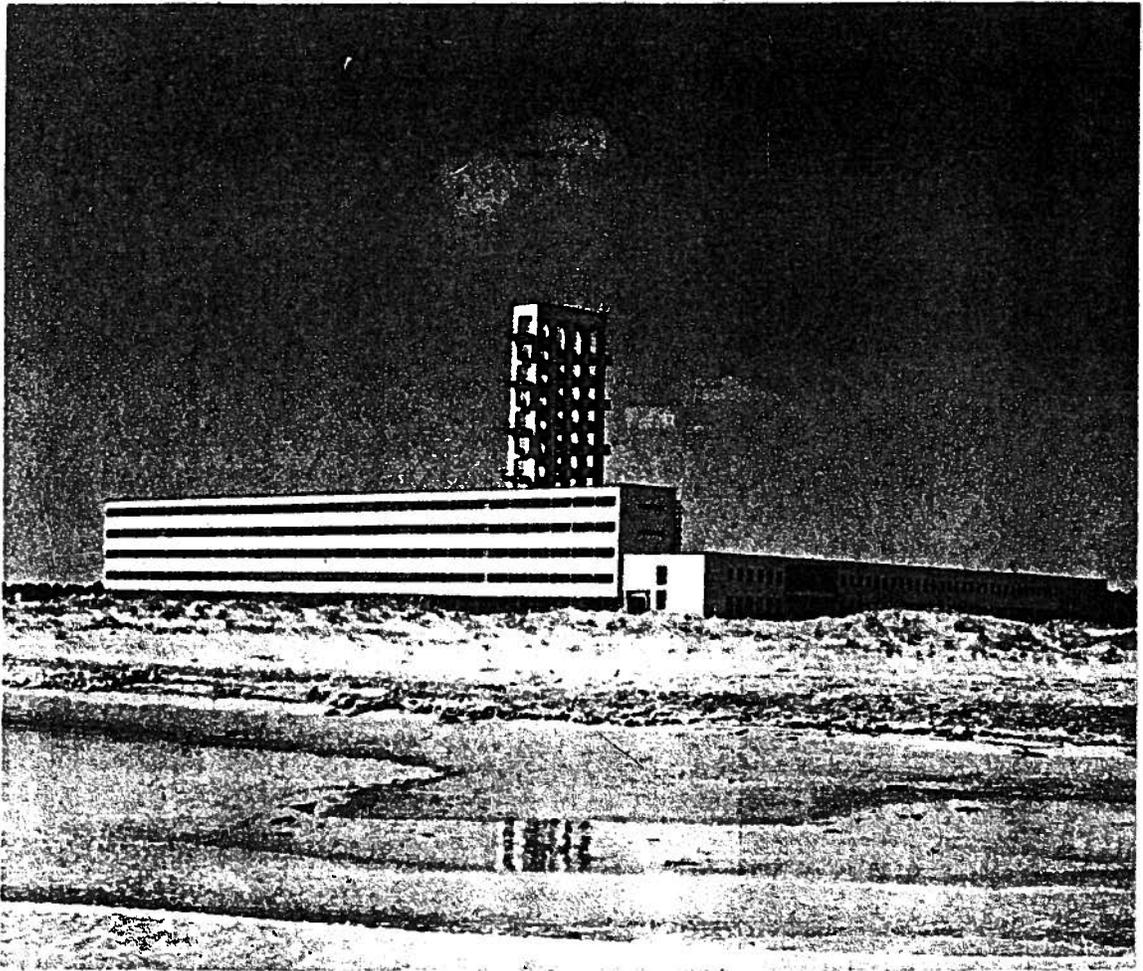


fig.38 Colonia Marina Montecatini, Cervia,
1938, Eugenio Faludi architect.



fig.39 Vittorio Bonade-Bottino,
architect/engineer, b. Turin 1889, d.Turin
1979.

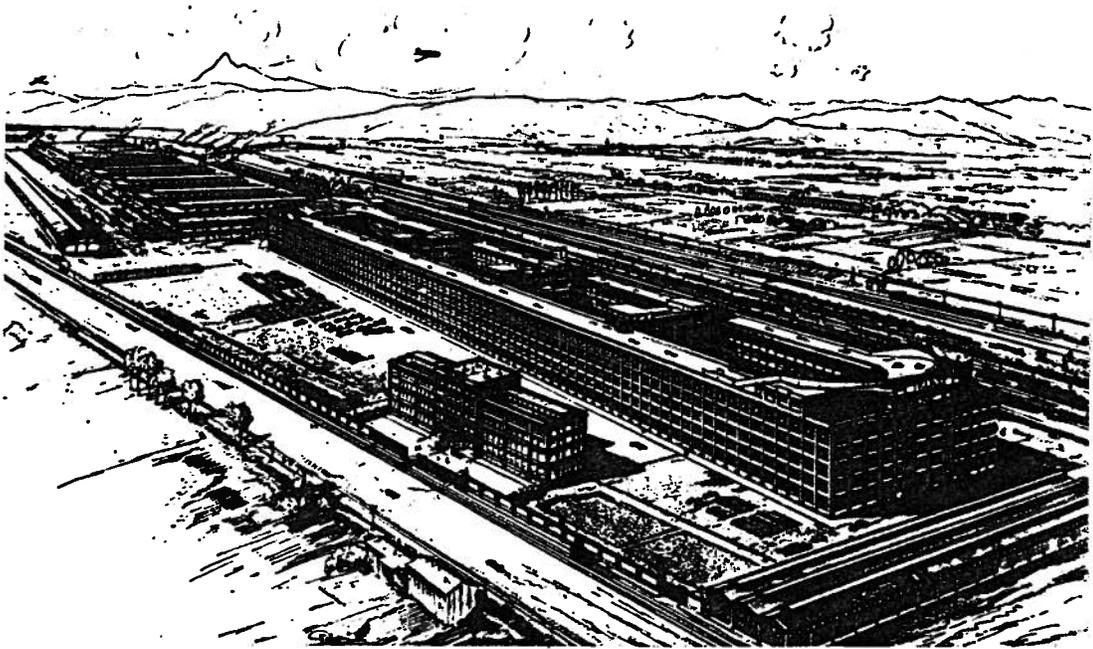


fig.40 Aerial drawing of Fiat Lingotto autoworks with rooftop track clearly visible, after 1926.



fig.41 1892: Lieutenant Giovanni Agnelli is third from left in the back in this Italian Cavalry "quadro storico".

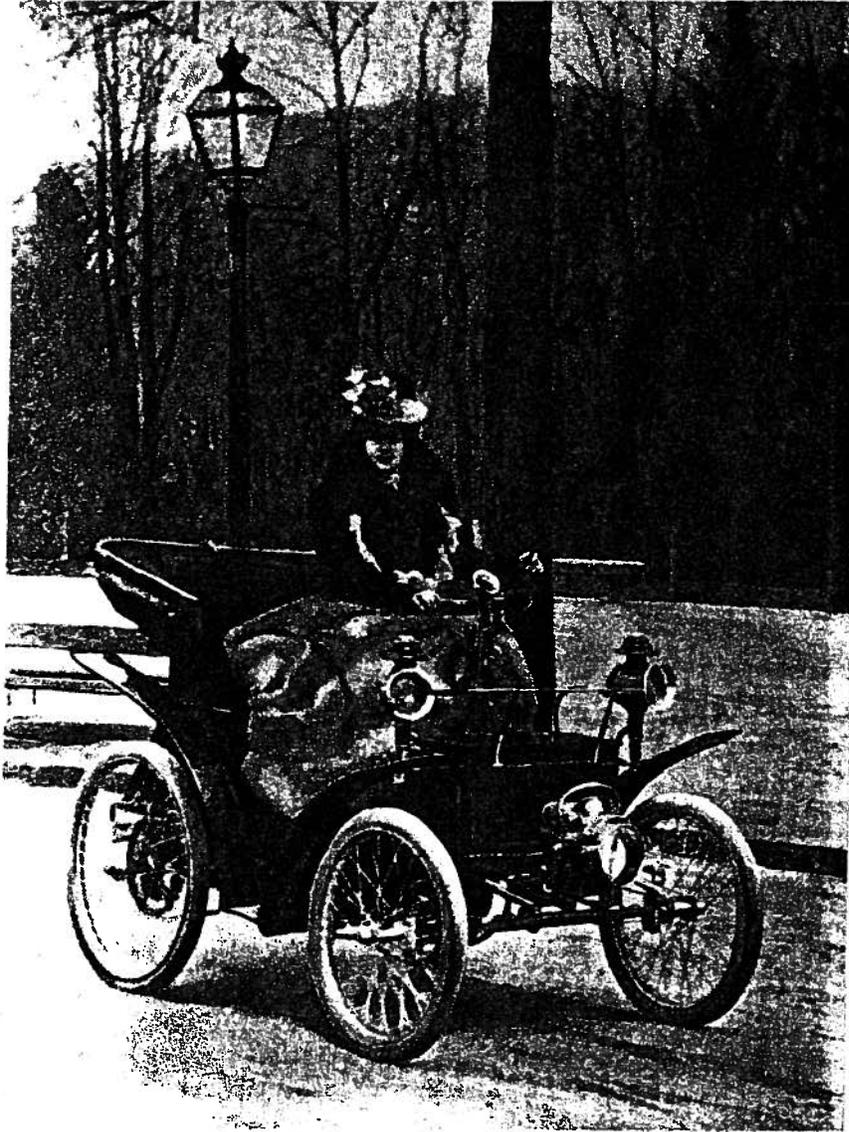


fig.42 1899: The first Fiat car produced, the "3½ H.P.". The driver is Tina de Lorenzo a well-known actress of the day.



fig.43 The Libyan war; attack on the Turkish fort at Ain-Zara.

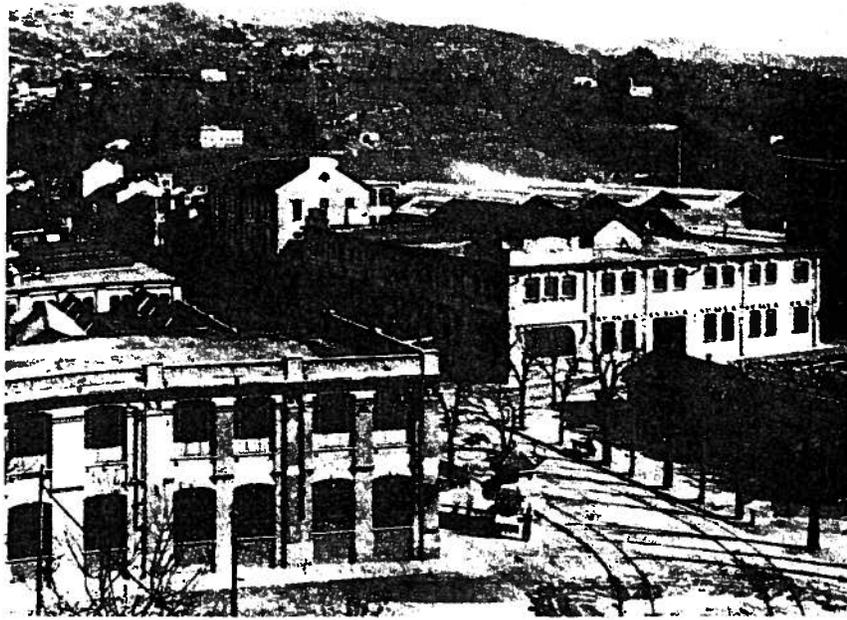


fig.44 The Fiat factories on Corso Dante in 1912, Turin.

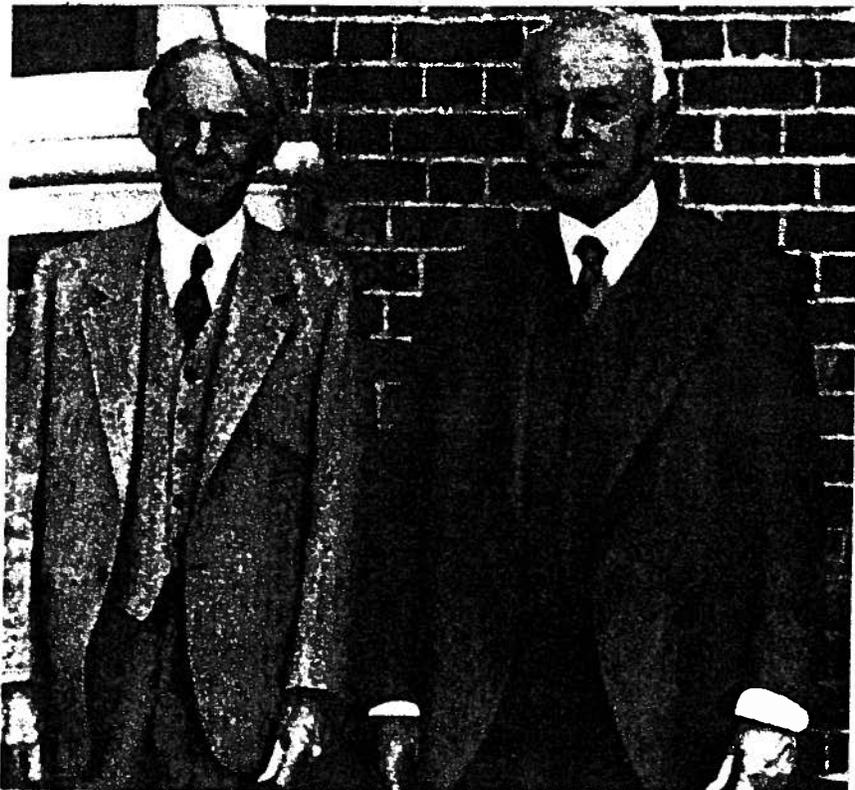


fig.45 Agnelli visiting Detroit with Henry Ford in 1928, with whom he had tremendous rapport.

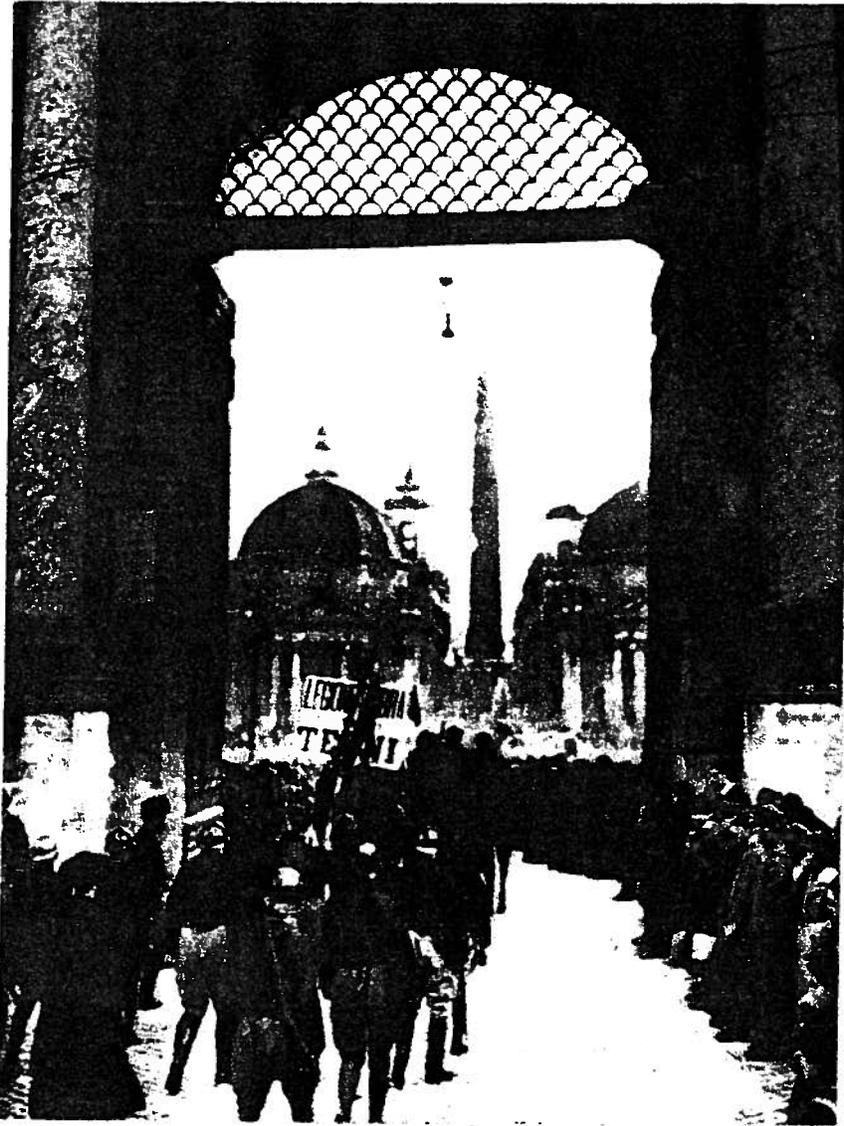


fig.46 October 1922, the Fascists Squadre enter Rome onto the Piazza del Popolo.



fig.47 Mussolini visiting Fiat Lingotto in 1932, with him is Senator Agnelli. Neither wears the black shirt.



fig.48 Giacomo Matte-Trucco,
architect/engineer designer of Lingotto,
in 1925.

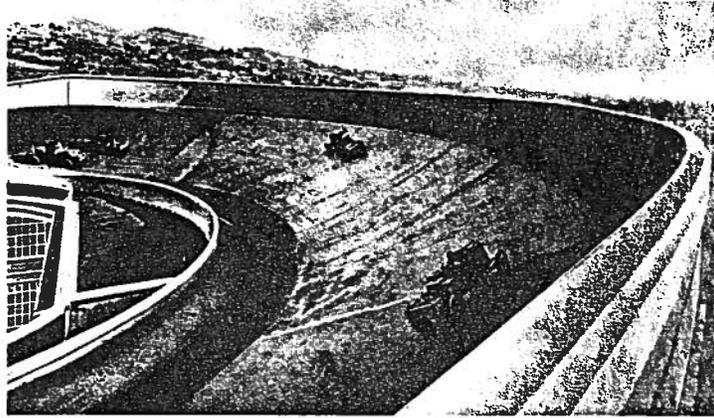


fig.49 Lingotto, 1922, chassis of the "505" being tested on the southern banking.

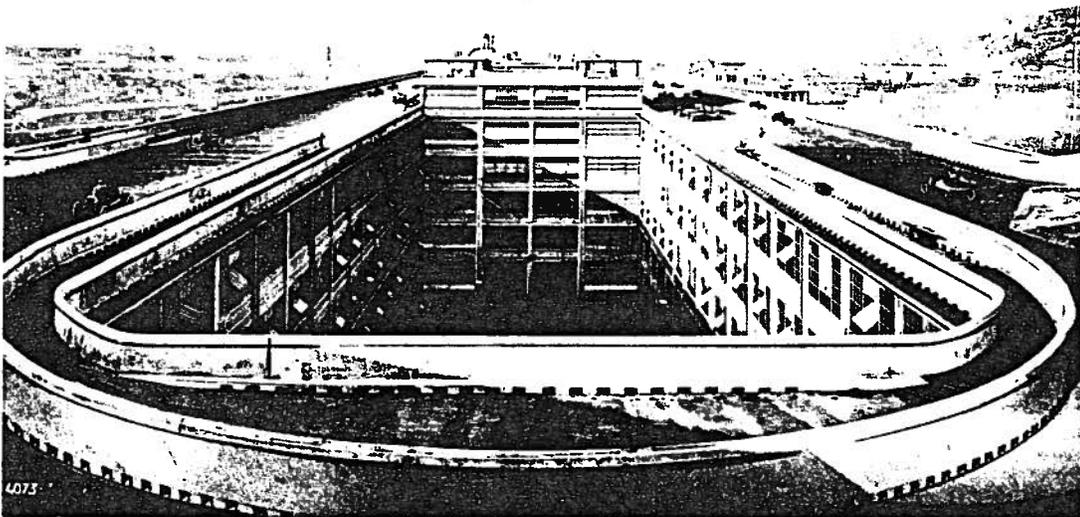


fig.50 Lingotto, first courtyard and view of the track, 1923.

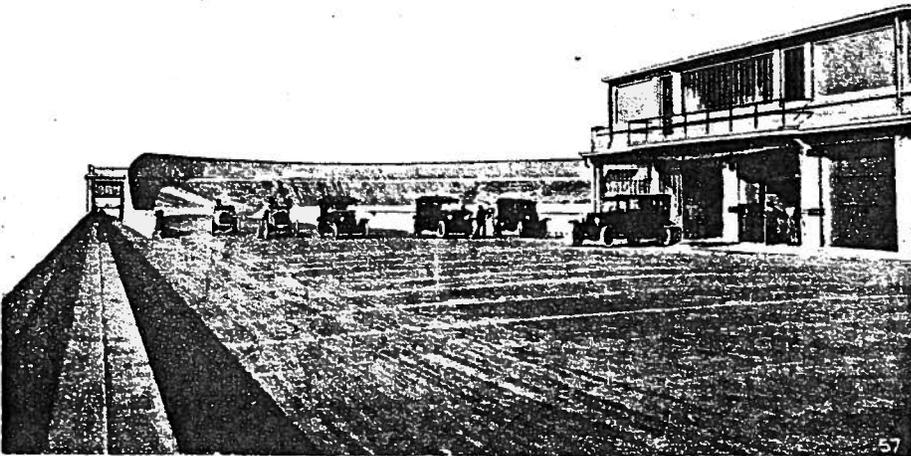
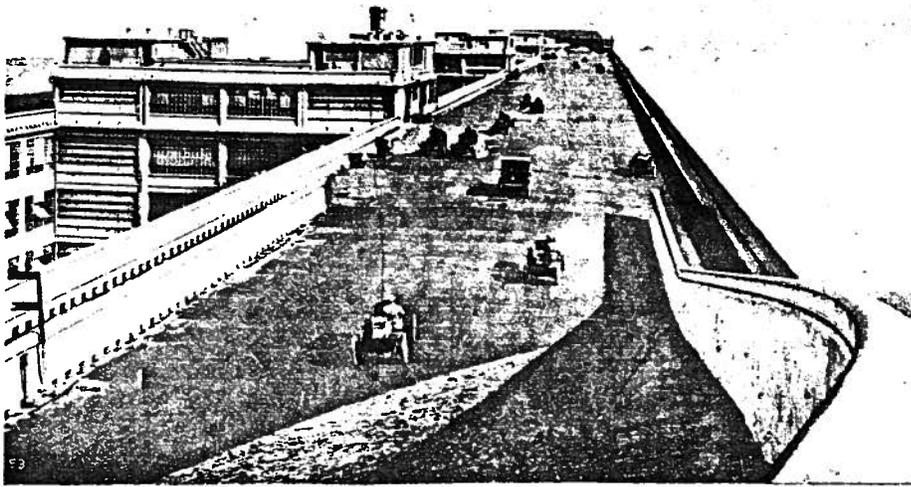
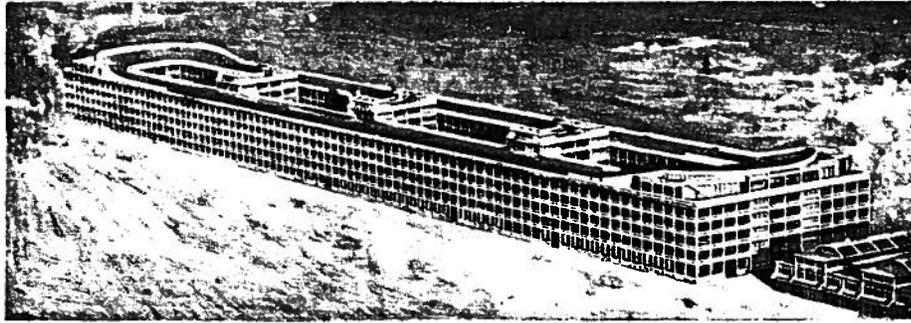


fig.51/52/53 "The Fiat workshops at Turin with the testing track on the roof." The three photographs included in Le Corbusier's *Vers Une Architecture*.

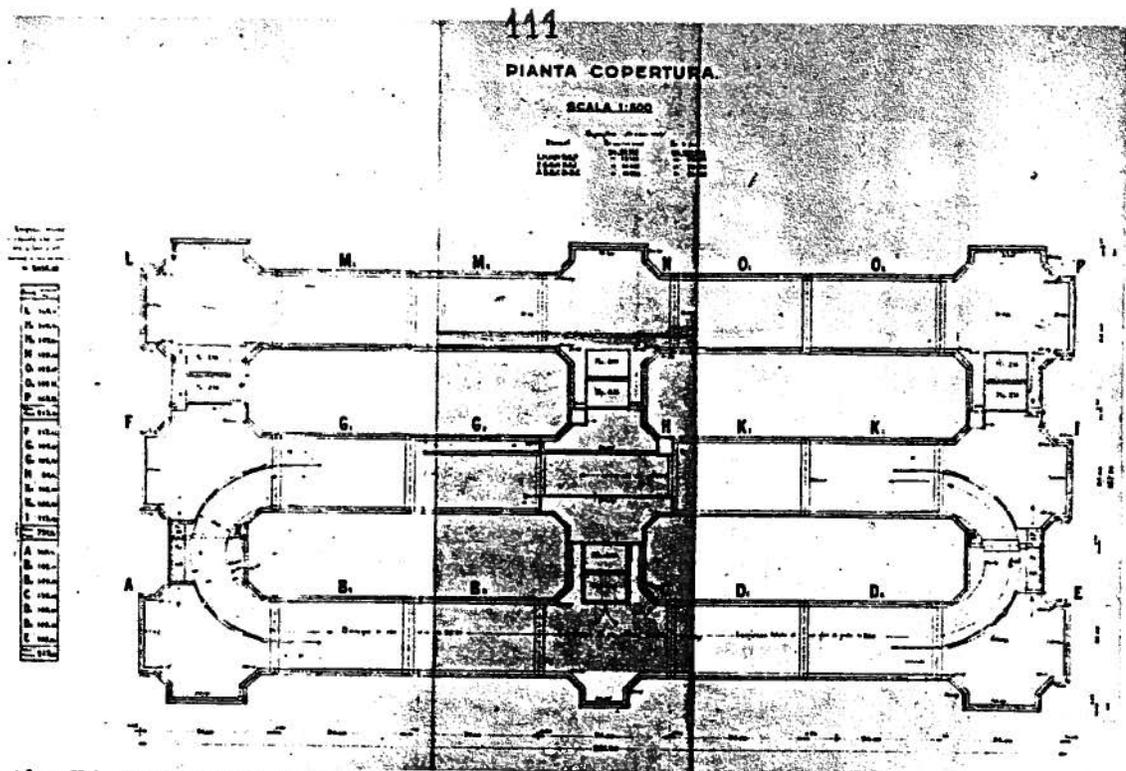


fig.54 Roof plan from the 1914 drawing.

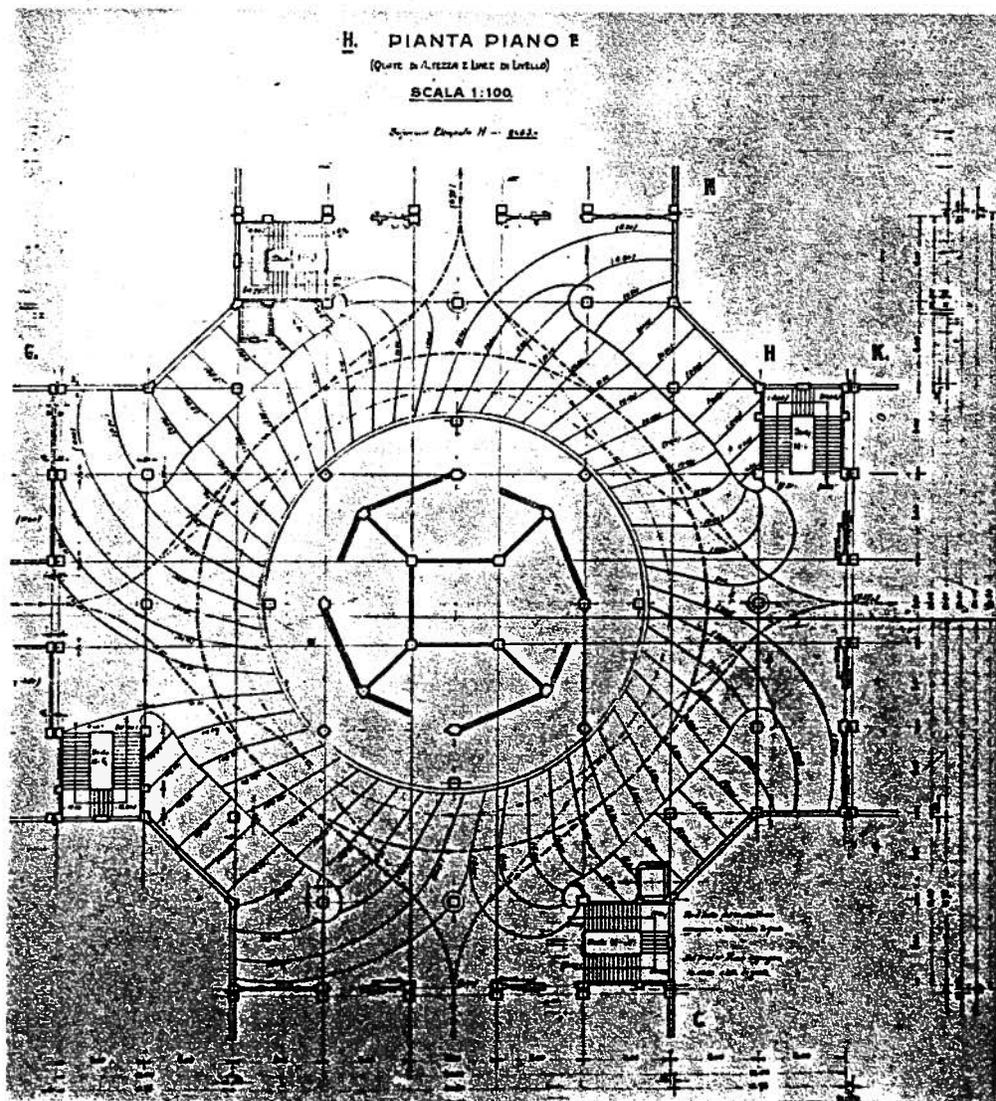


fig.55 Plan, "Element H" distribution ramp
1914 Lingotto drawings, scale 1:1500.

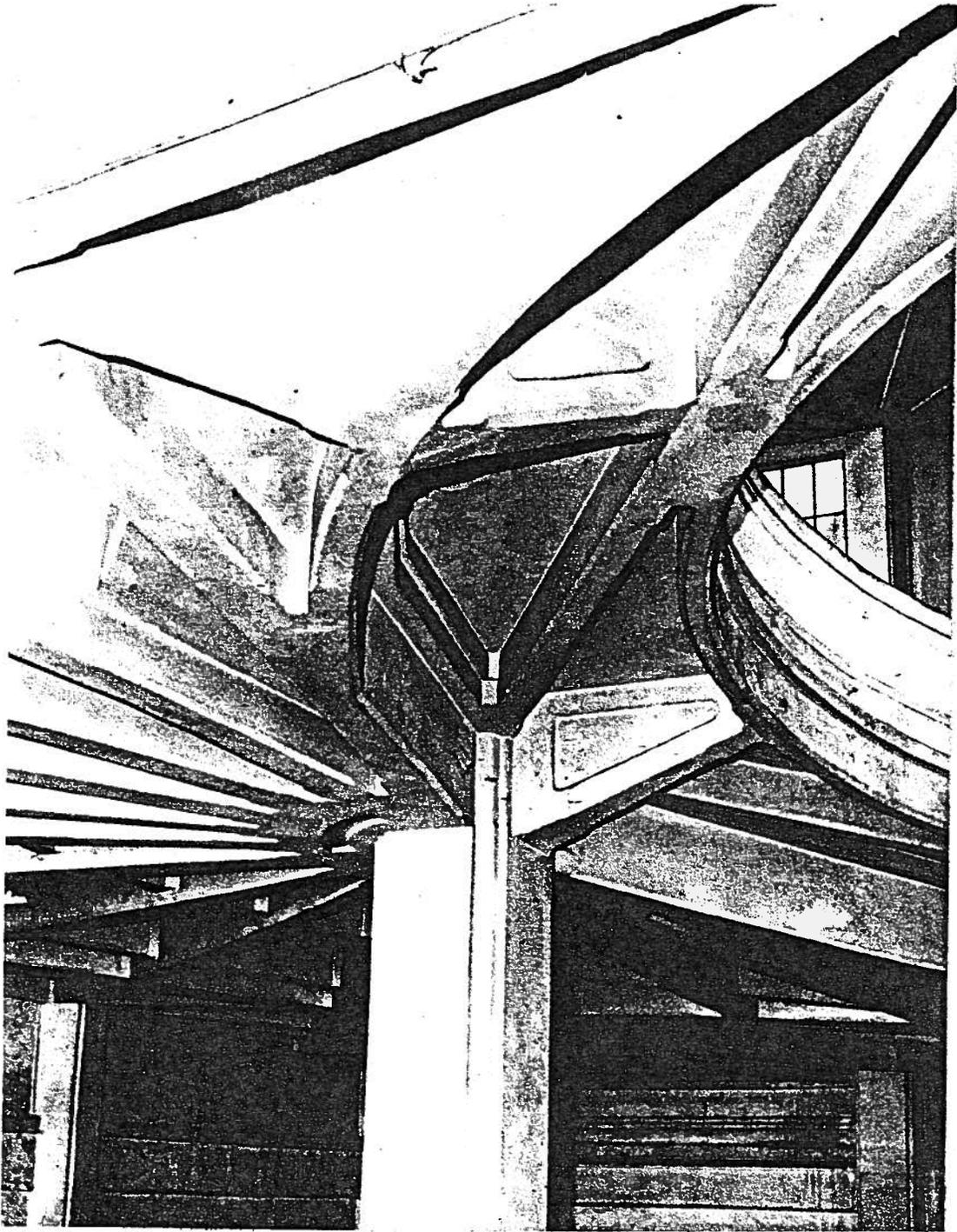


fig.56 Detail of 1925 ramp pilaster with fanned beams at Lingotto.

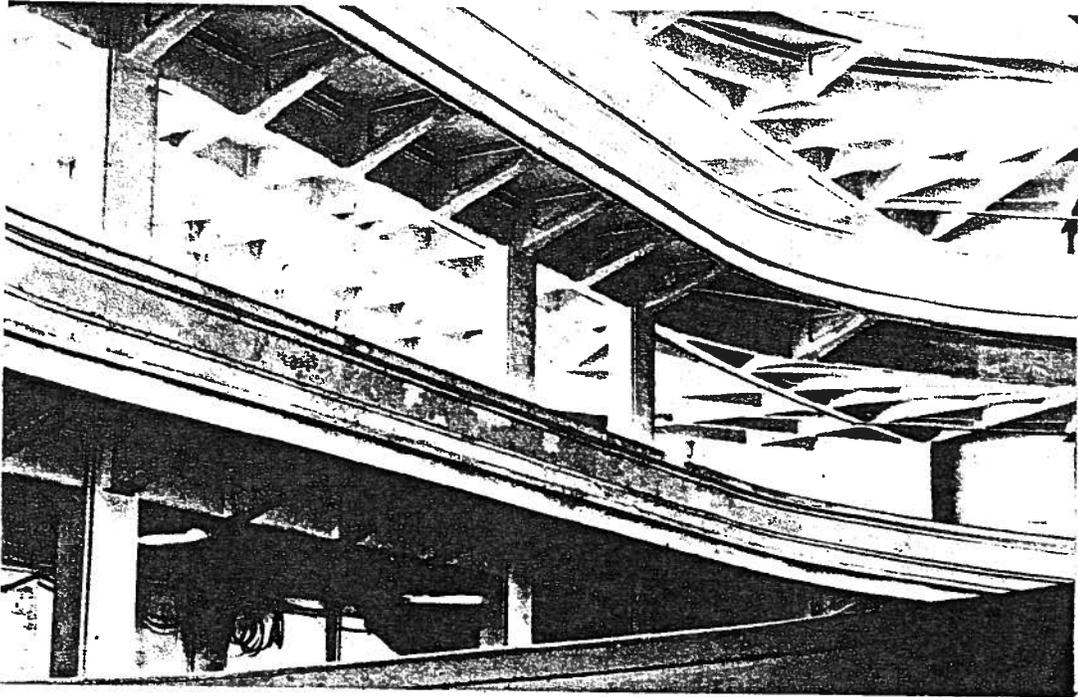
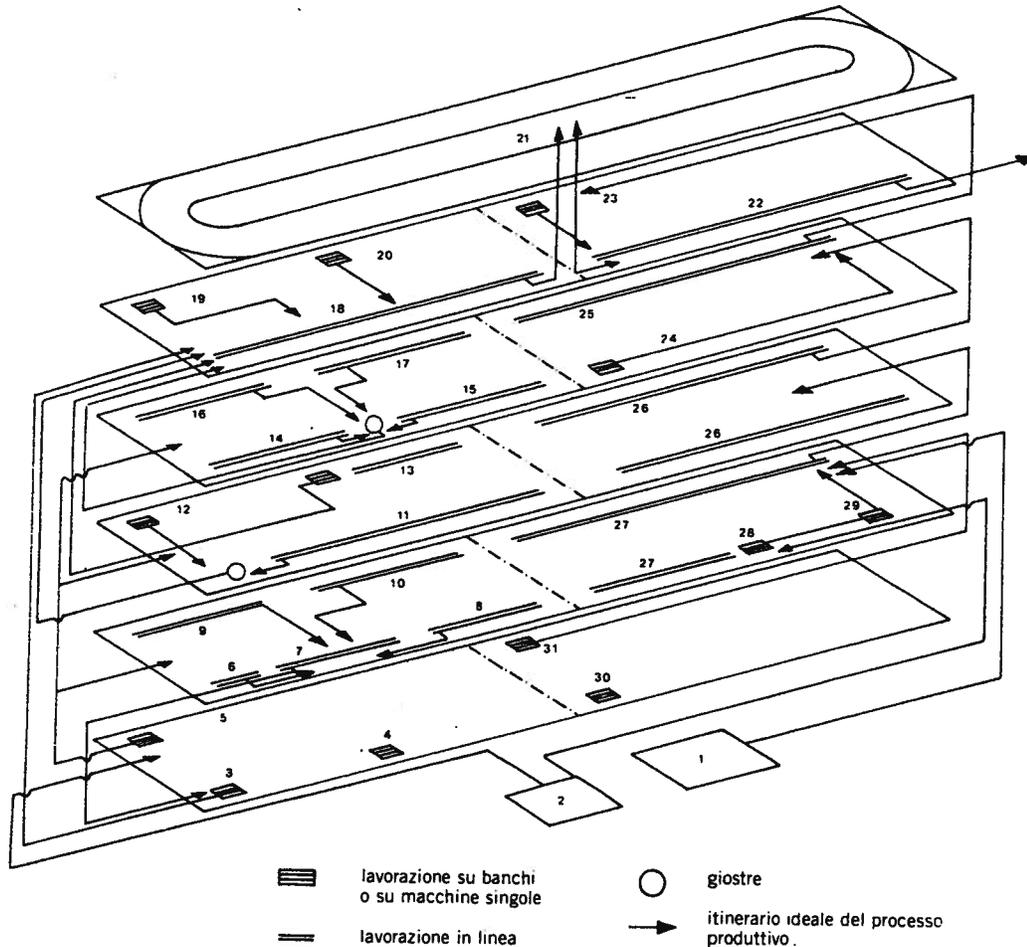


fig.57 View of the Southern ramp from the North interior.

fig.58 Organization of production at Lingotto, 1927-28. Production moves up from raw materials at bottom left up Southern Ramp to roof for chassis and motor testing and down Northern Ramp at right to finishing shops moving to ground.



- | | | | | | |
|----|--|----|--|----|--|
| 1 | Lavorazione legnami | 13 | Lavorazione e montaggio apparecchi elettrici | 22 | Carrozzeria, collaudo e finizione |
| 2 | Stampaggio | 14 | Lavorazione alberi e gruppi differenziali | 23 | Polmone scocche |
| 3 | Sala prova motori | 15 | Lavorazione e montaggio ponti posteriori | 24 | Preparazione selleria |
| 4 | Settore esperienza | 16 | Lavorazione freni | 25 | Sellatura |
| 5 | Prima lavorazione | 17 | Lavorazione e montaggio assi anteriori | 26 | Verniciatura |
| 6 | Lavorazione bielle, pistoni ecc. | 18 | Montaggio chássis | 27 | Lastratura |
| 7 | Montaggio motori | 19 | Lavorazione radiatori e serbatoi | 28 | Preparazione elementi metallici di carrozzeria |
| 8 | Lavorazione blocchi cilindri | 20 | Trattamenti galvanici | 29 | Verniciatura a fuoco |
| 9 | Lavorazione alberi a gomito | 21 | Pista di prova | 30 | Utensileria e calibri |
| 10 | Lavorazione alberi a camme, valvole ecc. | | | 31 | Lavorazioni meccaniche di carrozzeria |
| 11 | Lavorazione alberi, guide, frizioni | | | | |
| 12 | Lavorazione ingranaggi | | | | |

(da: Duccio Bigazzi,
Gli operai della catena di montaggio,
la Fiat 1922-1943, Milano, 1980)

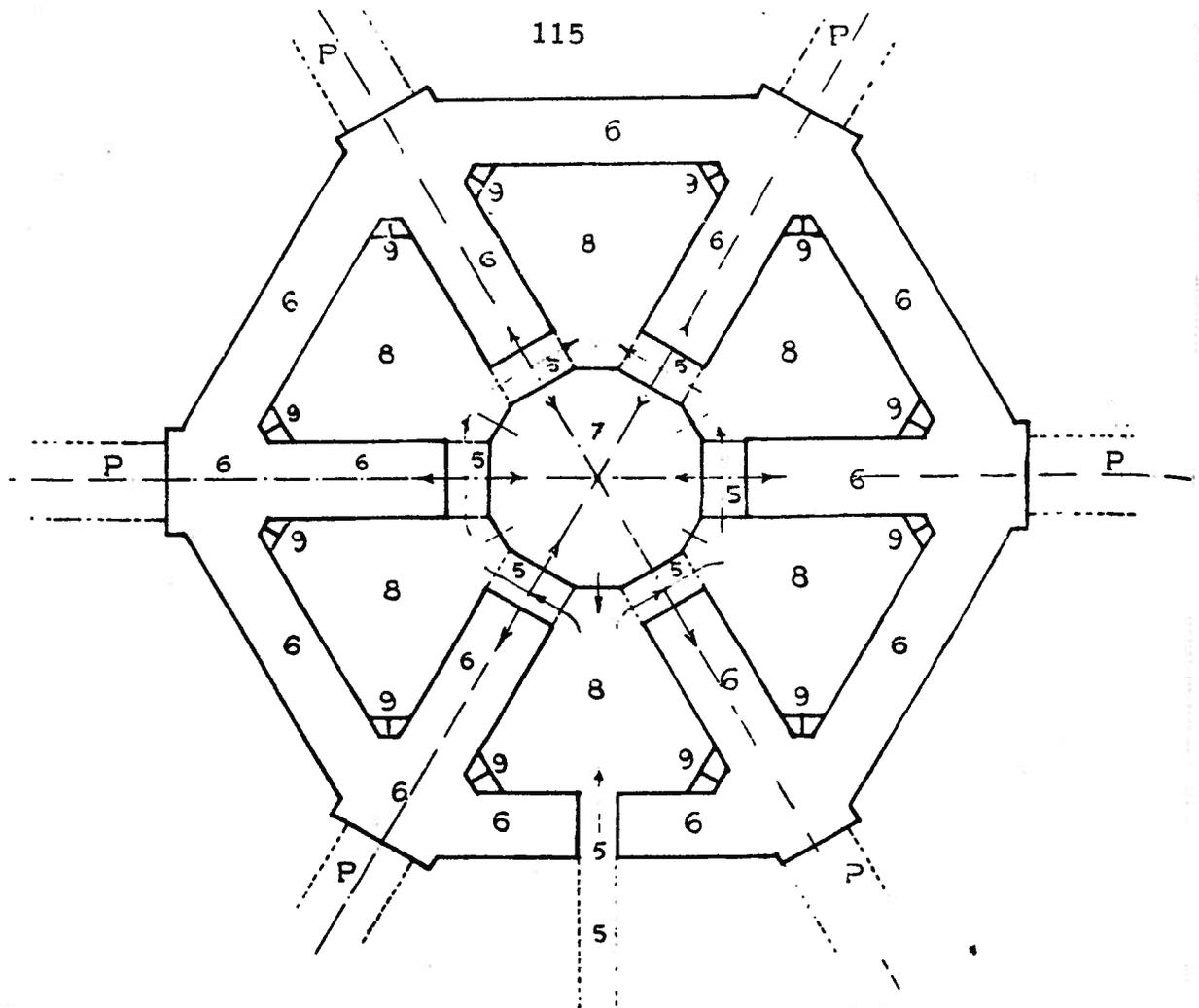


fig.59 Bonicelli's "Wheel System" for factory production with a central distribution node.

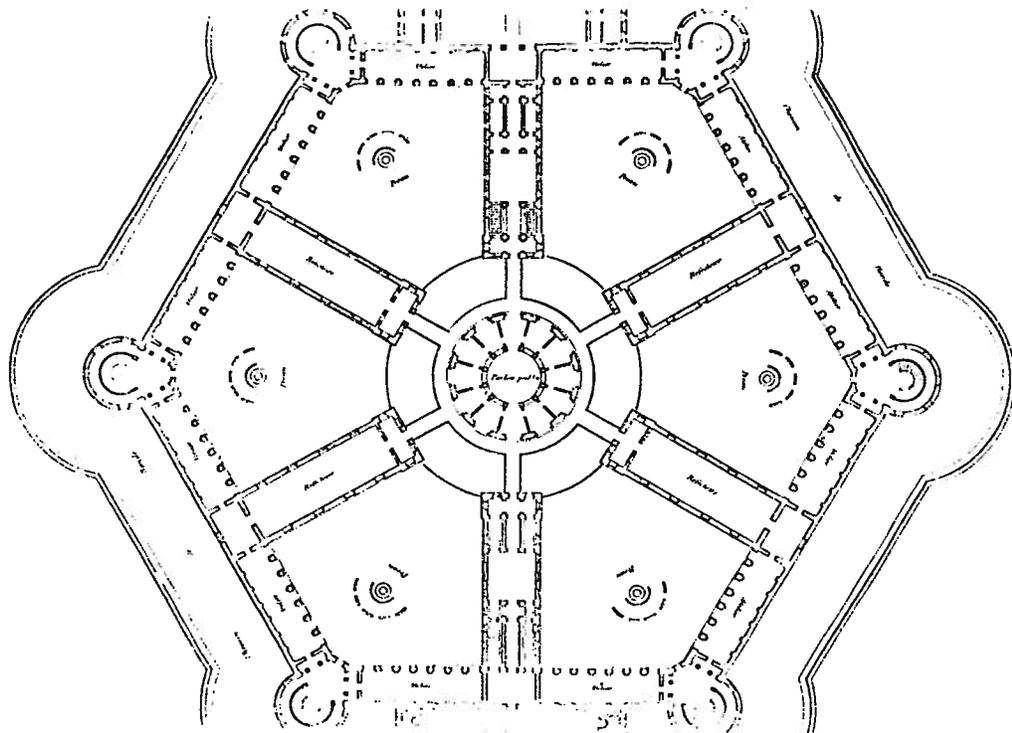
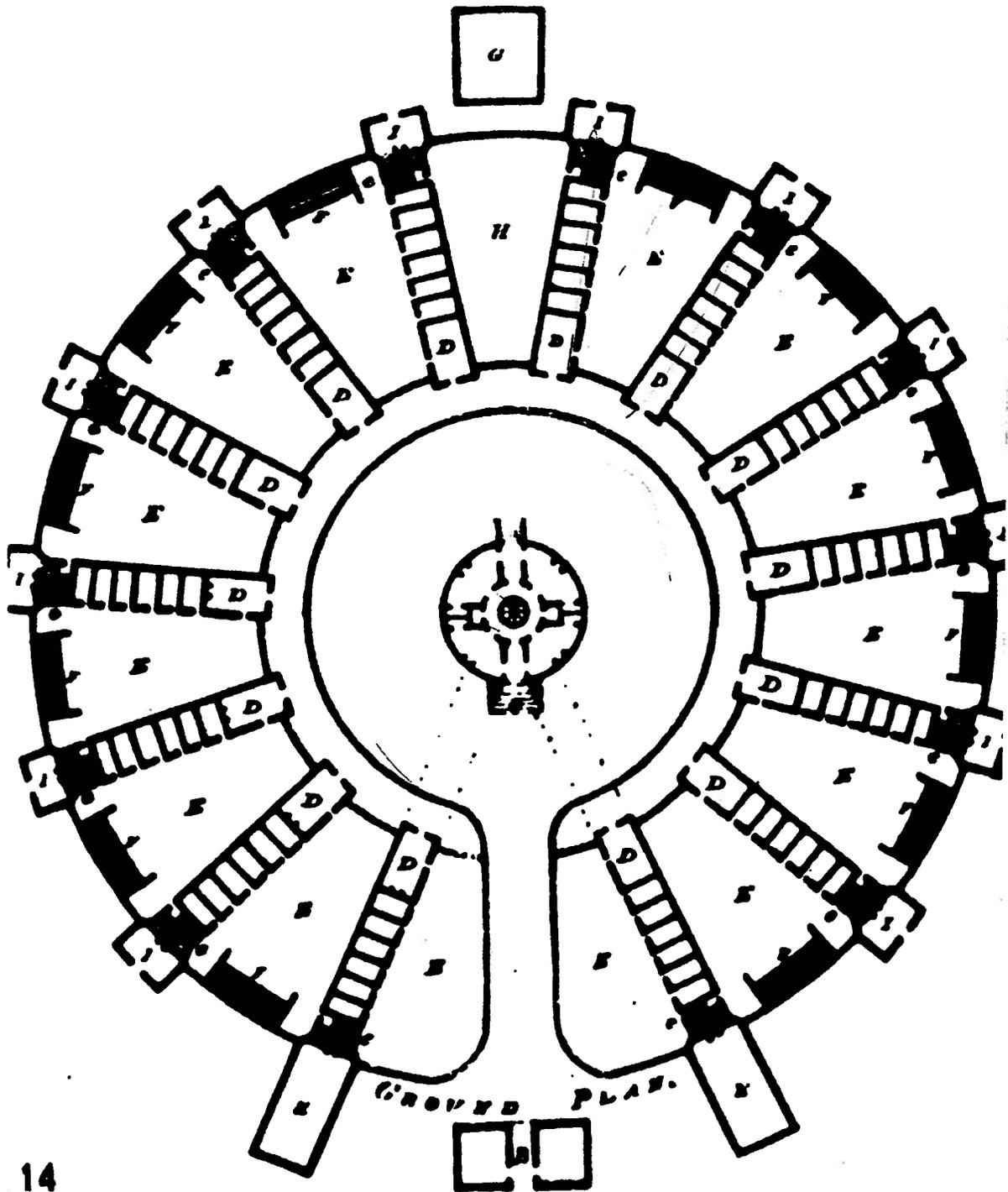


fig.60 Baltard's "Prison Design" from 1829
Architectonographie, plan.



14

fig.61 William Cubitt's "Radial Prison Plan", 1824, plan.

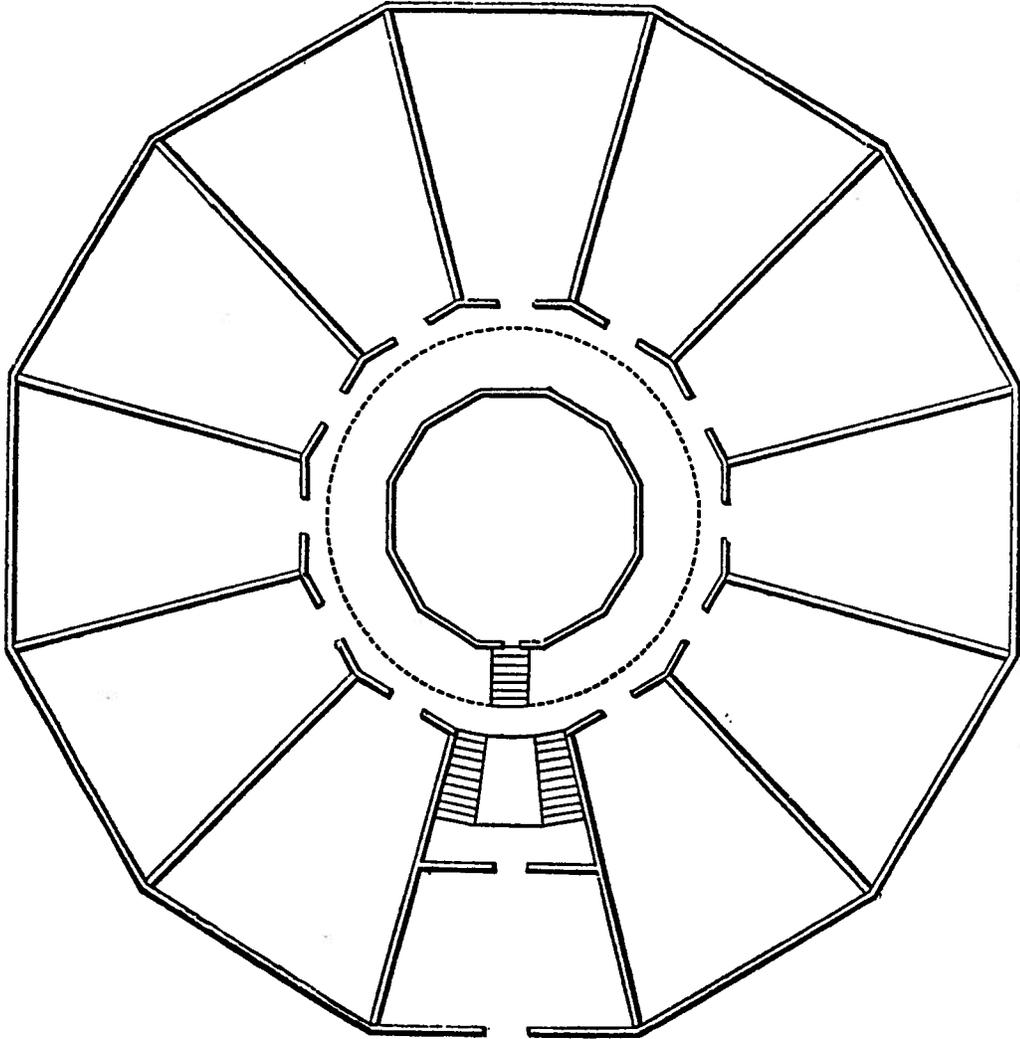


fig.62 Jeremy Bentham's "Panopticon Prison", plan, 1791.

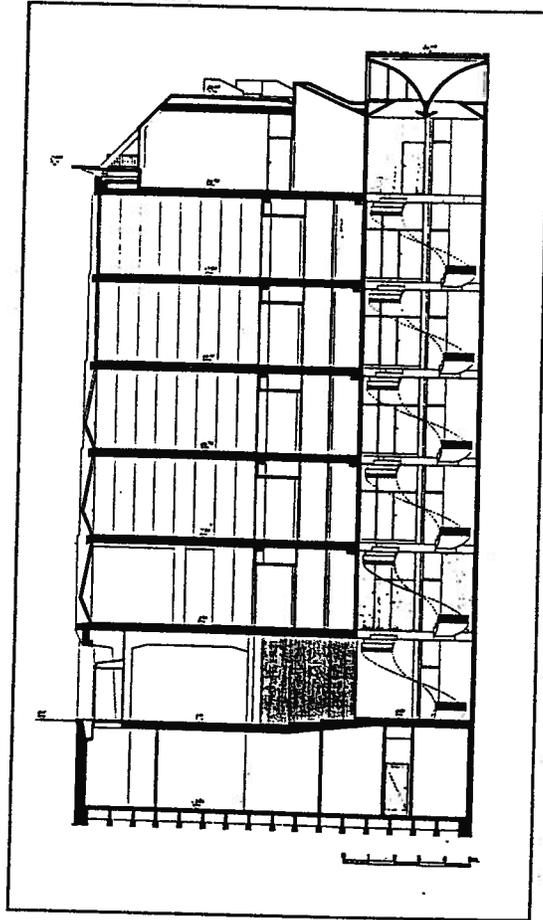


fig.63 Franco Albini, INA Office Building, Parma, 1950-4. Section showing the use of an uninterrupted ramp device at the back of the building.

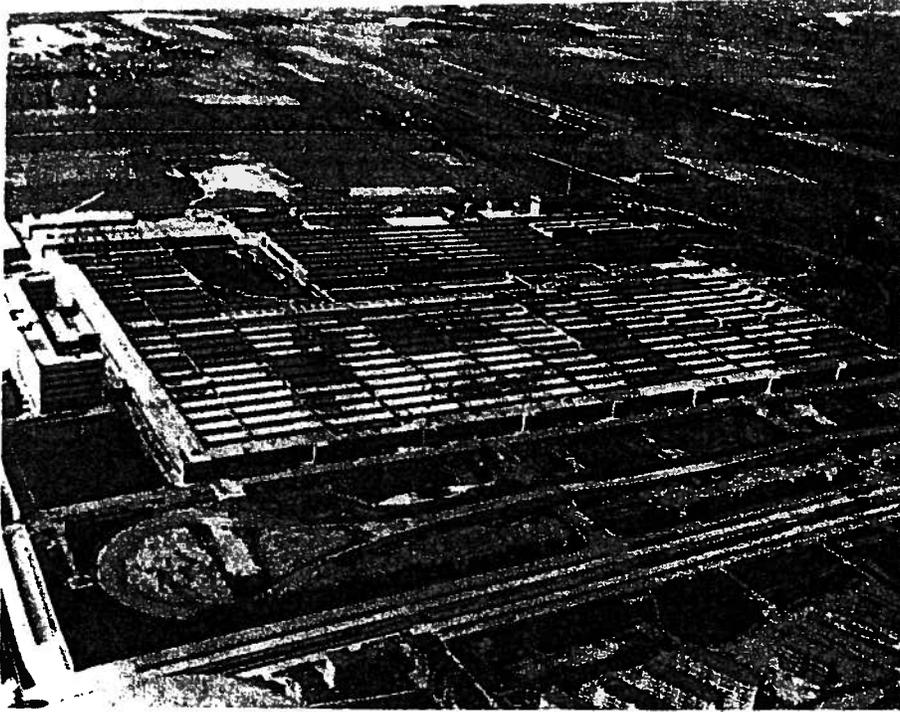


fig.64 Fiat Mirafiori, 1939.

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ENDNOTES**Introduction**

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