communication, privacy and productivity.

National College of Art and Design

"COMMUNICATION, PRIVACY AND PRODUCTIVITY."

(a history of office design and planning.)

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by

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Inside Plate: The state of popular contemporary office
design.An office system by Project Office.
Furniture,Suffolk,England.

Contents

Introduction

"A leap from the essentially man to man relationship of
the nineteenth century to swollen clerical hierarchies
which the typewriter, postal system and telegraph made
possible and the steam and internal combustion engine
made necessary is eclipsed by the potential of
cybernectics and audio – visual communications (2).

Office — a word whose only meaning once was that of
defining a task or duty e.g. Foreign Office or Holy
Office; the task being greater than the men who performed
them. Now, it has aquired other meaning, from the
dictionary — a place of business, a building or room
where clerical and administrative work is done. In German
it is "ein Amt" literally meaning a vacancy. But to me
'Office' conjures up inanimate buildings with rows of
windows which engulf societies liquorice allsorts
workers, turning them into nameless cogs of supposed
effecient operations. An office is not just a vacancy
or cannot be summed up as contritely as a place of
business. It is the place where most people spend more
time than anywhere else except maybe asleep in bed.
The office can determine moods, temperaments, efficiency
and effective human communication. Offices introduce
people who might otherwise not have met. In effect it
is a second "home" for our worker families. The office
family have to perform various tasks which should be
carried out with minimum fuss and maximum harmony,
efficiency and effect. Domestic families put a lot of

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thought and care into planning their homes and
similarly the office has gone through teething trouble
to result (in most cases) in a lot of care and
planning going into contemporary office design.

It is commonly assumed that the office was a concept
originating in the mid nineteenth century, but if one
considers the various functions of the office one could
say the office started wat back in medieval times. The
building in question — cathedrals, yes ... more went
on in cathedrals and bascillicas than adoration of God.

The function of the medieval church can be compared with
the co — ordination of an enormous amount of goods
inwards, filing and despatch accounts department. The
aisles of such churches were the central meeting place
for throngs of business men. The survival of the aisled
form of the cathedral in various guises shows how much
of an influence cathedral business had on further office
development — the concept of the central large — span
space, the clerestory lit and serving generalised
clerking functions with subsidary, specialised uses
strung along. The aisles reappears in many subsequent
specifically office function buildings. Banking formed
one of the earliest secular uses for ecclesiastical
buildings. While as yet in London there was no real
task appreciation, all that was required was a central
place for dealing and surrounding shelter areas for
office type activities — "of later times payment
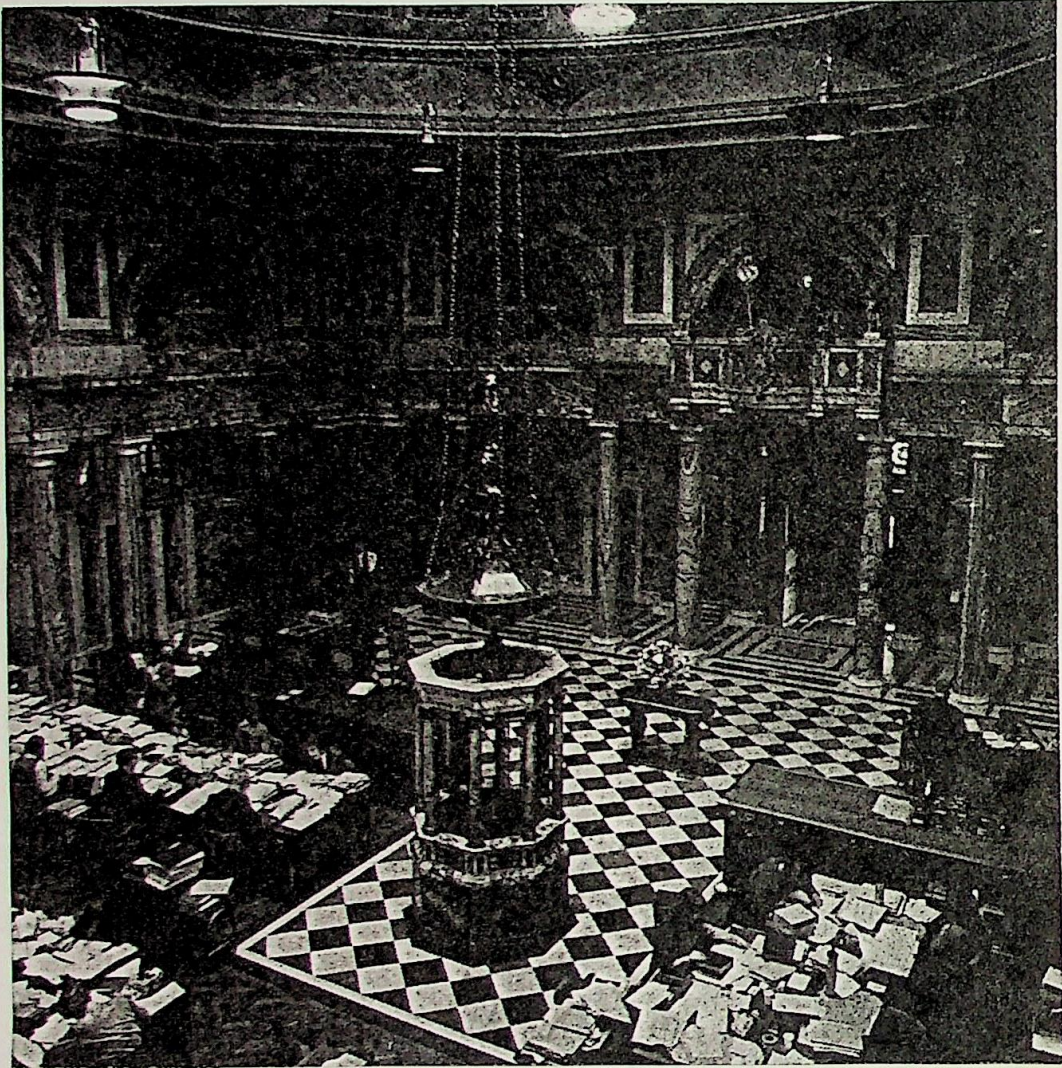
Office layout similar to that
of Basilica plans - central
large-span space with the
Clerestory Lit and Serving
generalized functions.

(tendering, making of payments by debtors and their creditors) were more usually made at the font of St. Paul's Church and now commonly at the Royal Exchange" (stow 1598) (7). The fact that business began to be transferred to the Royal Exchange shows the evolution of the necessity for specialised planning. This greater specialisation produced the Corn Exchange and the Stock Exchange, the Gresham Exchange and the coal and wood exchange, yet in essence these new offices retained the basilica plan with only minor modifications.

Palaces, aswell as basilicas provided basic blueprints for some further office development. The law profession carrying this trend through. The office of the government was centred around Westminster Palace. The process of direct petition to the Crown for the redress of grieviences made Westminster Great Hall an ideal venue for the growing legal trade which used the large enclosure as s ready made space for carrying on the business of advocacy. In time the legal functions of the palace of Westminster expanded by a process of accretion, gathering up new and progressivly specialised spaces to match the demands made by new functions, By 1824 Sir John Sloane had rebuilt the seven courts of law around Westminister Hall, yet by 1832 proposals were already in hand for the bodily removal of the courts from Westminister. Eventually the law courts did move to the Strand in the 1880's, but still George Edward Streets building remained remarkably faithful to the old Westminister context -- an enormous vaulted hall

Offices based on great parliamentary
court halls...Port Sunlight,
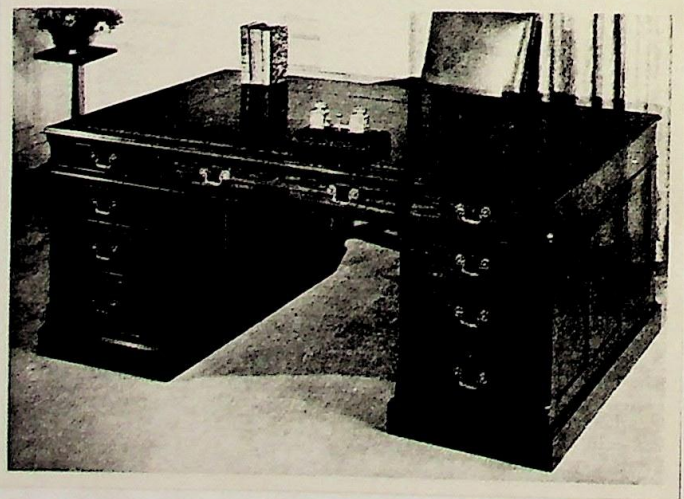Designed By Lever Brothers (1888).

Figured Pedestal
Desk by Wood and
Hogan.
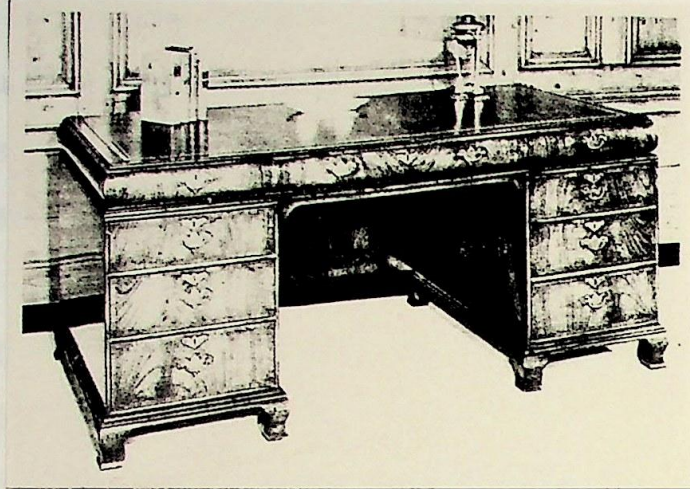
Federal style Desk
with Stationary
Boxes by Kittenger.

Counting House Partner's
Desk by Wood and Hogan.

surrounded by specialist court and office areas.
Streets design was not a special case either, of eleven
architects chosen to submit designs, all save a few used
this basic plan form as the generator for their designs.
One design — that of Waterhouse, has a semicircular
roof of iron and glass ... does it sound like some
other familiar building —The Crystal Palace ?

Specific office building was not the norm at the dawn
of the Industrial Revolution in the second half of the
eighteenth century. Office space as it existed was
contained within royal households and merchants and
artisan residences. Production was limited to men and
their primitive machines and distribution was restricted
by barriers to transportation, communication and free
trade Business administration was a relatively
uncomplicated activity. When inventors and entrepreneurs
such as Wedgewood, Boulton and Watt built factories,
it was still possible to find room for the office
behind the machinery and the toiling labourers, a
pattern that persisted well into the nineteenth century.
The need to invent and practise more proficient
techniques of mass production kept management
preoccupied with the factory at first.

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" An understanding of the way in which radical
improvements in environmental technology came about
requires a knowledge, not only of the mechanical
opportunities and cultural advantage of the improvers
and inventors, but also of the atmosphere in which they
worked. The word 'atmosphere' is to be read literally.
Whatever complaints may circulate today about air
pollution, as about traffic congestion, we tend to
forget that there is ample evidence that both were
conspicuous evils of the nineteenth century urban scene.
Our common mid twentieth century habit of blaming both
on the automobile, like the nineteenth century habit
of blaming on the railways, the factory system, or other
fashionable evils, ignore the fact that the root causes
are simply the crowding of men together into restricted
spaces. " (2)

The working and living conditions of people in the
first half of nineteenth century urban environment
were of such standards that one author was promted to
call it the " dark satanic century " (2).
It was a case of the more workers the merrier crammed
into available working spaces in order to improve
so called work effeciency, but which only resulted in
total unhygenic situations and hughe sanitary and
ventilation problems. Factories (which incorporated
many of the offices of that period) could be paralled
to mines as far as space planning or safeguarding of

health was regarded. These conditions led to a large
need for radical thinking about ventilation and
heating systems. Up to this, where ventilation was
concerned architects included an occasional air brick
called a ' ventilator ', which to them solved any
ventilation problem just like they thought opening and
closing a window would. Such were the failures of
architects in solving these problems that medical
practitioners (who considered themselves more
suitably qualified in hygene aspects than the
architects) took it upon themselves to propose
designs which included ventilation and heating systems.
Two such men were Dr. Drysdale and Dr. Hayward.
Both built houses around 1860 (see illustrations).
To have gained a draughtless air — supply, free from
the common dusts and grits of urban atmosphere would
have appeared a major gain in environmental management
at the time, particularily when it is seen against a
background of the going state of environmental
knowledge and practise.

Engineers at that time, when attending to problems of
stuffiness and sickly odours versus fresh air relied
on the evidence of their own noses!! This meant that
while the problem was easily identifiable the solution
still evaded the masses. For a long time ventilation
technology had to make do with Dr. Hayward's kit of
parts. This system of incorporating giant ducts into
buildings was often to the detrement of aesthic design
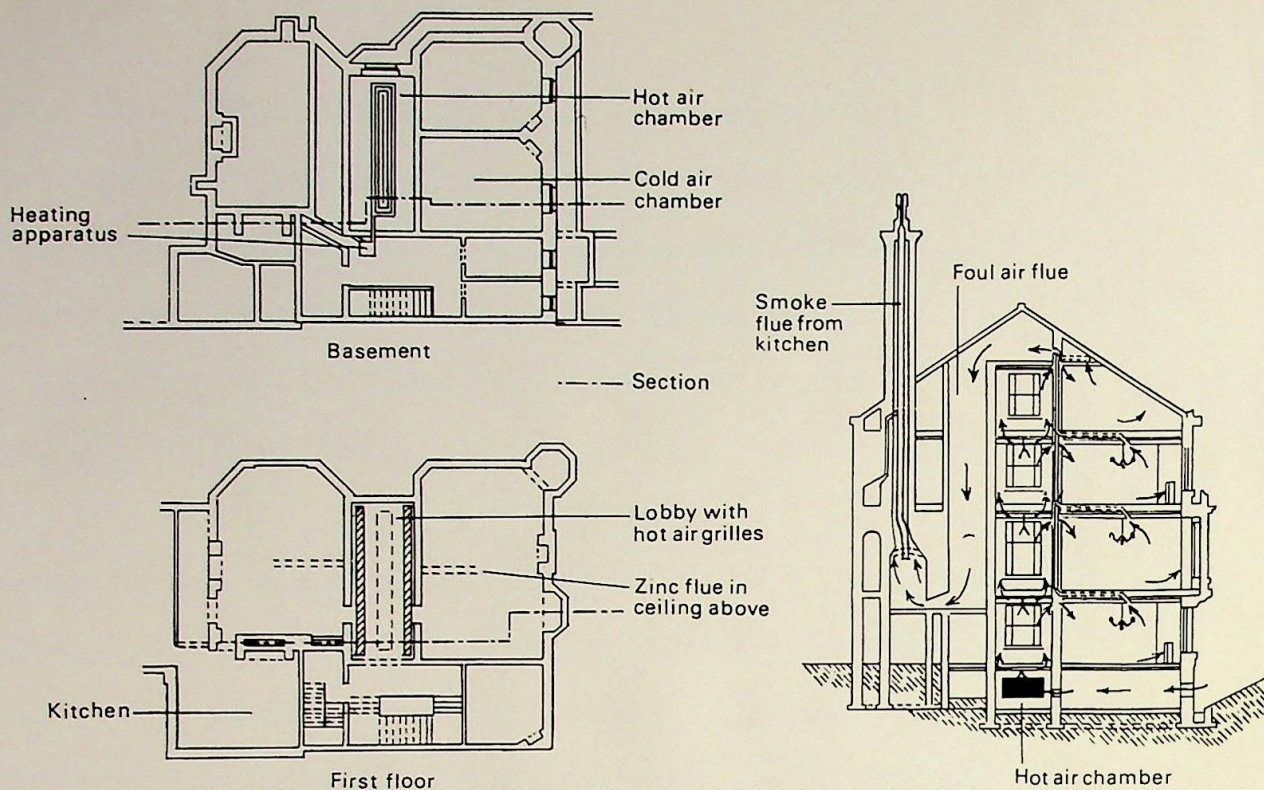
Plans and Section of the 'Octagon', Grove Street, Liverpool.
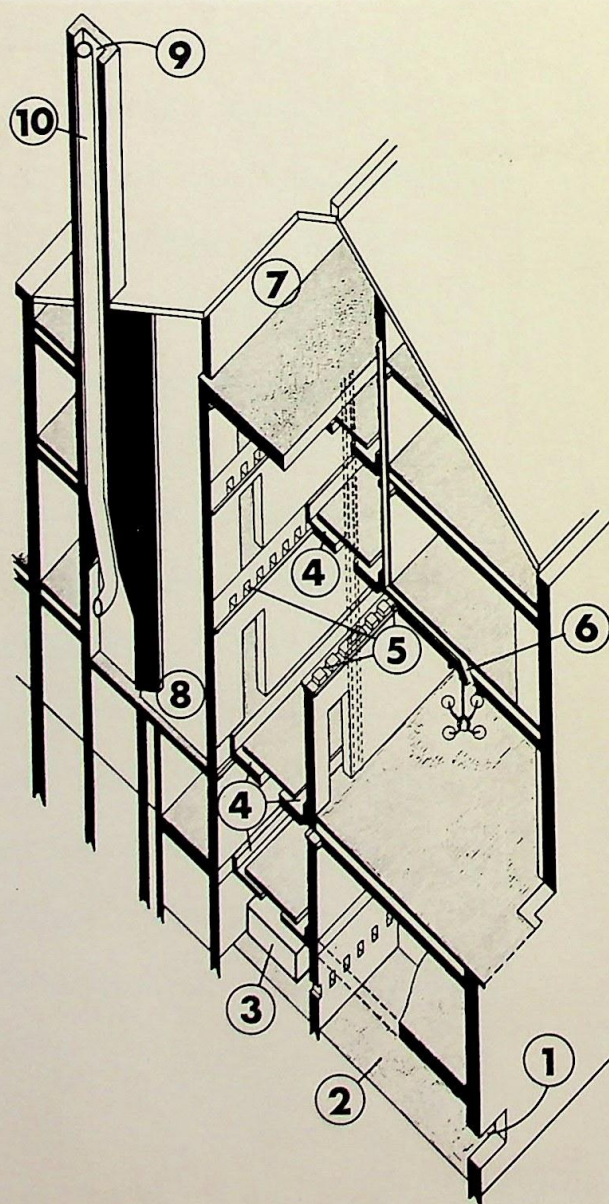
Diagrammatic cut-away perspective of the Octagon, to show the circulation of the air.

1. Fresh air intake
2. Settling chamber in basement
3. Heating coils
4. Air passages in lobby floors
5. Air passages in cornice
6. Extract above gas lamp
7. Foul air chamber
8. Foul air down duct
9. Foul air chimney
10. Flue from kitchen range

considerations. In 1860 a B.F Sturvevant Co. catalogue (a ventilation company) featured an embryo idea of a fan furnace and in the period following 1860 fan forced ventilation began to flourish. In 1880 there was the first mention of electric fans as room coolers in New York.

While re ventilation solution was safely on the way to being incorporated into buildings electric lighting was in the middle of it's teething troubles. Gas lighting was steadily being regarded as dirty and usually was an over – heating problem. This gas lighting certainly was no help to the carefully designed Art Deco furniture and furnishings of that time as it was blackened and even deformed in some cases. In 1882 the "annus imrablis " of the incandescent electric lamp, John Slater as fellow of The Royal Institute of British architects, read a paper to the Institute on " Recent Progress in the Electric Lighting of Buildings." It was a major occasion, the room "...was lighted by incandescent lamps of the Swan, Edison, Lane Fox and Maxim types, supplied with power from an accumulator invented by Messrs. Sellon and Poelkmar..." (2). From 1882 onwards electric lighting progress continued at a dizzyly rising pace. The installation of electric wiring and lamps became a branch of the construction industry that flourished even through periodical slumps that affected the rest of the business.

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By the 1860's heating by steam or hot water could be looked for in most buildings, the Steam system having been pioneered since 1784 by James Watt. Mr. Birdsill Holly of Lockport, New York has been generally recognised as the father of central station heating, when in 1876 he has such a system at his own home. It finally went on stream in downtown New York in 1882 - 1883.

Along with these environmental inventions several mechanical inventions also occurred in the nineteenth century. These included the morse telegraph (1844), the pencil eraser followed by the ink eraser (1858), the typewriter (1868) and the telephone in 1876. With all these innovations aswell as canals, railroads and national magazines came national markets, vertical integration and the need to coordinate production with finance, distribution, sales and advertising. The home office needed an office of its own near other companies home offices.

An early solution was the so called 'business block', a rectilinear masonry and wood construction that seldom rose higher than six stories. Its size was established by the modest requirements of its occupants who generally occupied floors of a few thousand feet square. In 1849 the Sun Life Insurance Company (founded in the early eighteen century), the worlds oldest insurance office, moved into new

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premises, purpose designed by architect C.R.Cockerell.
It was still relatively unusual and therefore a sign
of some prosperity for a company to build its own
offices. What kind of layout did it consider
appropriate to convey a sense of corporate solidarity?
The Sun building fitted its small household organisation
of groups of six to ten clerks into a plan not far
removed from that of a fine house with its sequence of
great rooms and robust classical detailing. Because of
their skills, which were hard to replace, clerks enjoyed
a high status in the early nineteenth century. Their
workplaces revealed little functional differentiation
between home and office. Only the seating hinted at
office use.

The "Oriel Chambers" in Liverpool built in 1864
differs from the Sun Building in that it was designed
to be let out as several small suites of accomodation
suitable from very small two or three — person firms.
Architect Peter Ellis provided the ideal setting for
a Dickensian world of small entrepreneurs and
professionals supported by the traditional one or two
indispensable clerks; a modular plan of neat, tiny
units which create a stylistic precedent for countless
office buildings.

In America office happenings were following a similar
pattern. Offices moved outside the home during the
late eighteenth and the nineteenth centuries and

Oriel Chambers.
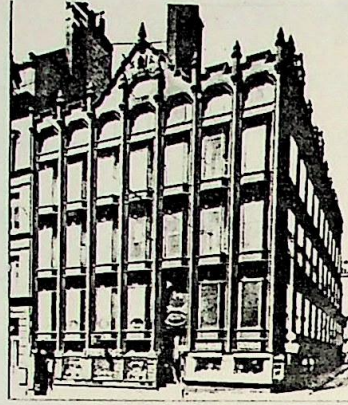
Sun Life Building.
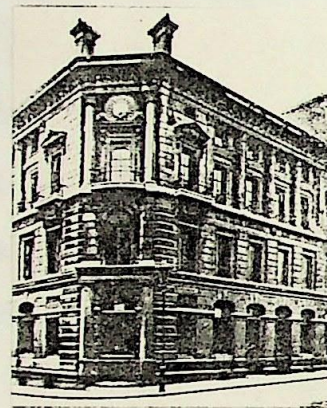
Example of Victorian
Executive office.

brought with them the ambiance of the private study.
Circa eighteen fifty office buildings in America were,
as many European offices, a series of small windowed
rooms along a corridor that companies rented as needed.
This meant that sometimes a firms offices were not
adjacent but spaced out along the corridor with other
firms in between. Typically, the head of the firm had
one private office with a clerk on the other side of a
frosted or stained — glass partition. Other staff
members were situated in other rooms which were
usually just open spaces with desks. Oil or gas lamps
supplemented natural light; heat was supplied by
stoves and fireplaces. Oriental rugs,roll — top desks
and leather chairs were standard office furnishings.

From the middle of the nineteenth century to its close
the accelerating pace of economic development called
for a new kind of structure with greater technological
capabilities. Captains of industry such as Morgan,
Carnegie and Rockerfeller created organisation of
unprecedented size and complexity that functioned most
effeciently in densely occupied Central Business
Districts of cities such as New York and Chicago.
Here where railroads and sea lanes converged, telephone
systems ran smoothly and retail and cultural amenities
were first rate, business leaders could hold face to
face meetings supported by a phalanx of bankers,
attorneys, accountants and advertising agencies and an
army of office workers drawn from a populous

The advent of new
business machines
created the need
for related
training. Here
high school
students are
studying dictaphone
typing and
stenography.
New York 1906.

Services Business became
espically labour
intensive. Shown here,
the office of George
Borgfeldt and Co.
New York 1910.
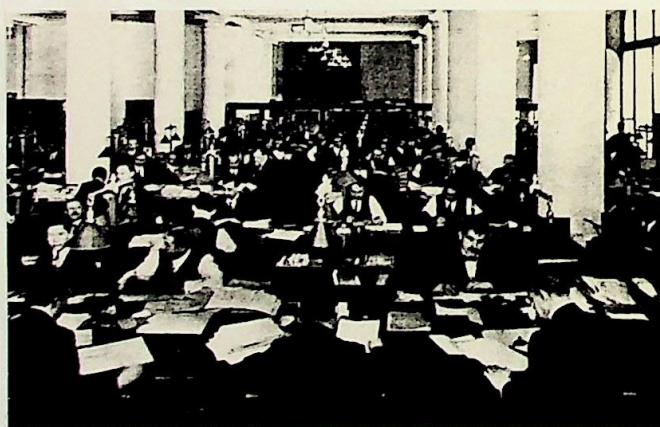
metropolitan region. The Larkin Building (Frank Lloyd
Wright, Buffalo, New York, 1904) was built for a mail
order company, a business organisation typical of the
new kinds of enterprise of that time which depended
for sucessful operation upon three vital preconditions:
the economics of scale which vast co — ordinated
purchasing could achieve, excellent communications for
ordering and distribution, and a large,malleable, well
organised and above all cheap workforce capable of
handling thousands of minute transactions quickly and
effeciently. The Larkin office was build to accomodate
hundreds of clerks, it was entirely different in scale
to what had been usual in the nineteenth century; the
technology was far more routine and factory — like.
The employees were low in status and sat on fixed seats
which pivoted from their desks, (so rigid was the
space planning), the corporate owner was more dominant.
The building is the natural product of a movement
which advocated that highly regimented scientific
management principles developed in industry should be
applied to the growing clerical workforce. The Larkin
building is original not just because it is evidence
of the rapid commercial growth that transformed
American society. Internally the Larkin building is
one large space proclaiming the unity of organisation
with everyone under the eagle eye of the office supervisor.
It is a far cry from the grand sequential rooms of the
Sun office or the simple repetitive spaces of the
Oriel Chambers.

The Larkin building.
Designed by Frank
Lloyd Wright in 1903.
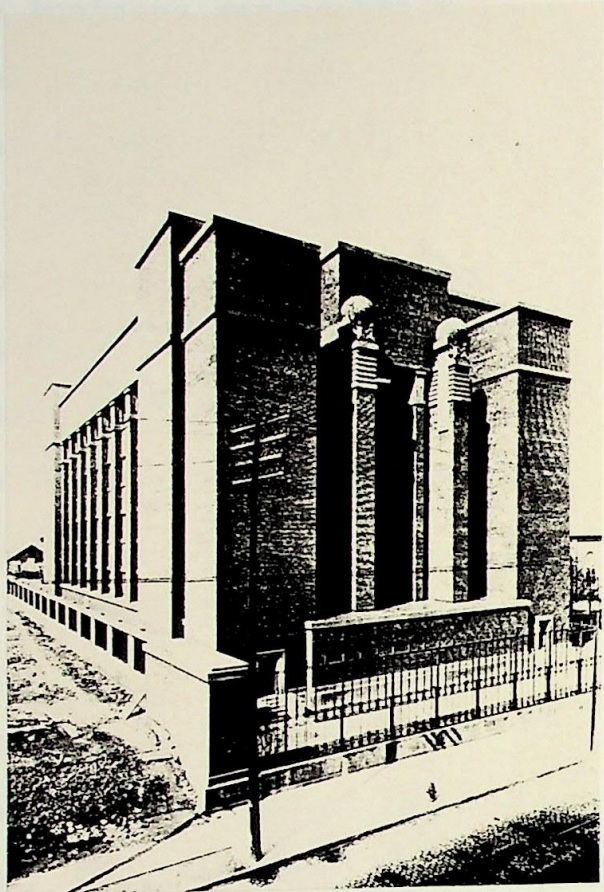
Interior in the
Larkin building.
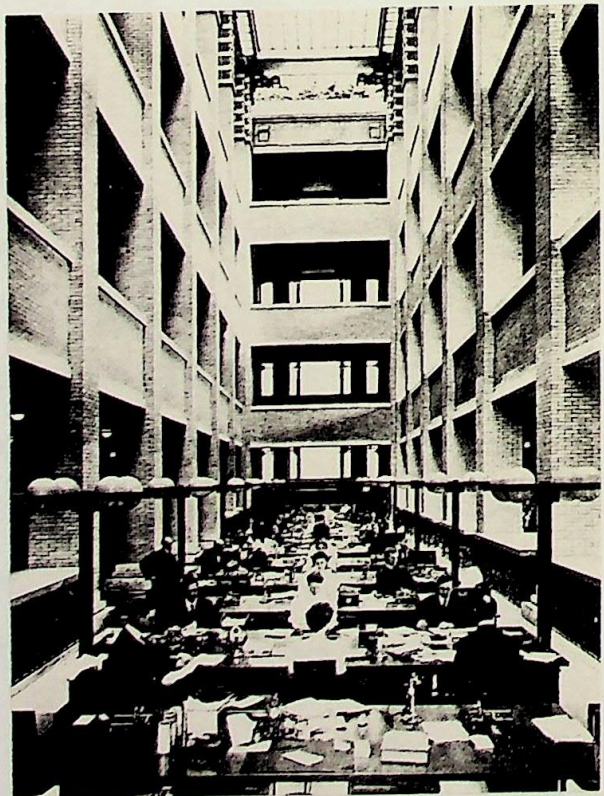
Growing demands for superior business environments
forced land values in central business districts to
soar and thereby sweetend the incentive to find ways
to intensify land use. The answer — to stack people
up in the sky! To build a building capable of doing
this task two key technological inventions — a safe
elevator and high quality steel in large quantities.
Both of these were available by the turn of the century.
(The flushable'loo ! was also an important development
for this innovative step). This resulted in what is
commonly termed the ' Sky — Scraper '.

One of the most successful attempts at the stage of
the building saga was by Louis Sullivan. His Guaranty
Building sums up this great development in the use of
office space; its twelve U — shaped storeys provide
an enormous number of small offices on a very
restricted site. This skyscraper defined its ascending
mass as a logical sequence of events starting with,
a sturdy entrance floor base, proceeding to a
vertically oriented shaft of office floors, and capped
by a service floor and cornice. A desire to give original
aesthetic expression to steel rather than dry acedemic
recitals of classic orders inspired the Chicago school
of architecture to create new forms for stretching the
old building block even higher. " (9)

In the twentieth century, economic incentive and
engineering theory were joined to another kind of
purpose in the minds of corporate leaders and their
architects in New York, who pursued still higher altitude
than Chicago's. The high rise tower lifting itself from
a low rise base made its appearance here because sheer
height for its own sake fired the imaginations of the
cities entrepreneurs. Corporations vied like athletes
for the honour of building the worlds tallest skyscraper
— The Singer Building (1908), Metropolitan Life
Insurance Building(1909), Woolworth Building (1913),
The Cryslar Building(1930) and in 1931 the famous
Empire State Building by Sireve, Lamb and Harman. New
York became a city of " genial giants " (Vincent Scully)
Two more major office building configurations were to
take their places beside the ' tower ', before the
depression cut short these forays in corporate image
making: the stepped back "ziggurat" and its descendant,
a progressively more flattened "slab". The mountain
like massing of the ziggural allowed the tower section
to finally emmerge gracefully from a rectilinear base
having shed its masses in stages. The ' Slab ' gave
business a bold new shape that maximised the amount of
window exposure its occupants could enjoy. The last
significant collaborative project between art and
architecture in the glorification of commerce was
designed in slab form — The Rockerfeller Centre of 1931,
in New York by Reinhard and Hofmeister, Corbett; Harrison
and Mac Murray; Hood and Fouilhoux, probably the finest

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The Empire
State
building
(1931)
Designed in
the Tower
format,
the upper
section
rising out
of a square
base.

Seagram building
New York. Slab
formation.
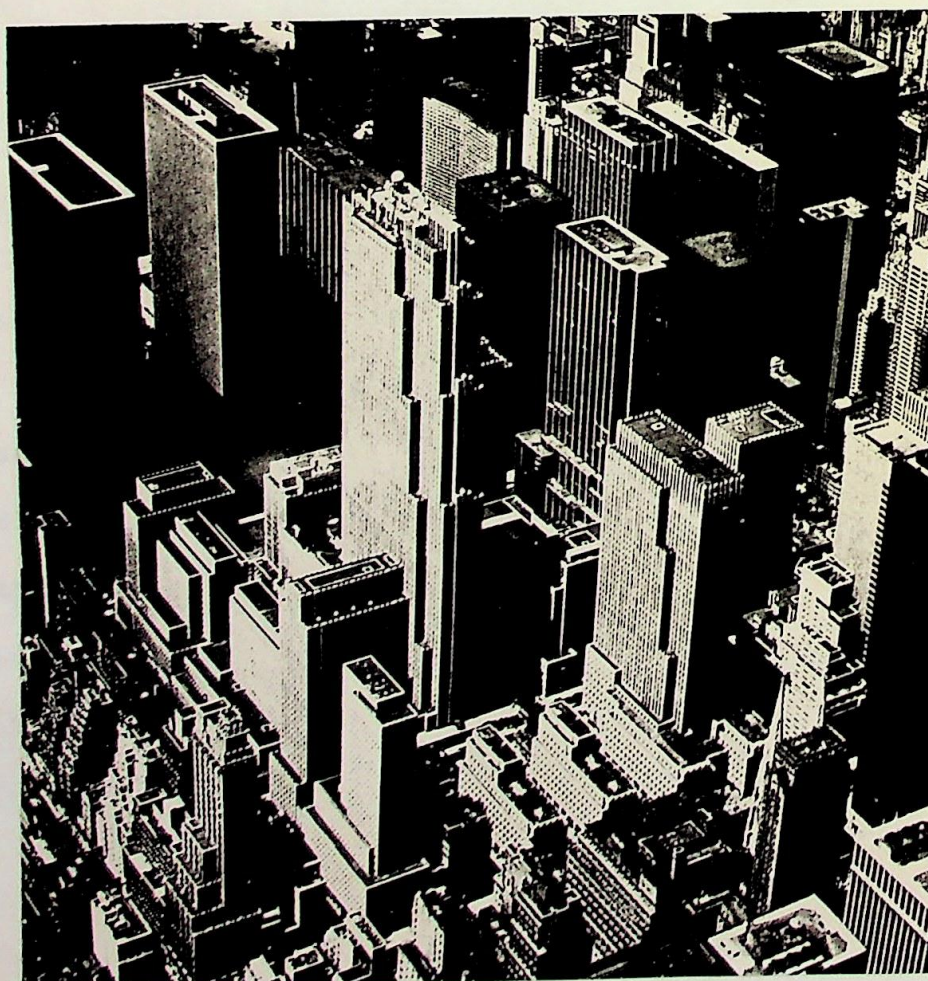
The Rockerfeller
Centre (1931-39)
Contains both
Slab and
Ziggurat type
Sky-Scrapers.

complex of skyscrapers ever constructed.

This exciting competitive spirit achieved a lot for corporate exteriors, but what of the interiors?

By the beginning of the twentieth century, buildings of steel and iron provided a new type of housing for the inventors of the later and their operators. The new offices inspired by factories were whole open floors, broken only by cast iron columns with rows upon rows of desks. The spaces were long and narrow with high ceilings to accomodate tall windows and provide proper ventilation. Electricity was used to supplement daylight. Women suddenly were introduced to the office world —.

They were allowed to operate the telephones and typewriters in these " American Plan offices ". Large organisations such as mail — order houses, insurance companies and government agencies sometimes contained hundreds of clerical workers with managers in a private office nearby and the executives usually far removed. Double pedestal desks and sturdy slat back chairs of oak became the norm. Wooden filing cabinets to hold the accumulating paperwork were introduced. Offices became organised and lost the " homey " touches. In the I920's some offices went even more modern and switched to steel furniture and files.

Office of early 1900:
Monadnock building of
Chicago, designed by
Holabud & Roche.
Typical American Plan
office.
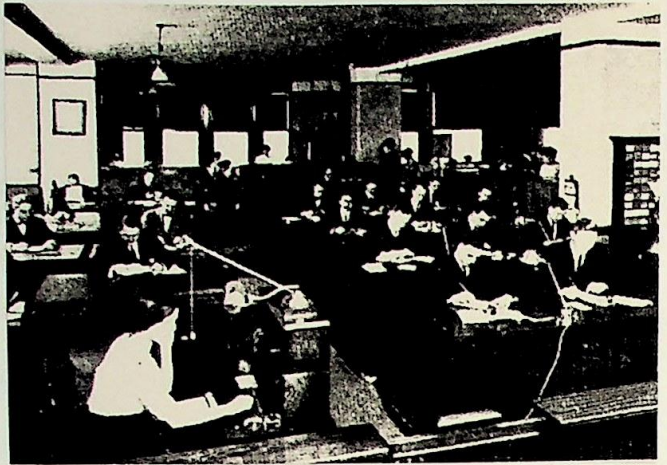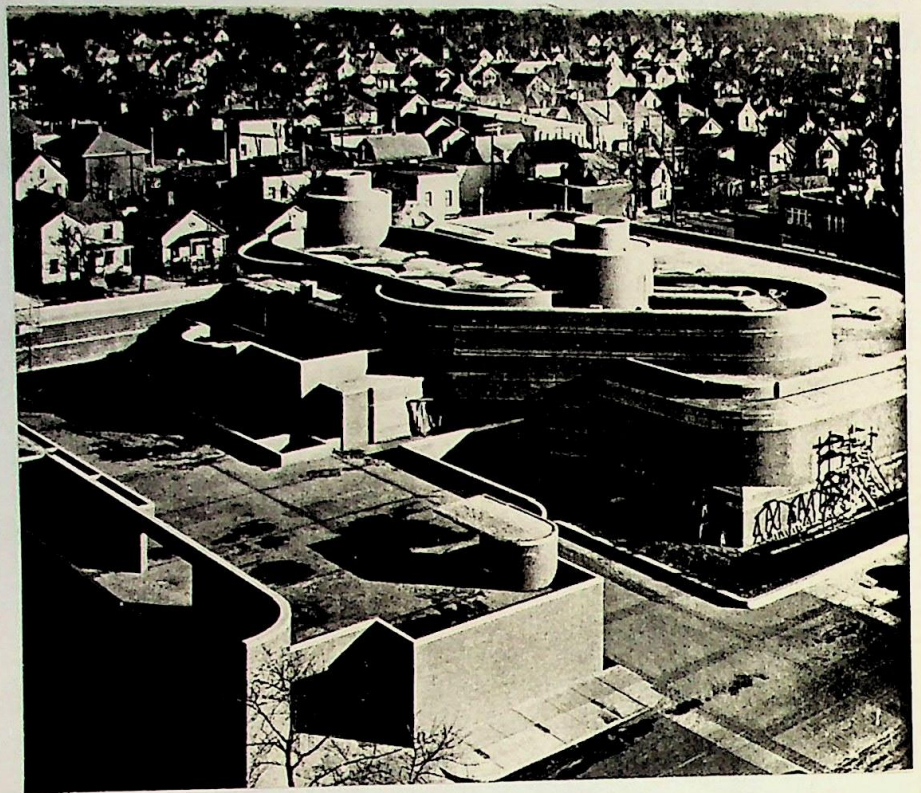

Executive office
interior in the
Monadnock building.

Outer office in the
Monadnock building
with popular frosted
glass partitioning.

While the Rockerfeller complex was using a phone book
of architects to construct its massive structures
another style which became characteristic of that era
was being epitomized by the architect genius Frank
Lloyd Wright in the Johnson Wax Administration
building (I939). The buildings curved masses merge
one into the other suggesting organic references.
Devoid of windows, the exterior appears self — contained,
a shell like form with its entrance hidden in recesses.
(S.D.). Inside the horizontal accents recall the
wrap around bands that had become a hallmark of
streamlined products. Circular tubes of pyrex diffuse
the light softening the interior. Wright also designed
the furniture in the office area. The desks have
rounded drawer units that swing out on one side and an
oval top.

Another advocate of this streamline moderne style was
(the seemingly eternal) Raymond Loewy. His Industrial
Designers office (I934) may be termed a typical
streamline style and seen as a major step in the world
of office planning. Yes Mr. Loewy styled an individual
environment — a work office system. It is not an
Extension of home and is not a copy of the classics ...
it is a designers office. But although it is a created
environment it is still housed within a predetermined
room. It is subject to the limitations of walls and
the room size designated by the architect. In this
respect it does not seem to have progressed as far as

Johnson Wax building.
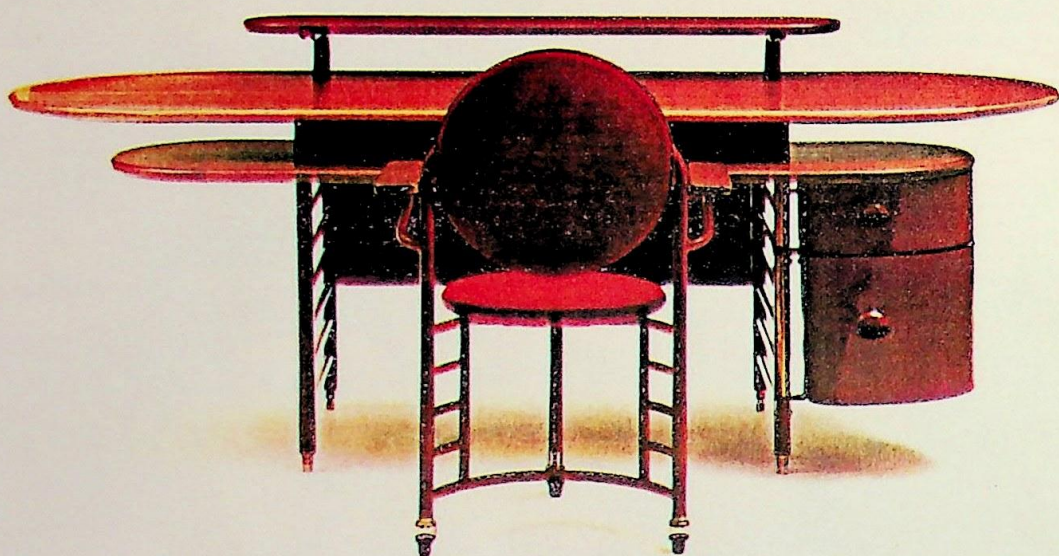

Workroom in
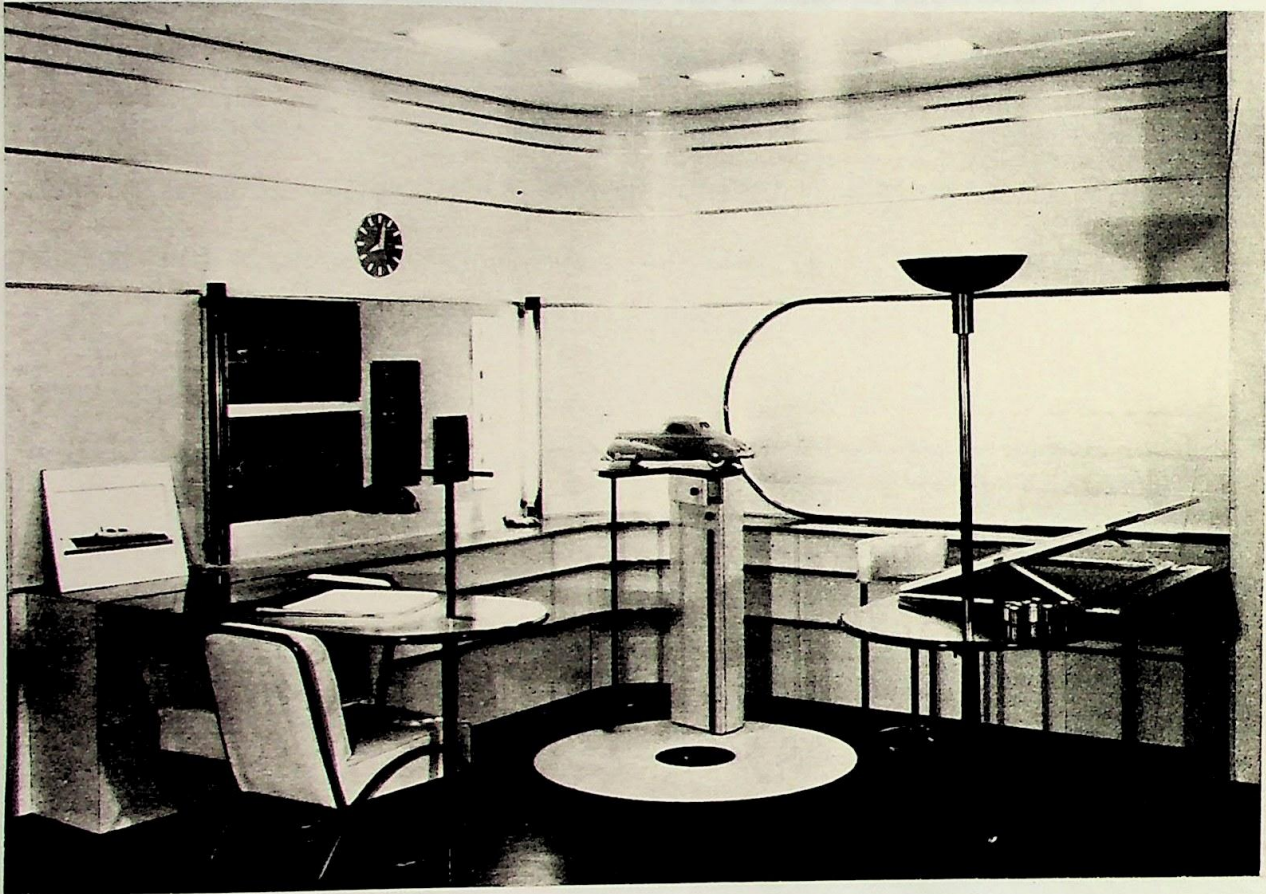Johnson Wax.
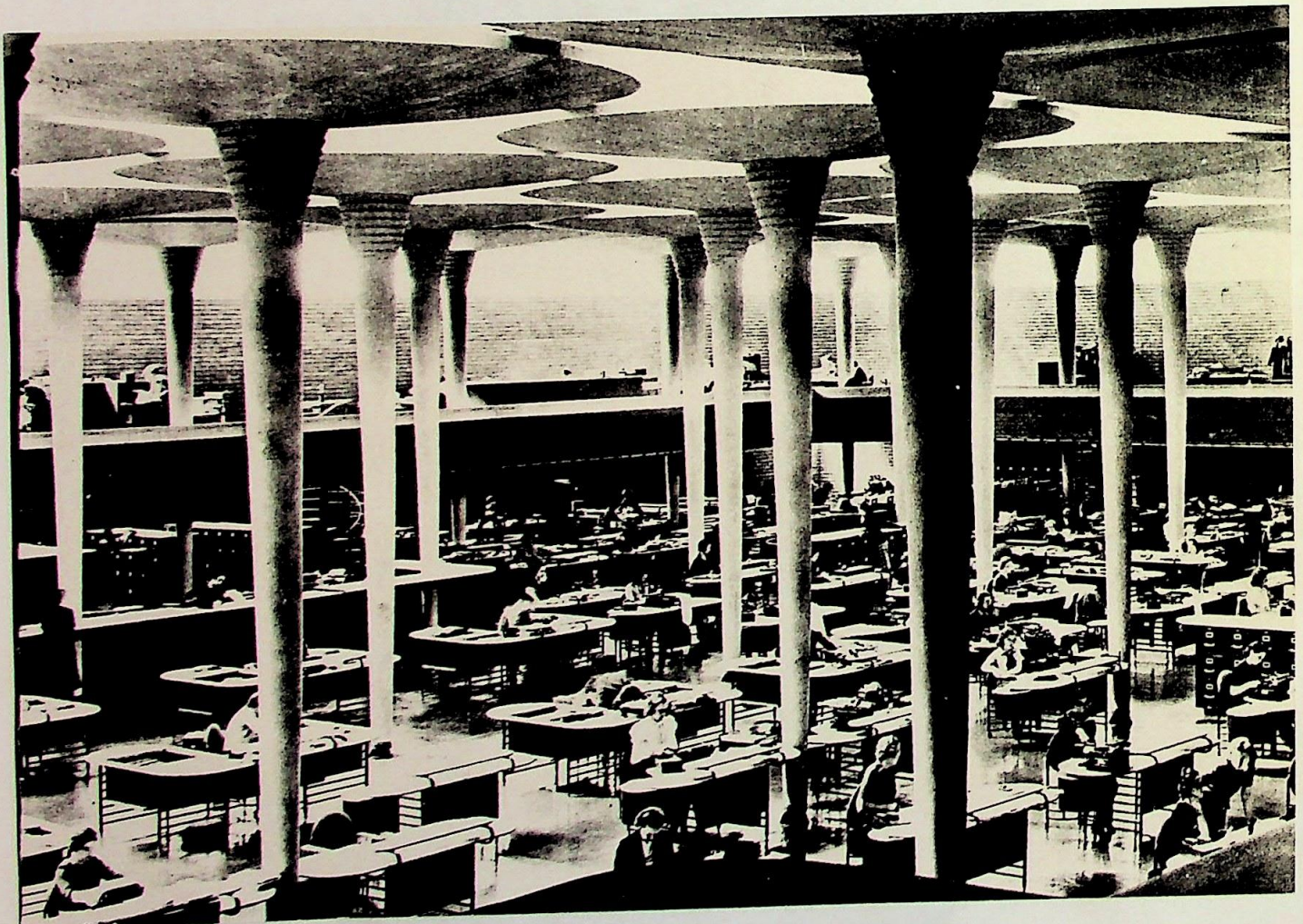
Interior in the
Johnson Wax
building.

Executive office
in the Johnson
Wax Building.

Desking designed by Frank
Lloyd Wright for his
Johnson Wax Building.

Raymond Loewy...
An Industrial Designers office,
designed in 1934.

one might imagine. As a styling exercise, I like its
clean cut and balanced detailing, each item complementing
one another, and despite its apparent limitations was a
step in the right direction for office planning.

During the I940's office furniture was predominantly
'period' in style. If an architect wanted functional,
modern furnishings he had to either design it himself
or turn to a handful of contemporary furniture
manufacturers such as Knoll. Herman Miller and Thornet.
These companies made the furniture designed by
architects (many of which are now museum pieces) ——
Mies van der Rohe's Barcelona and Brno chairs, the
moulded plywood furniture of Charles and Ray Eames and
Marcel Breuers tubelar steel chairs were some early
examples.

CHAPTER III

Advances in heating, ventilation, air — conditioning
and lighting technology after World War II and the
invention of the first electronic computer — I.N.I.A.C
in 1946 changed the look of offices once more.
During the 1950's and 60's the 'conventional' office
became popular as multinational corporations
commissioned ' International Style ' block — square
skyscrapers with interiors that reflected the
hierarchial structure of management. Space planners
(a new profession) used the dimensions of the exterior
building module to plan the interiors. The offices
were precisely sized and graded according to an
employees rank. The top people were assigned the largest
offices, on the highest floors with the best views,
while the majority of workers recieved small windowless
offices or 'bull — pen' situations on the interior.

One may think that American office planning was going
nowhere fast, but compare it to a British office of a
similar time and one realises that certainly progress
was in evidence. Were it not for the hairstyles and
clothes of the women in the photograph, one could quite
easily conjure up once more the Dickensian image created
by Peter Ellis in his Oriel Chambers of 1864.

But while America seemed to be making progress and
Britian stuck in a time rut, the West Germans were
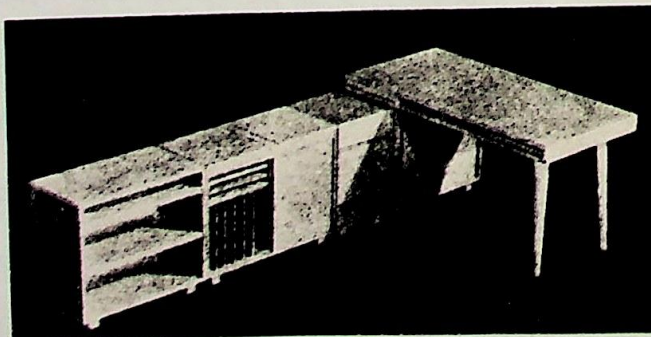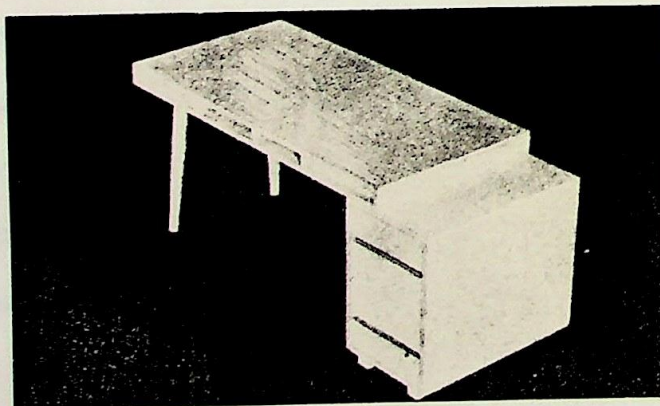crossing new frontiers in office design and planning.
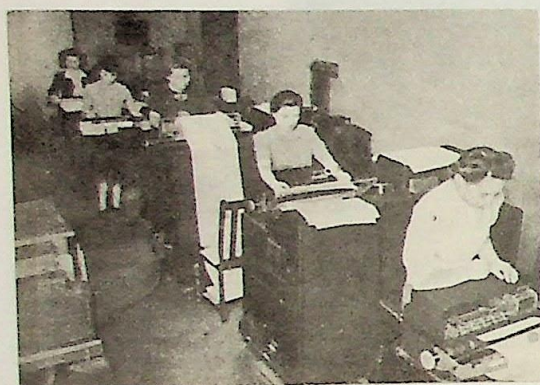
British Office of 1943.

During World War II
women took over many
office duties.
Insurance employees
work here in desk to
desk rows.

Examples of Fiftys-
Moderne office
furniture by Maria
Bergson.

This spectacular development became known as "Burolandschaft" or to non german speaking — office landscaping. Burolandschaft has been described as an approach "...in which systems analysts, architects and interior designers plan as a team, the optimum layout and work environment for an organisation..." (1). The basic concept has three main origins — (1) the scientific management principles, (11) attempts to translate into a relaxed and status free form of layout the " human relations " thinking, which emphasises the importance of non instrumental aspects of work, such as smiling and addressing staff by their first names and (111) the cybernectics idea of an office as a kind of communications device or control system.

The characteristics of Burolandschaft offices are their large, open floor areas, provided with relatively sophisticated environments which are furnished in a free, rather than rectilinear geometric way. Carpets and plant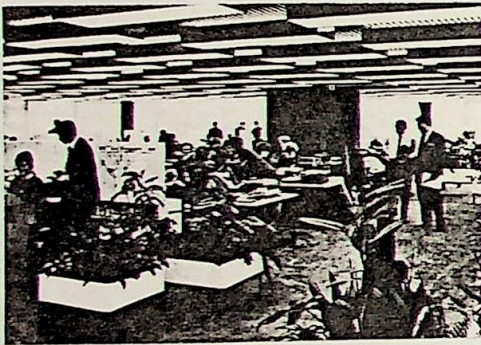s help to provide a sense of luxury. The layout of most Burolandschaft office can easily be rearranged without structural alterations. The uniqueness and novelty of this Burolandschaft planning have been studied at length, and from these studies have emmerged four ways in which Burolandschaft was unique. a/ Its team approach, which is " the similtaneous working together of various specialists with the possibility of instantaneous face to face communication. b/ It is a way of meeting future as well

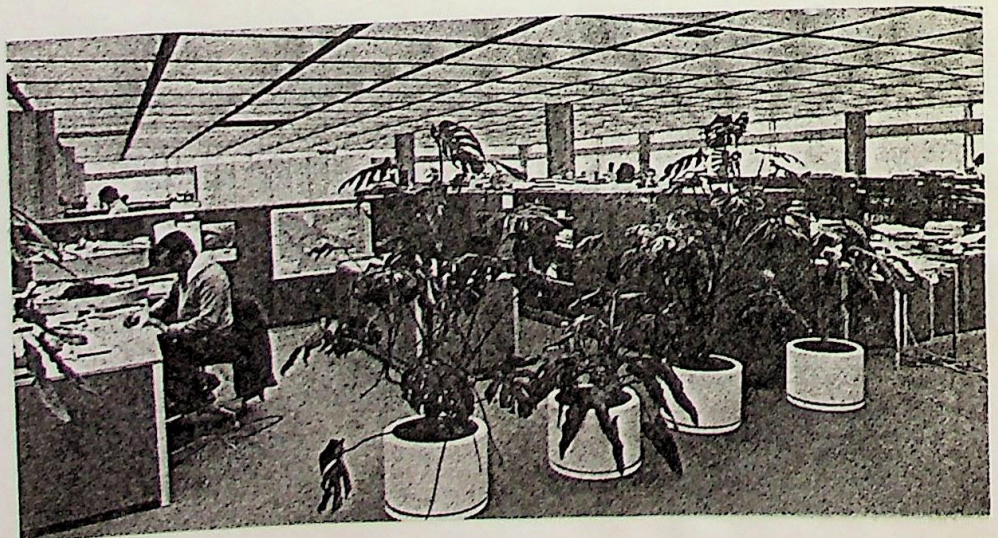Design by the
Quickborner
team.
Dupont
Wilmington (DE)

Ninoflax Office
West Germany.

Example of Burolandschaft
Human Interface planning.

Rubber Plants
legacy from
Burolandschaft
planning.

as present needs — the professed aim is to plan office
buildings which not only meet fully the requirements of
office proceedures, but also " environmental and work
needs of the office personnel — not only for today, but
for the entire life span of the building". That
statement may sound like they employed clairvoyants to
predict every office workers needs both now and in the
future, but what it quite possibly means is that their
office systems were designed with inherent flexability
such as, wide open spaces and light portable furniture.
c/ It embraces organisational improvement — "...not
only were better office buildings designed, but also
improvements in the organisational systems were
implemented " (1), this being of paramount importance,
because it makes no sense to put an obsolete system into
a new building. Finally, d/ It provides a set of
specific design prescriptions drawn from modern
organisational theory — " The most decisive effect to
be achieved by such office planning is the improvement
in office effeciency. We, (i.e Quickborner Team) are
not just thinking here of routine work, but even more of
decision making process. Traditional ' space — planners
and designers ' are insufficiently equipped to cope with
this task. ... We (Q.T.)realise that the office building
is,in effect the managements most important tool .." (1)

An Americanised version of Burolandschaft thinking can
be shown by the SeaGram Building (I958). The building
had one entrance capable of being sub divided and let in

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small units, reminiscent of late eighteenth century,

but by now had the benefit of full air conditioning.

The Burolandschaft element enters in the manner in which

each floor in the SeaGram building is planned and

decorated. When the normal conventions of New York real

estate, each firm has designed their own mini office

and going from floor to floor has been described as

" ... a surreal experience... One is therefore confronted

with several wildly differing corporate worlds

co — existing within one structure". (7) Meanwhile in

West Germany the Ninoflax Office (Nerdhorn 1963) is a

typical example of Burolandschaft in Europe. It is the

administration building for a textile company, most

activities are clerical; the offices are entirely

open — plan. This large clerical organisation is run

with a certain corporate management style and no

deviation is tolerated from this style. It is also the

product of a real estate tradition in which custom—built

offices prevailed over speculative developments and

building forms were moulded to express the intentions of

the client. The final conditioning factor was the

industrial climate of the time in which staff discipline

and obedience could be relied upon and senior management

were able to adopt 'advanced' policies without question.

How successful was Burolandschaft thinking? A major part

of their arguement was man to man interface. Their view

was that in administrative organisations was a central

processing unit and that people were constantly passing

information to each other and they should be situated
accordingly. But what is overlooked is that the human
being is not a machine; does not work at a constant pace
and will not be constantly relaying processed information
from one human being to another. Certain machines can
be utilised in this situation also, thereby ruling out
the necessity of locating the vast majority of employees
within easy reach of each other. Another psychological
premise of Burolandschaft was that of one worker being
inspired by another busily labouring away beside them.
I for one couldnt care less about what Mr. or Ms. J.Bloggs
beside me is doing and quite often people can find it
inhibiting to have someone constantly at their side, be
it working or not. While I do agree with their human
relations theory of exchanging pleasantries, I do feel
that bringing all staff to a common level is not such
a brilliant idea!! At times it is necessary for employees
to be reminded who exactly the boss is and to get on with
the respective jobs.

As with everything Burolandschaft has its good points
aswell as its bad points. It livened up office thinking
and broke up the rigidity of the 'conventional' office
and opened up new floor space. 'Openplan' as it became
known as is still quoted by furniture companies as a
current 'style' and of course it provided yet another
step for further design and planning within the office.
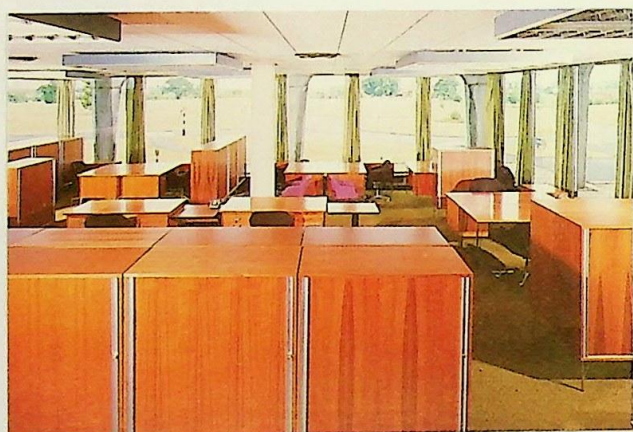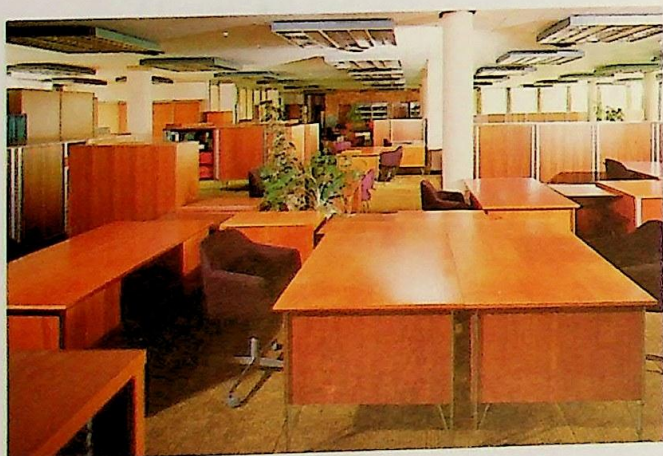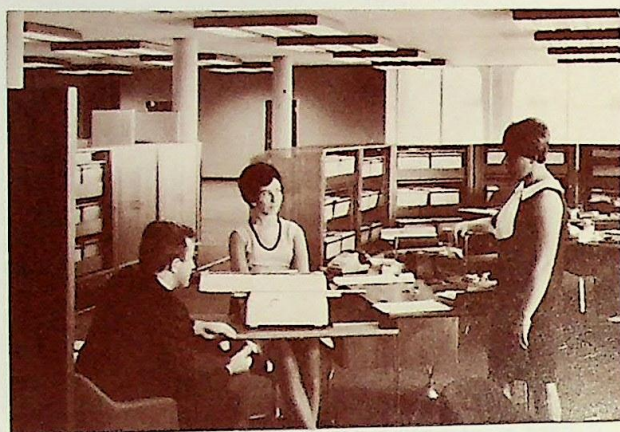
Offices of British Petroleum, (1962).
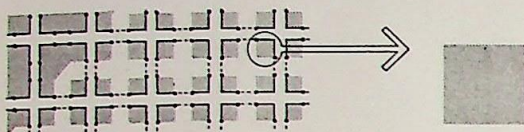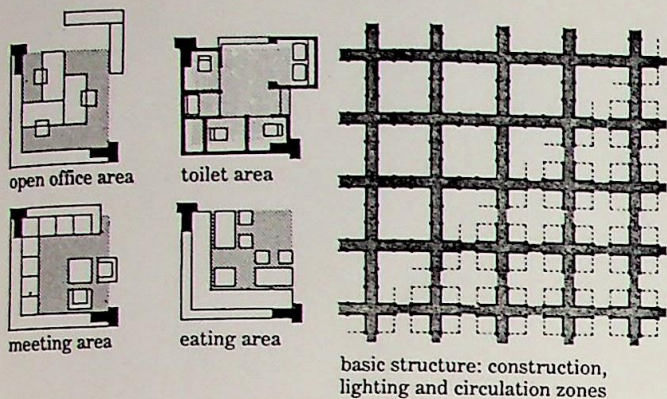Example of 'Open Plan' in England.

'Open Plan' office layout
Harlow, Gt. Britian.
Designed by Intercraft
(London).

In spite of the professed advantages of open plan, a
growing train of thought begins to suggest its
disadvantages may outweigh the advantages. Problems
such as loss of privacy, increased distractions and
problems with light, noise, temperature and humidity,
began to generate widespread dissatisfaction. As for
team spirit, no form of office design can really, of
itself, generate a particular social climate or effect
—although it may reinforce one, Burolandschaft design
work was also in vogue at a time when management could be
sure of absolute and total control over their workers.
This social climate produce rather an uneasy balance of
co-operation within companies. Against this background
in which powerful centralised management thinking could
no longer be reconciled with growing white collar
industrial democracy, one company took a planning step
which became a major landmark in office design. The
company is,Central Beheer,an insurance company in Holland
and the designer Herman Hertzberger.

Hertzberger set out to " bridge the gap between working
and living, between what is public and what is private,
between building and street, so that everything gets
disintegrated in our social life can be brought together
again ". (1) A new departure in its planning was the
involvement of the staff in its design. They were
encouraged to paint their own walls, put up posters,
invite their families to lunch and even bring in their

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open office area

toilet area

meeting area

eating area

basic structure: construction, lighting and circulation zones

3 Hertzberger's major and still unique contribution to interior design in the office: the Centraal Beheer kit of parts. It delineates the various public and private realms by assembling units of floor space—offices, ea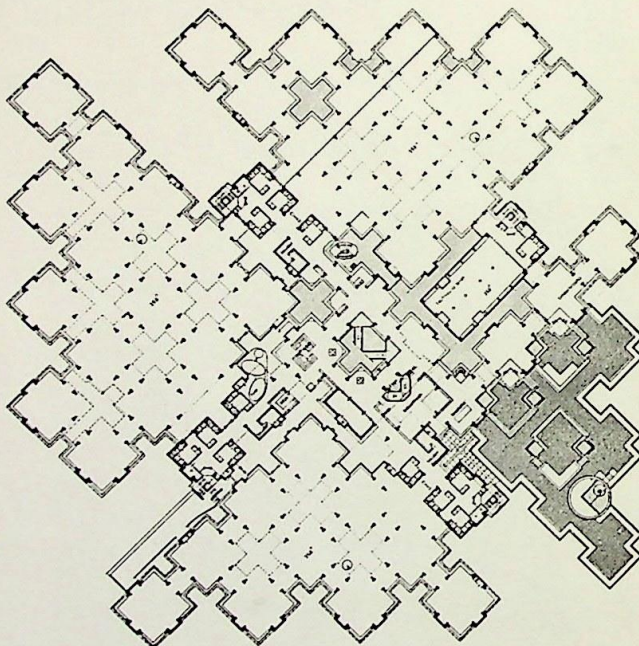ting areas and so on—which are interchangeable in use, but defined rigidly by the unchanging architectural geometry of structure, daylit voids and walks.
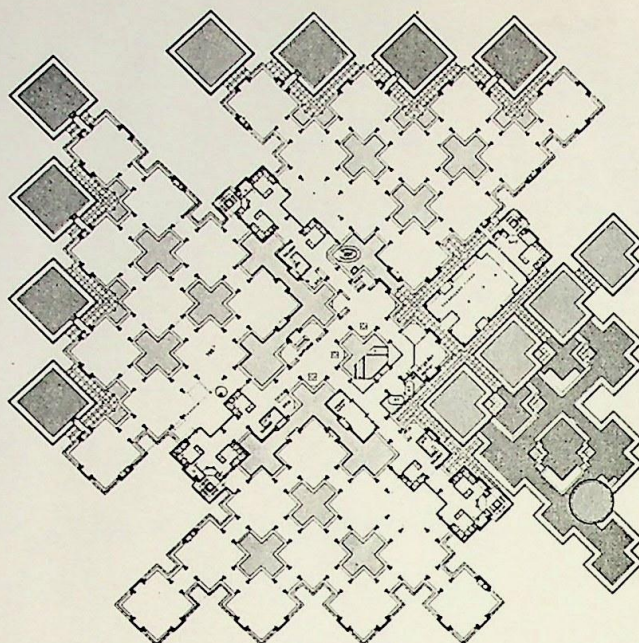
5 Level three. Demonstrates the best aspects of Hertzberger's solution.
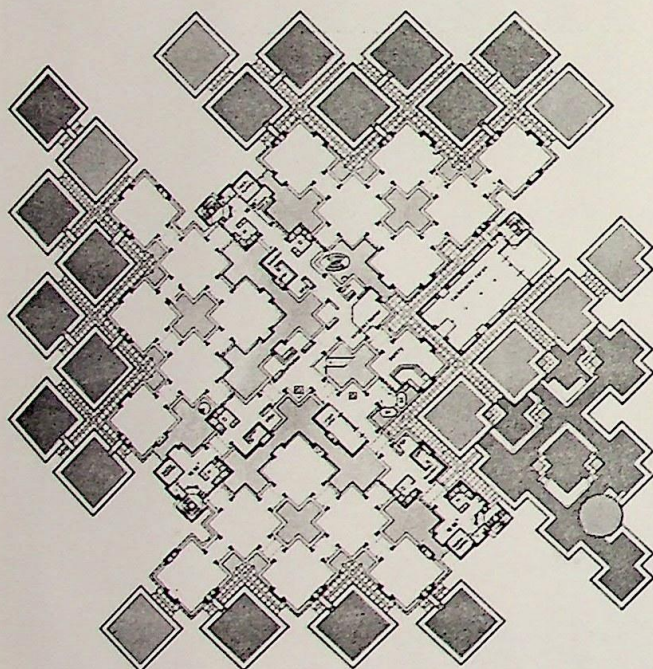
4 Level four. Still occupied by the management. Public areas shown blue.

6 Level two. The deepest floor, where many workers are far from windows.

Central Beheer, plans.

pets!! It challanged the traditional conventional plan
offices and also the cellular Burolandschaft plan forms
hoping to take the best and disregard the worst aspects
of both of the earlier forms.

Floors were not stacked up on top of each other as in
time honoured fashion, instead a series of modules
roughly 3M x 3M link together to form a " friendly
ambiguous network of work-spaces " in which staff enjoy
both privacy and a sense of belonging to the communal
life of the office. The office has several entrances
and the spatial variety inside allows personal expression
and well-being to flourish. The building was divided
into four quadrants of office space seperated by a central
area that branched off in four directions. All the
entrances opened into a central area. The buildings
basic structure consisted of unalterable zones; within
each zone were interchangeable areas. These 'islands',
as the zones became known as, were delineated by voids
between floors, low walls on their perimeter and
structure and service cores marking out the circulation
routes across them. This basic island system had a
maximum of sixteen desks (on average only ten) and with
this arrangement all situations were workable. The
actual desking was screen based office furniture and
demountable partition. Hertzbergers thoughts on entrances
boundaries, thresholds, hierarchies and the general
interweaving of the public and private realms resulted
in there being no enclosed rooms with doors in the
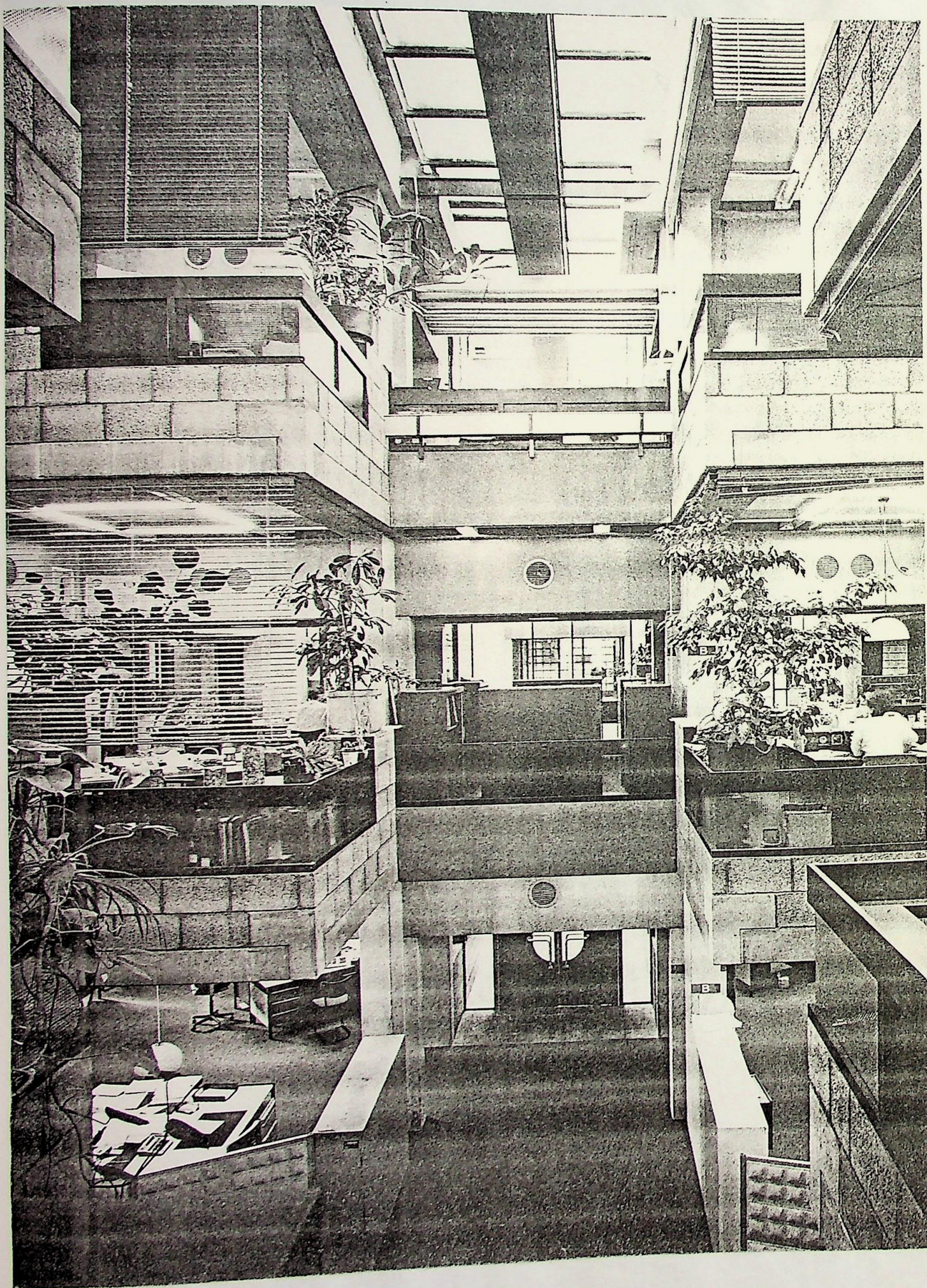
Typical view of Office area in Central Beheer
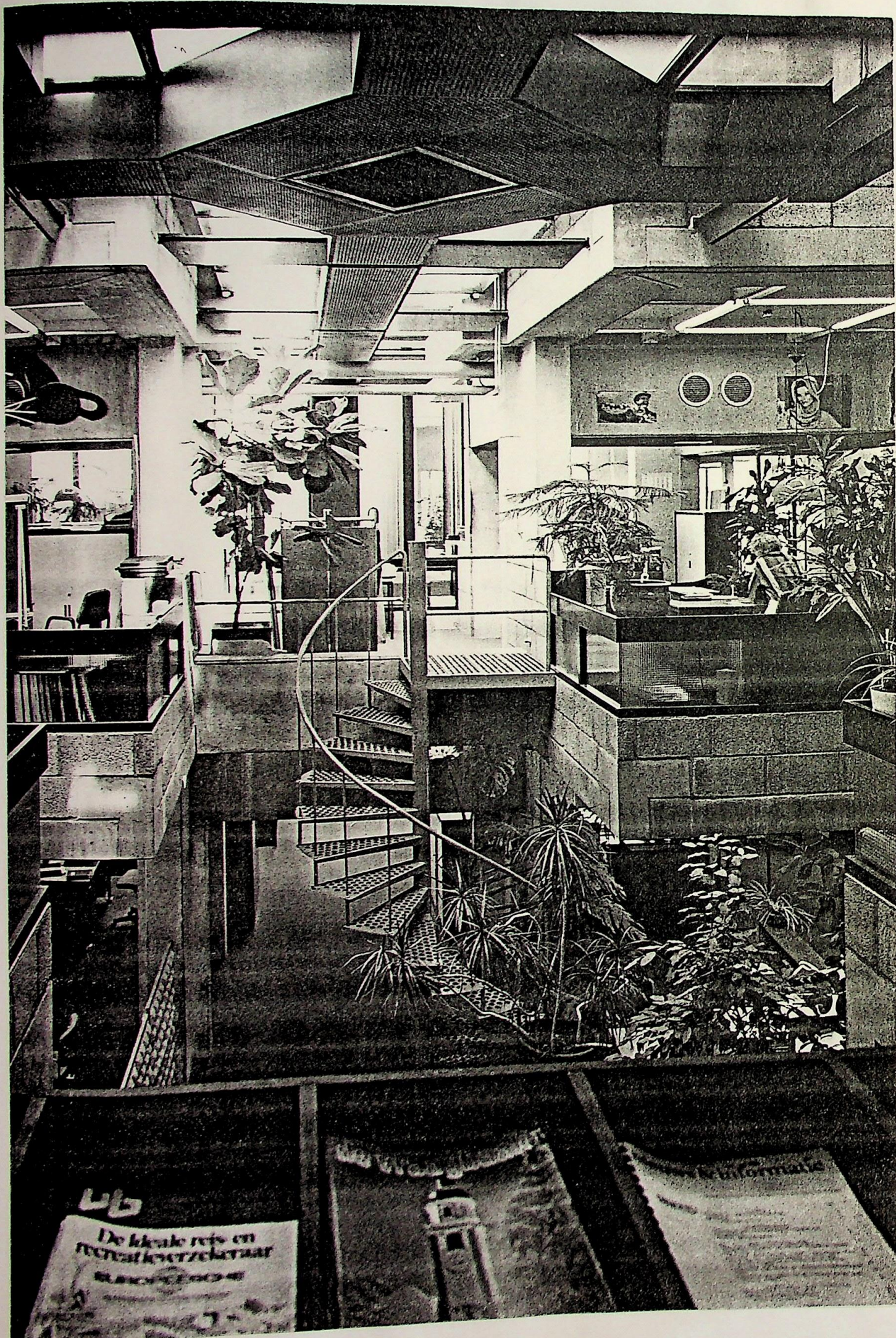
Office area Central Beheer.

actual office space. The arrangement of each 'island'
meant that it was physically impossible to cover them
with desks. Voids and circulation routes guaranteed
breathing space and a certain aural privacy and with
those boundaries further delineated by storage and
personal decoration it was difficult for more than four
people to be overlooked at one time. "The final icing
on the architectural cake was the lack of icing ..." (1)
The building was to have an unfinished look— unfinished
concrete, wood was painted black. The only other
architectural materials were glass and glass blocks.
The architecture was to be a backcloth, the stimulus for
personal decoration. "By doing for themselves what
nobody can do for them, the users of the building, by
lavishing care and love on it, make the building their
own from "users" to become "inhabitants" ..." (1).

The search for humane working environments that balance
corporate effeciency against personal choise and dignity
is taken even further with the Union Carbide headquarters
in Danbury, Connecticut U.S.A. which was designed by
Kevin Roche, John Dinkeloo & Associates. This provided
2358 private offices, all a standard modular 4M x 4M
size, all with windows and a view out onto a wooded
parkland, with their carpark concealed under the centre
of the building. Fifteen different office interiors
were designed — ranging from traditional to modern —
and employees were invited to choose exactly what they
wanted, even including light fittings and accessories,

from fifteen full-size mock-up models installed in Union

Carbide's old New York h.q. before the move out to

Connecticut. Such highly modular systems seem a direct

rebuff to all Burolandschaft thinking. But what I find

interesting is the fact that they included what they

termed traditional design interiors showing, that maybe

way back in 1860, wasnt as bad planning as was imagined.

But what has certainly happened is that the best points

of both traditional and open plan thinking were weeded

out and put to use in an attempt to satisfy to the

maximum the needs of the office population.

" Compared with companies of a century ago, today's firms
have proportionately more people in the middle levels —
but many so called middle managers do not have clearly
defined activity patterns. Typically they are
professionals with no subordinates and little supervision.
They are often the 'knowledge workers' for whom new
technology is said to hold the greatest promise." (7.)

" An Electronic Age " — the phrase which one finds our
present time being referred to most. We have come a long
way from the problems of negotiating gas versus electric
lighting to the offices of today deciding when a Rank
Xerox or Cannon copier machine should be installed.
We are now at the stage where I can include a section on
'products of the electronic office'. Starting with the
calculator which used to be costly and typewriter size,
but now is programmable, wafer thin and hand held.
Then there's the microcomputer, disk drives for floppy
disks, keyboards and printers. Electronic typewriters
which would probably have seemed light years away for
clerks in the Sun Life building, photocopiers and phone
exchanges, audio meetings i.e the conference button on
your telephone for three way phone conversations. The
presence of all these products of the electronic age
means that offices have to incorporate these machines
into proposed design and plans. One result would be
office design with specifically the machines in mind
with more than likely the human operators being second

Influx of new office technology necessitated
the deign of new systems office furniture.

Customer designed office by Deupi and associates for Rozansky and Kay construction. Uses oak carpentry to give necessary distinction to the in-house architects office (1982).

thoughts. This would be all too easy a solution as machines are inanimate, do not suffer backache and are usually regular shapes which fit into allocated areas. Planning space for people rather than technology, however, means more than creating an environment free of physical discomfort. Comfort does not of itself motivate people to work. In psychological terms 'pain-avoiding, or what has also been termed 'hygiene' factors, are related to physiological, safety and security needs; motivation derives from a mixture of social, ego and self fulfilment needs.

Combining the human needs and the technological needs resulted in such office furniture as V.D.U. and terminal furniture which, while fitting the computer, it also includes adjustable table height and tilt angle so as to enable the user to adjust the furniture to the required height. Another development in this area was that of uplighters. Task lighting has always played a huge part in office design, but now with computer screens reflecting glare, a new dimension of lighting technology was required. This resulted in the light being directed upwards and diffusing, spreading the light more evenly and reducing glare.

With all these machines came the electric wires which relayed their power. With these wires came secretaries tripping over them in high heel shoes. The result — wire management systems. Designers and planners had to

Combination of nineteenth century Brick
Warehousing and Contemporary Office
Design by Gensler and Associates for
Young and Rubican, San Francisco.

Offices designed to be easily re-configured.
Designed by Design Collective Columbus (OH).
Utilises some Burolandschaft concept added
to the modular systems of central Beheer
planning.

Contemporary office
furniture styling by
Rudd International.
Domino Table
configuration - Desk
configuration and
Table configuration.

set about tidying these spagetti like protrusions from office desks. Systems were firstly floor orientated and now channels are included in desks with inbuilt sockets resulting in usually only one wire traversing the floor, the rest safely tucked away in the desk top. My own opinion on this particular wire management system is that it has just taken the clutter from the floor and 'shoved' it into a desk. It seems to have got too technical instead of easing the confusing problem.

Another component — accoustic panelling, an extension of earlier open plan partitioning, except this time the panels are there not only for a degree of privacy, but to block out "white noise", the clatter of typewriters, the constant droning of printers and the buzzing of telephones. A huge contract office furniture industry has evolved in this present day in an attemp to satisfy the intricate balance between machine and office worker. Desks with a range of finishes are offered to satisfy the aesthic needs while each profession do facilitate all office equipment. The office chair industry offer the most ergonomic chairs possible in a huge range of colours and textures. Computer furniture does not reflect the mechanical and electronic intricacies of the computer but is designed to match the desk and the seating, so that the users of these systems can choose a complete system which links together visually and yet function effeciently and allow the user to feel part of the system and that they too contribute to the running of the office just as much as the machine.
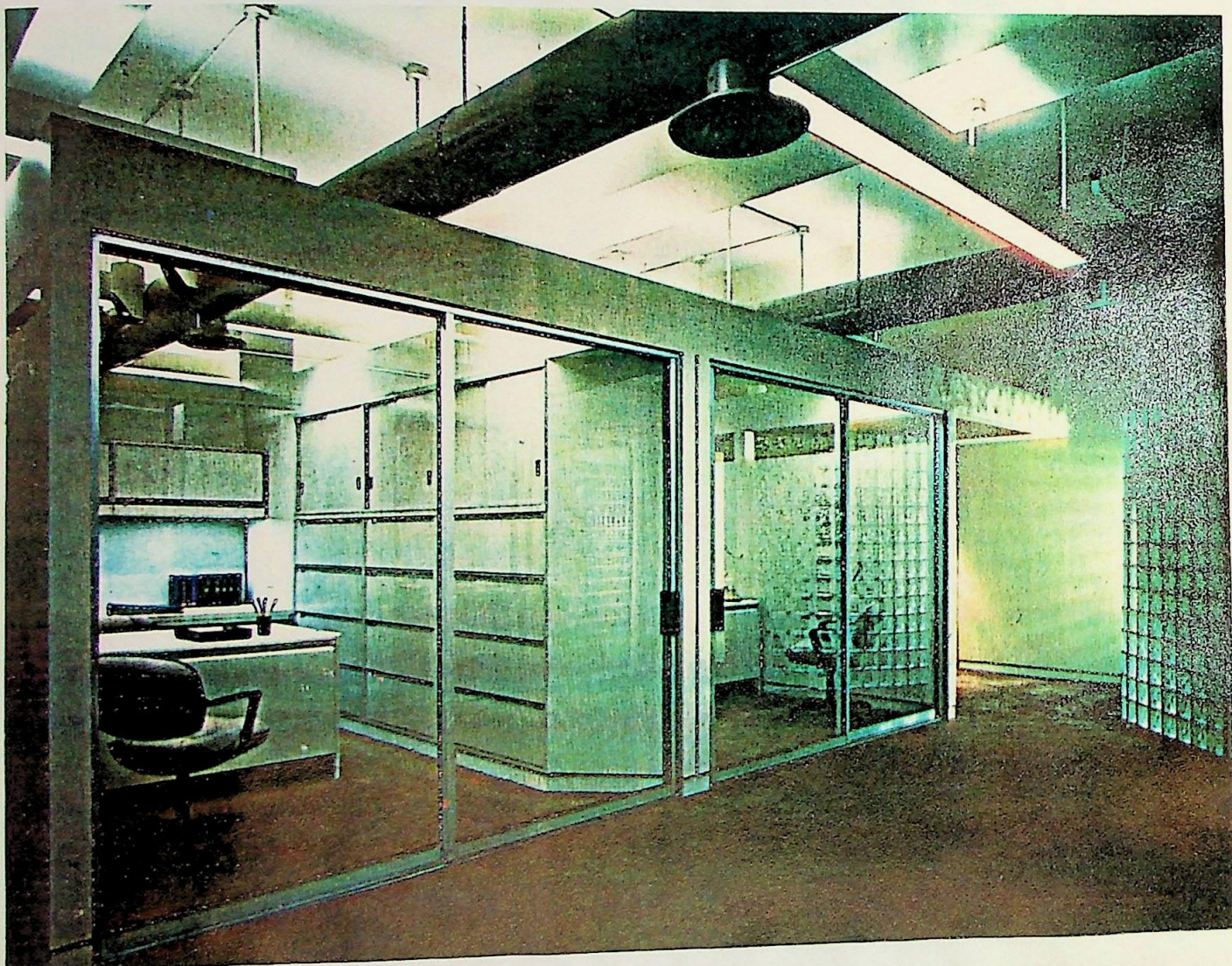
Taking office modular planning to an extreme.
Each office consisting of a glass fronted box
designed by Christopher H. L. Owen for
Judson Realty. New York.

" Out with paper !! Out with secretaries !! Out with
ineffeciency !! Out with the indiscipline and sloppiness
of humans at work ! " (**5.**)

The above phrase would seem to be the slogan of the
future? But what exactly is envisaged for future office
design? New York — based, multi-disciplinary design
and space planners ——ENVIRONICTICS INTERNATIONAL give
an outline of what they predict will be an office layout.
What they are advocating is not what they regard as being
based on wishful thinking but a " model which anticipates
the further development of today's office technology " (**5.**)
Computer terminals and video screens are found throughout
every area of operation. Means of storing and retrieving
information are moving towards strictly electronic
sources. Split screens or windows in each area allow
for comparason of various ideas within a conference
situation. The screens also enable the group to confer
with persons who might not be needed throughout the
meeting, but whose input might be valuable at various
times in the session.

Another key aspect of the prototype is the absence of
obscure partition sectioning off different areas.
Rather, floor—to—ceiling glass panels act as acoustical
separations. This allows complete visibility throughout
the office yet maintains a sense of privacy within
individual spaces. The addition of vertical blinds allows
the worker visual privacy when necessary.
Strategic lighting is controled within each area;

SATELLITE POWER, SOLAR ENERGY SPOTLIGHT FUTURE OFFICE
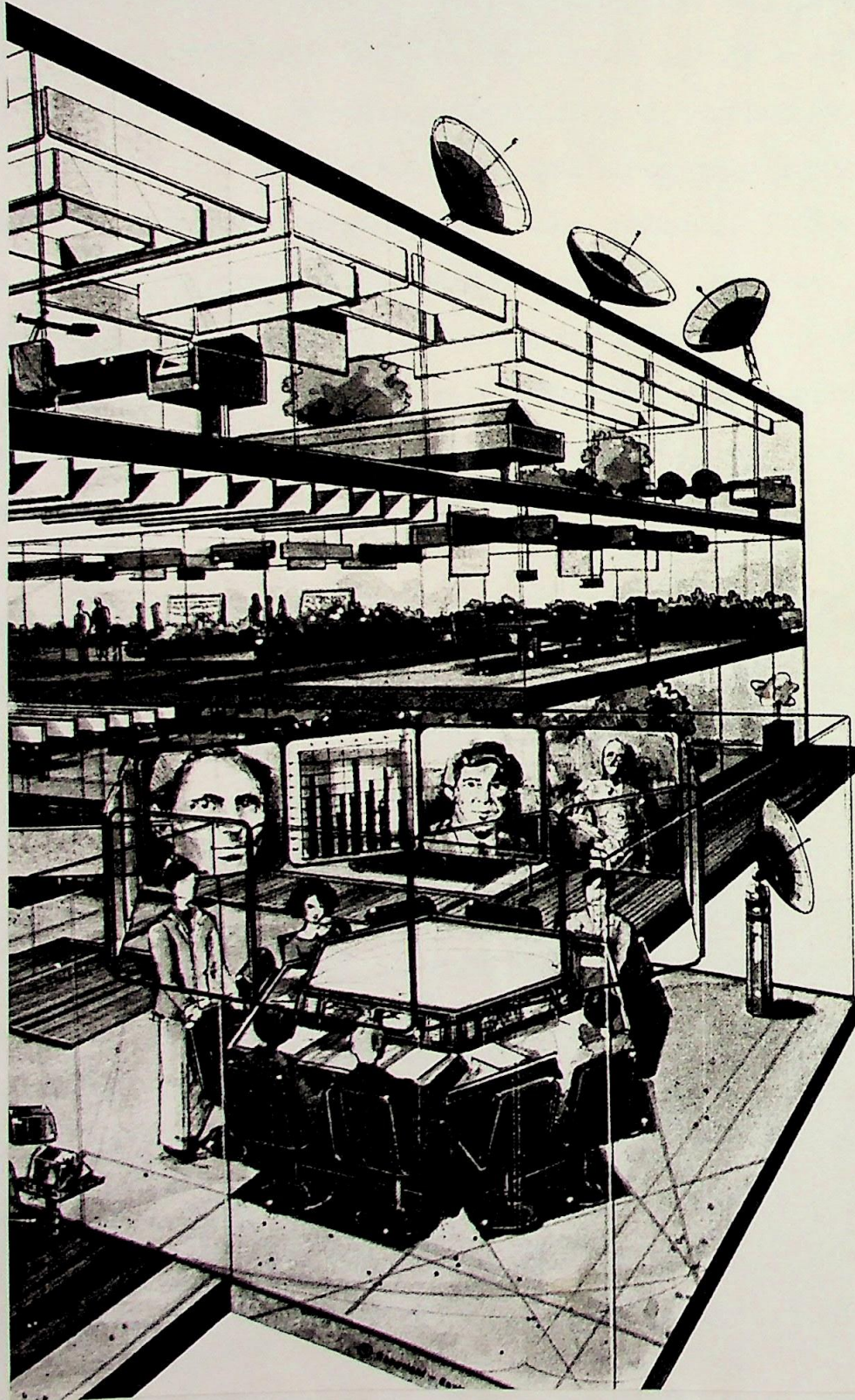
intensity and energy use are flexible. Employees key
in the light levels that they prefer, into their computer
which then adjusts automatically. The same process is
applied to the adjustment of colour and temperature.
Workers either know the exact quatrant of space in which
they want hotter or cooler air, or ideally, can command
the computer in plain English to direct air to a specific
part of the body. By using light as a colouring agent
the employee can select a new colour each day, key the
selection into the terminal and tune coloured light
systems to the exact tone or hue desired. Another
additional feature would be accoustic absorbtion, where
a person with a loud voice would be heard at a much lower
level by those to whom he was speaking, because the excess
sound would be absorbed by the computer.

Addition of all these complex computer systems immediately
brings one major problem to mind — that of cabling!
Environectics solution is that of sattelite communications
and solar power systems. "We visualise that the future
will bring direct line — of — sight communications into
day to day reality. Satelite dishes serve this function
as well as being parabolic concentrators of the sun's
heat, ... "thousands of dishes, strategically placed
across the roof would enable the office to be run
entirely on solar power. Smaller dishes at individual
workstations would conduct energy from receivers on the
roof, right down to each terminal. Cables would not be
needed since dishes control the transmission of digital
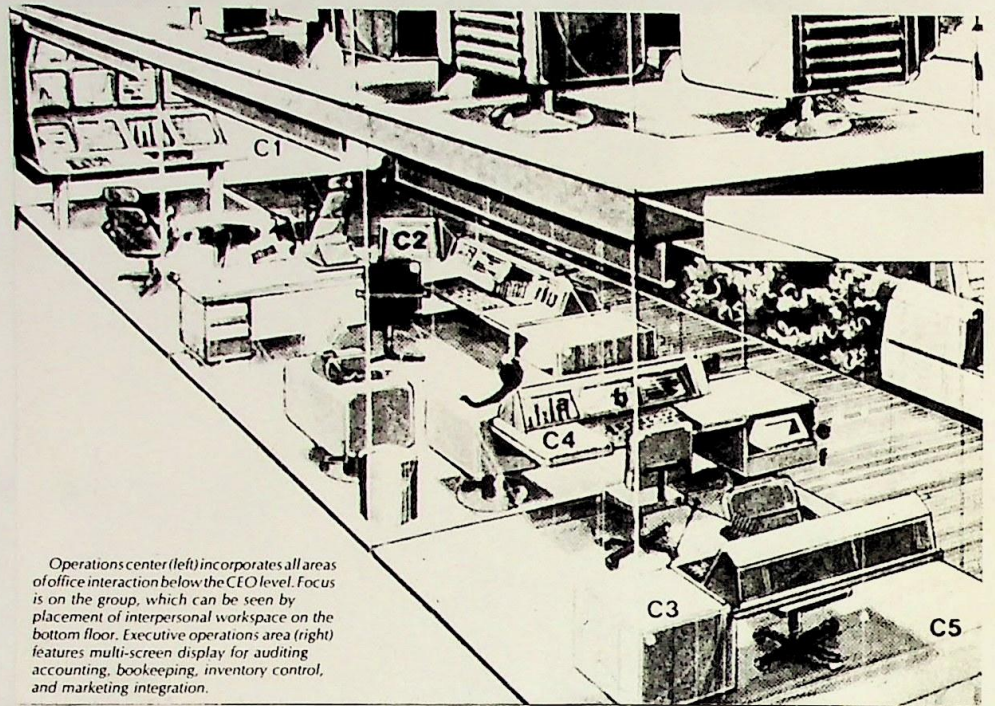
Operations center (left) incorporates all areas of office interaction below the CEO level. Focus is on the group, which can be seen by placement of interpersonal workspace on the bottom floor. Executive operations area (right) features multi-screen display for auditing accounting, bookeeping, inventory control, and marketing integration.
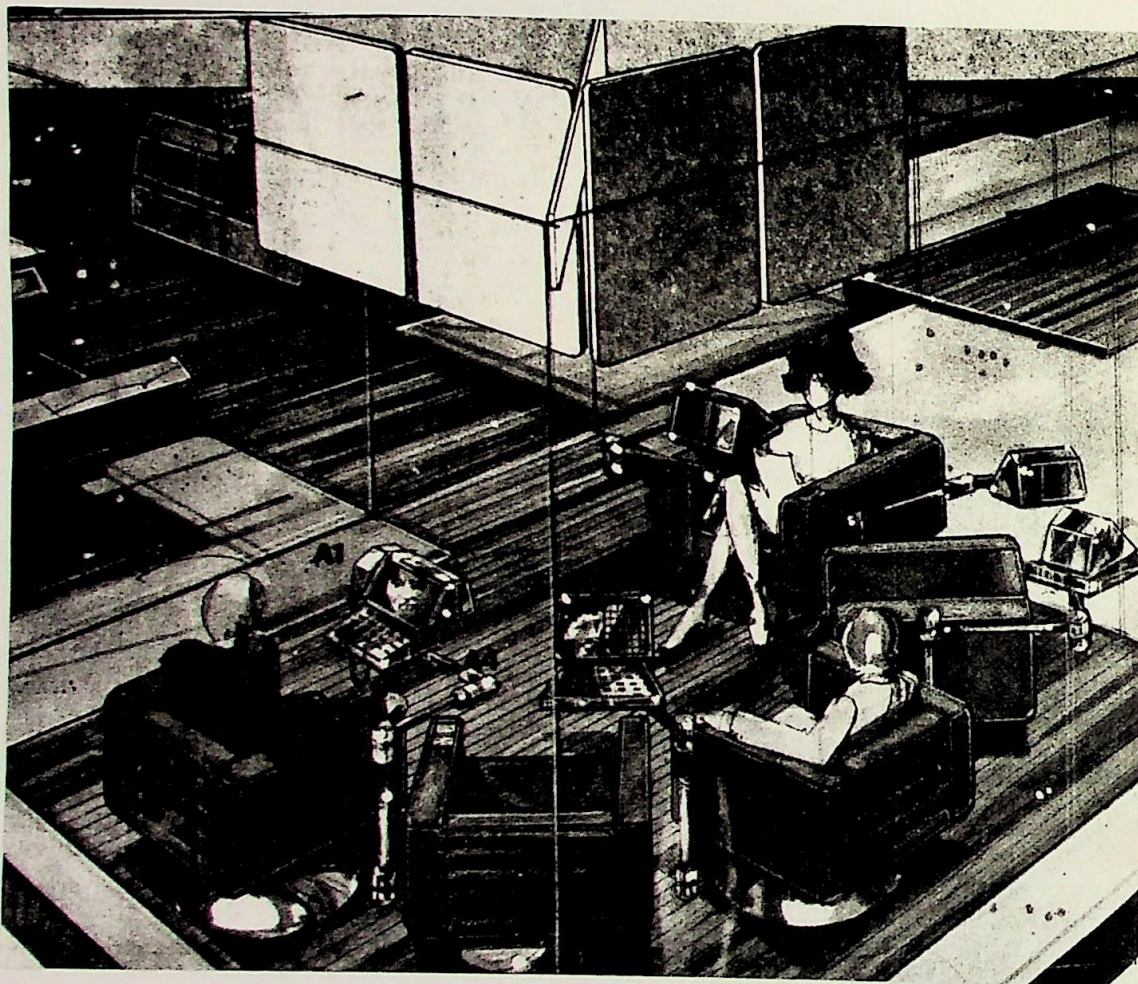
ENVIRONETICS
Group interplay: pivot point of structure
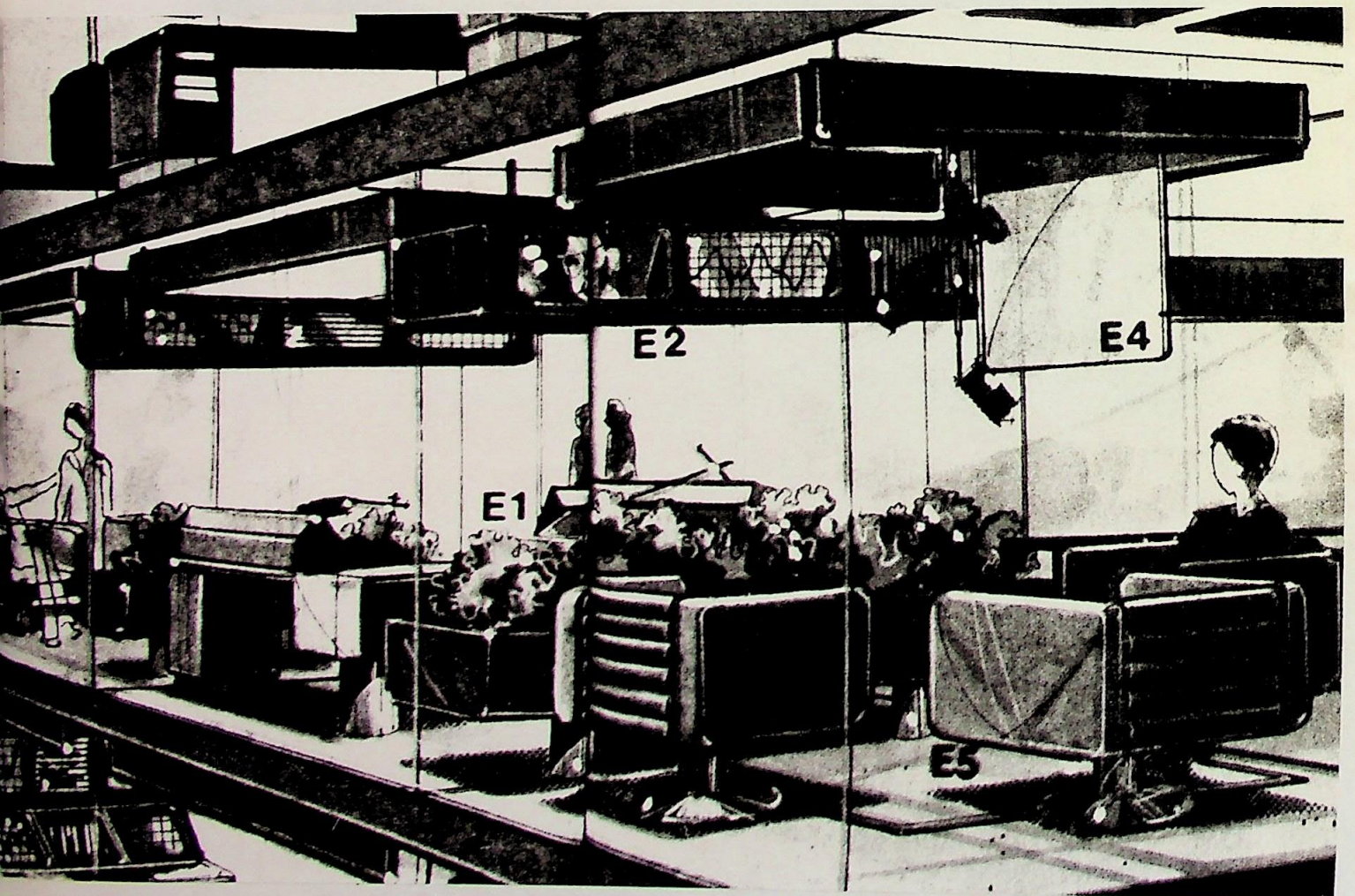
Video screens assist conferencing

information. " (**5**.)

Much of what has been proposed by Environectics
International is technically possible, but right now,
being financially possible would pose a problem. It
seems an ideal solution to office organisation and
efficiency, but on such an electronic scale, are there
many offices that such a system would suit?
Certainly if it does become possible, only very large
corporations will be able to afford inclusion of all the
innovations that Larry Lerner has put forward. Smaller
offices will still have to survive without this huge
electronic progress, but I imagine they will still
function just as effeciently.

"For some organisations, futuristic workstations may be
just the job; for others, two people, a typewriter and a
dog will be just as appropriate in 200I as they are today."
(**7**.).

CONCLUSION

From Basilicas to the Exchanges to the Law courts; from fine houses to Dickensian offices to let; from traditional American plan offices to Burolandschaft and finally from Central Beheer to Environectics International's satelite office. That's the evolution of the second home for our worker population. But it's not just a history of what type of desk was put in a particular office, it is much more an account of social thinking and opinions of each era. It records the class conciousness of early English and American businessmen and the social awareness of Central Beheer bosses for their employees.

Aswell as being governed by social attitudes, office design and planning relying on inventions and innovations in office machinery. From the struggle with achieving an adequate ventilation system through the many new machines such as the typewriter and telephone, to the first computer, right up to the harnessing of solar power for the running of the office machinery.

As far as specific furniture is concerned — a desk is a desk is a desk, just the designer following the trends of the time regarding styling, whether it was ornate Georgian or Edwardian, streamlined moderne or Hi-tech eighties. It still contained stationery drawers and was stable enough to place a typewriter. Innovation in this area was mainly due to the computer which resulted in specific computer desking being designed, introducing

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a large ergonomic input, not only into the desking, but also into it's seating which also has off-shoots into general office seating, which then combined with styling resulted in a highly competitive seating industry.

It would have been all too simple to write about the design of the desk and chair of an office, starting with the Sun Life building and finishing with Union Carbide in Connecticut, covering the line and ornamentation detailing and whether it was a pedestal or have four legs; but the evolution of furniture is the changing of social and environmental thinking, combined with human innovation which resulted in a desk and chair being necessary components.

"It is a centre of our intellectual and social life; it demands hours of concentrated effort; it provides close association with colleagues; it is a home away from home, the modern corporate office facility is all this in addition to being a complex work of architecture and interior design that is created by business wherever business opportunities justify it. Properly planned and executed, it can thrive virtually anywhere civilisation does ..." (9.)

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