Office Furniture ;
an efficient tool in disguise.

OFFICE FURNITURE - AN EFFICIENT TOOL IN DISGUISE

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ACKNOWLEDGEMENTS

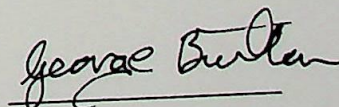I wish to acknowledge the assistance given to me by the following:

My former employers, Lucas Furniture Systems Limited.,
Wick Lane, London.

My tutor, Paul Caffrey.

My sister, Mary.

I wish to acknowledge the interest of my parents in this project and especially their continual support and kindness which allowed me to pursue my chosen career.

George Butler

George Butler.

PRECIS

This thesis investigates the history of office furniture.
With this as a backdrop, it argues that the true identity
of office furniture is that of an efficient tool.

It looks at the origins of the office as a place of work
and charts the earliest developments in office furniture
from the late nineteenth century through to the pre-World
War II furniture of the 1930's.

The post war era of the 1940's, 1950's and 1960's saw great
changes in office furniture. The influences and attitudes
which brought about these changes are seen in the light of
the furniture which they affected.

Finally, with an examination of the 1970's and 1980's the
picture of office furniture over a period of 100 years is
complete.

INTRODUCTION

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Furniture occupies a curiously ambiguous place among human artifacts. Strictly speaking, it is not necessary to human existence; and in some cultures, more especially nomadic ones, seem to get on well without it.

(Smith 1979, p.3).

However, as cultures become technologically advanced or 'civilised', we see that furniture becomes an increasingly important and necessary part of everyday life. Domestic furniture, no matter what its period or origin, has several equally important roles to play within society. The first is obviously one of function. One sits on a piece of furniture or else one puts things on it, sleeps or reclines on it, or uses it for storage.

Secondly, and less obvious, is as an indicator of social status, almost on a par with clothes and personal documents which serve a similar role.

Thirdly, furniture is used to express personal, tribal or cultural identity.

The history of furniture design has been well documented in countless books and articles. Unfortunately, with a few exceptions, the attention of historians has been drawn to furniture for the home. Furniture for the office, where a large proportion of our modern industrial society's workforce spend a third of their life (Knobel, 1987, p.4) has been neglected by the majority of historians.

Office furniture has a history that barely extends back for a century, and this when looked at in relation to the history of domestic furniture, is a short period of time. In those 100 years however, the development of specific designs for office furniture has come about very quickly. As organisations, their methods of management and the technology they use, have become more and more sophisticated, as well as this the furniture used in the office had to keep pace in order to satisfy new needs. In response to new manufacturing processes and new

materials, such as laminated wood, and new technology, such
as the typewriter, telephone and the computer; designers
have devised new furniture. Alternatively a substantial
number of designs have developed from an analysis of organisa-
tions themselves and of the people who work within them.

As with domestic furniture in the home, office furniture
plays several roles within the workplace. However in the
workplace, time is money and efficiency is the priority in
the office.

As a result, it will be seen that the primary and most impor-
tant role of office furniture is that of function, i.e. an
efficient tool. Office furniture exists because office work
exists.

What will also be seen is how and why designers have disguised
office furniture to the point where it is almost undistinguish-
able from domestic furniture.

CHAPTER I

THE ORIGINS OF THE OFFICE AS A WORKPLACE

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An office can be described as a place where there is a com-
plex interaction of people, performing a series of processes
that require the handling of information in order that
business decisions may be made. The people, the processes
used and the information being processed are all associated
with the planning, directing, organising and controlling of
the functions of an organisation.

The economic structure of the 20th century has been built
around the office. One may not realise it but the office
dominates our personal lives and our environment. Cities are
full of concrete and glass office blocks which now overshadow
the churches and cathedrals that dominated our cities and our
lives in past centuries. The office effects our personal
lives with its administrative procedures. Details such as
names, addresses, dates of birth, credit ratings, medical
histories or whatever, are held on numerous files in offices
by both government and private business.

It is in the processing of such information which is the
heartbeat of all offices. In fact, offices are very similar
to factories. The latter manufactures products from raw
materials with the aid of tools such as drill presses or
lathes. The former gathers, analyses and processes data using
various tools. Obvious examples of these tools are the type-
writer and telephone.

The origins of the office as we know it today are very similar
to those of the factory origins. The industrial revolution
brought about the concentration of workers in factories which
increased efficiency and productivity. The increasing com-
plexities of industry spawned ever increasing amounts of
paper work, as well as parallel support services such as
lawyers, bankers, transportation and communication. These
services needed offices. Thus, offices, like industry, became
concentrated into large buildings and with them came the

clerical staff. The origin of the modern office building is
believed to be Robert Abraham's County Fire Office in Regent
Street, London. (Knobel 1986, p.7).

The first purpose built office was, according to Edward
l'Anson (who lectured to the Royal Institution of Architects
in 1864) a stack of office buildings in Clements Lane at the
end nearest to Lombard Street, London. (Knobel 1987, p.7).
It was not until the turn of the century, however, that purpose
built offices flourished. In all but the grandest commercial
centres, office buildings remained converted dwellings.

It was developments in industry and production techniques
that were to bring about significant changes in office build-
ings, furniture and work.

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CHAPTER II

THE CHANGING FACE OF THE OFFICE (PRE-1940's).

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The 19th century saw the mechanisation of industry. Mechanisation affected some industries more than others but the division of labour affected all industry right across the board. The need for a consistent and cheaply produced product led to the division of labour. This took the control of the complete production process out of the hands of the craftsman. He now had control over only one specific part of the process.

This pattern corresponds to the three stages of the development of capitalist manufacturers as outlined by Karl Marx in his book Capital (Forty 1986, p.43). In pre-capitalist societies artefacts are made by individual craftsmen working by themselves. The first stage of capitalist manufacture is the simple co-operation of workers who would share a workshop, buy their raw-materials and sell their goods collectively. The second stage is where the different tasks of hand manufacture are divided between the workmen under supervision from a master. This is known as the division of labour. The third stage came about with the introduction of specialised machinary or tools and the establishment of a factory system, where the worker carries out a specific task on a production line. Thus he does not need to know or see what the end product is. Scottish philosopher Adam Ferguson describes the advantages of such ignorance for successful manufacturers.

> Manufacturers, accordingly, prosper most where the mind is least consulted, and where the workshop may be considered as an engine, the parts of which are men.
>
> (Forty 1986,p.44).

As outlined earlier in this chapter, the office can be considered as being very similar to a factory. One processing data, the other raw materials. As the scale of business increased to satisfy the demands of industry, it was inevitable that office work became subject to the same principle of labour division already employed in factories.

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The clerk, like the craftsman, had complete control over and involvement with all aspects of office work. The division of labour saw clerical staff being subdivided into different departments. Each department carried out one stage of the work process. Each clerk within the department did one specific task such as opening letters or sending out invoices. The clerk's work was reduced to that of a factory worker.

The research work of Fredrick Taylor, which examined the efficiency of factory workers, led him to believe that an optimum method for each job existed. It was the job of managers to set this method. Taylor's work became known in the 1900's and was adopted into the design of the factory workplace. The layout of the machines, tools and the distribution of the workers were influenced by his work. Henry Ford adopted the principles into his own factory. He wrote:

> We measure the space in which the worker needs to perform a task with exactness. The worker must not be crowded: a loss of time would result from that. But if the worker and the machine occupy more space than necessary, another type of loss would result.
>
> <div align="right">(Knobel 1987,p.8).</div>

It was not long until Taylor's principles were applied to office work. The distribution of workers and effects have already been outlined but what of the mechanisation and layout of tools? In fact what are the tools of the office worker.

It is important at this stage to briefly define what a tool is and what the tools of the office worker are.

> Tool: The means whereby an occupation is pursued; aid in; equipment for; intellectual work: books are the tools of a scholar; the tools of one's trade.

(The Universal Dictionary of the English Language 1961, p.1972).

Craftsmen use a wide variety of tools for various manipulative tasks such as a hand-saw for cutting wood. The industrial revolution saw the mechanisation of many of these tools. Those which could be powered were powered, leading to increased productivity. These became known as machine tools or machines.

The clerk, whose skill was in management of data in the form of paper, also used a variety of tools. His pen is an obvious example. What of his desk? Was it not as important a tool for the production, processing and management of paper. If one looks at the desk of a nineteenth century clerk one can see that it allowed him to carry out his work more easily and with a degree of privacy.

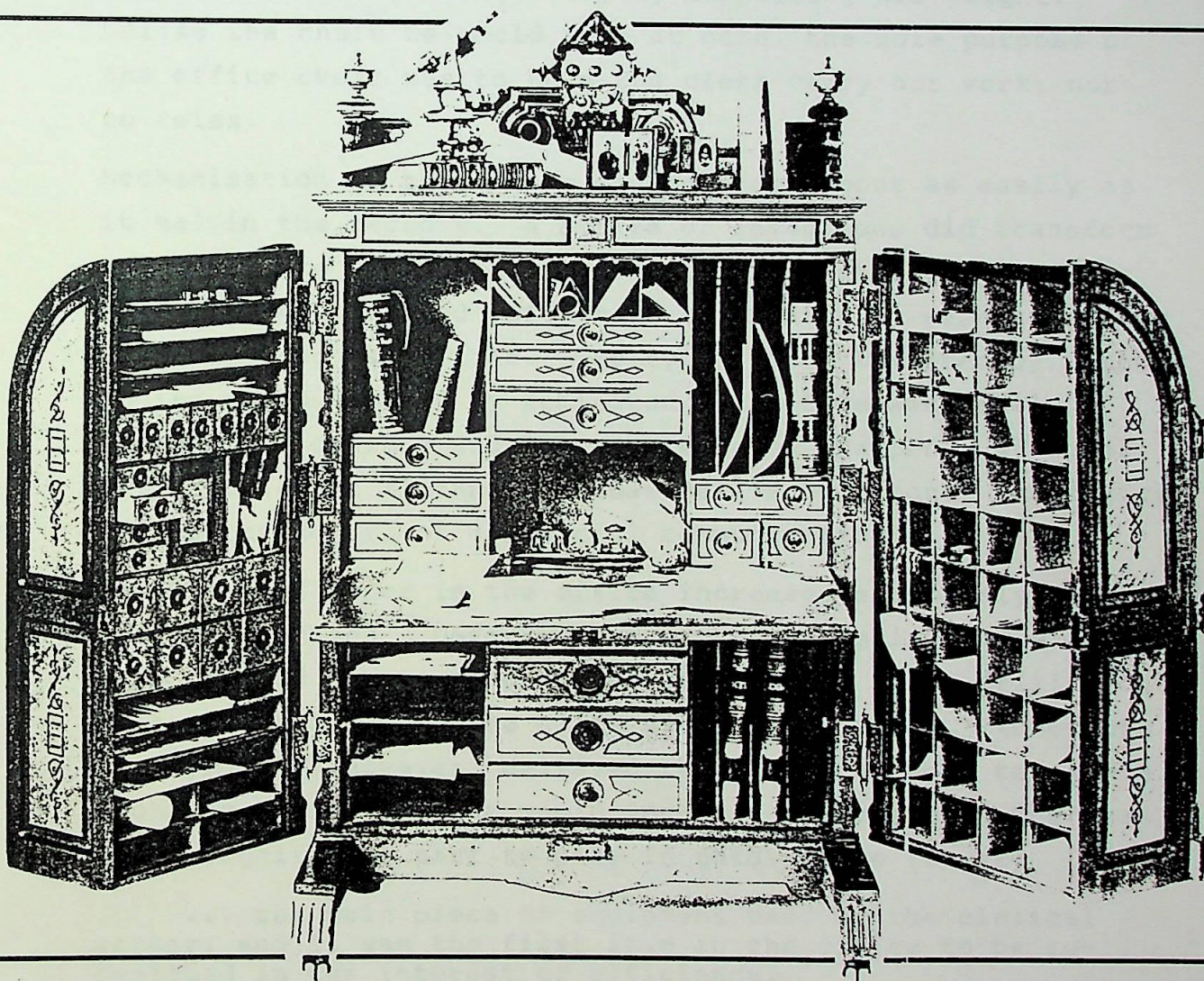

Fig. 1: WOOTON EXTRA GRADE PATENT SECRETARY, 1874.

The desk allowed the clerk to write easily, and from it he could collect and deliver office papers as his own pace of work required them to be moved around. It also allowed him to file papers as he choose in the various drawers and pigeon-holes located at the front and sides of the desk and the roll-top gave a degree of privacy to the clerk.

Without the desk the clerk would not have been able to carry out his work very effectively, if at all. It is obvious, therefore, that the desk was an important tool of the clerk for carrying out a wide variety of tasks.

Equally important was the seat in which he sat. It too, was a tool within the workplace. It allowed the clerk to carry out his work more effectively by supporting his weight. Unlike the chair he would have at home, the sole purpose of the office chair was to help the clerk carry out work, not to relax.

Mechanisation of the office did not come about as easily as it had in the factory. A series of inventions did transform the office to some extent. Samuel Morse's telegraph, first used in 1844, allowed offices to be physically separated from manufacturing facilities. The typewriter, invented by Letham Sholes and developed by Remington in 1868 became widely accepted in offices and largely replaced the pen. With the introduction of Alexander Graham Bell's telephone, the office became the centre of commercial communication.

The flood of paper in the office increased enormously due to these inventions. Unfortunately, the processing and management of this paper could not be mechanised. Work still had to be carried out by the clerk sitting at a desk. Adherents of Taylorism, however, believed that reducing work to simple, highly repetitive tasks would increase efficiency. The desk, had a significant part to play in this, since it was:

>   ... the main piece of equipment used by the clerical worker, and it was the first item in the office to be re-designed in the interest of efficiency.

> (Forty 1986, p.125).

The division of labour had introduced filing as a separate activity. Companies had separate filing departments and rows of filing cabinets and filing rooms. Individual clerks were no longer responsible for filing and storing the paper they worked on. The elaborate pigeon holes and drawers of a standard clerk's desk could be eliminated. A flat topped desk from a management point of view meant no possibility of

papers being hidden or lost. A minimum of shallow drawers
were provided to further this goal. The desk became 'no longer
a storage place - nor even ornamental - but a tool for making
the quickest possible turnover of business papers'.
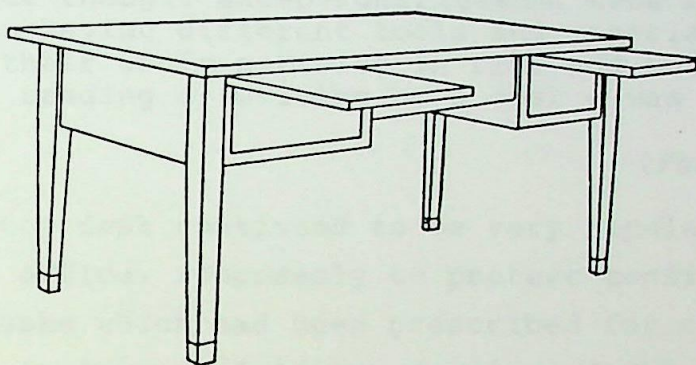(Forty 1986, p.126).

Fig. 2:   THE EFFICIENCY DESK DESIGNED FOR THE EQUITABLE
          ASSURANCE COMPANY U.S.A.. NOTE THE LACK OF STORAGE
          SPACE.

The roll top, which had allowed the contents of a desk to be
enclosed at the end of the working day was also eliminated
for the same reasons. Now, not only had the clerk lost
control over his work he had also lost the ability to make
his or her desk private. Any work was constantly exposed to
the view of supervisors. Justification for these changes was
dressed up to be in the interests of better hygiene, not
efficiency. The clerk also lost control over where he or she
was to put papers within or upon the desk. Standard methods
for arranging paper on the desk and within the shallow drawers
were introduced. These desk systems were taught to clerks and
had to be adhered to. Rough equivalents exist today, such as
the common "clean desk" policies which demand that no papers
be left on desks at the end of the day. Ridiculously,
scientific management extended down to the pen which the clerk
used. Standard pens were issued to clerks in the hope that
it would be more economical. Therefore, even the simplest

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form of personal imput, that of handwriting was subjected to standardisation.

The widespread ideas on scientific office management almost invariably stopped at the entrance to the managers office.

> In theory, scientific management should have been applied with equal force to all grades of office workers. In practice though, exceptional reasons were found to justify executives having different tools and materials from clerks, although their basic activity in time and motion study terms - sitting reading or writing at a desk - was exactly the same.

> (Forty 1986,p.128).

The roll-top desk continued to be very popular in the executive office, supposedly to protect confidential papers, and the desks which had been prescribed for clerks were dismissed in favour of large, spacious desks. The executive ignored considerations of hygiene, efficiency and organisation. The need to maintain hierarchies and status came into conflict with the implementation of scientific management principles. For these reasons, little change occurred in the design of executive office desks.

This inconsistency in the implementation of scientific management principles also showed its advocates to be what they truely were. They were concerned with selling furniture rather than increasing efficiency.

Executive chairs remained quite luxurious, being very similar to domestic furnishings. Again they remained unaffected by the new management principles. It was the clerical worker's chair which was to attract the attention of designers. Clerks clearly needed the best design of chair for working at a desk. The optimum chair for this purpose was said to be '...swivel based, with a wooden saddle seat and a slatted wooden back'. (Forty 1986, p.129-130).

The classic office chair of the late nineteenth century was the American wood swivel chair. Apparently invented by Peter Ten Eyck, in 1853, the swivel chair was generally made of oak. The seat was mounted on four legs, each leg having a wheel

which allowed the chair to be easily moved. The real innovation of this chair design, was the junction between the seat and the legs. Here, a mechanism allowed the seat to tilt back and to swivel. It also allowed for some height adjustment of the seat.

Specialised Furniture.

'If the desk was thought of as a tool then each clerical job needed its own tool.' (Forty 1986, p.130). With the rationalisation of office work into specialised departments giving groups of clerks identical tasks, came the need to design specialised office furniture.

One such task was typing. It was in the development of typists chairs and desks that specialised furniture received more attention. Typing, unlike writing, is a series of highly repetitive movements and it had a particular attraction for scientific managers, because the rate of work could be calculated so easily. Hence the effectiveness of any new furniture design could be assessed.

Purpose designed typist's chairs were developed in the 1920's. The designs were influenced by studies made of sitting posture that had been undertaken in factories. The new designs were closely based on those, such as Eyck's, although wood was replaced by steel. They were adjustable with upholstered seats and backrests.
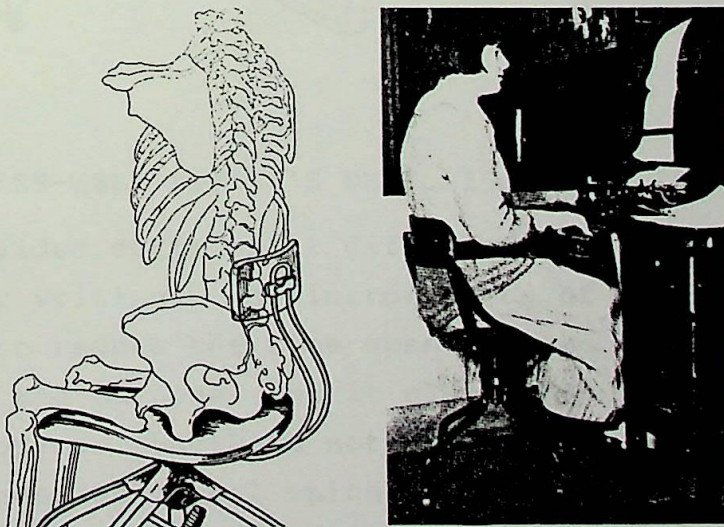

Fig.3: PURPOSE DESIGNED TYPIST'S CHAIR OF 1926.

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These chairs were efficient and looked similar to a piece
of industrial equipment. They had the effect of making the
office more and more resemble a factory.' (Forty 1986, p.132).
For the advocates of scientific management, it was a dream
come true.

Office desks also became more specialised.   The sunken-well
desk was a specialised version of 'Efficiency Desk'.   Although
introduced in 1880, after the invention of the typewriter, it
saw its true purpose serving as a desk in the scientifically
managed office of the early 1900's.
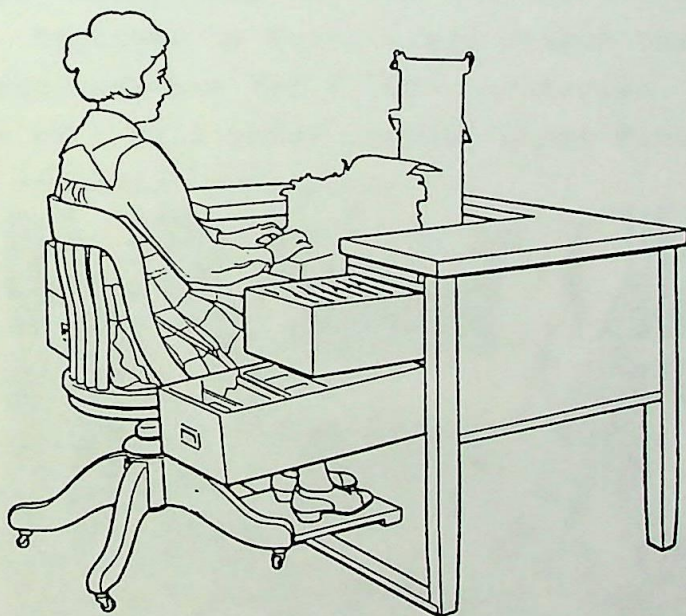
Fig.4:   A SUNKEN-WELL TYPIST'S DESK. 1915.

This desk provided surfaces at different heights for the type-
writer and for writing. The introduction of storage drawers
was intended to reduce the time spent by the typist in reach-
ing for paper and carbons, and it also had 'devices added for
holding the copy or shorthand notes.' (Forty 1986, p.131).
Its effectiveness as a tool which increased work efficiently
could be easily measured according to increased paper output

from the typist. (Forty 1986, p.131).

The layout of desks was also influenced by principles of scientific management. It was believed that efficiency of the worker could be increased even further if the furniture was arranged in standard rows. Not only were workers now easier to supervise but the impression of efficiency was enhanced, with this factory-like image. The desks looked increasingly like machines on a factory floor. The clerks increasingly similar to factory workers.

Office buildings too, particularly in America, began to be built to the same scale as factories. The early 1900's saw the construction of purpose-built office buildings. The most significant advance was for the 1904 Larkin Building in Buffalo, New York. Designed by Frank Lloyd Wright the building was to provide accommodation for 1,000 secretaries, clerks and executives of a mail order company whose manufacturing facilities were adjoining the site.

Fig. 5:   THE CENTRAL SKYLIT COURT OF FRANK LLOYD WRIGHT'S
          LARKIN BUILDING, BUFFALO, NEW YORK, 1904.

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In such buildings desks and chairs could be set in rows within
the large open spaces and communication between departments
could be easily established. Of course, these buildings
were clean and comfortable. But for the fact that the pro-
cessing of data does not give off fumes; or create high
levels of noise, this might not be the case. The office pre-
1940's could very well have resembled a factory. The furni-
ture was fine tuned and abstracted into efficient tools for
processing data in the form of paper. The clerk's work was
de-personalised into specific repetitive tasks. Machinery,
such as the typewriter, was introduced, whereever possible,
to increase efficiency. Finally, workers, furniture and
machinery were housed in large purpose built or converted
office buildings not unlike factory buildings.

The advocates of scientific management principles had
achieved their goal. They had established and exploited a
market for office furniture in the name of greater efficiency.
However, one thing they had overlooked in their quest for
perfection was the human factor.

People are unpredictable and cannot be controlled or redesigned
like machines or desks. It was to become clear that work
efficiency would be affected by this one uncontrollable ele-
ment, an element which was to attract much attention from
designers in the future.

The Decline Of The Clerk's Status.

By the late 1930's the status of the office worker was no
better than that of a factory worker. In the last quarter of
the nineteenth century, clerks were almost all men, and they
enjoyed quite a high status within society. Their job was
considered to be quite prestitious particularly those within
insurance offices and banks.

Clerks were paid similar wages to factory workers. The
clerk's skill was in the production, processing and management
of the data in the form of paper. It was this trust that was
placed in them which gave clerks a degree of respectability.

By the turn of the century office work and its status had
changed in many ways.

Offices had expanded, employing more clerical staff which in
turn reduced contact between the employers and staff.
Education for all meant that clerical work was no longer
exclusively the domain of the middle classes. The introduc-
tion of the typewriter in the 1800's saw the introduction of
women into the office. This increased the labour supply still
further. Women too, had a lower status than men in any job
and worked for lower wages. All these factors led to a decline
in the status of clerical work.

The final blow came with the implementation of the Principles
of Scientific Management. As outlined above it de-personalised
office work into repetitive tasks. Now not only did clerical
work have no status but it also gave the clerk no job satis-
faction. Clerical work no longer held any attraction for
potential employees. Many people began to choose factory work
in preference to office work. The wages, in general, were
better and the work no less rewarding. In many ways the quest
for efficiency in the office had back fired. Now management
had to find ways to attract workers back into these efficient
offices. It also had to find an economical way to keep them
content with the work as it was. From the 1930's on, the
nature of office work remains unchanged. What did change
and what had to change was the status of office work as
compared to factory work. Finding a way to achieve this was
the problem which was to face the next generation of designers.
They could not change the nature of office work nor could they
compromise an efficiency of office machines or furniture.
What they could change was the image of the office. They could
desguise something unattractive and give it a pleasant face.
The images of the factory had to disappear from the office.
The layout of offices had to change. The furniture too,
notably desking, was also to undergo a facelift.

CHAPTER III

THE OFFICE FACELIFT OF THE 1950's and 1960's

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> During the 1950's and 1960's, not only did almost every item of office equipment undergo radical change in design, but so too did the entire environment of the office.
>
> (Forty 1986, p.140).

After the war there was, on both sides of the Atlantic, a steady growth in the service sector, factories and offices flourished and were again in direct competition with each other on the labour market. There was little difference in wages of factory workers and office workers.

The obvious way to attract workers was to offer them higher wages than competitors but this was very costly. Office employers choose not to compete on wages, and instead began to rely on job status and apparent pleasentness of office work as bait for potential employees.

The principles of scientific management, which had so radically changed the look, organisation and layout of offices before the war and into the 1940's and 1950's, began to be re-assessed in order to solve this unforseen human problem.

With exceptions such as Frank Lloyd Wright's Larkin building in Buffalo, most office buildings and the furniture contained within them resembled factories with rows of machines and workers.

This was true even of office buildings in the 1950's. Developments, particularly in America, in lighting and building technologies during and after the war had made it possible to construct buildings with deep open office space several stories high. The need to maximise letable office space on expensive urban sites made large clear floor spaces desirable. A typical example of this is the Seagram building, designed by Mies van der Roche and completed in 1958.
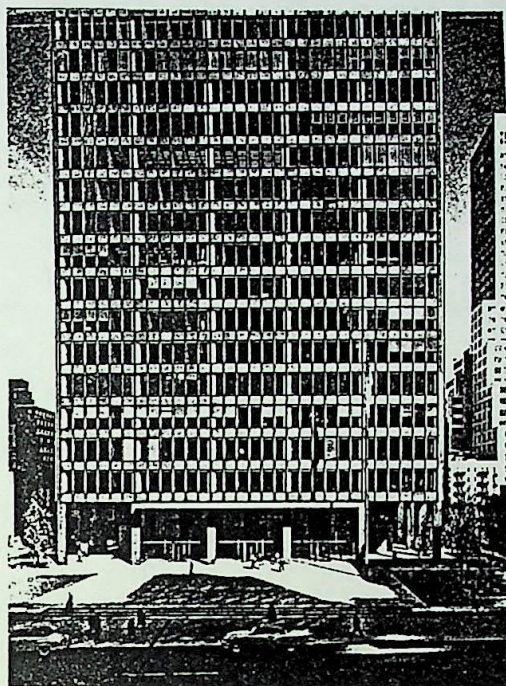
Fig. 6: Mies Van der Roche's Seagram Building, 1945 - 1958.

This building set the pattern for the office building of the next twenty years. A typical office floor in the building had a central core for lifts, staircases and services. The office space was located around the perimeter. Executive staff were placed in offices, for preference, along this perimeter beside the windows. Clerical staff were placed in large bullpens of carefully ordered desks on the interior. Many later office buildings were to follow this style.

Although, initially, companies adopted the traditional forms of office design and layout, it was these very same open plan buildings which later proved to be the perfect architecture from which new forms of office furniture and office layout could develop.

The Break With Tradition:

Strangely, it was in Europe that the strongest signs of a break with the traditional forms of office design and layout

first showed. As far as mass-produced office furniture was concerned, by the mid 1950's some European designers were taking issue with the traditional approaches. The large, perfectly ordered office space that dominated American corporations did not prove very satisfactory in Europe nor very compatible with existing office buildings. Only in the mid 1960's did tall American style office buildings become widespread in Europe. Most European offices had a strong similarity to those of the early 1900's, more so than their American equivalents. However, European furniture designers, freed from the lasting impact of war time restrictions on raw materials, were now looking towards Germany for inspiration.

A new theory on office layout was developing in Germany. 'Bürolandschaft' or office landscaping, rapidly spread to dominate Europe and consequently office furniture designers responded to this.

Bürolandschaft was developed from the research work of a German management consultancy firm, Quickborner Team, led by the Schnelle brothers. They, like the scientific management theorists, put forward the theory that the layout of the office should be determined by work flows. When the results looked odd with free flowing lines of communication as opposed to the strict rectangular layouts which had been assumed to be correct before. A typical Bürolandschaft office had large open floor areas, furnished in a seemingly free way and to a very high standard. They were;

> ...completed throughout, and fitted with furniture which demonstrated taste and style, as well as being efficient.
>
> (Forty 1986, p.143).

Such a layout helped to counter-act the factory image with strict rectangular layouts generated. It also gave the impression of obliterating hierarchies which had always been so obvious in offices. Executive staff worked on the same floor as clerical staff, emphasising the need for greater personal contact between staff. The landscaped office also returned some control to the worker. Not only was the

layout of the office determined by workflows but the worker too, was given some control over the positioning of his or her work area. If two workers did not relate well to each other, they could easily separate their work areas.

Bürolandschaft, although it had many advantages also had its pitfalls which its originators did not forsee. Noise and distractions were problems caused by open planning. For workers, their exposure to the eyes of supervisors was reminiscent of early offices. The apparent democracy of Bürolandschaft was not necessarily real. Efficiency was still the number one concern of managers.

The layout of the landscaped office could only go some of the way towards changing the image of the workplace. When the disciples of Quickborner's Bürolandschaft came to lay out offices based on their new principles, they found existing furniture did not match their needs. The heavy, bulky desks that were available to them did not suit. The furniture did not lend itself to the free flowing plans. There was a need for furniture, desks in particular, which could be easily moved into various configurations. They looked to furniture designers to solve such problems which were beyond their control. A few designers and manufacturers, mostly from Germany, Holland and Scandinavia, did respond to the demands of Burolandschaft, with lightweight desks and chairs which could be easily moved. The new furniture also began to assume new functions like carrying, lighting and even some partitioning. The deep plans for new buildings created for the office landscape had begun to make this essential.

Fig.7.   A TYPICAL BÜROLANDSCHAFT OFFICE.   NOTICE THE LIGHT-
WEIGHT CONSTRUCTION OF THE DESKS AND CHAIRS.

The design of office furniture was also relied upon to give
an atmosphere of friendliness to the office. To create this
impression '... landscaped offices used furnishings that
suggested domestic interiors'. (Forty 1986, p.144). The
psychology was simple. If workers and clients were made to
'feel at home', they became more relaxed, therefore, they
would work better or be more willing to do business.

Domesticity in the office was not a new trick though. At the
turn of the century the offices of some directors or managers
had been furnished in a similar fashion. The difference now
was that this extended to all ranks of workers.

The overall corporate image of efficiency and friendliness
was important. The friendly domestic image was greatest if
the furnishings had an air of quality about them. The image
of efficiency was greatest if the furnishings had a consistent

appearance.   Therefore quality furnishings were given to all
workers.

Not only did this boost the overall corporate image but it
also seemed to reinforce the egalitarian attitude of employers
towards their employees.

     The extensions of the smart modern image to all ranks
of staff can be explained partly by the demands of apparent
egalitarianism and partly by the development of open-plan
offices in which diverse designs would have made it more diffi-
cult to sustain the vision of an orderly and therefore
efficient organisation.

                                        (Forty 1986, p.148-149).

Egalitarianism in the office looks well on paper but when put
into practice, the need to preserve hierarchies becomes
apparent.

     The entire operation of bureaucracies and administra-
tions depends upon knowing who is responsible to whom; without
this certainty, the mainspring of the office would be
lost.

                                        (Forty 1986, p.147).

It was important therefore that the friendly appearance
produced by egalitarianism should remain just that; an
appearance.

     It was the capacity of office landscaping to contain
this apparently insoluble contradiction of office work
between apparent egalitarianism and actual hierarchies, that
made it so attractive as a system of design.

                                        (Forty 1986, p.148).

However the ability of office planning to play this role
relied heavily on the design of the office furniture.

Designers were faced with the problem of providing furniture
which had a consistent standard of quality for all ranks of
staff but which also preserved hierarchies within companies.
The furniture had to be compatible with the new theories of
management expressed by the followers of Bürolandschaft.

Mass production of quality, prestige furniture was already
well established. The first and best known firm to do this
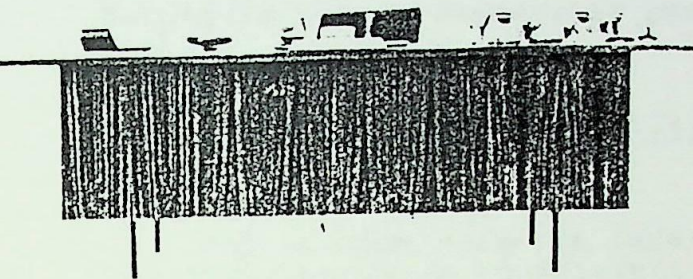was Herman Miller Inc. in the United States. George Nelson

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was commissioned to design a desk for them in 1949. His design generated a minimal desk, which had a thin, round section, chromed tube frame supporting a highly polished, natural wood finish table top. The desk however was aimed at executive staff and not for general office use. It still preserved the distinction between executive and clerk.

During the early 1960's in Britain, Hille and Co., were the first office furniture manufacturers to address and success-fully solve the problems posed by the new theories of office management. Their 'Status' range had the same standard of quality and style that Herman Miller had already achieved. However, for a semblence of quality, this quality and style now extended to all ranks of staff, from secretaries right up to executives. It was subtle variations in desk size and shape which cunningly preserved office hierarchies. Senior management had a full modesty panel, middle management an open knee hole and secretaries a single pedestal.
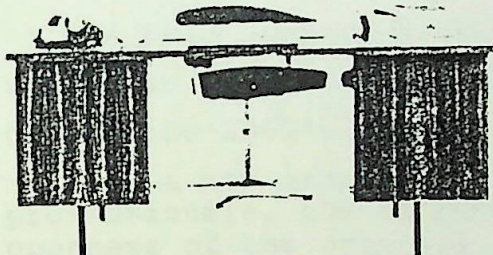
There's a Status desk for non-stop directors,
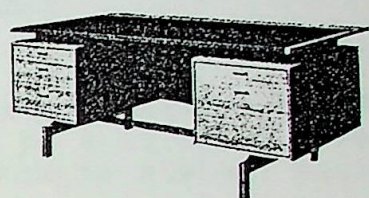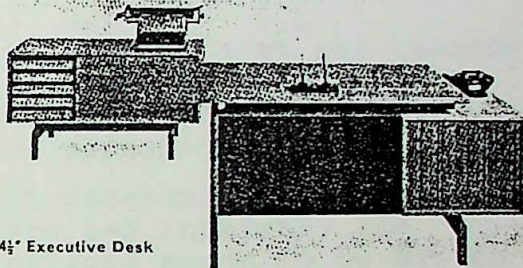
... for dedicated young executives

and for pretty typists

LUCAS
of London
FURNITURE

Senior Executive Desk
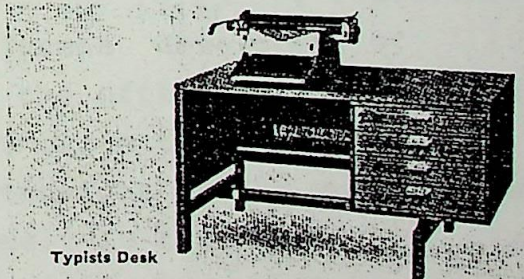
5' 4½" Executive Desk
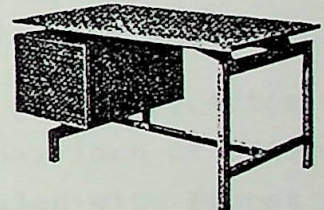
4' 6" Executive Desk
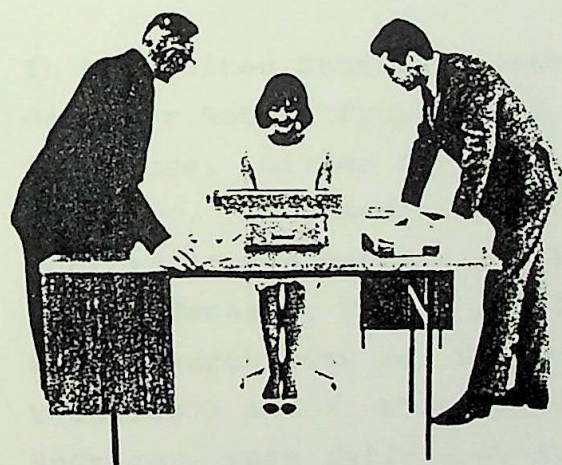
Typists Desk

Fig. 8:   THE 'STATUS' RANGE BY MILLE AND A SIMILAR RANGE
FROM LUCAS OF LONDON, CLEARLY HAVE CONSISTENT
QUALITY THROUGHOUT, BUT SUBTLE CHANGES IN
APPEARANCE REVEAL THE STATUS OF THE USER.

This harmonisation of two apparently heterogeneous elements
was the great achievement of the 'Status' range. Many furni-
ture manufacturers were to follow their lead such as Lucas
of London and Holzapfel of Germany. This style of office
furniture became widespread particularly throughout Europe,
right up to the mid 1960's.

'Action Office' - Individuality and Privacy within the office.

The package solution offered by Bürolandschaft ignored
the differences in organisations, except on a workflow level.
For most companies, the hierarchy needed to be stated; senior
managers expected a space of their own.

(Knobel 1987, p.65).

It was this need to protect office hierarchies that was respon-
sible for another major change in office furniture design
during the 1960's. As office began to depend heavily:

.. on a new group of high-status but non-management
professionals, the computer programmers and analysts, the
openness of the original landscaped offices began to be broken
up into partitioned cubicles formed by the screens.

(Forty 1986, p.150).

In the United States, Herman Miller Inc., in co-operation with
designer Robert Propst, was developing a new form of office
furniture. Miller formed a research division with Propst as
director. In a manner similar to the Taylorist researchers
earlier in the century and the German developers of
Bürolandschaft, Propst examined the office from first principles.
His research work led him to formulate two theories. His
theories X and Y, which were extensions of the work of Douglas
McGregor, were defined as follows.. In theory X;

...the bosses set the objectives, exercise control.
Ultimate knowledge lies at the top. Independance is dis-
couraged and mistakes call for penalties.

(Knobel 1987,p.74).
(Cross Ref: Propst, 1968).

In theory Y however,
...is natural for people to seek responsibility and
... they enjoy it. Performers at any level need challenge
and encouragement to gain top performance. Unique knowledge

and skill lies at all levels in a healthy organisation.

<div align="right">(Knobel 1987, p.75).</div>

<div align="right">(Cross Ref: Propst, 1968).</div>

Based on Theory Y Propst set the brief for the new forms of furniture. The design objectives were as follows:

1.   ...the need for highly permissive surroundings capable of expressing with great pertinence things that count, that identify their very person and serve to motivate.

2.   ...the size of [work] station can vary radically, but the important thing to recognise is the necessity to separate substantial tasks into established work locations.

3.   The objective is to remove the obstacles to face-to-face communication by providing the proper conversational options.

4.   ... proportioning some of our work to stand-up work-stations would do more than anything to overcome a sedentary decline [lack of exercise].

5.   ... the reconciliation of privacy requires a new language of enclosure and access. It demands that we preserve, for good reason, the private place with suit-able surroundings, with much more eloquent design of free access to each other.

<div align="right">(Knobel 1987, p.75).</div>

<div align="right">(Cross Ref: Propst 1968)</div>

Some of these objectives were fulfilled with the production of 'Action Office', in 1964. Greater success and fulfilment of the objectives was achieved by 'Action Office 2' in 1968. Both were designed by Propst and George Nelson for Herman Miller Inc.

The original 'Action Office' was designed around a T-shaped cantilevered, die-cast, polished aluminium frame. Rooltops, the scientific manager's enemy, reappeared, enabling individuals to hide the clutter of their desks at the end of

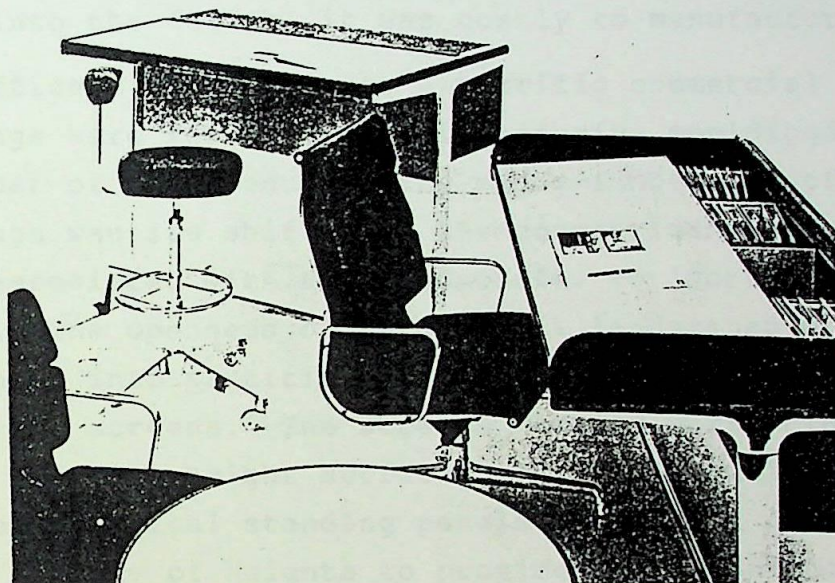the working day. Thus neatness, security and privacy were
restored.

Fig. 9. SOME OF THE DESKS FROM THE ORIGINAL 'ACTION OFFICE'
         RANGE.

Raised work surfaces allow for variation in posture, decreas-
ing fatigue and therefore creating greater work efficiency.
Small drawers for pencils and pens were located under the
worktop, but large drawers where papers could be stowed away
and forgotten were avoided. The efficient movement of paper,
as always, was the primary concern of designers and managers
alike.

In an attempt to eliminate the clutter of wires which was
brought about by the telephone and electric typewriter, outlets
were integrated into the furniture. 'Cable Management' as
it became known, was to be a major concern in the future for
furniture designers.

At the launch of 'Action Office', Herman Miller stated that
the furniture was aimed at those who were interested in;
'personal productivity, who want their office to serve their
mental effort rather than their egos' (Knobel 1987, p.78).
These were brave ideals but unfairly 'Action Office' was not
a commercial success. It had not gone far enough in preserv-
ing office hierarchies. Also, by integrating the elaborate
castings into the design, it was costly to manufacture.

'Action Office 2', however was a terrific commercial success.
The castings were replaced with inexpensive mouldings reduc-
ing the cost of the product. The major innovation of the new
range though was its shift from the conventioanal free-stand-
ing desk associated with Bürolandschaft, to 'screen mounted'
furniture. The openness of the original landscaped offices
was broken up into partitioned cubicles which were easily
formed by the screens. The screens carried worksurfaces, both
desks and standing-height surfaces, racks and shelves. The
screens, or 'vertical standing panels' as Propst defined them,
came in a variety of heights to provide a range of different
enclosures.

The change to a screen-mounted furniture was an attempt to
resolve the debate between advocates of 'closed' and 'open'
offices. The advantages of traditional closed offices such
as privacy, a sense of ownership, easily established hierar-
chies and lack of distractions were being weighed against the
advantages of open Bürolandshaft type environments, such as
improved communication, ease of supervision and the image of
egalitarianism.

'Action Office 2' was intended as a compromise between the two
views. The screens enabled territory and hierarchy to be
restored to the large open plan floor of American Corporations
and ultimately to the office landscapes of Europe. It also
provided the option of communication and privacy to workers.
Supervision was not difficult and an overall impression of
unity or egalitarianism was strong since the quality of the
furniture was consistent. The screens also gave the furniture

some flexibility. It was easy to arrange freely within a
defined space.

     The Action Office concept begins with highly mobile,
wall like elements which define space, provide privacy, and
physically support multiple workstation functions. As a
generality, a comfortable human is not likely to be located
very far from an enclosure element.

                                        (Knobel 1987, p.78).

Herman Miller later developed hundreds of optional accessories
to the furniture range. Magazine racks, telephone holders,
vertical and horizontal filing, paper trays and signs to list
but a few. What the furniture now offered was a complete
package from desks and chairs right through to shelves and
pencil holders. One critic wrote;

     No one sells you a desk anymore: he will try to sell
you a service, a system, workstations, office products.
Something very important has changed and [it isn't] just
techniques of salesmanship.

                                        (Knobel 1987, p.79).

Furniture such as 'Action Office' became known as furniture
'systems'. The radical leap of 'Action Office 2' and its
overwhelming success in both America and Europe made much of
the rest of the late 1960's office furniture design seen
rather uninteresting.

These systems however, were aimed at image conscious
corporations and businesses. It was, in contrast, still
necessary to provide furniture for those who were less con-
cerned with the image of their offices and more concerned
with efficient use of space. With the ever increasing cost
of office space some furniture manufacturers choose to design
furniture having a much more basic function as an efficient
unpretentious tool and which occupied no more space than its
function required.

One such design was that produced by the Ministry of Public
Works for the British Civil Service in the late 1960's.
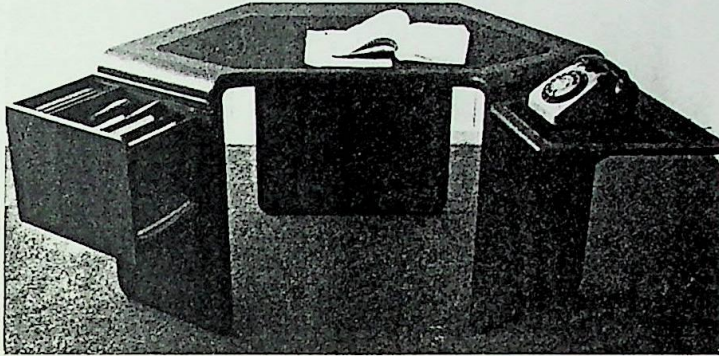
Fig. 10.   THE MINISTRY OF PUBLIC WORKS, PROTOTYPE CLERICAL
           DESK, 1968.

The worktops were no bigger than they needed to be for a single
task. If the nature of the work justified the need for more
worktop area, then more units could be added on to the original.

This 'add on' feature also satisfied the need to establish
office hierarchies. An office manager's desk could give the
impression of higher status with the inclusion of more 'add
ons' even though it was identical in appearance to that of a
lowly clerk. This somewhat contradicted the aims of design
which were primarily to conserve valuable space.

However, efficiency, in terms of paper movement was maintained.
Concealed storage space was reduced to a minimum, reminiscent
of the 'Efficiency Desk' of 1915, but later versions of the
system did provide some enclosed shelves for personal belong-
ings. This was seen as a compromise between office efficiency
and privacy for the worker.

Nevertheless, such designs did not capture the limelight.
All eyes were by the end of the 1960's, firmly fixed on
developments in furniture systems. The next decade was to
prove a fruitful one for those who choose to follow the lead
of 'Action Office'.

CHAPTER IV

THE 1970's and 1980's

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THE 1970's AND 1980's.

The 1970's saw the enormous development of office systems.
The success of 'Action Office' spread rapidly and many manu-
facturers in the United States and elsewhere choose to imitate
and fine tune the Propst design. By the late 1970's scores
of imitations were on the market. Screen-based systems began
to dominate office furniture. 'The market share of open plan
furniture increased from three per cent in 1967 to nearly
twenty-five per cent in 1982.' (Knobel 1987, p.79).

There was now competition between the new screen-based systems
and the free-standing furniture adopted by followers of
Bürolandschaft.

'Action Office 2' set the standard for systems furniture but
the market lead began to fall to other companies who were
imitating the design. Typical of such imitations, and one of
the more successful, was that produced by the American
company Knoll. Their 'Stephens' range was basically a box-
shaped design with desks enclosed on three sides by high
solid panels which support lighting and shelving. Thick wood-
veneered components suggested solidity and quality.

Bürolandschaft thinking was, even at this time, popular and
relevant in Europe, as a result. Designs for Bürolandschaft
orientated furniture were still being generated and manufac-
tured. One example is 'Facit '80' produced by the Swedish
manufacturer, Facit. Designed by Carl Christiansson, it had
a basic structure of stove-enamelled steel tubing from which
storage units, bookcases and worktops were hung. In the
Bürolandschaft tradition it had free floating screens of
perforated fibre board and the furniture was lightweight for
ease of movement.

By the mid 1970's, office furniture had somewhat stagnated.
The success of office furniture systems found manufacturers
and designers alike, resting on their laurels. Yet in 1977
Nelson of 'Action Office' fame launched a new system named

'Workspaces', which attempted to return power to the user. Nelson re-assessed office work by observing the way people work and how they feel about their role within large establishments. Nelson described some of his findings;

> ... what I gradually discovered was that all these people felt quite helpless. They don't make decisions, they just stamp here and sign there. You give them a Luxo [lamp] and they can adjust it to light whatever they want. This gradually developed into the notion that people's happiness in a workspace related directly to the degree of control they have over their environment.
>
> (Knobel 1987, p.84).

With this research in hand Nelson developed 'Workspaces' which included adjustable lamps and blinds, bins, personal potted plants, plug-in name plates etc. The system also integrated soft interior surfaces where users came into direct regular contact with the furniture. Exterior surfaces remained hard and shiny for durability. This detail was later copied and popularised in many office furnishings of the 1980's. Nelson's 'individual control' philosophy was also to be influential to designers of the 1980's.

Cable Management:

> Office furniture design in the first three-quarters of the century concentrated primarily on working methods and, only as an over-riding problem, handling paper storage.
>
> (Knobel 1987, p.89).

With the use of the typewriter and copying machines paper threatened to flood the office in ever increasing quantities. Furniture had to be adapted by designers to cope with this onslaught.

The computer, stemmed the tide of paper to some degree. It allowed for data storage on tape or disk rather than on large amounts of paper. Nevertheless, the computer generated its own problems for furniture designers.

Computers up until the late 1970's were large, bulky machines known as 'main-frame' computers. They could easily fill a large room. The terminal itself was of considerable size.

However as technology advanced computer hardware decreased size. The development of the micro-computer by Apple in the late 1970's saw computers appearing on office desks.

These new tools produced particular problems. The environment had to have controlled levels of light, static and temperature. For furniture designers though it was the electrical cables which proved to be the problem with computers. There was a need to provide a 'clean' power supply (not contaminated by electrical interference) and connections to a separate printer, disk drive plus the data network. Cables for lamps, telephones, electric typewriters, fans, and dicta-phones added to the headache. Without some means of control-ing these wires, fire hazards from bad electrical connections and untidiness in the office resulted.

The attention of designers now shifted from paper management to this new problem called 'Cable' or 'Wire Management'.

> The problem of cable management is twofold; bringing wires from the floor, office perimeter or ceiling trunking to the worksurface, and then distributing the wires.
>
> (Knobel 1987, p.89).

Many furniture manufacturers opted for vertical channels in desk legs or panels to bring wires to the desk while a variety of trays channels and dumps were divised to distribute the wires around the desks.
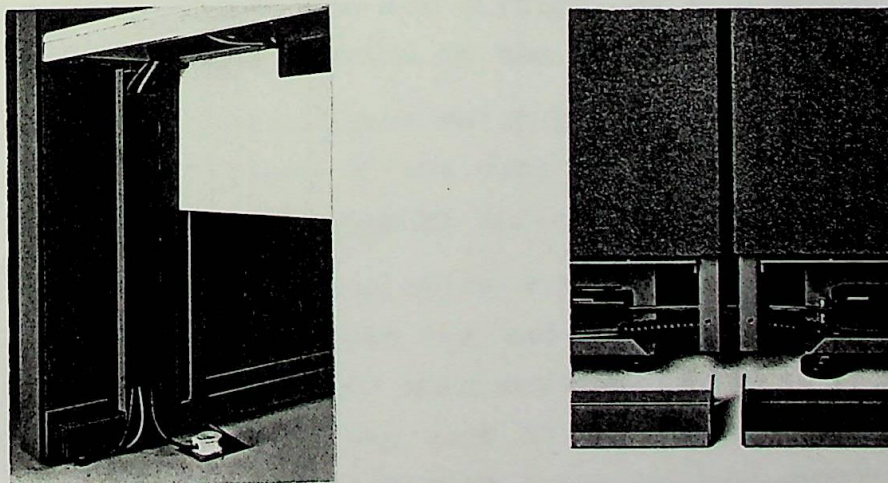

Fig 11: AN EXAMPLE OF A SOLUTION TO CABLE MANAGEMENT ADOPTED
BY LUCAS FURNITURE SYSTEMS, LONDON 1989.

Some American designers recognised relatively early, the increasing problems posed by cable management. 'Action Office' is a good example of this.   In 1979 the 'Race' system designed by Douglas Ball for Sunan, provided another early solution. In brief, this system was based around a desk height beam that carried all the necessary cabling, while at the same time supporting the work surface.

While the 'Race' system showed an early recognition of the problems, most 1970's and early 1980's office furniture had to be crudely modified to cope with the problem.   Cable management, even today, proves to be a major area of concern for designers.

The Office Chair Re-assessed.

The office chair of the early 1970's had changed little since the purpose designed office chairs in 1926. Compared to the desk the chair does not respond well as a medium for convey-ing subtle images such as hierarchy or egalitarianism.   An executive's chair, luxurious and domestic in appearance, could be easily identified as being an executive's chair.   The clerks or typist chair, functional and industrial in appearance, is most positively meant for those who take the bus to work. It was and is difficult to strike a happy medium. It has been seen that desks responded differently.   For this reason the office chair has received little attention from designers, who since the 1950's have been caught up with creating the image of furniture.

Although office chairs did not stretch any boundaries, the late 1970's saw great developments in the typist's chair.

In many ways the typist chair which had endured almost without variation since the turn of the centure, was a good resolution of the problems of back support and correct height.

Nevertheless, there was a problem with the traditional approach to chair design. Once again the uncontrollable human factor had not been properly taken into consideration.   A typical typist's chair relied on the user to determine the correct seat height, back height and back-rest angle adjustments. Unfortunately, users tended to make the incorrect adjustment or no adjustment to the back rest.   Thus, the full potential of these chairs as efficient tools was not realised.   What was

needed was a chair which gave the user no control over the
back rest height or angle.   The first of these chairs was
'Vitramat' designed for the Swiss manufacturer Vitra by
Wolfgang Muller-Deisig in 1976.   It took advantage of
different densities of injected foam.   This foam gave
various levels of firmness to suit distinct parts of the
body such as the lumbar region.   Instead of relying on the
user to set the tilt of the chair, Muller's design was
'dynamic'.   The back moved with the user to provide constant
support.

Some years later the same principle was developed further by
Emilio Ambasz, the Giancarlo Piretti in the 'Vertebra' chair.
The difference here was that the dynamism was made into a
visible feature.   Bellows like, rubber sheaths were cleverly
used to house the moving parts.   This echoed the non-static
nature of the design.

Fig. 12: THE 'VITRAMAT' CHAIR BY WOLFGANG MULLER-DEISIG 1976.

There was one problem with the design of 'Vertebra'. The single pivot linkage between the backrest and the seat tended to give users the impression that their trousers were being removed. In 1979 German designers Franck and Sauer, evolved the 'FS' chair for Wilkhahn. Instead of a single pivot, it moved around two points. This detail illiminated the problems encountered with 'Vertebra'.

Many other stylistic changes to the chair took place during the 1980's but it was the above designers which set the standard in terms of function. It is, after all, the function of an office chair which is its most important characteristic.

Power to the Individual.

Systems furniture was designed to satisfy the needs of open-plan offices. Some corporations however, took an architectu-ral approach to the very same problems of privacy and individuality within the office.

Typical examples of this approach can be seen in the Central Beheer at Apeldoorn, Holland, designed by Merman Mentzberger in 1978 and GEW, Cologne, designed by Kraemer Sieverts and Partner in 1980. Both buildings contain a honeycomb of layered, and staggered office spaces on work islands. The effect breaks up, personalises, and landscapes the office without using systems furniture. Workers are encouraged to personalise their own area while the framework of the build-ing itself gives uniformity to the whole office.

Unfortunately, such buildings are the exception rather than the rule. The legacy of the 1950's, 1960's and 1970's has left the business communities of the world working in large open-plan office blocks. As a result systems furniture still dominates most office environments.

The development of 'Action Office' in the 1960's had ensured Miller years of sustained growth. The many imitators who followed his design also reaped great benefits through serving the demands of the modern office.

In the early 1980's control of Miller returned to its original owners, the De Pree family. Seeking revitalisation of the company, which had become stagnant with success, Max de Pree commissioned designer Bill Stumpf to design yet another furniture system.

'Ethospace', was launched in 1985 and was termed, the 'first anti-systems, system'. Stumpf placed great importance on moving control of the workers environment out of the hands of managers into the hands of workers. 'Action Office' had intended to do this using the moveable screens, but unexpectedly screens proved to be less mobile than they were first believed to be. Assembly and configuration decisions were quite irreversable as far as the user was concerned.

Ethospace however has tile-like panels that snap-fit into frames. No tools are needed so the individual worker can easily change the look and orientation of their own workspace, even to the extent of complete enclosure. Nevertheless, it is impossible to hide oneself from work. It is for work and work alone that offices and office furniture exist.

CONCLUSION

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The adage 'time is money' is very relevant in the workplace. This applies equally well to the office where the efficient processing of data is the primary aim.

After the establishment of the office as a workplace and with the encouragement of office managers, furniture quickly developed into an efficient data processing tool. The function of office furniture has not changed since.

What has changed however, is the look and image of the furniture. New materials such as tubular steel and plastics have certainly had an influence in this area. New technology such as the typewriter brought about structural changes as designers adapted the furniture to suit. The architecture of office buildings such as 'open plan' offices was equally responsible for changes in the form of furniture, as was argonomics.

These influences are quite obvious ones and for a designer they can be easily controlled or assessed. All products are subject to the same influences, the designers decide the degree to which each should influence a product.

Office furniture however, over the years, has had one other quite uncommon influence. Instead of technology and physiology as a starting point, a great number of designs in the last century have been influenced by the psycological analysis of the user, namely the office worker. The Taylorists had only allowed for the needs of organisations. Perhaps intentionally, they did not bow to the personal needs of the worker. In the 1950's and 1960's, the development of Bürolandschaft was an attempt to humanise the workplace. Later 'Action Office' developed this theme further and more successfully.

Nevertheless these changes were not undertaken because of sympathy for the office worker. Office work had a bad image. Workers were underpaid and overworked. Humanising the office with office furniture had averted mutiny within the ranks of office workers and had done so quite economically.

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It can be seen therefore that office furniture is not only an efficient tool but like a chameleon it can change its outward appearance in order to survive in the competitive world of business.

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