Workshop Refurbishment In Hampshire

John Oakley
The Connaught School, Aldershot

Introduction and Background

In September 1988 I took up my present teaching post at The Connaught School in Aldershot. My brief was to update the traditional workshops and bring them into line with current Design and Technology thinking. Small concessions to redevelopment had been made in several of the rooms. Flat top tables had replaced some of the workbenches, all rooms had been equipped for drawing, extra power points were available, but essentially the rooms were still single material orientated. The first room to be redesigned was previously used for woodwork and technical drawing(not graphics or Design and Communication). This room was to be regarded as phase one of the redevelopment and as such was to betaken to the highest specification and would naturally require the greatest expenditure.

Adequate funding is always a problem and I was aware from the outset that the full amount would not be available from any one source. I therefore applied to various agencies for their support and my initial allocations arrived as follows;£2500 from my school, £1000 from TVEI, £500 from the County Advisor for Design and Technology plus the use of County Technician Jim Birch to assist with construction work. The County Architects Department put forward about £1000 for updating the room lighting, and North East Area Office funded a similar amount for the installation of many additional 13 amp power sockets. Before formal redevelopment could commence the problem of the poor decorative conditions of the rooms had to be taken in hand. Clearly the budget was all but spoken for, so county permission was sought for authority to redecorate and repair the rooms by members of the Department. It is estimated that around £2300 was saved by the adoption of self-help with the cost of materials just exceeding £300.

Throughout our redevelopment programme the Department was acutely aware that our proposals had to be correct before any work was started. After all, we would only be funded once!

I have used this study to conduct a survey of various Hampshire refurbishment schemes. Not all of the schemes were complete when I made my visits, so any comments and descriptions apply to my observations at that time only. In approximate terms I am talking about workshop situations as they existed between October 1988 and June 1989.

It was interesting to note the varying degree of refurbishment difference teachers thought appropriate to meet their changing needs. It this a reflection of

Above right: School 1 Workshop 1:
Cleared for action
Right: School 1 Workshop 1: Workshop
before up-dating

their different level of enthusiasm for change?

As far as possible in my workshop survey I have mentioned the designated use for each room. In some cases the intended use was perfectly clear, but in others I wondered if the room was ever planned as an entity or whether it more or less just happened. Some schools clearly decided to develop one room for Technology and place all their money and effort into this, while others embarked on a balanced refurbishment of the entire department with clearly defined emphasis on the use for each room. My school adopted the latter policy.

At some stage during planning a decision has to be taken on exactly how the work will be carried out::-

eg. by outside contractors
by staff and contractors
by the County Technician
- and so on.

Timing of the construction work is important. In my personal situation I decided to do most of the work privately with a county technician booked for four days. The workshop was closed to pupils for about a month while the bulk of the work was completed. The most frustrating part of the scheme was waiting for contractors to move machines or do the electrical work, etc. We could have worked on small areas of the Department at a time with each room remaining open, but this would have resulted in long term disruption of classes instead of the one month we had.

Reasons for Redevelopment

Initially the reason for CDT teachers reorganising their workshops may have centred around their individual desire to widen the scope of project coursework. Examinations like Craft Technology at CSE level and Design and Technology at 'o' level may well have created the stimulus for change. Whatever the motives, these concessions to change were in the main voluntary with many traditionalists continuing to remain entrenched in traditional craft teaching.

The moment G.C.S.E was introduced it became clear that to meet the full criteria for CDT Design and Realisation, change to some extent would be necessary. In the short term it was possible to delay this
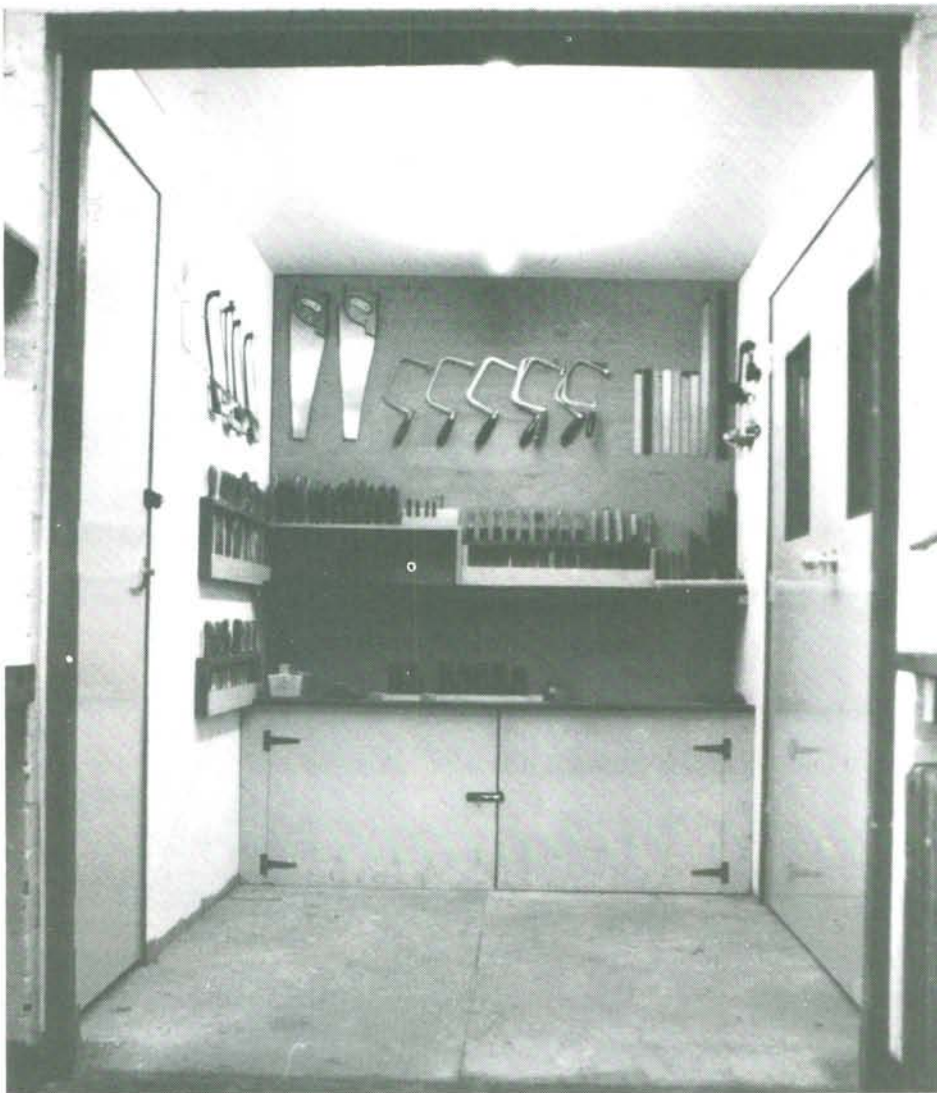
Above: School 1 Workshop 1: The computer bay—still early days.
*Right: Workshop Number 1 before modernisation and up-grading.*

change by adopting none 'CDT' examination courses such as Design and Construction Wood, Design and Construction Metal or Engineering Workshop Practice. These subjects were purely interim and designed to enable a smoother transition from GCE/CSE to GCSE by the schools whose CDT departments were still single subject orientated.

Old style Technical Drawing did not readily translate into CDT Design and Communication without an extension of facilities and a change of teaching style, but to some extent CDT Technology found an easier start with the schools that were already doing Modular Technology or following the Hampshire 11-14 scheme.

Interestingly I did not find a single refurbished school that had found it necessary to make any planning alterations due to the introduction of the National Curriculum. The programmes of learning and attainment targets were fairly straightforward but assessment remained the one grey area, at least for the time being.

Before refurbishment many schools existed with old benches, stools and

Design & Technology Teaching
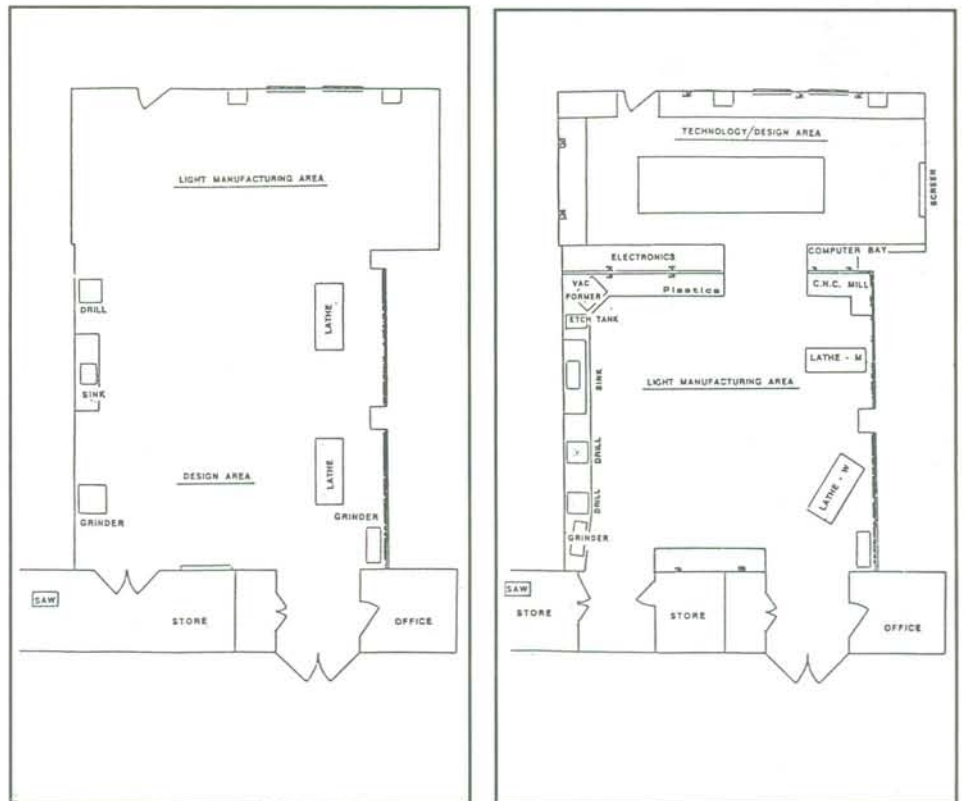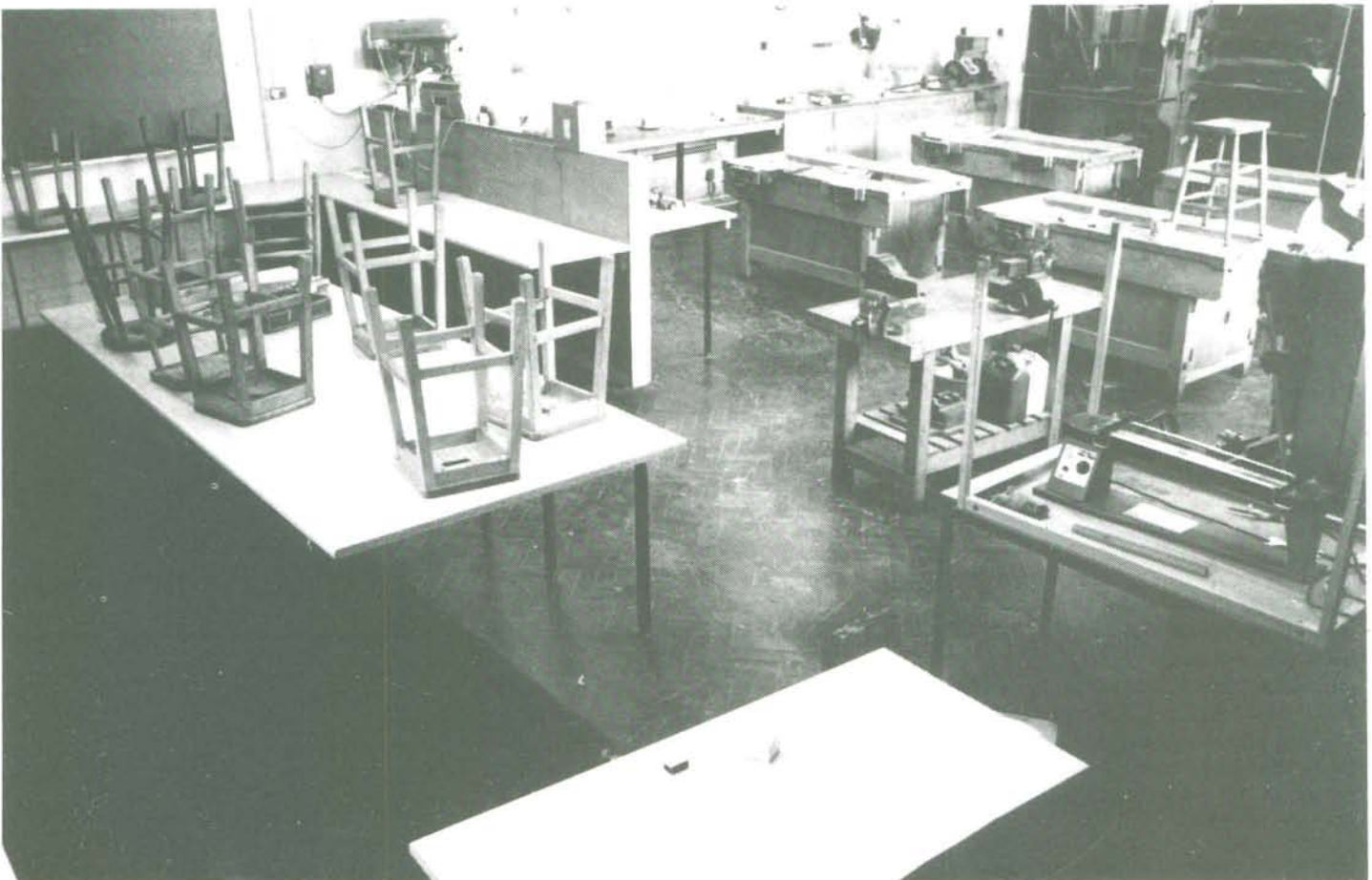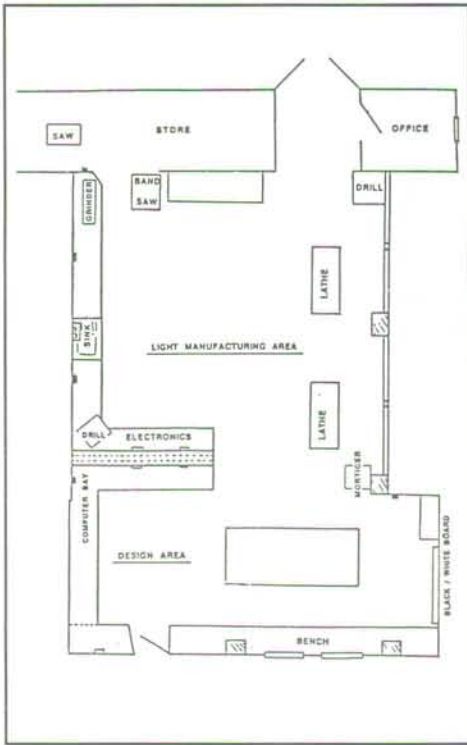
Above Left: School 1 Workshop 2: Before...
Bottom left: School 1: Workshop 2:
... and during conversion.
Above: School 1 Workshop 2.
Above top right: School 1 Workshop 3:
The 'old' Technical Drawing Room.
Above right: School 1 Workshop 3:
Conversion almost complete.

tables which were usually not in the best of condition. The general decorative order would have been dull and dirty which in itself would turn-off many children and most certainly fail to attract girls into the examination classes and for that matter female teachers into the department. Almost without fail the equipment would be single material and in many cases the member of staff would also be single material!

Workshops now have to offer greater versatility due to the introduction of GCSE and The National Curriculum with its cross curricular links (typically with Art, Home Economics, Information Technology, and Science).

The National Curriculum also causes us to look below and above ourselves, to be aware and liaise with our primary feeder schools and sixth form colleges. Styles of teaching and styles of learning have changed. Many topics are now open ended with child-centred learning becoming the norm. Children have to conduct their own investigations, make their own decisions and find their own solutions but with help and guidance from their teacher and inspiration from a whole variety of sources.

It is these moves that are elevating the status of Design and Technology in the eyes of parents, pupils and other teachers. Because of this we must continue to push and develop. Refurbishment is part of the answer.
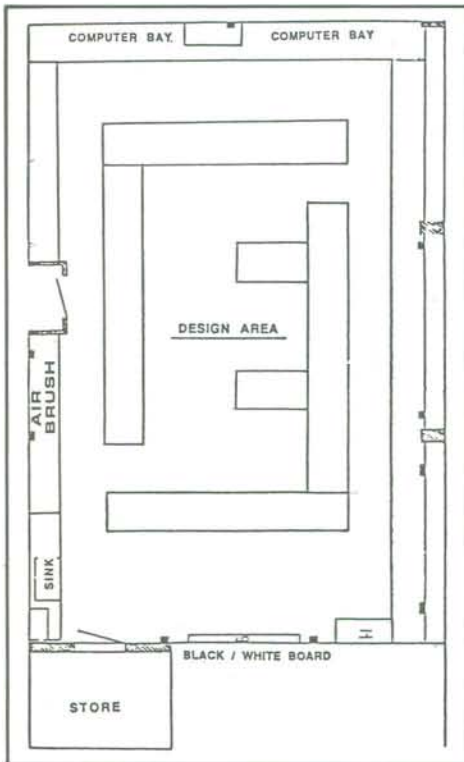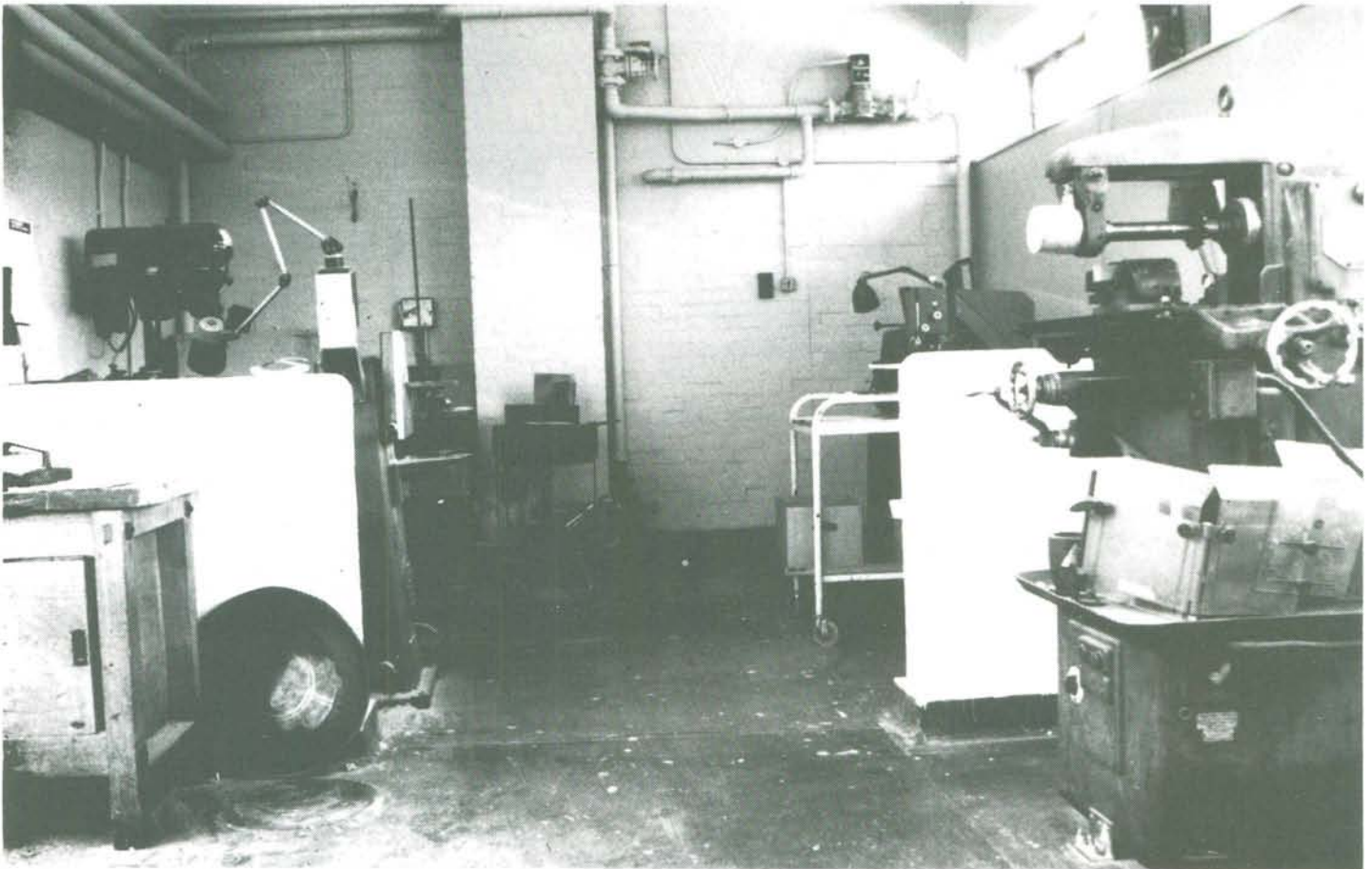
Top: School 1 Workshop 4: The original heat-treatment area.
Above: School 1 Workshop 3.
Right:: School 1 Workshop 4.
Top far right and botom right: School 2 Workshop 5


Personal Strategy and Planning

Stage One

On appointment to the Connaught School my brief was to establish a technology room from what was originally a traditional woodwork room. An initial sum of £2500 had been set aside by the school, a figure arrived at not from any estimates or proposals but more from how much the school thought it could afford at that time. No specification had been laid down at this stage apart from the understanding that upgrading was imperative.

Stage Two

Formal specifications and designation of the room were decided upon. Detailed plans were drawn and submitted to the school's Head for comment and approval. The equipment required for the room was itemised and the County's approved suppliers and contractors were invited to provide estimates. The final package was then circulated to the County Advisor (D and T), County Architect, Clerk of the Works, Area Education Officer and the Headmaster.
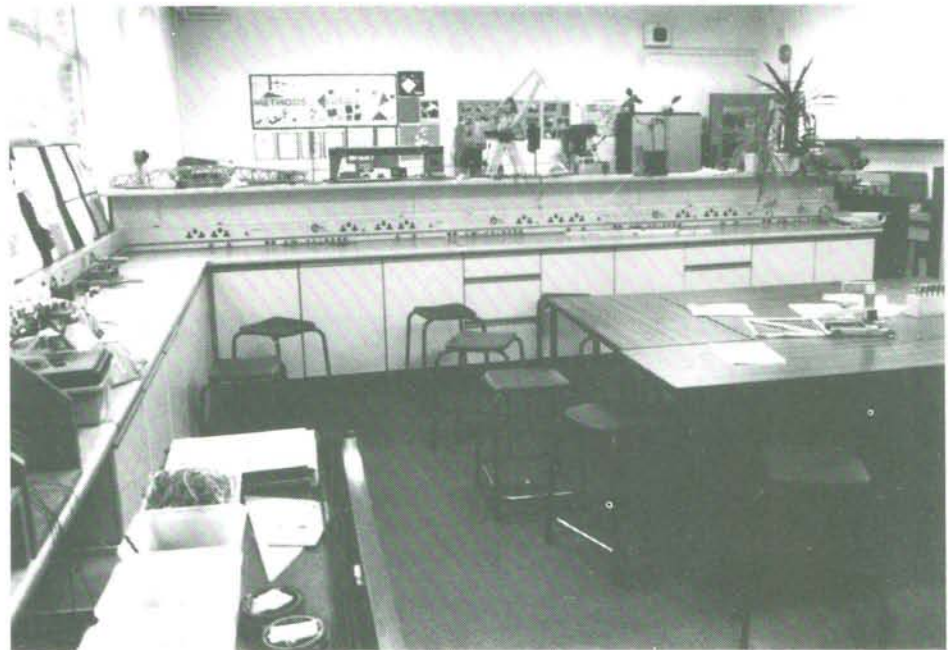
Stage Three

Raising the money. The final estimate of expenditure greatly exceeded the original allowance of £2500 by some £12500. The
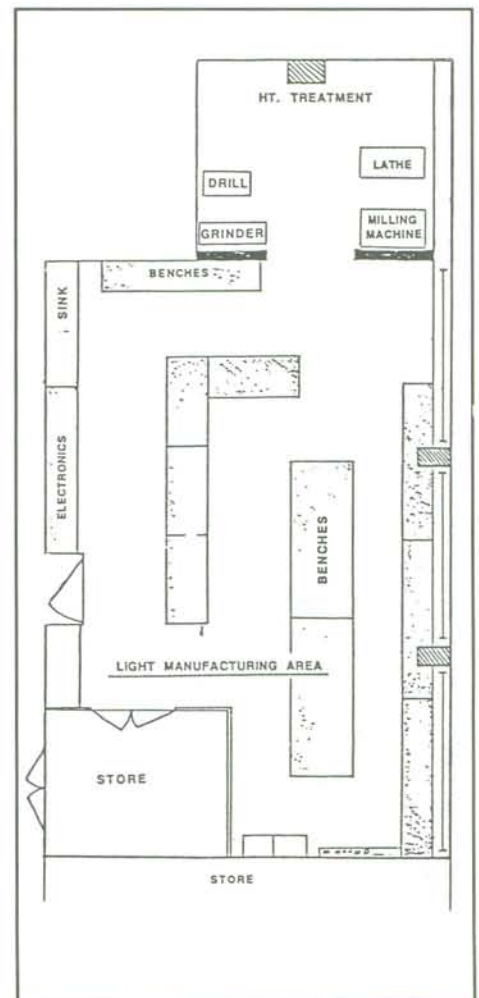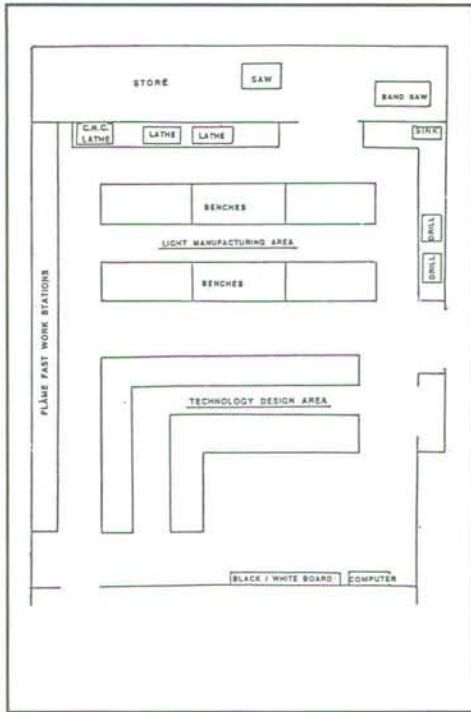
Above: School 2 Workshop 5.
Top right and bottom right:
School 3 Workshop 6.

approximate break-down of expenses was
as follows:-

New equipment	—	£7000
Lighting upgrading	—	£800
Additional trunking and power outlets		
	—	£1500
Materials for construction	—	£1000
Materials for redecoration	—	£175
Repositioning or removal of machines		
	—	£500
Labour	—	£2000
Total	—	**£14975**

Money for the new equipment came
either from TVEI or the school itself. For
the remainder appropriate County
departments were canvassed until all of
the money had been pledged either from
the currently year's estimates or from the
next. By adopting a self-help policy the
bulk of the £2000 required for labour was

eliminated. All other estimates remained
unchanged. Throughout the project I
continued to be surprised by the help I
received from everyone I contacted and
the prompt attention they gave my
requests.

Organising the Facilities
A major problem with refurbishment of
workshops is knowing how much or how
little to include in each room. Too much
equipment and it becomes overcrowded,
too little and it fails to meet its designated
criteria. In most departments not every
room has to be totally self-sufficient but
certain facilities can be shared according
to practicality, balance and
cost-effectiveness.

Graphics
Graphics and GCSE Design and
Communication demand more
adventurous facilities than the old style
Engineering Drawing or Technical and
Geometric Drawing. An average size
room could be equipped with some or all
of these facilities:

1) A large modelling table of about 3m x
   1 1/2m with plastic laminated top, lots
   of clear space and easy to wipe clean.

2) A spray booth for air brush work,
   compressor and air brush.

3) Parallel motion drawing boards.

4) Archimedes A310 computers — ideal
   for graphics, artwork, CAD plus
   related software.

5) Epson or Citizen printer to facilitate project report writing, labelling, notices, headings etc.

6) Epson plotter or similar. Particularly useful if a colour facility is included. Opens up links with practical work in other areas of the department.

7) Projector table and screen (or white board),

8) Light bulb for trace work.

9) Video player.

Technology

By its very nature, Technology can include almost anything so a decision has to be made regarding which sections of Technology will from the main areas of study. Any Technology room should include combinations of the following facilities depending on the options selected.
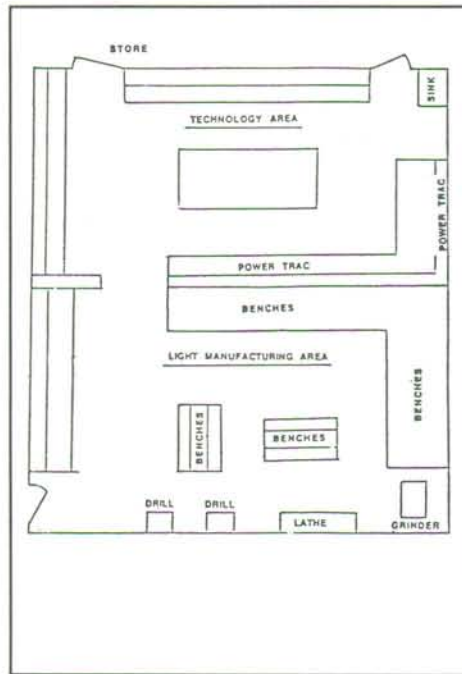
High level 13 amp socket for soldering irons

Bubble etch tank for P.C.B.

Ultra violet light box for P.C.B.

P.C.B. mini drill
Portable power supplies

Above: School 3 Workshop 6

Below: School 3 Workshop 7.

Free standing magnifying glass
Portable desk or spot lights
Powertrac or similar facility providing low voltage D.C. electrical supply and compressed air for pneumatics.
BBC Master computer for control (very cheap now)
A3000 computer for word-processing, data base, CNC,CAD/CAM
Printer and plotter for Archimedes
CNC Lathe or Mill
Projector screen
Video player

Design and Realisation

Unlike woodwork or metalwork, Design and Realisation is multi-media and will therefore require a wider range of facilities. Possible choices could include a selection of the following:

Hegnerr saw or similar
Four station work benches with wood and metal vices
Wood turning/bowl turning lathe
Metal turning lathe
Bench or pedestal drill
Strip heater
Vacuum former
Polisher/grinder
Heat treatment facility(flamefast)
Planning/modelling table — clean

unbroken flat surface
Drawing facilities
Projector screen
Video player
Injection moulder
and for staff use only:-
Band saw
Circular saw
Planer
Jig saw
In general terms a room designated for
multi-media work, GCSE Design and
Realisation/Technology or the
implementation of the Hampshire 11-14
scheme must encompass most of the
following features:-

a designated clean area possibly carpeted.
a research/resource centre (books, fact
sheets, photographs, data base,video,
slides).
Light manufacturing area with facilities,
tools and machines for working in wood,
metal and plastics.
Graphics area with modelling table, light
box, parallel motion drawing boards and
air brush.

Below: School 3 Workshop 7.

Computer bay with facilities for control,
CAD/CAM, word- processing,recording
and data base.
Electronics area with clean work
surfaces, seating, power points, bubble
etch tank and pin board for work sheets.
Facilities for control (computer,
hydraulic, pneumatic, motor or manual).
Material preparation area (staff only).
Material storage area (not just wood,
metal and plastics but motors,
gears,electronic components, glues, panel
pins and so on).
Work storage area for coursework (secure
area prohibited to pupils).
Storage for larger or partially completed
but delicate projects.
Tool storage (general and specialist).
Display area for class work, data sheets,
or similar.
Space for bags and coats.
Clearly some equipment or techniques
are no longer considered viable and once
again, in general terms the following are
popular for ejection:-

The blacksmith's hearth and anvil.
Tin-smoothing and sheet metal facilities.
Shaping machines (usually because of
their bulk and limited use).
Extensive duplication of machine tools
eg: three screwcutting lathes.

Survey of Current Refurbishment Schemes

Since workshops are converted to meet a
broad range of criteria it is not possible to
make the type of assessment that states
that any one system is better than another.
On the other hand it is possible to make
critical observations from a strictly
personal point of view which are
somewhat general in nature. This is what
I have done in this section.

This survey looks at a variety of solutions
that have been designed and adopted by
teachers in Hampshire schools. Where
possible the facilities that have been
selected are listed as fully as possible but
clearly most of the workshops were still
under development and by now some
have advanced further.

Finally, the plans are for guidance only
and are not drawn to the same scale.

Schools 1
Workshop 1
This is my specialist teaching room.

Originally equipped as a traditional
woodwork room, minor concessions to
change were made a few years age.
machine tools were rearranged to include
two lathes, one each for wood turning and

Design & Technology Teaching
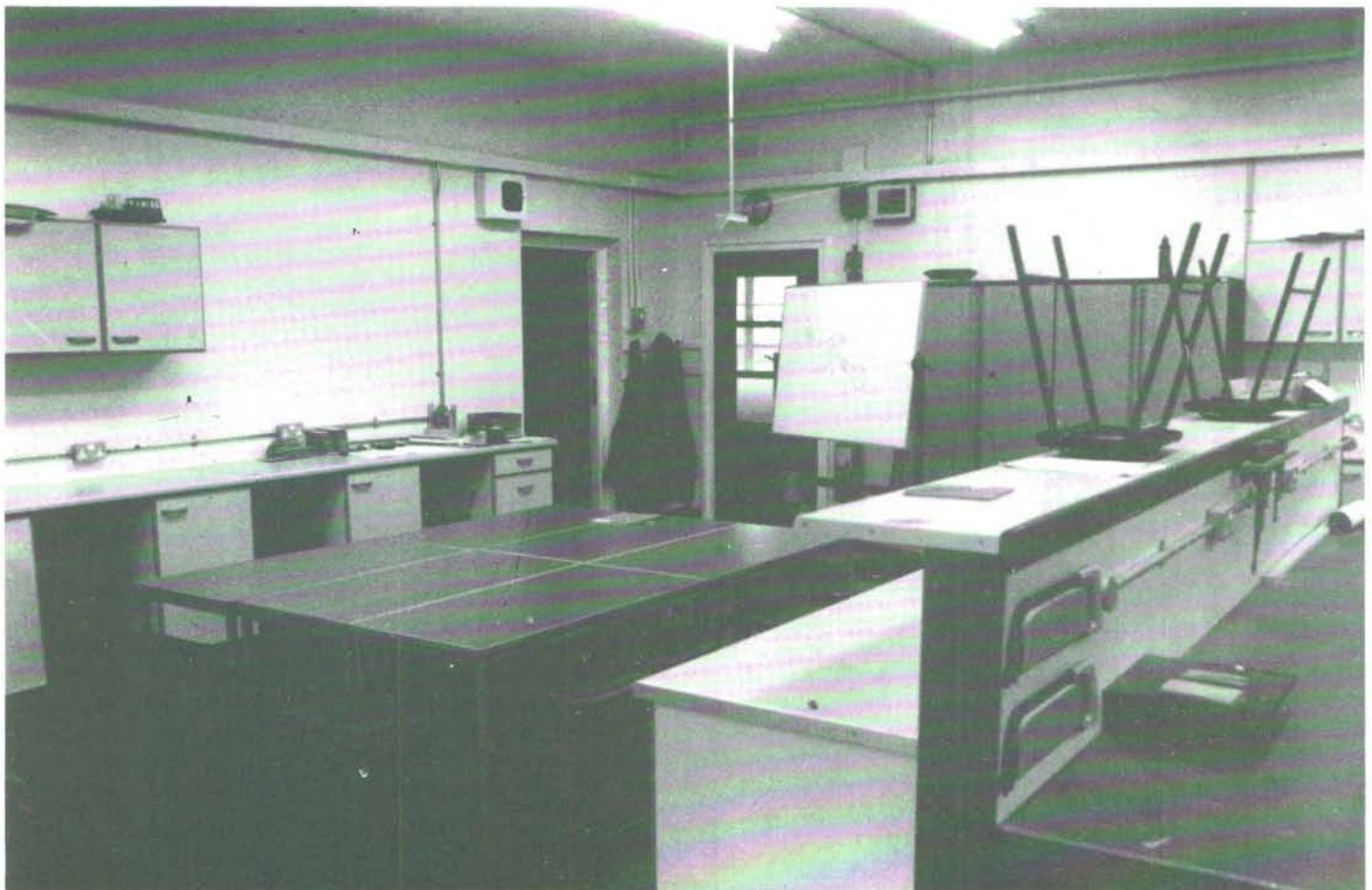
Right: School 3 Workshop 7.

metal turning, a Viceroy grinder/polisher, a bench drill and a grindstone. Several of the traditional woodwork benches were replaced by twelve formica topped tables salvaged from a classroom. the room, so equipped, was then used for Design and Realisation and Technical Drawing.

It was decided to designated this workshop as the Technology room The major changes therefore actually started in September 1988. Initially the room was cleared of anything that could be moved then ceiling, brickwork and woodwork were made good. The wood block floor was machine sanded back to level bare wood and redressed. The overall colour scheme was changed to Magnolia walls (Timonox),light grey doors, with red frames and trunking.
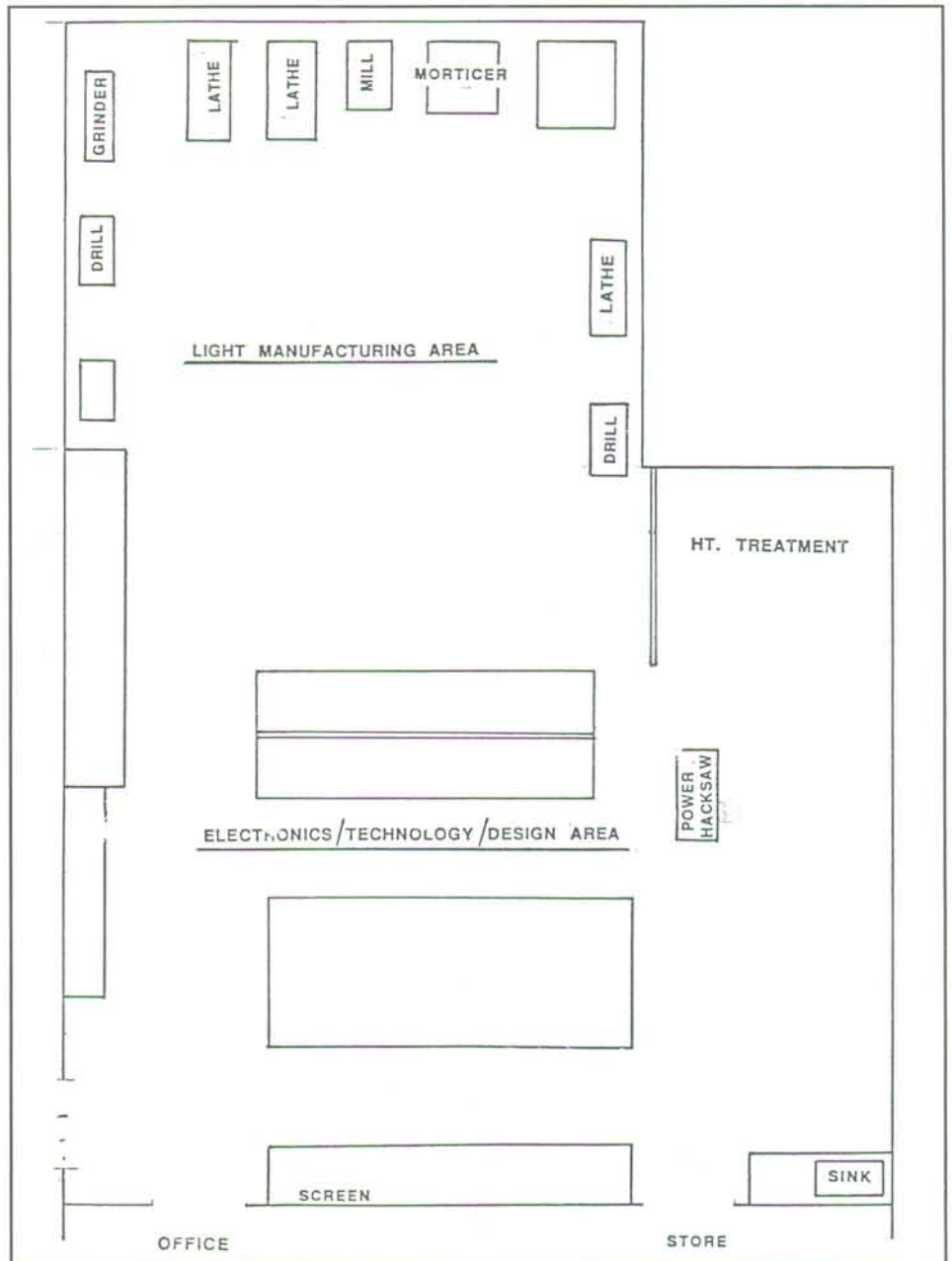
At this point the new worktops and partitions were installed by the county technician. Since then the lighting has been upgraded,sixteen additional power points have been installed, several machines repositioned, a walk-in tool cupboard created, the old china sink replaced by one in stainless steel, and four of the original benches refurbished — others being discarded.

New facilities include a bubble etch tank, a vacuum former, BBC B computer, A3000 computer, C.N.C. milling machine, video player,strip heaters, projector screen, modelling table, display area,secure store, preparation room, office, plus all the conventional hand tools.

The room works well but with two minor drawbacks:-

1 It was not possible to include any heat treatment facilities   although the Flamefast jeweller's gas torch is under consideration.

2 The clean area has a large central table plus peripheral worktops. This means that in any class a fair number of pupils work with their backs to the teacher. I personally do not like this system but in the final analysis it comes down to teaching styles and personal preferences.

A pilot scheme is currently under way to assist our feeder schools with their part of the National Curriculum. Third and fourth year juniors now share this room for topic work using the facilities that they do not possess. Currently this is on an irregular basis,but I would like to see a member of the C.D.T. department timetabled for a regular 2/3 periods a

GRINDER · LATHE · LATHE · MILL · MORTICER

DRILL

LATHE

LIGHT MANUFACTURING AREA

DRILL

HT. TREATMENT

ELECTRONICS/TECHNOLOGY/DESIGN AREA

POWER HACKSAW

SCREEN · SINK

OFFICE · STORE

week to run this initiative instead of fitting it around free periods. I feel L.M.S. may render this impractical.
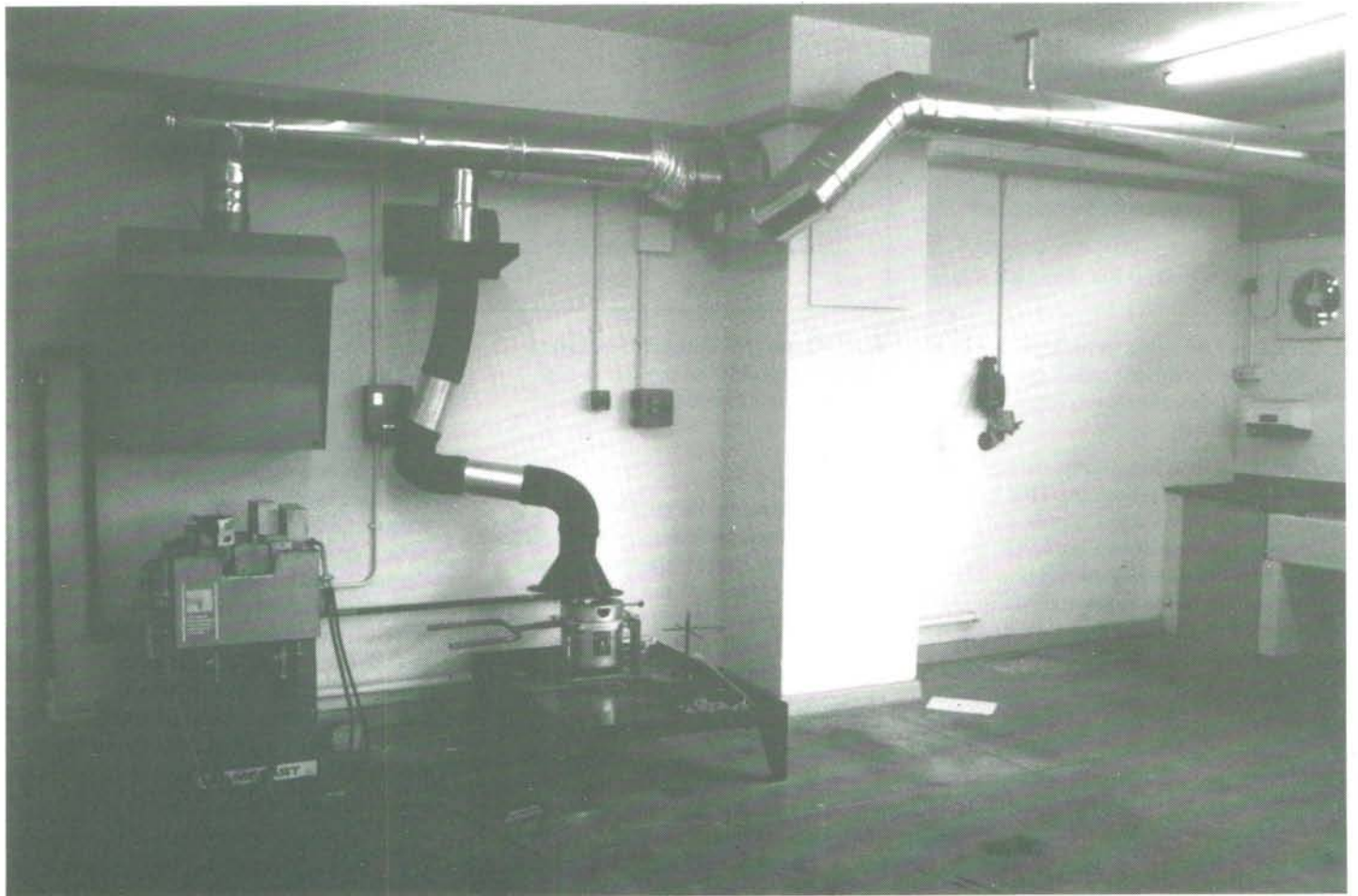
School 1
Workshop 2
in many respects the refurbishment of workshop two followed a similar pattern to workshop one. Minor changes had been some years ago but the real push started after workshop one had been completed, tried, and evaluated. A similar layout was adopted but with very minor changes, the most obvious being the omission of one partition and its benching. A similar colour scheme was adopted,a clean area and manufacturing area were established, and additional power points installed. The room came in for special attention with dust extracting equipment, having previously been identified as having a serious problem,

with two members of the department and the technician experiencing health problems.

This room is easy to use being both spacious and well equipped for its purpose. Machine tools include wood and metal lathes, pedestal drill, bench drill, bench grinder and a mortiser. The store contains a circular saw and planer. Class supervision is easy and oversize classes are easily accommodated. The main drawback is the lighting in what is naturally a dark room. Upgrading the lighting on its own would not be sufficient because additional peripheral lighting is required.

School 1
Workshop 3
Originally a heavy crafts room the length of this workshop was extended by about

Design & Technology Teaching

5m some years ago. When it was later designated for technical drawing it was equipped with two BBC computers, 18 flat top tables, and a motley collection of drawing boards and tee squares.

The main refurbishment took place after the requirements of G.C.S.E.Design and Communication and National Curriculum became known. Interestingly, this is the only room that I have seen that was planned after the introduction of both of these initiatives.
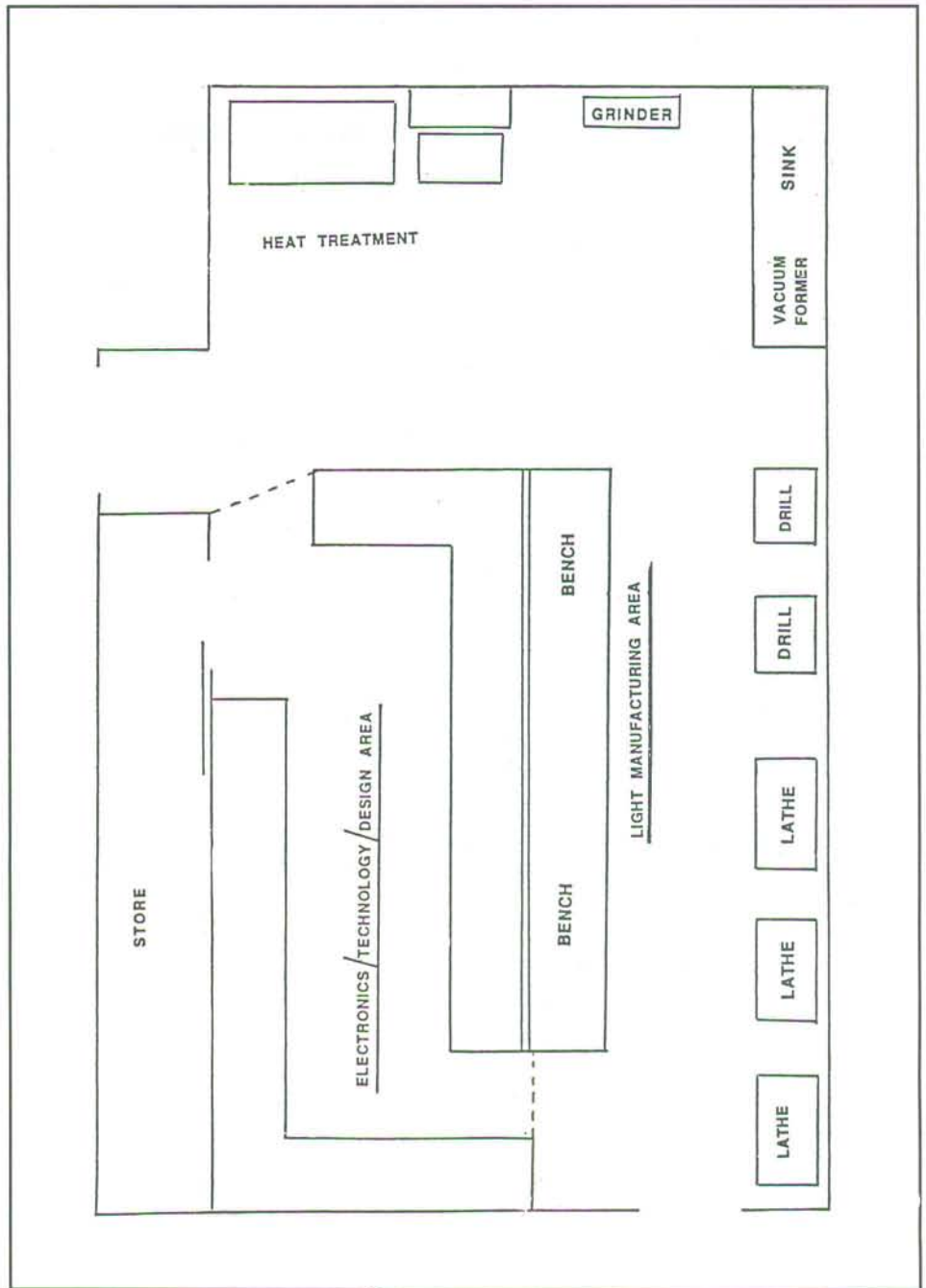
The colour scheme was coordinated with workshops one and two, the flat top tables have been replaced by central U-shaped arrangement of work stations, and Flameform tops are arranged peripherally. Six A3000 and one BBC Master computer are installed together with printers and plotters on extra wide worktops, a light box and airbrush are available together with a modelling area. Thornton parallel motion drawing boards are supplied for every pupil.

Much use is made of the extra display area now available and classes take it in turns to arrange their work for short exhibitions. This is in itself an incentive to try harder!

School 1
Workshop 4

Originally designated as a heavy crafts room (metal) this workshop now sees relatively little use due mainly to its inability to fulfil needs of the curriculum. Fortunately this room still has a bright future for several reasons. Firstly more pupils are opting for C.D.T. GCSE courses causing the department to effectively be understrength by one teacher. If an extra teacher was available then this room could be in full time use. The school roll is also rising healthily so it may not be too long before this situation is resolved. The workshop is also fortunate in that it backs onto a large covered shelter. Plans are in hand to remove the internal material store and extend into this shelter. Apart from the obvious increase in space the room would become more manageable in shape and gain a 3m x 10m store/preparation room.

This then, is really a room inwaiting. it has been repainted, cleared of surplus equipment and additional power points installed. Applications are currently with Area Office for building maintenance work which should then leave this workshop ready for updating.
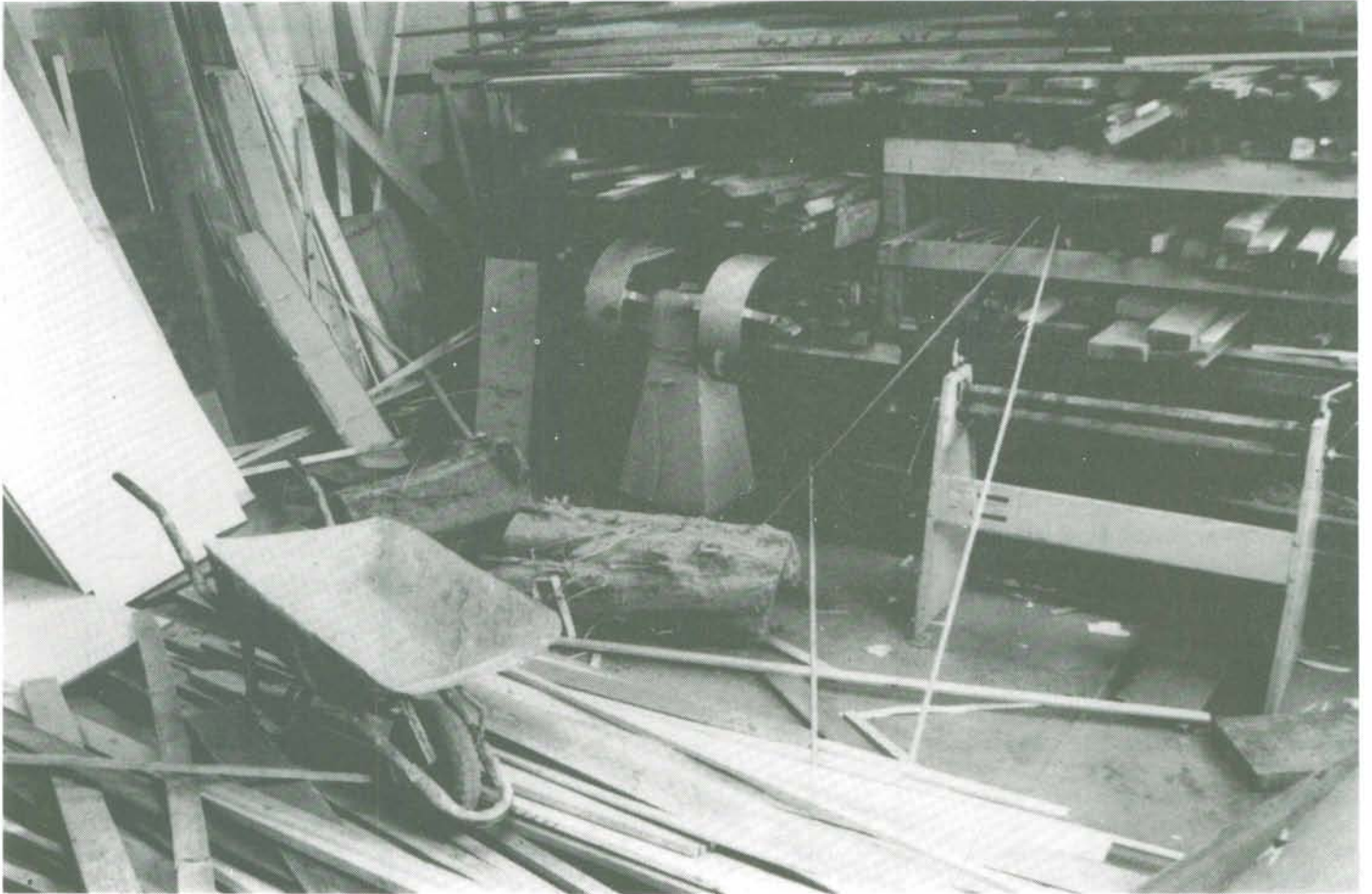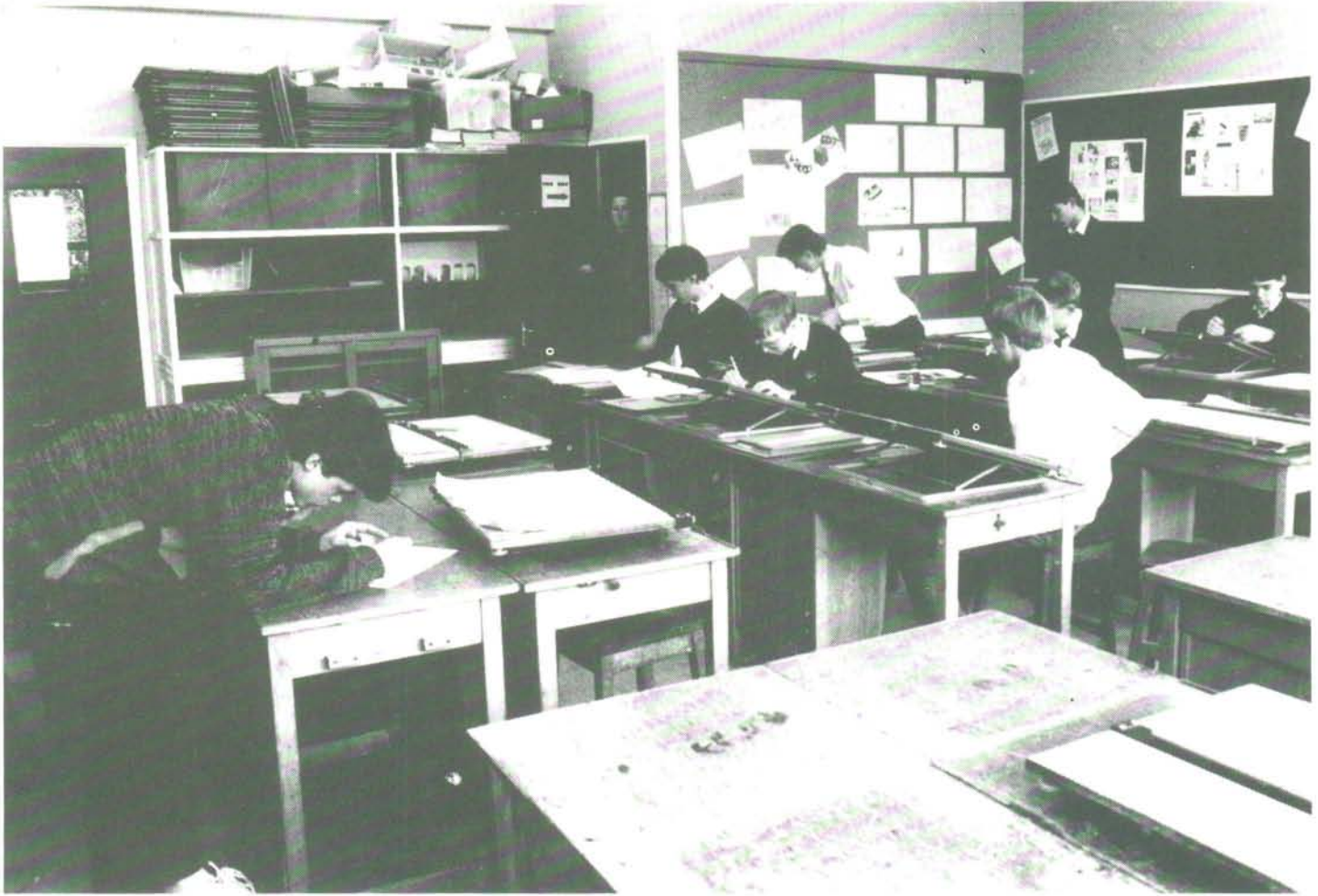
School 2
Workshop 5

Easily the largest of the C.D.T. rooms that I have seen and one of the easiest to work in from both the teacher or pupil point of view. The room is carefully laid out, spacious and well equipped.

The clean or design area consists of two rows of Formica topped tables arranged at right angles and facing the blackboard. I would prefer to see these tables replaced by the Flamform 3m postformed work tops. Adjoining this area is a computer station with two BBC Masters. The light manufacturing area has six woodwork style benches each fitted with two wood and two metal vices. Machine tools include two bench drills, a bench grinder a C.N.C. lathe,two watch makers lathes and Flamefast work-stations, with additional power saws in the preparation/store room. The 13 amp power sockets(10) are suspended over the work benches from the ceiling — an excellent safety feature. Additional facilities include a walk-in tool cupboard and secure store/office.

I imagine the room was originally designed with Modular Technology in mind but it is still capable of performing well with today's examinations.

Above: School 4 Workshop 10

Top and bottom left:
School 4 Workshop 9.

School 3
Workshop 6

Clearly intended as a junior technology room with the manufacturing area and design area being clearly divided. The practical space has twelve work stations, two pedestal drills, a metal turning lathe, and pedestal grinder. Tools were, in the main, mounted on the partition between the two sections. this system has a variety of advantages because space can be saved by eliminating the tool cupboard and by having everthing close to the work stations pupil movement around the room is reduced. In such a compact workshop this is an obvious asset.

The technology/design area had peripheral worktops with Powertracon two sides. The extensive under bench cupboards clearly made sitting at these benches uncomfortable due to the lack of leg room. Lighting was bright, helped by the reflective nature of the colour scheme and the extensive use of plastic facing on cupboards and worktops.

This was one of the few worktops where there was ample evidence of pupils work being displayed.

School 3
Workshop 7

Completely different in feel to workshop 6 and heavily biased towards metal but still capable of accepting wood and plastics. I would think this is a designated Design and Realisation room that reflects the expertise and material/subject interest of the teacher in charge.

It is difficult to comment too deeply on this room because it was still being developed when I made my visit. Clearly the earlier problem in workshop 6 of too many under bench cupboards had been resolved by incorporating knee holes and having less cupboards. the room also felt spacious. Apart from bering larger than workshop 6 it was less cluttered with equipment. Clean and manufacturing areas were clearly divided, both sides had ample power points, lighting appeared good but I noticed a lack of work stations in the practical area. Perhaps this was still being organised.

School 4
Workshop 8

Originally equipped as an engineering workshop with the G.C.E.Engineering Workshop Practice examination specifically in mind. Initial facilities included a pedestal drill, a heavy duty Fobco drill, a Boxford training lathe, two screwcutting lathes,power hacksaw, forge, bench grinder, acid bath, sheet metal roller, asenit furnace and double brazer. Benches were of the traditional engineers type with record No.2 and No.3 vices.

During the first attempt at updating, walls and ceiling were repainted, tools for metal and plastics were fitted to a purpose built tool cupboard, drawing facilities were introduced and two metalwork benches were replaced by two for woodwork.

On the second attempt a year later the room was again redecorated(different colour), most of the metal benches were removed, a clean carpeted area with 4ft. high partitioning was built into one quarter of the room, work tops from Flamform were fitted, the forge and furnace were removed and replaced with an extensive Flamefast system including
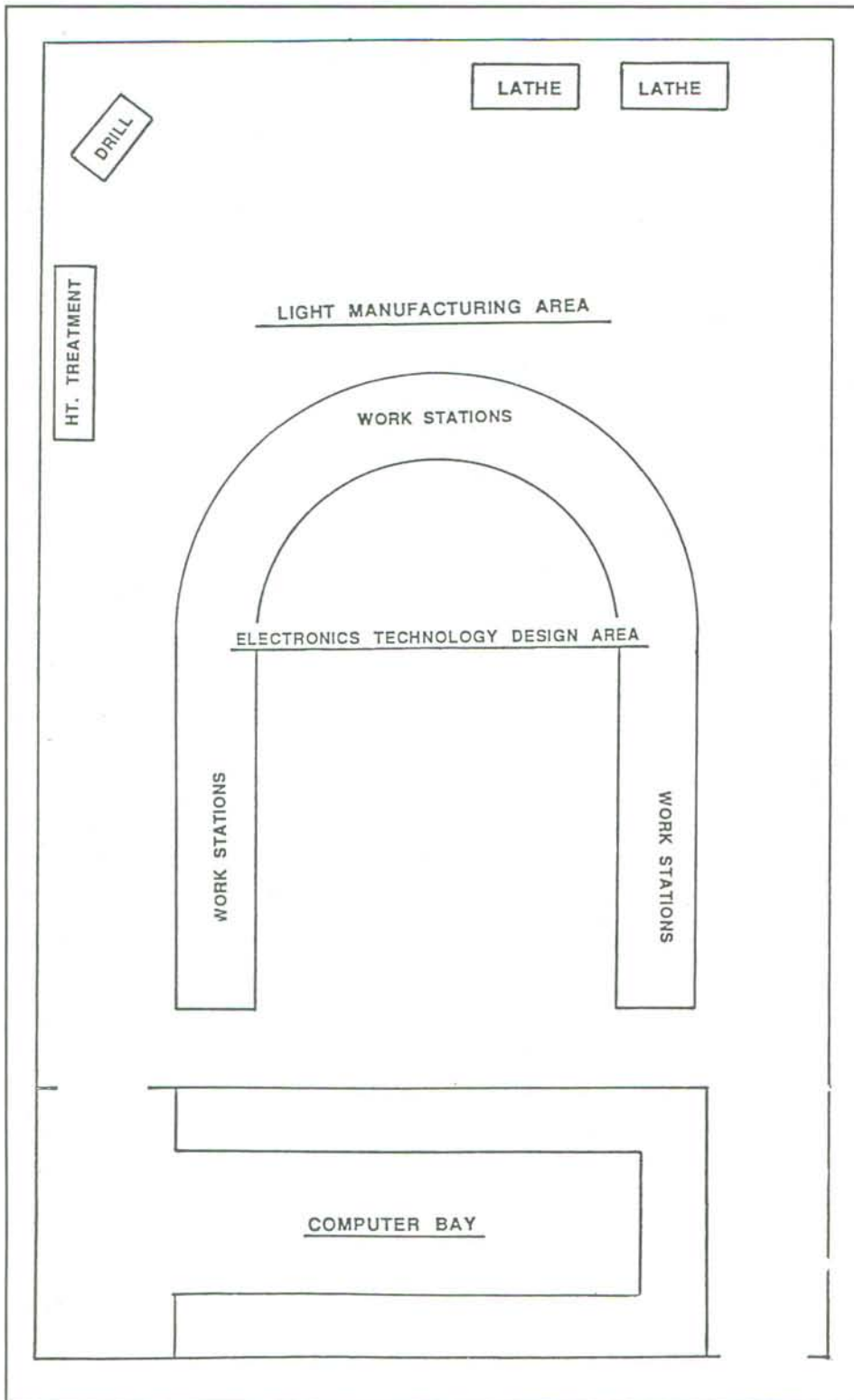
Above: School 5 Workshop 11

fume extraction fan and stainless steel trunking.

The room was never really satisfactory. It always felt 'oldfashioned' and dirty, it remained heavily biased towards metal, and due to building errors parts of it were cramped.

Less than a year after completion the Headmaster moved the department out of this room and closed it. So much for midterm planning!

School 4
Workshop 9
The photographs say it all. Modernisation consisted of throwing out the tool cupboards, arranging the tools in piles along the window benches, and pinning a "Craft, Design and Technology" label above the notice board!

Also note the "well equipped" wood store complete with wheel-barrow, tree trunks, and building-site off cuts.

Post script
This department has now (September 1989) vacated four of its workshops and drawing offices and is starting to redevelop in a different block.
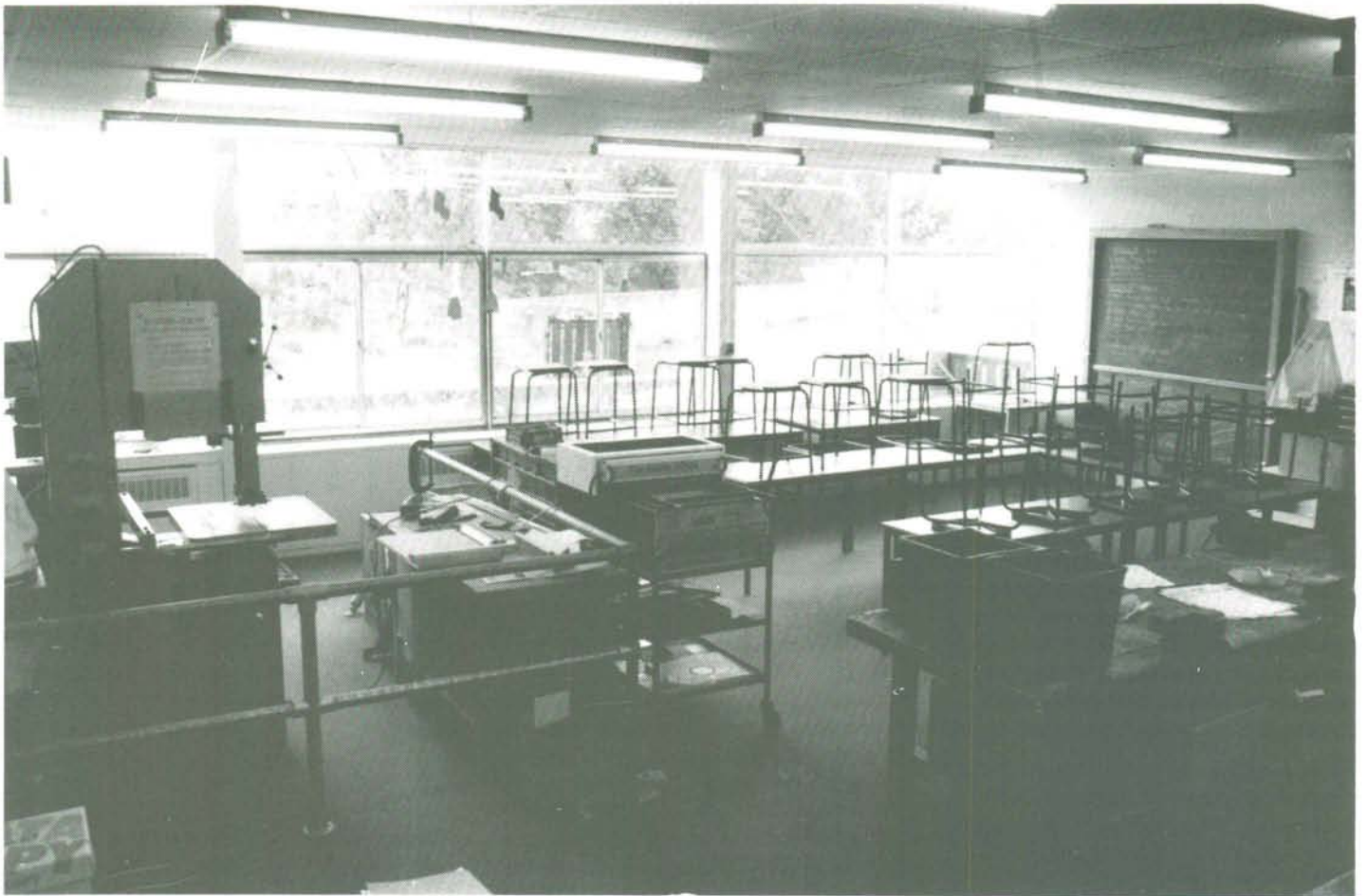
School 4
Workshop 10
Designated for G.C.S.E. Design and Communication and Presentation of Design.Modernisation in 1988 consisted of supplying parallel motion drawing boards for each pupil, arranging extra display space, and the acquisition of a BBC Master computer with Bitstick.

Still heavily "Technical Drawing" in concept and lacking in many facilities.

School 5
Workshop 11
Designated as a Technology room this workshop is unusual in its layout. The technology work stations are arranged horse-shoe fashion and occupy about two thirds of the floor area. Pupils sit on the inside facing outward so in effect they all work with their backs to the teacher. The machines and benches are in the main located at one end of the room which causes occasional overcrowding when any number wish to do practical work at any one time.

Attached to the main workshop is a substantial computer room well equipped with a variety of machines. Intended mainly for the upper school and sixth form these computers are used principally for control, graphics and word processing.

School 6
Workshop 13

Designated for G.C.S.E. Technology this is also used for G.C.S.E. Design and Realisation and all lower school courses. As craftrooms go this one is unfortunately small and suffers from the same lack of space as workshop 6. In fairness, it was not originally intended for this type of use but in fact belonged to the Drama Department. They agreed to move out in in order to bring all C.D.T. rooms into the same building. The wall to wall carpeting was inherited from Drama as well.

As far as possible the room was divided into a Clean/Technology area, a manufacturing area, and a corner for machines where they are protected by a steel tubular barrier.The equipment is not very extensive and includes two vacuum formers,a metal turning lathe,band saw,and pedestal drill.A useful feature must be the 10m x 3m storeroom that links with the adjoining workshop.

Three out of the other four rooms in the department are now being modified to complement this one.The graphics room will soon have a computer annex and office where a wood store originally existed.The fourth room which will not be altered, will remain a Motor Vehicle Studies workshop.

School 7
Workshop 14

I have left this workshop until last because at the moment I am only able to make brief comment.There was very little time available for this visit which took place shortly before the refurbishment was completed.Basically the workshop falls into three distinct areas.These consist of a carpeted Technology area with appropriate work-tops,a manufacturing area which is slightly awkward in shape but containing an adequate range of machine tools,and an office/store room suite situated by the entrance.

Conclusion

Most of the refurbishment schemes I have seen were, in the main,successful,but the same problems tended to re-emerge time after time.

Amongst the most common were:-

1 Over-development
    Attempts to overdevelop single rooms by the installation of far too much equipment and too many facilities.This was probably due to lack of overall planning for the department in terms of the school's
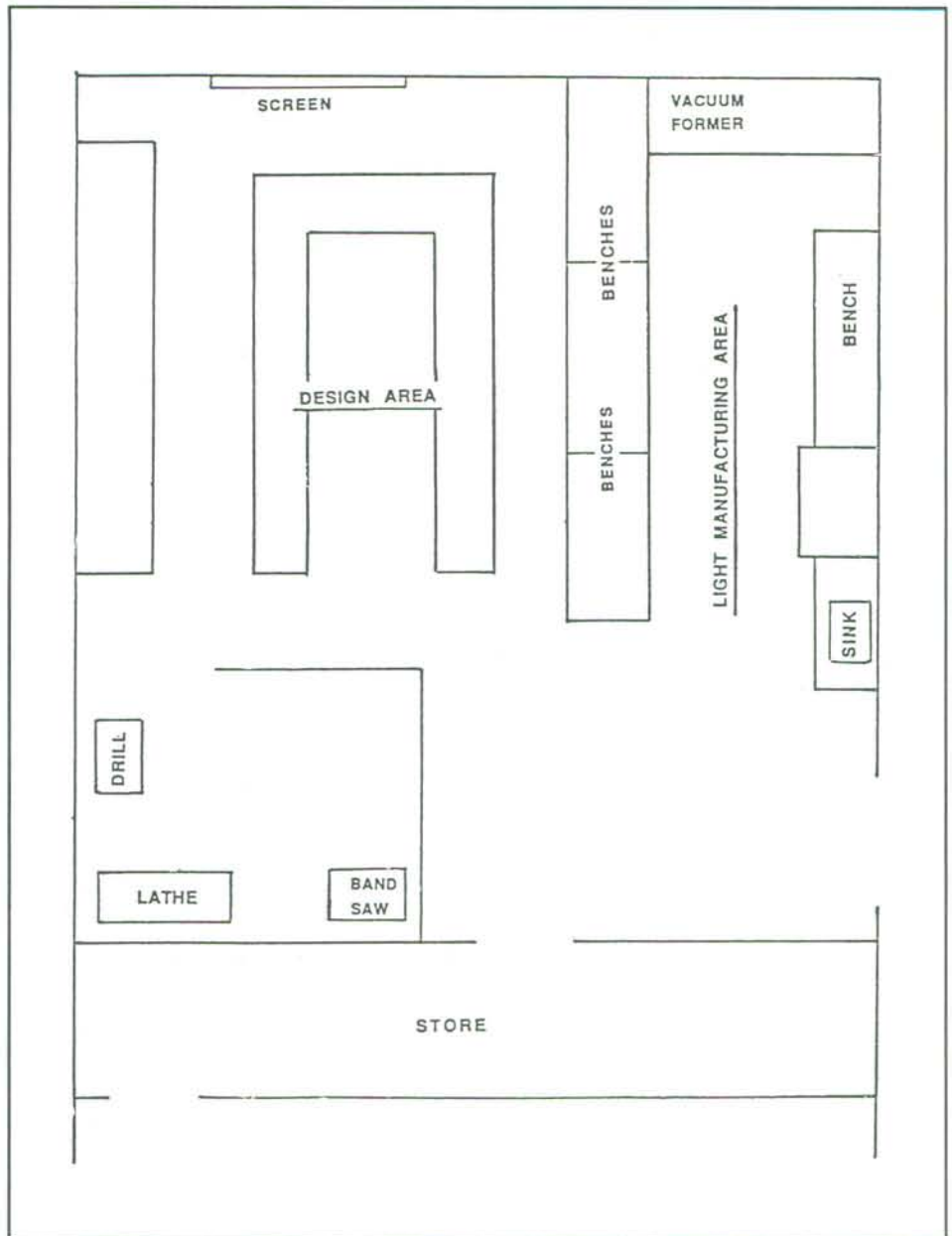
Above: School 6 Workshop 13

immediate needs or the funding available. Often single workshops have been overdeveloped at the expense of other areas of the department.

2 Over-crowding
    This really follows on from 'over-development'.As a direct result of trying to install too much into a single room,floor space has become a premium in some schools. The worst case I saw had the room effectively cut in half by a Design/Technology area and a manufacturing section. The Technology area had peripheral work tops, central table area, resources/material trolley, and under-bench cupboards which reduced leg room for those seated. The manufacturing section had again

peripheral work benches and central benches,a wide variety of machine tools and tool racks.The room itself was below average in size and even with a class of relatively small twelve year olds felt overcrowded. Another school had been redesigned with a small design area and a small manufacturing area safe in the belief that not all of the children would be designing or making at the same time. In reality, most children were designing at the start of each topic and gradually they drifted through into the manufacturing area until all of them were making. Only very accurate teacher management could avoid over-crowding in this workshop.

3 Supervision
    One advantage of the old style workshops was it's open plan layout and regulated benches which,although

Design & Technology Teaching

ideal for formal teaching, also made class supervision easy. Many of the new workshops with the 'breakfast bar' type work stations have inadvertently created 'hidy-holes' for the work-shy or the disruptive.

4   Contractors
Contractors errors were blamed on several occasions for workshops not turning out as expected.Common errors by contractors were caused by:

i)   Poor workmanship.

ii) Failure to follow adequately the plans.

iii) Short-cutting.

iv) Plans supplied with in-sufficient detail resulting in 'personal interpretation' by the contractors.

v)   Lack of communication/liaison between contractor/teacher.

Beware of letting them work unsupervised, for example, during school holidays.

5   Bit-development and The Band Wagon. No overall concept of the final outcome and lack of mid-term planning.

Projects started and equipment acquired because of a copy-cat or band-wagon policy adopted with neighbouring schools.Be certain what you want, why you want it,its place in the curriculum-then go all out to get it!

Conversely,successful schemes also shared a variety of common factors with the most noticeable being:

i)   A bright and-'modern' colour scheme possibly including the use of plants.

ii) The feeling that the room was clean - unlike traditional workshops that always smell like back street garages or saw mills.

iii) Excellent lighting, with possibly additional spot lighting for display areas.

iv) The establishment of a distinct clean area and a distinct manufacturing area.

v)   Large display areas for children's work.

vi) Modern facilities that would encourage a wide variety of coursework.

vii) The feeling that the department was up-market and had a high-profile within the school.
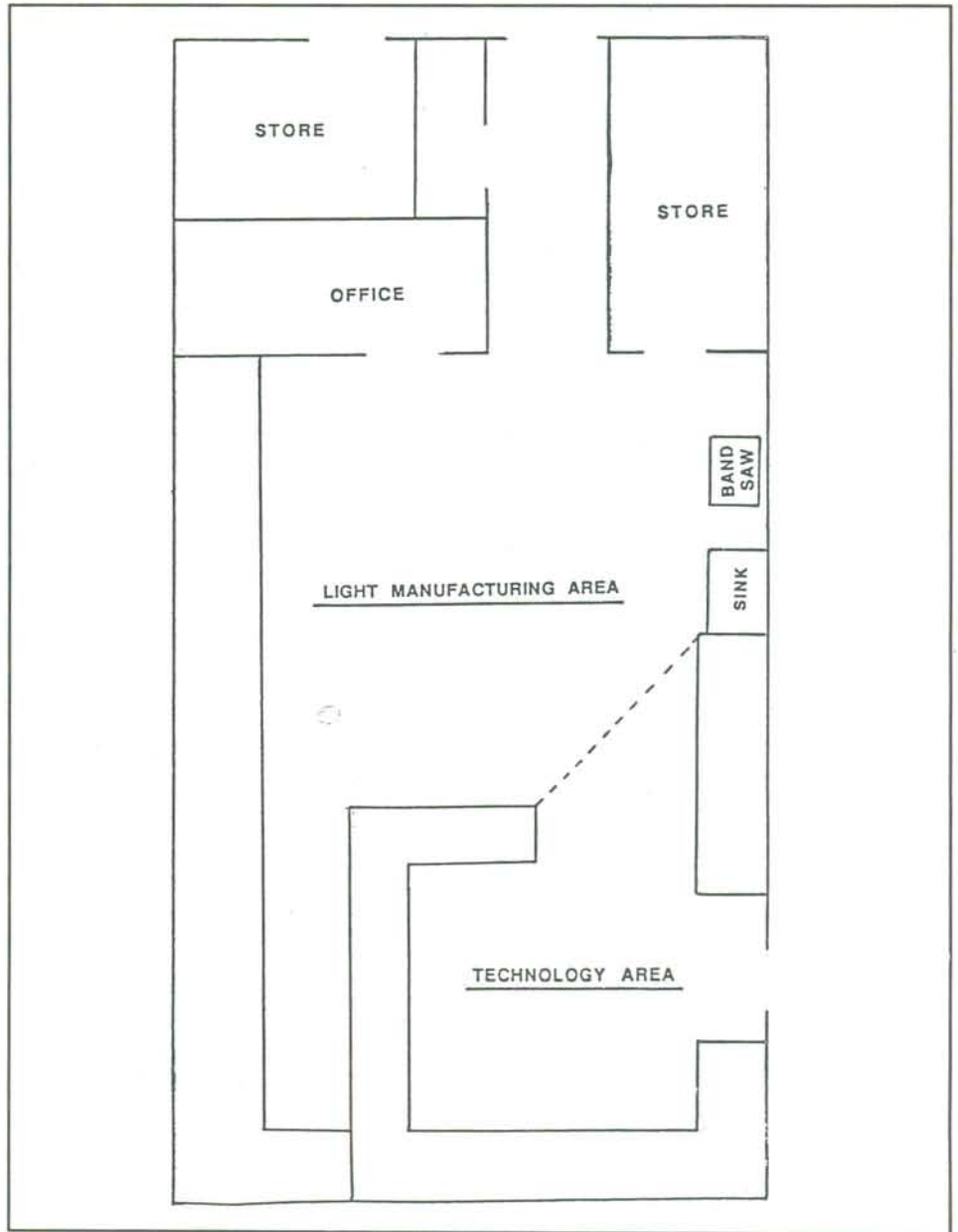
Above School 7 Workshop 14

What ever the approach or facilities selected, any refurbishment scheme is not just for 'now' but must be able to absorb future changes and developments as well. It must be on-going. My personal scheme was planned for a five year period but I doubt if I will ever be in a position where I consider it is finished.

As a final thought it must remain to be seen what schemes will now be possible under LMS.