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DESIGNING TECHNOLOGICAL CHANGE:

A STUDY WITHIN THE NATIONAL HEALTH SERVICE

VOLUME TWO

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CHAPTER 10

NEWTOWN DEPARTMENTAL DESIGN

PHARMACY AND PATHOLOGY

The previous chapter considered whole hospital design issues. The political processes underlying the format of physical layouts and the meaning transformations involved in forming means - ends logics were examined.

This part of the work addresses the detailed design of two of the Newtown DGH departments. The Pathology and Pharmacy accommodation was eventually to be housed in the "Service block" of the development. This section of the hospital was essentially a "one-off" design by the Borders Region. Yet the constraints laid down by the Nucleus standard design were to strongly colour the nature of the bargaining games involved in their inception.

The Newtown Pharmacy; Territorial and Professional Segregation:

The design of the Pharmacy department, a relative late entry in the "enlarge upon Nucleus" strategy adopted by Westshire and Borders Region proved to be unremarkable in terms of major resource allocation disputes. Its development proceeded quickly and smoothly, largely due to the compatibility of established staff with strong mutual template conceptions.

Pharmacy is an important discipline within the overall concept of "curative" acute sector medicine. Notwithstanding this, in terms of professional control it represents an anomaly. Serving the dominant

medical interest, it remains independent of the status structure of specialist medical departments. Although the design of pharmaceutical departments may lean upon medical advice the profession is self-governing.

Within a working hospital the pharmacist may wield considerable influence. He or she may countermand or direct the physician in terms of the nature of drug therapy. This autonomy deriving from expertise in an area of increasingly complex knowledge is buttressed by other drug-related considerations.

The separateness of pharmacy as a territorially segregated activity is premised upon legal restrictions upon the receiving, storage, handling and dispensing of drugs. The security measures needed to satisfy statutory requirements mean that a pharmaceutical department is characterised by strict conditions of entry and a high level of surveillance and supervision. Pharmacists are not slow to draw upon these constraints to promote the mystery of their activities and to control and direct the nature of contact with other hospital departments.

The Newtown Pharmacy: Constructing the Claim for a Professional Territory

The Nucleus design makes limited provisions for a department of Pharmacy. Nucleus envisages a facility adequate for servicing a minimal first phase development, pharmaceutical services being provided chiefly from existing centres.

In the Newtown project the first detailed space calculations are to be found in a document of May 11th 1978. Early 1978 had seen a consideration of the role of the Newtown Pharmacy by the Westshire Area Pharmaceutical Officer. He noted:

"There is no pharmaceutical department in the Eastern Sector. All pharmaceutical services...are supplied from the Pharmacy, Bartley Down East hospital"¹.

From the start he aimed at creating a Newtown Pharmacy large enough to serve existing units in East Westshire, and calculated that the Newtown unit would:

"Serve the peripheral hospitals and clinics in addition to the wards and departments in the district general hospital ie. ...a total of 553 beds, 6 Health Centres and 9 clinics"²

By thus expanding the service area of the development he was able to bargain for a largely self-supporting department, which could be almost entirely independent of Bartley Down. He had been involved in the Bartley East Pharmacy scheme, and a few bargains had been struck which conditioned the framing of his early bids:

"Well, the Pharmacy ie. Bartley Down East was in a difficult position when I appeared. That was Phase III of the DGH. Although Phase III included the shell of the Pharmacy...it didn't include the infilling of that shell, and the commissioning. That was in Phase IV, which when I came, '73, was due to...run on from Phase III. So it looked as it we were going to have a very difficult period...until Phase IV was built. Then it became obvious tht Phase IV was rapidly disappearing over the horizon...so that my major effort was to get a pharmacy tacked onto the end of...Phase III...we got a pharmacy at sort of phase three and a half"³(Westshire Pharmaceutical Officer-interview transcript)

In the light of the new department at Bartley conditions were laid upon the level of accommodation at Newtown:

"And part of the discussions on that was that, well if East was going to be a major pharmacy with all facilities and on that basis it was agreed...I don't think it was ever minuted as such...but there was a gentleman's agreement between myself ...and Peter Healey...Well Peter was a great help to be doing this and we agreed...Peter and myself on behalf of the Area..and the Region...that if we got the major development at Bartley, then when it came around to Newtown we would not be pressing for too much beyond the Nucleus concept. In fact we agreed to go Nucleus as far as possible,...I didn't like the Nucleus Pharmacy and Jameson [Regional Pharmaceutical officer] didn't like the Nucleus Pharmacy. But we said we'll take the Nucleus concepts and we kept to that"⁴ (Westshire Parmaceutical Officer: Interview Transcript)

There was pressure from Borders Region to limit Newtown provision given the large Bartley department. Also there was the Bartley medical faction who opposed a large rival hospital at Newtown:

"...the big argument, about...the viability of Newtown. It's all about the viability of Newtown isn't it really?...there's been the idea on the medical side that...its going to be a second class hospital...whether that's true or not I don't know...the thing is that we felt...if we could get a reasonable Nucleus style department...that we would have a viable pharmaceutical unit...I said as soon as we get Newtown department I want to see it as a base for Pharmaceutical services in the Eastern Sector...there was no argument...that was accepted by Peter and his panel, and by Region without question"⁵.
(Westshire Pharmaceutical Officer: Interview Transcript)

Nevertheless, this officer's May 11th proposals can be regarded as going beyond DHSS conceptions of proper Nucleus provision. They also contain statements based on template assumptions about the form and location of the department:

"The closest link required is that with the outpatients department. A location adjacent to the A and E department would also be beneficial.

It is envisaged that wards and departments will receive a ward pharmacy service and a topping up service from the Pharmacy...the Pharmacy should be sited as near as possible to the wards and departments to improve the efficiency of the delivery of drugs.

The pharmacy will require its own goods entrance with access for vehicles so that direct receipt of drugs from external sources can be achieved...

Design considerations:

The complete Pharmacy should be located as a single unit...on the ground floor. The purpose built flammable store should be located as close as possible to the Goods Entrance...and adjacent to the vehicle access for the Pharmacy. It is understood that the district general hospital stores will not be to the Nucleus design. Therefore all pharmaceutical storage space will be included in the Pharmacy.

Although the proposed Pharmacy differs from the Nucleus design it is anticipated that many of the Nucleus solutions could be incorporated directly"⁶

In his appended schedule of accommodation he compares floor areas for different design solutions. A DHSS Building Note solution gives an area of 532 m², whilst Nucleus allowances permit 292 m². His bid is for 430 m² - an intermediate figure. This size level, justified by departmental support for peripheral hospitals is evidently within the "gentleman's agreement"⁷.

The Area's critique of the Nucleus Pharmacy

The file documents on the Newtown Pharmacy do not give us a clear picture of the events leading up to the first layout drawings. Interview material helps to reconstruct events. Although compelled to recognise Nucleus as a valid exemplar the Westshire Pharmaceutical officer had strong objections to its detailed layout. His work at Bartley Down also strongly affected his thinking. He set out his objections to the Nucleus Pharmacy thus:

"Why didn't we like it? Very simple things like it didn't have a back door. I have always taken the view that drugs are rather special. I think that has been enshrined in various DHSS circulars over the years that drugs do need a different approach to your ordinary supplies. They are a high risk, they are a valuable commodity on the black market...we've tried to be as careful as we can with regard to their overall security...one of the things that I've always fought for is that...drugs come directly to the person who is responsible for them"⁸ (Westshire Pharmaceutical Officer: Interview Transcript)

Nucleus layouts did not give this facility, drugs would go to a general delivery bay common to several areas. There were further objections:

"...this Nucleus was designed only to give a service to the on-site beds. That was 300 beds, standard Nucleus...and we were thinking in terms of 5-600 beds...it was also envisaged that this would be supported by...a centralised Area drug store which we haven't got...this [the Newtown Pharmacy] has got to...hold its own reserve stock of drugs, and there was...a very small main store in Nucleus. I didn't like the layout of the main dispensing area...it...didn't appeal in any way as a workable unit.

...the other thing...is that if you are serving your peripheral hospital, then you've got to transport your drugs to them. And again you've got the problems...although they go out in locked boxes, if they're stuck on the loading bay and they get whipped, whose responsible?

You know the box of drugs might get sent up with the bedpans, yeah, these sort of things happen, there's no difference when drugs are in a box, they could be anything..."⁹
(Westshire Pharmaceutical Officer: Interview Transcript)

There were more claimed drawbacks with the detailed internal planning of the Nucleus Pharmacy:

"The other thing we were not particularly happy about was...this area here which was the, if you like, high technology part of the whole thing..when we looked at that area we had support from the engineering people on the Project Team, the Regional engineering people, who felt that those rooms were just too small. These are rooms which are fed with high quality filtered air, where we do aseptic work and the like.

Int: This is filling, preparation and...?

Yeah, all that. That area was redesigned because we felt that the rooms were too small...in the sense that...if you have a piece of equipment that is producing heat unless you have a reasonable sized room, they've got to pump so much air into it that it's just not feasible. So that was another area which we changed"¹⁰ (Westshire Pharmaceutical Officer: Interview Transcript)

Given the generally critical attitudes towards Nucleus levels of provision, and the efforts of other departments to enlarge upon the basic facilities, the possibility of doing a special non-Nucleus Pharmacy arose:

"...we've come up with a quite different sort of design...I made these points, and at the same time, various other people were making points about the problems they would face and gradually...Well, I've been one of a number of people making these criticisms ...the path lab and various other people saying that the standard nucleus just didn't fit their requirements. So gradually the idea got born I think, of the taking of a standard Nucleus hospital and at one end having a non-standard, it was going to be called...what did we call it?...a services block, yeah..."¹¹. (Westshire Pharmaceutical officer: Interview Transcript).

The Westshire officer proceeded to write out his "operational policy" defining the scope of the Newtown department.

"...the next stage was to write a...the next thing you're after isn't it?, er, outline operational policy, want it next week, you know the story...it lays down scope and function, accommodation, entrances, blah, blah, blah...all sorts of things"¹² (Westshire Pharmaceutical Officer: Interview Transcript).

Template Influence: Defining Pharmacy as a Nucleus Derivative

Having defined the physical sub-territories within the department, and having claimed an above norm provision within a non Nucleus building envelope, the problem of legitimating these decisions arose. Deference had

to be paid to the DHSS standard design. However, the Area Officer wished to impose his own rationale, and to obtain a patterning of resources which he could tie to his own conceptions of the future Area Pharmaceutical network.

Int: "...When you're designing layouts like this and designs like this...how did the discipline of Nucleus make itself felt?

Sub: How? oh well, ah, in the sense that many of these rooms are Nucleus rooms, you know, the standard size...Well, I don't know, I mean, I was quite happy to say for many of these rooms, they're down there in the Nucleus thing, we're quite happy to take it...

Int: So you were taking a classification of rooms which Nucleus had but enlarging them and re-jigging them?

Sub: Yes, yes basically its the, if you look at it...things are very much the same...so that we did act within, its a completely different design, but the concept...it is a Nucleus style department expanded up...and the changes which have been made have been directly concerned with the Area. You see...to be quite honest, this is going to rely on, as I said earlier, the way I kept faith with what I said, the provision is not being made for the following activities...

Int: And... that would be those exclusions that are labelled in the functional content?

Sub: Yes.

Int: So your exclusions, where possible are the same as theirs Nucleus are they?

Sub: Yes, yes...yes indeed, yeah. But having said that...your practical point that comes back to you right now. We're going to be relying on, lets say, bulk manufacture, assembly and sterile fluids. We're going to be relying on supplies coming over from Bartley. So, maybe, O.K., so the store there is sufficient to hold them. But where do you stick your empty bottles? You know, because they're valuable, they've got to go back to be reused. So we put in a returnable empties store...Yeah, the sort of things that when you get down to it in detail, you think crickey how are you going to cook that up?...So they're very practical, there was no storage there for containers...It looks fine, Nucleus, until you get into looking at it from a working situation. Then you become aware of its drawbacks. So that, we've basically kept the Nucleus approach, but modified it to suit the Area..."¹³ (Westshire Pharmaceutical Officer: Interview Transcript).

In spite of the officer's reservations about the detail of the Nucleus standard material it did provide a sense of valid structure. In creating his own design it provided the Pharmaceutical Officer with a baseline of organizational legitimacy against which his own actions could be given meaning and order. The officer could interpret his intentions as planful outcomes of routine procedures. Nucleus provided a bank of useful data:

"...the concepts of Nucleus...very readily fitted in with...my concept of what we were trying to achieve at Newtown...Put it like this, I should have been very unhappy to have to accept the complete Nucleus Pharmacy without change, very unhappy. On the other hand when it came down to doing the detailed work I found it very helpful...You've got a lot of the basic job that had obviously been thought out in great detail, and which I thought was very helpful. So if that is the constraint, well it wasn't irksome. If they had given us a package which I assume they have been given in certain places, you know, you're going to have a Nucleus...¹⁴ (Westshire Pharmaceutical Officer: Interview Transcript).

Typically this officer consulted NHS colleagues with Nucleus experience to get a feel for the scheme, and to learn of the bargaining gambits that could be deployed in tailoring the scheme to Area intentions:

"I had a long chat with Peter Healey. I went on a course up to Harrogate...the NHS training centre...I went up on one of these modular courses...we had various tutors...And there was an Area Pharmaceutical Officer from London...He got landed with a Nucleus so, he was most helpful in pointing out the pitfalls and he let me have copies of his papers pointing out what he thought were the errors of Nucleus and which I found very helpful. Er, didn't agree necessarily entirely with his approach, but on the other hand his comments were really very useful and...you'll probably find them incorporated in this. But there's always people who've done it before, if you can find the right person in the country"¹⁵ (Westshire Pharmaceutical Officer: Interview Transcript).

It is well nigh impossible to design quickly from first principles, without

reference to some concrete exemplar. This Westshire Officer therefore used existing material as a psychological prop for re-assurance, as well as an indicator of current negotiating benchmarks. Also contained in his remarks is a negotiation of reality centring around substantive practical issues tied up with his definition of providing an adequate service. Thus Nucleus is also a vehicle upon which the subjective rationality of the designer can operate. By working upon the exemplar layout the officer's mind reconstitutes its own individual template assumptions.

"You see at this stage I don't think there are any Nucleus Hospitals to go and have a look at. There's to the best of my mind...not a Nucleus Pharmacy available...But you see the Nucleus Pharmacy is built around the concept of what we call patient services, it specifically excludes all the things like bulk production of pharmaceuticals. So it was on the whole helpful having that Nucleus, the old green packs...Gave you some idea of room size which is always the most difficult thing to do. And all you can do, if you've got complete freedom, you think, oh my God! You see the Building Note for Pharmaceutical Departments is totally out of date. So its no use thinking you're going to get any help from that. I mean the next up to date edition is always going to come out but never does. I can remember the Bartley East design which was '75 I think we started. Now I troddled off to see the guy who was the Regional Pharmaceutical Officer with a copy of the Building Note under my arm. He said I don't think that's going to be a scrap of use for us its totally out of date, so that was it. So if you've got a blank sheet of paper then the only way you can approach it, apart from relying on your own experience, is to go and see other people's departments which have been built recently, and get copies of their plans. Ask them, what's wrong with it and then proceed in that way. Whereas with Nucleus we know at least basic data readily available for all to see and...we've got various bits and pieces I've acquired, er, this is how Nucleus can be expanded. So that as far as Pharmacy is concerned, if we talk about Nucleus now It isn't just this concept of the 300 bed hospital with a Pharmacy that's just going to serve the beds on site..."¹⁶ (Westshire Pharmaceutical Officer: Interview Transcript).

The Bartley Pharmacy development had further consequences for Newtown. Difficulties which had arisen there affected Area and Regional attitudes to the Nucleus Pharmacy:

"...the Regional Engineers, after having problems with Bartley Down East were not happy at all about the Nucleus Design for the Sterile Products Area. They thought...if we give you that you are going to experience the same sorts of problems you've got at East. So I think that was an important thing from the Regional side when they were looking at it, are we going to meet the same problems?"¹⁷ (Westshire Pharmaceutical Officer: Interview Transcript).

Taken together, all of these considerations were to constitute a vocabulary of design deviation from Nucleus. They were the grounds from which a selective rationale for a one-off project could be constructed.

The Detailed Design of the Pharmacy Department

On 20 March 1979 the design of the Newtown Pharmacy was considered at a joint Borders/Westshire Working Group meeting at Bartley Down East¹⁸. The Area Pharmaceutical Officer's own sketch plan and operational policy were examined in detail. The Regional Architect commented that Pharmacy would be a highly serviced department, involving considerable air conditioning. The Area Pharmacist opposed a first floor location. The Border's Architect responded that it would be best provided in a single storey building, but costs precluded this option. The Borders Engineer maintained that the routing of duct work would present difficult problems. The meeting then looked at the layout room by room. The Area Pharmaceutical Officer called for an increase in the size of the Drug Information Office to be used in counselling patients on drug use. In terms of pharmacological practice this represented a resource for the enlargement of the pharmacist's work role:

"Another sort of thing is that...we ought to give more information to patients about...the drugs they're taking, how they're taking them and so...this little room, drugs information. Basically, the traditional drugs information approach is providing information to the other professionals in the hospital, but we've got a little table and chair there where...so if we want to talk to somebody in confidence they can just be invited through into that room...Patient counselling, to use its jargon term...I mean most counselling...give a person some antibiotics...it doesn't take too much effort in the general melee to impress upon them that it does mean every six hours. But if it's a lady with a personal problem whose got to have some pessaries stuck up her rear orifice it can be a bit embarrassing..."¹⁹ (Westshire Pharmaceutical Officer: Interview Transcript).

At the Working Group meeting the officer stressed the importance of this counselling work in his bid for a larger room. In exchange he was willing to reduce the principal pharmacist's office in size. He was still undecided whether to have central or department-based changing facilities. He talked in detail to his layout for the Sterile Products Section and the detailed ventilation problems were gone over. Given that an air change rate of 50 changes per hour would be required it was decided to redraw the accommodation. The Border's Architect summed up the discussion by maintaining that there was now sufficient information to begin drawing up the department²⁰.

The Inter-Personal Dynamics of Design:

The detailed design of the pharmacy department went forward very rapidly after the initial agreements between the Area and Regional officers. The contact between Westshire's Pharmaceutical Officer and the Design Team at Borders was very informal, much of it taking place over the telephone to settle specific points of dispute²¹. Drawings passed between Region and Area and their meaning and significance worked out in detail.

"Right...this is when we got into a state of confusion...that was basically the first sketch...how do you feel about that? And the general approach was, O.K. [subject is referring to sketch design drawings]. Erm, but then we started this very...difficult...Generally the siting of the pharmacy in relation to the wards and the outpatients was O.K. Its a small...hospital anyway so no great communications problems in that sense, but our position in the total hospital was reasonable. We were still fighting about the back door, and then we got into this very difficult phase where...we had all sorts of approaches...

We seemed to get on terribly well with the pharmacy...we got down to the detailed room data sheets at a very early stage"²² (Westshire Pharmaceutical Officer: Interview Transcript).

Nucleus room data sheets were used. As well as furnishing a legitimacy framework the objectified knowledge contained in them served a practical/technical purpose. The schedules provided an information base of a utilitarian kind to officers who were unfamiliar with many details of current practice.

"...what we did basically...for our rooms which were equivalent to Nucleus rooms, we took the basic Nucleus sheet...we got provisional work out very quickly...Nucleus was a big help because a lot of the detailed stuff was already there...like design criteria, changes of air and all that sort of stuff.

Int: You could adhere to that?

Sub: Yeah, so we bashed on very rapidly, with getting detail down, instead of just having rooms shown as empty rooms. We very quickly got into the filling in of detail, leaving aside some vital questions because it soon became apparent from the architects' point of view the difficulty of this hospital was the design of this services block...We knew we were going to get this amount of space and so we bashed on. Subsequently its been changed...I mean you never get quite what you hope for. One of the things we have lost is...a goods receiving bay. That there is in fact the goods receiving bay...and then to connect us to that we've got this corridor, but its not too long. So that was the compromise we made...we accepted that there could only be one loading bay for the hospital. We couldn't have our own loading bay"²³ (Westshire Pharmaceutical Officer: Interview Transcript).

Several departments within the service block and hospital were making competing demands on loading bay facilities. Pathology was one which also had its special requirements. The Borders architect acted as an "honest broker" in sorting out the priority of rival claims.

"I can't remember any meetings where all the people...all sat down and hammered it out. We just relied on the architects redrawing time and time again...until they got something which was acceptable. That's your point about compromise. In the end...we lost the direct loading bay, but we got that which is reasonable and we...found ourselves with natural light on two sides, whereas the original plan was just to have one long wall of the department. So we've achieved something...so that it was a reasonable compromise to make"²⁴ (Westshire Pharmaceutical Officer: Interview Transcript).

Inter departmental wrangles over the loading bay apart, the speed of the design work was enhanced by the long standing relationships between Regional and Area staff who had worked together on previous pharmacy projects. Personal knowledge smoothed the path of complicated relationships. Many of these bargaining repertoires had been established during the Bartley Down Pharmacy project:-

"I think personal relationships come into it. The fellow that did the work...Paul Gibbs from the Regional Architect's people, he did the work with me at Bartley Down East...And he was the guy who was the architect on the Project Team. So he knew what I was talking about right from the word go, it wasn't a question of having to educate an architect...I would hope that he would know me, that I wouldn't be trying to claim too much. That if I did say I'm concerned about the provision there, hopefully he would believe me and wouldn't think, oh crickey they're trying it on, another empire builder whose got twice as much...hopefully I would be known to him and he would know that that wasn't the way I would do it"²⁵ (Westshire Pharmaceutical Officer: Interview Transcript).

According to this Westshire Officer there were few problems caused by

boundaries between his professional knowledge and the specific competencies of architectural design staff:

"I think I was known to the team...there was Paul Gibbs, Ron Sims, engineer, and on the admin. side really...now we worked very hard to get Bartley Down East Pharmacy...and its all a bit difficult sometimes, for those fellows...they don't know people, they've got to follow official protocol. They've got to write to a planner here...whose then got to consult with the head of department...Well all of that went out of the window in terms of the Bartley Pharmacy because of the speed with which we'd been doing it. And Peter Healey was quite happy...get on with it...We got into the habit of any slight problems dial up Paul Gibbs and just pick up the phone, and I've got this problem how do we resolve it? We'd talk about it, you know, we could do it three ways then, couldn't we. I'll sketch them out, I don't know, on the back of an envelope, send it over to you, you have a think about it and send it back. We adopted exactly the same approach with the Newtown Pharmacy...I think basically that's the way it went...we didn't come across anything that wasn't acceptable. In Newtown, I mean he said what you have described I cannot draw. I've got a fourth dimension, and then he has to do some major compromises in saying, well its a question of what do we split? Do we split A or do we split B..."²⁶ (Westshire Pharmaceutical Officer: Interview Transcript).

The Pharmacist's account seems to be an accurate one. The Pharmacy design files are quite thin, there is little evidence of major disputes. Progress was rapid²⁷. By 4 May 1979 the Project Team was considering a 1/50th scale plan of the department²⁸. During a meeting of 14 August internal finishes and details were settled²⁹. On 2 April 1980 the final sketch layout was approved, and certain changes made such as the positioning of the flammable store³⁰.

Although the Pharmacy Department represented a major departure from the Nucleus exemplar in terms of size and room content, the standard design had been deferred to wherever possible. The Nucleus format had acted as a thread of organizational certainty running through the loading

bay dispute, a factor which had delayed the whole Pharmacy Scheme...Nucleus finishes had been adopted for the design which gave the department a physical veneer of conformity and symbolised adherence to DHSS thinking³¹.

Thus the Nucleus design had reduced uncertainty in two ways. It had provided a workable solution to a given problem. Furthermore its DHSS sponsorship legitimated it politically. Designing Newtown Pharmacy thus involved design as a twin process of arriving at the technically possible and politically acceptable.

Such was the resilience of the NHS design procedure that it was possible to fragment design tasks sufficiently so that the Pharmacy could be planned in detail whilst disputes over macro-planning questions were settled.

The Meeting held on 2 April 1980 can be taken as concluding the design work on the department. Drawings and room data sheets were largely complete and needed only minor amendment³².

Newtown Pharmacy : Innovation or Tradition?

The Pharmacy incorporated a high level of engineering services. Its production facilities were regarded as fairly "high tech" by Westshire. However those concerned in its creation saw its value assumptions as deriving from a steady process of incremental change. Its inspiration drew heavily upon existing practice:

"I don't think there's anything terribly pioneering about it...all I can say is...this area was the high technology area.

Int So this is where you'd make special mixes is it?

Sub Yeah, and under what is known as clean conditions, and aseptic conditions. All I would say about that is that we have learned from our experiences at Bartley, both from our point of view and from the engineering services point of view. So I would think that is very much up to date,...What I hope is that what we've got is a unit of sufficient flexibility...the sort of thing I mean..[points to drawing] that room Aseptic is designed to manipulate things under aseptic conditions, there is no final heat sterilisation of the product. Now that little room, Preparation Room and Fill is designed for preparing and filling into bottles a product which is later going to be sterilised in this autoclave. I see that sort of area...might well decline in the future, where this activity, aseptic is likely to increase. But the design of that is such that the standards are the same so that if my feelings are right we could have two aseptic rooms...the standards are there, the air quality is there. So its designed with that sort of thing in mind. The only other thing that readily springs to mind, in looking to the future...certain things are implied in this which we don't do at Bartley...we would be looking towards technician's topping up supplies in the Newtown Hospital, rather than the traditional day by day requests to the pharmacy"³³ (Westshire Pharmaceutical Officer : Interview Transcript)

This latter technician topping up service was part of his intention to move towards more ward-based pharmacy. It represented an extension of the pharmacists role into the treatment areas of the hospital:

"We shall be looking for...ward pharmacy, which is not a new concept, but its something that we don't do an awful lot of at the moment. But really for ward pharmacy that's essentially get your pharmacists onto the ward. It won't reflect much in the design of the department, but its down there in the operational part of that brief"³⁴ (Westshire Pharmaceutical Officer : Interview Transcript)

The Design of Environments and the Design of Work

How closely are the rationales that lie behind the design of physical spaces and layouts linked to manager's intentions about the nature of work that will take place within them? According to the Westshire Pharmaceutical Officer they would seem to be only loosely associated. The strong template forms used by NHS professionals tend to produce well known and acceptable layouts within which long established work procedures are carried out. There seems to be an assumption that the design of the work system can be left to the commissioning stage, and that the extent of change will be minimal and gradualistic:

Int I was wondering if the design of this pharmacy actually has any implications for the design of jobs?...how will work be organized and done within the department? You know gradings and the nature of tasks and how it would be supervised?

Sub Yeah, I think the points I've made earlier that we envisage technician topping up ward pharmacy, er...But I don't think...the design of jobs, no the job content of the technician for instance, well no, it will be a technician topping up service. But I don't honestly think that that affects the actual design of the department. It would be very much the same whether we do it on a technician topping up basis or on a traditional basis.

Int So really, in design you would see getting the basic room relationships and areas right and the organization fitted in afterward?

Sub Yes, obviously a number of forces come into where you have your particular rooms, and of course, the other constraint is security. You've got to have a secure department. And basically the approach we have gone for is high security for the vital areas and the rest we're not too bothered about. So we've basically got a line like that...[refers to a drawing].

Int That's a secure periphery is it? Beefed up with locks and that sort of thing?

Sub Yes. And in that area, all the windows will be protected, so that if somebody smashes the window it will set off the alarm system. The way that the secure store, the holy of holies as it were, is overlooked by the general office so that people can keep a look over who goes in and out...³⁵ (Westshire Pharmaceutical Officer : Interview Transcript)

Staffing the Pharmacy

Just as physical design is dissociated from detailed work design, so is the procedure for staffing dissociated from initial design activity. Bargaining for staff is a separate political process, although the physical size of a departmental unit is a negotiating baseline from which staffing levels can be calculated. Staffing levels are generally worked out with reference to existing departments that are running to a known level of output³⁶:

"I've made my claim in terms of staff...In terms of what we think we need to operate that. And that was done on the basis of one's experience of what staff levels were being used in other hospitals of this type. I mean, we have pretty good relationship with Borders...the Regional Pharmaceutical Officer. If we want any advice...we're always happy to give each other advice. It is possible to pick up within the Region similar sized units, have look at what level of service they're providing, what level of staff they've got"³⁷ (Westshire Pharmaceutical Officer : Interview Transcript)

Consideration of staffing levels was present from very early stage, and a Manpower Plan had drawn up by the Westshire Personnel section incorporating the Newtown DGH staffing levels. Staffing was also monitored at Region.

Int I've heard it said, perhaps I'm being the devil's advocate here, you put in for as much as you think you can get and its whittled down later on.

Sub No I didn't, no hopefully that is a sensible approach. If challenged I could I think justify and defend that. I

mean people say that, but I don't believe in that...You see, we do have a, within this discipline of Pharmacy...a Regional Pharmaceutical Officer. Now...anything that you submit to him is likely...you know when the Project Team are working they're likely to submit anything that I submit, is likely to be given the once over by them. So if it's something ridiculous they will jump on it. So the best way of proceeding here was to involve the Regional man and say look these are the broad principles, are you in agreement? And there is a monitoring role, and they do use it, they do submit bits and pieces and ask them"³⁸ (Westshire Pharmaceutical Officer; Interview Transcript).

Readers should note the close co-operation between pharmaceutical professionals to defend their proposals against outside criticism. The Newtown Pharmacy design process seems to have been marked by close mutual support between personnel at different hierarchical levels. It was also singular in the light of the high personal credibility of the Pharmaceutical Officer in his negotiations with crucial design staff. He was well liked at Westshire and respected by Regional officers. He used the established system of consultations and was regarded as a useful ally in resource battles:

"I've never had any direct negotiation with DHSS, my direct relationship was with the Project Team...To be honest if I was uptight about something I wouldn't know who at the DHSS would be responsible. No...they set up the Project Team...which is joint Region and Area and they do it...and its basically for people like Peter [Healey] and Simon Powell [the Nurse Planner] who get involved in the discussion with the DHSS...I was involved directly with them over the Bartley thing, then I went along with Peter. He wanted me to go along as a specialist to be in on...fighting for the Pharmacy. He wanted me there"³⁹ (Westshire Pharmaceutical Officer; Interview Transcript).

Pharmacists lack the high level of influence possessed by medical planners. It may be argued that the comparatively large size of the Newtown Pharmacy was obtained by observing design protocols and building

up alliances with other staff. Certainly we do not find in the Pharmacy design the exercise of professional prestige and bargaining muscle as we do in the evolution of the layout for the Pathology department.

The Newtown Pathology Department

The Newtown Pathology department presents a dramatic case of resource acquisition due to the exercise of professional power and influence.

Using the advantages to be gained from one of their colleague's membership of crucial Area management and design bodies the actions of the Pathology staff at Bartley contrasted with those of other consultants at Bartley Down. The majority of doctors at the Bartley hospitals opposed Newtown D.G.H. and wanted little from the scheme except its demise⁴⁰. The Bartley Division of Pathology took the opposite view. From the start of the Newtown scheme they went all out to get a large pathology provision. The new hospital was to be the vehicle they employed to dramatically increase the resources devoted to their specialism.

The Bartley Down East Division of Pathology: Political and Status Considerations:

Within the NHS status hierarchy pathology achieves a middle ranking in prestige. Primarily a diagnostic group of specialties it has recently become a capital intensive facility. The introduction of automated equipment to process specimens and to identify pathogenic material has given opportunities to upgrade its importance in relation to more therapeutic specialisms. At Bartley Down East the researcher saw the department's

drive to obtain new equipment and to install computer based record keeping procedures. This departmental drive for new resources and hardware is evident in the role it played in the design of the Newtown Hospital.

The Bartley Down East Division of Pathology was headed by five principals. Four were consultants concerned with distinctive sub-areas of the pathology discipline. Of these one was Maurice Stilgo. The fifth, Henry Ganes, was secretary to the group and a medical scientist concerned with biochemistry. In addition to these individuals should be counted the consultant in charge of the Bartley Public Health Laboratory, Dr. Freeman. Freeman acted as chairman of the Division. Closely involved with these medical staff was the Chief Senior MLSO who took on detailed planning activities after the initial size-setting exercises for Newtown Pathology had been completed.

Dr. Maurice Stilgo: A Key Design Actor

Maurice Stilgo was a professional with considerable influence. A member of the Bartley Division he possessed an extensive network of organizational and political connections within and beyond the Westshire Health Authority. He numbered amongst his affiliations the Vice-Chairmanship of the Area Hospital Medical Committee, and he was a consultant representative on the Westshire Health Authority. He had been the medical member on the Bartley Down East Project Team and subsequently took over the same position on the Newtown DGH Project Team.

Although regarded as a competent practitioner his professional reputation was not a leading one within the authority⁴¹. However, he had the ability

to carry the confidence of his medical peers to such an extent that he could be regarded as the most influential medical planner within the authority. His main rival in this respect was the consultant radiologist, who was a member of the Area (later the District) Management Team.

Within a health authority formal medical leadership goes to the Area (after 1981 District) Medical Officer. Practically speaking, the DMO may have less influence than his title suggests. He acts as Community Physician, a discipline not highly respected by hospital-based consultants. Informants told me that although the DMO socialised with consultant staff, he was essentially an outsider in medical circles. Stilgo was the real channel of consultant communication.

Maurice Stilgo's own position had its weaknesses. Various of the Westshire staff commented generally that pathologists were not "real" doctors, they just "cut up dead bodies". This is indicative of the dominant curative orientation of the NHS. Pathology is thus not directly involved in the most prestigious areas of surgical or medical treatment.

In general medical planning is not regarded highly amongst consultants as an activity likely to lead to professional fame. It tends to be lumped together with the administrative and management structures within which it is largely carried out. Those, like Stilgo, who undertook it could not expect high praise in medical journals. A recompense, however, was the opportunity it gave to have an influential hand in shaping resource distribution.

Stilgo's role was frequently difficult to sustain. Given the splits in the lay Authority over Newtown DGH and the hostility to the development by his Bartley consultant colleagues, he frequently trod a difficult path⁴². Forced to defend design decisions he had helped make, he often had to stand against the views of the constituency he represented.

Early in this research, he was identified as a key actor. The researcher attempted to interview him on two occasions. Neither of these appointments came to fruition. Several administrative staff cautioned the writer from approaching him. When an interview with him was suggested one Westshire officer remarked "the alarm bells are ringing". Therefore the following account has been largely based upon documentary evidence and fieldwork notes.

Some of Dr. Stilgo's contributions to Newtown design have been covered in the previous chapter on the Newtown Project. Here his role and that of his Divisional colleagues is examined in relation to the design of his own department.

"The Early Bird Catches the Worm": The Division of Pathology Makes its Bid for Resources

Through Stilgo's membership of the Bartley Down Project Team the Pathology Division were well placed to time an early bid for resources on the Newtown scheme.

On 16 February 1977 Peter Healey, the Westshire administrator for Newtown design activity wrote to Henry Ganes the consultant biochemist and Secretary to the Bartley Division of Pathology:

"There are a number of activities now underway relating to the early planning stages of the proposed Newtown DGH. It has been known that one of the main problem areas in planning the DGH will be the provision of laboratory services. I wonder if an item could be included in the forthcoming Agenda of the Division of Pathology, relating to the planning of services for the District General Hospital"⁴³.

Ganes replied on 28 February requesting documents for the next meeting on 17 March⁴⁴. Discussions at this meeting evidently led to a drive for a full blown Newtown Pathology Department. A file note by the chairman of the Division, dated 27 May 1977, and headed "Pathology services for Proposed Newtown District General Hospital" makes clear the desire for a large department despite the prevailing environment of economic stringency.

"Microbiology Services

Whether or not a full 748 bed DGH is contemplated, a satellite laboratory at Newtown staffed from Bartley should be avoided. By the time the first phase of Newtown...is completed, the workload at Bartley is likely to have increased to a point where further expansion would be impossible. For a very short time, as a temporary measure, specimens could be received at Newtown and transported to Bartley but it would be economically inadvisable to encourage phased construction of a laboratory at Newtown since at least one third of the cost there will be for the provision of engineering services...In view of the high population density at Newtown the demands in the new DGH are likely to be high and an area of 184m²... will be needed for microbiology"⁴⁵.

This presentation is very adept. Nucleus prohibited provision of excess engineering services in first phase developments. Therefore the note trades upon two factors. It argues for full provision immediately whilst accepting the overall Nucleus phasing concept for the complete hospital. Given the opposition of the other Bartley consultants and continuing financial restraints the likelihood of further phases for Newtown was always in doubt. The endorsement of high demand from the Newtown

population contradicts the general Bartley consultant view that the new city could be adequately served by a Bartley Down Phase IV⁴⁶. The document relates provision levels to DHSS "Hospital Building and Equipment Notes 15" - a standard clearly overgenerous when compared to Nucleus ideals.⁴⁷

Another note from the Secretary, Henry Ganes, dated June 1977 also uses Building Note 15 to fix facilities for biochemistry. It requests 9.5 "Laboratory Standard Units" of accommodation and emphasises the workload likely to be generated by the Newtown I.T.U. and A. & E. departments. The same document stakes a claim of 230m² for the Haematology area.⁴⁸

It is apparent that the Pathology Division was keeping an eye on management statements about Newtown. Dr. Freeman, the Division chairman, wrote to the Westshire Administrator on 3rd June 1977 about Westshire's planning document on the future pattern of area health services:

"My attention has been drawn to the booklet of June 1977. In appendix II a statement is made concerning the proposed Newtown D.G.H. to the effect that 'it may be necessary to provide the major pathology support from the Bartley laboratory initially'. This statement is premature since the Division of Pathology is currently considering what arrangements will be necessary in the proposed Newtown Hospital. I will be raising this matter at the next meeting of our Division but meantime it would be unwise to presume what services could be provided for Newtown from Bartley".⁴⁹

Note here the assumption that the Division could countermand the policy expressed by the Area Management in a major planning document, and that the consultant interest itself should determine needs.

There is little doubt who drew Dr. Freeman's attention to this reference. On 9th June Dr. Stilgo wrote in strong terms to the Area Administrator:

"Re: The Future Pattern of Hospital Services in Westshire

As consultant representative on the Newtown Project Team Working Party I am disturbed to find in Appendix II of the above, the statement that "it may be necessary to provide the major pathology support from the Bartley Laboratory initially". This is contrary to the views of the Working Group, the Consultant Pathologists and the functional content submission, all of which clearly state that there must be a major pathology department on the Newtown site...

I hope the statement in the above document is an error, and does not represent a policy decision which is being imposed by the A.H.A. against medical advice. I await your reply with interest".⁵⁰

On 14th June the Administrator dispatched a conciliatory reply to Drs. Freeman and Stilgo.

"There has, I am afraid, been a misunderstanding ... relating to laboratory services. The appendix was drawn up at a time when Mr. Healey ... was not available and certain working papers were misinterpreted.

The functional content proposals recently agreed by the Area Management Team and forwarded to the R.H.A. and Department of Health clearly indicate that a sizeable pathology development will be required ... There is certainly no presumption about services being provided from Bartley, there is an acceptance locally that a substantial pathology development will be required at Newtown.⁵¹

The Negotiation of Territory Size

On 22nd June, Ganes wrote to Peter Healey setting out the Pathology Division's demands for space. The Haematology, Biochemistry, Microbiology and Histopathology "primary space" requirements totalled 705

m²: "secondary space" needs (offices, circulation space, etc.) were 607m². The total request was for 1,312m² - close to the current Building Note limits. The proposals were crude space calculations, detailed subdivision by function was not considered.⁵² Five days later Healey passed these figures on to Borders unaltered.⁵³

The level of these figures caused the Borders Regional Scientific Officer some alarm. He arranged to visit the Bartley laboratories on 15th November 1977 taking with him the chairman of the Health Information Planning Advisory Committee (H.I.P.A.C.).⁵⁴

The Westshire Area Medical Officer wrote to the H.I.P.A.C. chairman on 4th November.

"I have been concerned about the lack of information ... regarding the level of pathology services that may be provided ... at Newtown ... at the meeting between the AMT and HIPAC on 12th September I requested information on this point, which you stated was being currently thought about, and the meeting then undertook to let me have that information shortly. It was my understanding that you were to let me have an account in writing of your thoughts on the level of pathology provision which would be discussed between the Team and our pathology consultants locally and if there were any difficulties which could not be reconciled, only at that stage would a meeting be necessary with ... the Regional Scientific Officer."⁵⁵

The Westshire consultants' bids for space were starting to pile up. On 8th November Dr. Stilgo listed his Mortuary requirements, without giving an estimate of final size.⁵⁶

The Pathology Division chairman's notes on the 15th November session show that the discussion was a lively one⁵⁷. His minutes summarise the situation up to that date. The Borders Scientific Officer had been to the

Bartley laboratories on August 11th and asked why the Division required a laboratory of such a size (1312m²). He had told H.I.P.A.C. that 500m² would be adequate. The Bartley Pathologists had opposed the Region's insistence on a small satellite facility. The Borders Scientific Officer had:

"advised that the laboratory should be built to provide a moderately comprehensive service at Newtown ... the recommendation of 500/600m² of usable space would work out at 700-800 metres in total; a full laboratory service would be established when funds allowed and in any case when Phase II was built".⁵⁸

The Regional Officers stressed the cost limits of the Nucleus Design. The Nucleus standard allowed for a unit of 40m² but the Region thought this was too small. To this figure of 40m² for a small pathology outstation to collect samples for analysis at other hospitals was allocated 20m² for circulation space. Total Nucleus pathology allocation was thus a mere 60m². With 5-600m² Bartley would need to provide back-up services. Newtown DGH could provide limited services in all four sub-specialities or a comprehensive service in some and little in others.

The Bartley Division heads opposed the Region "forcefully". An inadequate lab at Newtown would make staff recruitment difficult. This argument is familiar and a variant of that used by Dr. B. of Bartley in his correspondence with the DHSS (see Chapter 9). Given the high unemployment rates in Newtown recruitment of laboratory personnel in the lower grades would not have been likely to present a problem. The minutes claim:

"The Division was being asked to plan for mediocrity and in the years to come would be blamed for having encouraged the provision of a second rate service for the Newtown Hospital".⁵⁹

Peter Healey said that Nucleus costs did not allow for a greenfields site situation. Region and the D.H.S.S. should give extra money for new sites.

"The Division pointed out that they were now being asked to advise on the provision of a satellite laboratory whereas their original remit had been to advise on the provision of a pathology service for a D.G.H. There were major difficulties in providing a service of high quality from a satellite laboratory".⁶⁰

The cost of communications for a small lab would push the costs over the Region's budget of £400,000.

At this stage of the meeting the HIPAC chairman:

"...drew attention to a need for urgent progress; in her opinion the Division was in danger of delaying the development at Newtown. Unless speedy progress was made it might be necessary to explain to the inhabitants of Newtown, e.g. through the Community Health Council, that the delay in progress was caused by the Pathologists. Members of the Division objected to this statement and suggested it implied an unreasonable degree of pressure by Region".⁶¹

The Westshire A.M.O. then defended the Area team against the Region's viewpoint.

The Regional Scientific Officer then agreed to prepare an estimate of the maximum cost of the laboratory. He would set out the degree of support required from Bartley and provide estimates of staffing.

The Region's own minutes of this meeting differ in several respects from those produced by the Pathology chairman.⁶² They cite the basic Nucleus laboratory size as 60m². The threat of public exposure by the HIPAC chairman is omitted and the following statement attributed to the Bartley Pathology Division:

"the provision proposed by RHA representatives would be unsatisfactory and the clinical staff would bear the brunt of the public's criticism".⁶³

It was also claimed by the Region that the Westshire Pathologists argued that:

"bearing in mind the Department of the Environment's proposals for extending assistance to inner city areas, and the cut-back in population targets for Newtown it was unlikely that a further phase of Newtown D.G.H. would materialise, in which case they suggested extension of the Newtown pathology facility would not in fact take place."⁶⁴

Thus the Bartley Division was well aware that if they did not press their full demands immediately they would be unlikely to get space at a future date. The R.H.A. account states that:

"The RHA's capital programme was much reduced compared with the level of several years ago ... a standard less than Building Note Standard would have to be adopted. There was a limited amount of money available for Phase I ... and the bids being made ... had to recognise this fact."⁶⁵

The Border's personnel pointed out that:

"Some other parts of the Region were operating an adequate pathology service with facilities ... substantially less than the Bartley Hospital and the proposed Newtown facilities..."⁶⁶

Despite the Westshire Pathologists protests that they had been asked to plan for full conventional d.g.h. laboratory facilities this research concludes that they were "trying it on". Given Stilgo's familiarity with current NHS design trends it is impossible that he should not have had full

knowledge of the Nucleus levels of laboratory provision. The Division's efforts can thus be fairly seen as a move to gain relative overprovision for the pathology specialties. The insistence on facilities for all four sub-disciplines shows a concerted effort to outwit Regional efforts towards economy.

A letter from the Borders Principal Assistant Planning Secretary covers the outline of events. On 16th November the Regional Scientific Officer wrote to the Westshire Area Medical Officer offering 700m² ⁶⁷. The Westshire A.M.O. replied on 15th December giving a revised Area bid of 820m² excluding circulation space.⁶⁸

Borders Region Capitulates to the Westshire Consultants

The process of offer and counter-offer on laboratory floor areas dragged on into 1978. The detailed nature of dealings during this period is unclear, but at a meeting at Bartley Down on 15th February 1978 a dramatic change had taken place in the Region's position.⁶⁹ This meeting was attended by Drs. Stilgo and Freeman, Peter Healey, another Westshire officer and on the Regional side by the Regional Scientific Officer, the Newtown Project Team administrator, and a Regional medical planner. They considered the five proposals for the size of the Pathology department:

- (a) The A.H.A.'s bid of 27/6/77 for 1312m².
- (b) The "Nucleus" laboratory sized at 60m² (originally supported by HIPAC).

- (c) A later HIPAC proposal of 500-600m².
- (d) The Regional Scientific Officer's 700m² proposal.
- (e) The revised A.H.A. proposals at 820m².⁷⁰

The Regional Scientific Officer explained a change that had taken place in his thinking. He maintained:

"... that in the drawing up of the Stage I functional content submission for the Newtown D.G.H. regard seemed now to be given to the service need whereas some months ago stress had been laid on the requirement to keep costs within a restricted financial limit. He said he did not feel it was right that considerations governing the assessment of the pathology laboratory requirement should be different from those applying to other departments, and in the light of the change felt bound to revert to his original proposal namely that the pathology laboratory for the Newtown D.G.H. first phase should be almost the full Building Note provision."⁷¹

The HIPAC chairman accepted this view but did not agree. However if the DHSS insisted upon a Nucleus solution they would have to consider fall-back proposals. The other Regional medical planner said that he thought it would be less expensive to provide full facilities in the first place.

Dr. Stilgo commented that the Westshire Area Medical Officer supported the proposals. Dr. Freeman would not commit the Division to detailed fall-back proposals.⁷²

What had happened to bring about this change of stance by the Region? There is no available evidence of threats of delay or non-co-operation by the Westshire Pathologists, although this is a possibility. Their non-compliance could have compromised the whole development if they had changed their position and thrown their weight behind the general Bartley

Down anti-Newtown lobby. The Regional position gives us a possible clue - they may well have realised that the use of a Nucleus layout would permit them to "surrender" and then to cut the laboratory size at a later date under the guise of DHSS pressure. One factor is remarkable. Given the clash of medical and administrative interests one finds that as the dispute escalated the decisions became increasingly subject to medical judgement. The involvement of the Westshire A.M.O. and Regional medical staff indicates that key resource debates are determined by considerations of professional medical interests rather than by a review of the general demands made upon NHS resources by the nature of client (i.e. the public) need. The Regional Scientific Officer justified his policy change by reformulating his rationale in terms of service provisions, but in fact this was in response to the demands of a specific department for resources. In previous debates the Region had already claimed that large Bartley and Newtown pathology units would lead to overprovision in comparison with other Areas.⁷³ How the "needs" of Newtown had changed over a few months against a pattern of falling new city population projections remains a mystery.

The Bartley Pathology Division Defends its Space Allocation

The Newtown hospital design was by now well over the limits on area considered appropriate by the DHSS. The 3rd March 1978 meeting of the Project Team looked at a schedule of departments where cuts could be made should the Department complain at the extent of the Stage I submission.⁷⁴ Pathology was on the list. Defending his department as a Project Team member Dr. Stilgo said that all the Area pathologists would be against any reductions. The Pathology proposals went forward intact whilst several other departments were earmarked for cuts.⁷⁵

The Regional Scientific Officer wrote to the Westshire Area Medical Officer on 10th March. He set out the grounds upon which Borders would support the large size of the laboratory:

"HIPAC have agreed that the submission to the DHSS will be for a laboratory of 36 laboratory service units. This is only 8% less than the size recommended by the Building Notes, and may be regarded by the DHSS as excessive. Nevertheless, the RHA officers will support it, principally on the grounds that:

- (i) A D.G.H. requires a laboratory on the hospital site;
- (ii) the laboratory must embrace the four main branches of pathology, and must be capable of dealing with all urgent and community requested investigations;
- (iii) by the time Newtown D.G.H. is commissioned, the workload in the Bartley Hospital will be such as to make it very difficult for that laboratory to accept any of the Newtown workload ... without additional accommodation, staff and equipment;
- (iv) it is more economical in the long run to build a "complete" laboratory now;
- (v) the distance/time between the Newtown and Bartley hospitals is just too great to allow an acceptable laboratory service for Newtown to be based at Bartley.

Other supporting arguments have been discussed in meetings with the Bartley Pathology Division, and will be borne in mind. I expect DHSS to question several of the arguments, in particular (iii) and (iv)...

Preliminary comment by the Regional Architect's Department is that if the hospital is built to the Nucleus design, it will probably be necessary to build the laboratory as a separate block under a separate contract."⁷⁶

Throughout the negotiations there is no mention of current developments in pathology processing technology. These trends were leading in two directions. First automated testing devices were becoming smaller, reducing the floor areas required. Secondly as equipment became minaturised and more robust its use on wards was becoming more

practicable leading to further possibilities in reducing the size of the Newtown facility. Thus the technological arguments were for space reduction, but these were either suppressed or never voiced at all.

Having gained a considerable victory over Region the consultant pathologists were now looking at staffing levels. Their functional content proposals were incorporated unaltered into the Stage I document where they obtained an entry of 1,851m² compared with a Building Note limit of 1,900m².⁷⁷ Their figure stood in stark contrast to the 60m² anticipated by the Nucleus format.

Detailed Design of the Pathology Department

In the autumn of 1978 Borders drew up its "Design notes related to Nucleus Policies". These repeated the legitimating arguments for the laboratory. The basic design decision ran as follows:

"A one-off solution is to be designed in the service zone with direct access for patients but with separate bleeding rooms, possibly located in the out-patient department. A two-level solution may be acceptable."⁷⁸

Space on site was to be allowed for future extensions. In addition to the Laboratory, Mortuary and Post-Mortem facilities were to be included in the service block. Thus the Division of Pathology had not only achieved an above-Nucleus allocation, it had cornered extra design resources by getting a tailor-made solution.

Detailed design work proper began in the Spring of 1979. On April 4th Peter Healey wrote to the three Bartley consultants who were to devise

detailed layouts and who would work with Dr. Stilgo.⁷⁹ The first meeting on detailed Pathology design took place on 10th April 1979 at the Bartley Down East hospital.⁸⁰

The Newtown design control plan of 10th May 1979 anticipated completion of the pathology operational policy, sketch design and room data sheets by September of the same year.⁸¹

By July 1979 outline layouts were well in hand. Stilgo was acting as intermediary between the Division and Peter Healey in submissions to Region. His presence on the Newtown Project Team also gave him a good idea of the progress of and the strategies involved in the work on other departments. On 13th July 1979 he submitted the Pathology Division's comments on current sketch drawings. These were of a detailed planning nature, but he raises the question of the engineering services required to cope with ventilation problems⁸².

The sketch plans at this time were of a simple line drawing type and the Bartley consultants had drawn over the architect's layouts and reproduced their own configuration of elements. Accompanying the doctor's sketch plans is an outline specification of equipment and environmental services.⁸³ Progress generally would seem to have been smooth and a control programme of 31st May 1979 shows the department on target.

Now that the initial bargaining debates were over and the size of the department and its constituent sub-units agreed, much of the detailed work passed to the Senior Chief M.L.S.O. in charge of the Bartley laboratory. She conducted much of the subsequent dealings with the Area and Regional

design parties. The consultants of the Division were to intervene only where the levels of provision were threatened. The M.L.S.O. was left to carry out the co-ordination of other details.

Whilst designing was under way the floor areas of certain parts of the laboratory were to increase further. On 24th July 1979 the M.L.S.O. wrote to Peter Healey on behalf of Henry Ganes justifying an increase in the size of the toxicology section. After detailing the extra workload envisaged in this area she concludes:

"In fact, the total Biochemistry floor space requested is well within the Building Note and also of the same ratio as provided at the Bartley laboratory."⁸⁴

It will be recalled that the Stage I laboratory submission was only 8% below the Building Note so to argue that the new figure is "well within" allowances is stretching matters somewhat. The use of Bartley provision as a size template is a familiar legitimating device. By such detailed "technical" changes the Division was able to creep up its total floor area.

At a Newtown Working Group meeting on October 30th 1979 an attempt was made to abolish the Pathology staff rest room. On 28th November the MLSO wrote to Peter Healey rejecting this economy measure:

"...this would not comply with the regulations on general laboratory standards required by the Medical Laboratory Technician's Board for laboratories in which trainees are accepted. In addition, the staff themselves would find this proposition unacceptable for several justifiable reasons; to mention one, there is the need for a room where staff on call can relax between carrying out their duties."⁸⁵

The Pathology Division had decided to re-site the room and to provide an extra staircase to serve it.⁸⁶ These decisions were passed on as a matter of fact rather than as requests and demonstrate the autonomy and influence of the Division. Nucleus had called for multi-use of rooms, but here we find a dedicated staff facility provided for a single department, whilst office accommodation on the Newtown wards was minimal and administrative space was under pressure.

Certainly the Bartley Division was determined to have its way in almost all matters of planning. On 11th November at a Newtown meeting Dr. Stilgo insisted upon changes in layout. Paul Gibbs, of the Regional Architect's staff, compared his revised proposals with the previous layout:

"Dr. Stilgo said that the previous scheme was only acceptable within the planning constraints that had been placed on it. Now that window walls were available on both sides of a substantial part of the department the terms of reference changed. The scheme would have to be considered in more detail than time had allowed and reference made to the section heads before comments could be made"⁸⁷.

The closeness of Pathology to the catering departments was giving rise to problems of ventilation. A decision was made to re-site the Pathologist's office within the departmental 'restricted area'. The Mortuary scheme, Dr. Stilgo's own particular section, was still being altered following his own particular perceptions of practice⁸⁸.

1980 saw a continuing determination by the Bartley Division for its own design preferences. At a Newtown Working Group meeting on 5th February, Stilgo arranged to work out changes in the Histology section with Paul Gibbs⁸⁹.

Two months later the departmental layout was still raising many problems. A 2nd April meeting witnessed the detailed amendment of the laboratory and mortuary by the Senior Chief MLSO. After agreeing minor changes in door positioning the equipping of the laboratory was considered. The Borders Chief Architect:

"...underlined that the room study sheet exercises are still to be undertaken and pointed out that this could be more traumatic in the case of the pathology department compared to other departments because of the large amount of equipment involved."⁹⁰

After agreeing to more changes proposed by the Bartley doctors in the Morbid Anatomy and Microbiology areas, the meeting looked at:

"...the reference in the DHSS Stage I approval letter asking..."to what extent have the recommendations of the Howie Report been taken into account...(these relate to the segregation of technical staff from clerical staff and the provision of a sufficient number of wash hand basins)."⁹¹

The researcher does not know how far this measure affected the final size of the department. However, the following point should be noted. The handing down of design restrictions from a higher organizational tier may aim at tighter design control, but in fact may lead to greater discretion at a lower level. Imposition of restrictions may allow design parties to unscramble existing layouts and to argue to greater provision to meet more stringent demands.

The Bartley Pathologists monitored the development continuously. During the 2nd April meeting the MLSO passed on a request for consultant involvement in the Room Data Sheets for the Out-Patients Department Bleeding Rooms and the Control of Infection Room.⁹²

This detailed surveillance of the Newtown scheme by the Bartley doctors began to affect the development timescale. On 29th May 1980 the Senior Chief MLSO, now styling herself the "Laboratory Co-ordinator" wrote to Peter Healey:

"...progress with the data sheets ... is falling behind schedule. It would probably need little short of a miracle for them to be completed by the 17th June.

Several factors are against us; staffing levels are at their lowest during the early summer consequent upon bank holidays, leave and examinations. In addition, the data sheets seem to require much modification to provide what ... we see as being most suitable for Newtown. I think it is difficult to take other laboratories as a basis for equipment unless workload pattern and methods are very similar - or perhaps we are too particular!"⁹³

Perhaps they were too particular. It was unlikely that the consultants designing the complex would ever work in it themselves. Also noteworthy is the switching of tactics over template exemplars. The Bartley laboratory had been good enough a ploy to get the Division generous space provision. Now the Bartley group abandoned it as a legitimacy format in order to get total discretion on equipment.

The Bartley pathologists were now looking forward to the detailed arrangements for out-patient facilities. At a Division meeting of 23rd May they laid claim to the use of consulting and examination rooms in the Outpatients Department and to other areas of the hospital adjacent to the pathology department. Thus they sought to extend their use of total hospital space beyond the formal limits of their departmental territory.⁹⁴

The moves to make Newtown Pathology a major provision had been complex and protracted. As the Westshire Nurse Planner commented in retrospect:

"That was a big battle, but we won in the end ... it's a full department isn't it?"⁹⁵
(Fieldwork Notebook)

One of the elements contributing to this full department status was the emergence of Newtown Pathology's training function. Initial design proposals contained no explicit push for a training facility. Once a large department had been assured, the training potential was explicitly articulated. On 14th August 1980 the Senior Chief MLSO made sure that validation for training purposes was established. Achieving this was also a potential means of upgrading facilities. She wrote to Peter Healey:

"...a copy of the finalised drawings should be sent to the Medical Laboratory Technicians' Board of the Council for Professions Supplementary to Medicine It is necessary that the Technicians' Board should approve this Laboratory for the training of Medical Laboratory Scientific Officers, otherwise we could be in some difficulty regarding the recruitment of staff. The Medical Laboratory Technicians' Board have laid down fairly stringent regulations regarding standards of accommodation in laboratories in which trainees are accepted. They are particularly interested in the provision of suitable areas for tutorials, practical exercises and demonstrations and also for reading and reference facilities."⁹⁶

The Division of Pathology had by now largely satisfied itself about detailed laboratory layout. On 10th April 1981 the MLSO wrote to Peter Healey's successor approving detailed equipment layout drawings, to which she saw only minor changes:

"...we are very pleased with the layout of the new laboratory. It has been no mean feat ... to find space for all the equipment requested and in addition to comply with the necessary safety requirements."⁹⁷

This satisfactory solution was to be vigorously defended against any incursion. On 9th December 1981 the MLSO wrote to the Newtown Project Administrator at Westshire:

"We have been satisfied with the eventual layout of the Pathology Department that has gradually evolved over the last 2 years. We understand that we had passed the stage when further modification was possible, but now, to our consternation the status quo has not been maintained, large areas reserved for ducts deprive us of necessary space."⁹⁸

Laying out the Division's suggestions for overcoming these problems she concludes:

"Dr. Stilgo has asked me to say that he hopes there will be no further infringement on our agreed space allocations."⁹⁹

Minor tinkering with detail design continued for some time, but the close of 1981 and the move at Region towards the production of working drawings marks the end of Pathology Department design work.

The Pathology principals could be well pleased with their achievement. The Nucleus proposals would have given them a floor area of 60m². By skilled exploitation of the planning and design process they had ended up with a department in the Stage II submission document sized at 1,992.2m².¹⁰⁰

Newtown Pathology: Professional Politics and Territorial Enlargement

The design of the Pathology and Mortuary facilities at Newtown exemplifies professional control within the the National Health Service. An ambitious and politically well-connected department within the Area largely succeeded in dictating its requirements to Regional and Area planners.

The final design was "one-off" and substantially non-Nucleus in format. Nucleus material gave a level of accommodation which was totally rejected, and the pathologists managed to sustain facilities deriving from pre-Nucleus Building Note levels. The length and detail of the negotiation process indicates the exercise of power and influence. Here was no easy agreement as found in the pharmacy development. Instead there was a use by senior medical personnel of "technical" arguments backed up by their insistence upon their right to determine the requirements of their own specialties. Throughout the process Maurice Stilgo was able to follow the progress of his Division's bid and to take immediate action to counteract any move to decrease the department's status.

There is little doubt that the final scale of the Pathology department represented a maldistribution of total Area resources, given the needs of other specialisms. If one takes into account the financial dealings to protect the Newtown Hospital in 1983, the achievement of the Pathology consultants is thrown into greater relief. The acquisition of a second major laboratory provision within Westshire, with its running costs to be paid by proposed hospital closures elsewhere is a singular demonstration of their political acumen.

During the District Management Team deliberations of 1983 Dr. Stilgo had staunchly defended pathology services against proposed cuts. One example occurred on 12th May 1983 where moves to close the Newtown "revenue gap" were discussed. A Westshire Officer involved with Newtown D.G.H. commented:

"I'd like to be a fly on the wall in that meeting. He's the only one who hasn't made cuts in his department."¹⁰¹
(Fieldwork Notebook)

Stilgo, it will be remembered, was one of the two Bartley consultants who did not sign the "round robin" of July 1983¹⁰² protesting against Westshire's replanned services. To sign would not only have compromised his position on the various managerial bodies of which he was a member but would have threatened the Newtown laboratory upon which he had worked so hard.

What exactly was the personal influence of Dr. Stilgo upon the pattern of events? Few explanations are available outside the formal documentary record and comments made by Westshire staff to the researcher. Such is the sensitivity and secrecy surrounding such matters within the service that certain facts are hard to access. So adept is the concealment operating between professional peers that few matters are let slip.

A few overall judgements, however, seem valid. Stilgo's presence on the Newtown Project Team acted to preserve the whole hospital project and to ensure its continuance when most of the Bartley staff opposed it. He was able to filter and control consultant involvement in such a way that Newtown D.G.H. was safeguarded. He backed the new hospital from its earliest days and carved out a secure place for his department within it.

Designing Hospital Departments: General Conclusions

The design of Newtown Pharmacy and Pathology exemplifies several features of the design process. Designing is carried out according to pre-existing template formats and using individual experience. Resource levels are bargained for through a process of organizational politics. The power and status of key design actors has a decisive effect upon the degree of success in these resource distributive competitions. In the design of a new workplace the processes of physical and work design are disconnected.

CHAPTER 11

DESIGNING HOSPITALS IN THE NHS: SUBJECTIVE MODELS OF THE DESIGN PROCESS

This chapter takes as its focus the subjective views of NHS personnel about designing and their evaluations of the nature of the organization within which they work.

The first section considers individual feelings about different aspects of the service and for convenience these have been subsumed under general headings. It must be stressed that these are the researcher's categories. Designing is a pragmatic phenomenon. Designs and their associated rationales assemble their legitimating grounds in an ad hoc manner. Readers are therefore cautioned against expecting a definitive model of NHS design procedures. These pages attempt to capture the flavour of the designing experience and the attitudes and preoccupations of officers undertaking this work.

The second part of the work follows the design of the Newtown Manpower provisions. It gives a detailed picture of the evolution of a document having implications for the design of work.

The final section of the chapter considers how designers see the design of physical layouts and work systems and the nature of the perceived relationship between the two.

In order to explore the nature of individual rationalities and template conceptions much of the analysis centres around extensive quotations from a small number of actors. The adoption of this approach enables one to indicate the importance of individual biography and experience in template interpretation and usage. It also gives an opportunity for the fine texture of design as an activity-in-progress to be scrutinised in detail.

The NHS Planning System

Designing an NHS hospital is a protracted business. Typically it may take ten years from inception to construction, given no major political or financial crises on the way. Many NHS staff find nothing remarkable about this and accept it as a norm. This does not mean there is no frustration. One District Officer complained at the slowness of some designers who allocate themselves:

"Six months to do two or three piddling drawings."¹
(Westshire Officer : Fieldwork Notebook).

This individual said that taxpayers would be shocked if they knew of the waste of time and money involved. His view was paralleled amongst the District's senior officers. One of these who had been involved in the planning of the Bartley Down scheme commented:

"I think speeding up should be one of the objectives because at the moment it takes too long from the time it starts; from the beginning of the planning process until the completion of any major hospital development. I am talking about anything like a 3-4-500 bed hospital in about 5 to 6 years. I think this is damn nonsense."² (Ex-Westshire AMT Member : Interview Transcript)

Talking to me in an animated way about the same issue, his successor compared the timescale of NHS hospital design with the private sector. Speaking of the public sector in agitated tones he complained that:

"people keep on changing the rules."³
(Westshire DMT Member : Fieldwork Notebook)

He was concerned that lay people might wonder why it took so long, but continuing changes in policy and standards meant unending delays.

The individual desire of many officers to get on with the job met with resistance and opposition from others within a complex formal and informal structure. The processes of consultation embodied within the service add to the problems. Routine work can be unexpectedly halted or compromised. This very unpredictability causes insecurity:

"You can bet there's always going to be somebody from somewhere whose going to drop a bombshell."⁴
(Westshire Officer : Fieldwork Notebook)

Thus the expectation of delay is built-in, and its occurrence causes no surprise.

Given that NHS hospital design encompasses many activities, i.e. service planning, the writing of operational policies, the production of physical layouts and tender documents, it is possible for different aspects of the work to get out of phase. The division of the service into tiers and into separate hierarchies at each tier means that there is a multitude of time perspectives. Furthermore there is the timetable imposed by the need to get committee approval:

"...If, you miss the monthly meeting, you've got to wait until the next month."⁵
(Westshire Officer : Fieldwork Notebook)

The interplay of these different time perspectives leads to peaks and troughs in design work. The slack periods provide opportunities for autonomy:

"You can generate a lot of activities for yourself."⁶
(Westshire Officer : Fieldwork Notebook)

On the other hand at times of peak activity

"Someone can come in and give you a report to write in a couple of days."⁷
(Westshire Officer : Fieldwork Notebook)

One member of staff indicated his attitude towards delay in a very instrumental way:

"I don't think many people feel frustrated. If you weren't doing that the Newtown project you would be doing some other piece of planning. I look on my job as a means to an end, I don't let myself get particularly involved with it. It's like one great game."⁸
(Westshire Officer : Fieldwork Notebook)

Part of this "game" is the composition of justificatory cases for hospital provision to the Region and the DHSS. This involves the elaboration of simple arguments:

"...with a lot of statistical bumf that nobody reads."⁹
(Westshire Officer : Fieldwork Notebook)

These personal experience of blocked aspirations, capricious delay, and the perceived artificiality of planning and design work were parodied in the

following anonymous document found pinned to the door of the Westshire Planning office. Here NHS hospital design is cynically reinterpreted in terms of a Biblical epic:

"The Genesis of Planning

The Lord said unto Noah, 'I will send a flood over all the earth, but I will save thee and thy family and the beasts of every kind. Therefore shalt thou build an ark of gopher wood 300 cubits long'. And Noah said, 'Be it so, but I cannot build to that size without exceeding the cost limits that thou has ordained'.

And Noah set up a project team. First he called on Methuselah, who was 900 years old and therefore suitable to be chairman. And Methuselah refused, saying 'My index-linked pension is more than anything thou art likely to pay me'. So Noah called on Shem, Ham and Japhet, and they said, 'Gladly will we join thy project team, but we are heavily committed to the Tower of Babel project, where the works professionals simply do not speak the same language as we do. Therefore the earliest date we can manage for a meeting is a month on Friday'.

And the Lord sent a great rain, and after a month the site selected for building the ark was covered to a depth of half a cubit. And the Lord said unto Noah, 'Why has thou not made a start on site with thy Ark?'. And Noah said, 'the project has slipped owing to adverse weather conditions'. And the Lord said, 'How can it slip owing to adverse weather conditions before the plans have been prepared?'. And Noah said, 'The project exists owing to adverse weather conditions; therefore everything that happens to it is owing to adverse weather conditions'.

And the project team met, sitting on high chairs because the water was now one cubit deep. And they said, 'Let us phase this project. In the first phase we will provide accommodation for the family, with recreational facilities and a beverage point, and in the second phase accommodation for the beasts, for they are of lower priority'. And Shem said, 'What will happen to the beasts before the second phase is ready?'. And Noah said, 'They will have to rely on the community services'. And Shem said, 'If they rely on the community services they will surely drown, and then what shall we use for food?'. And Noah said, 'We will catch fish', and told his network analyst to prepare a large network. And a fortnight later, when the water was two cubits deep and the project team were sitting on chairs on top of the table, the network was ready, and Noah cast it into the waters, and it was filled with fish. And the project team sat on their chairs on the table and ate fish and considered the plans until the water rose again and drowned them.

Would that the same would happen to all project teams!"¹⁰

Clearly encapsulated in this fiction is a critique of organizational design methods. There is the convoluted process of consultation between professions and organizational tiers, with the mysterious powers of government and DHSS elevated to divine status. The fashionable policy trends towards reductions in hospital-based care and the primacy of staff as opposed to patient interests are wryly observed. The competition and confusion arising from multidisciplinary design teams and the complexities of technical reason find an apt analogy. The complications arising from project phasing and the over-elaboration of unrealistic programming schedules are debunked. Underlying the whole account is a sense of estrangement and alienation arising from the boredom of delay and the frustration of aborted work. This essay in humour is the child of many long grey administrative afternoons.

Conception of Design Templates

Design templates in organizations cover the creation of many types of entities - physical layouts, workflows and departmental relationships, recognised procedures and so on.

One thing that all templates share is their past-loadedness. Once organizational activities have been routinised, designing is essentially viewed as a modification of existing practice. Consider this statement by a member of the DHSS group who developed Nucleus:

"...the Nucleus designs were based on the series of Building Notes to some extent, but as a lot of Building Notes were ... out of date, there had to be a certain amount of injection of new thinking which hadn't found its way into the Building Notes ... So there had to be a lot of feed-in from the Best Buy Hospital , which was Departmentally sponsored, and also a lot of work on the Harness programme."¹¹

(Administrator : DHSS Nucleus Team : Interview Transcript)

One of his colleagues confirmed this conceptualisation of templates as cognitive entities. Change proceeds by taking an existing template and modifying it. There is in the designer's mind an imaging process by which one object becomes another, but in which the new product bears a relationship to the original object.

"...the planning by the time we came to Nucleus, we had got a lot of activity data and we knew a lot more about the content and function of the departments that we were designing. So it was now possible using a great deal, quarrying the Harness materials as a basis, but all the time looking at it critically. Does it need to be as big as this? ... What things can be reduced to two functions?"¹²

(Superintending Architect, DHSS : Interview Transcript)

The use of a template reference standard gives meaning to a designer's work; it locates it within organization members' ongoing concepts of legitimate action.

Within the NHS there is pressure to remain within the vocabulary of existing "in-house" solutions. These can be relied upon as they have already passed the test of organizational politics. Once a particular template has been selected, redesign becomes a cyclical/iterative process between architect and professional clients. In practice everybody concerned is designing; fitting together layout and use projections into a hermeneutic circle. The rationale that is attached to the physical planform is thus in no sense a determined one. The claimed relationship between the two is constructed in political action.

Designer parties come to agreements over whose skill is to determine specific issues and the new configuration is an outcome of what actors consider will be acceptable within the matrix of existing organizational belief and practice. This interaction of professional knowledges is conditioned not only by the "technical" competence of individuals to be able to articulate a solution, but also upon the perceived ranking of the professional knowledges within any given design situation.

Within the NHS the chief care professions, medicine and nursing, achieve leading statuses. They are the groups who define the nature of practice and the direction of change. Layouts must be presented by designer professionals as capable of accommodating medical assessments of provision. Architects, engineers and others service their projections of need. The design role is subservient to the existing structure of state-licenced practitioners. Thus the negotiating of design outcomes involves an asymmetrical power relationship. The architect or any designer within the system cannot challenge these views easily. Design Teams have no autonomy to reshape layouts and associated working methods without the approval of medical or nursing hierarchies.

In the following interview extract a DHSS architect gives his account of the design activities involved in the evolution of a departmental Building Note. The "clients" he is talking about are health service professionals not patients:

"...I think the activity data system is probably the most significant innovation and contribution here ... I can give you an example of what we do when we're producing Building Notes ... which is my current work ... we produce ... what is in effect a brief. The point is that the first part of a Building Note describes what happens in the Department, what is meant in operational policy terms. Then the client, in the case of wards ... is from nurses, so the nurse in conjunction with the architect will select activity data from the data base ... this is the kind of thing you've got in the Green Packs the Nucleus materials ... Typically they'll start by selecting actions which describe the functional descriptions of the room. Then, the B sheets that go with that. For, where there are rooms ... for which there isn't already activity data, then they will generate new activity data for it. And then they ... we, will produce ... typical room layouts, and then we'll try these on the nurses ... this is of course based on the activity data, and we'll work on them, until it's agreed. At the same time we're working ... doing flow diagrams ... which relate the various rooms and functions within a department to each other. And then, we produce an exemplar design, which incorporates all the room activity data, and working very closely with our client all the time. Essentially, as we've always said, this is a cyclical process. We ... some groups, operational policy or briefing, thoughts are suggested, um, we start doing diagrams or room layouts. The effect of doing that, although it may call into doubt the brief, what we will in fact say to the nurses, well do you realise that if you ask for that to be next to that or for these two functions to take place in this room we have this problem. This may lead the client to re-examine and modify the brief, so that this will go round like this until there is agreement between client and architect as to the layout."¹³
(Superintending Architect, DHSS : Interview Transcript)

Thus activity data, layout, and workflow are matched and rematched until a professionally agreed "fit" is reached. The enterprise is smoothed by the existence of agreed datums. It should be noted here that the "activity data" and "flows" mentioned by the architect are only general indicators of work sequences. They are not detailed project-specific conceptions.

Given the production of "standard" materials by the Department, the Regional Health Authorities are provided with a common vocabulary of worked examples to develop individual projects. In addition, many Regional staffs have developed their own layouts and policies.¹⁴ Therefore at

Regional level there are strong precedents suggesting preferred design solutions. Talking of the designers with whom he works, the Borders Administrator on the Newtown scheme maintained:

...to some extent they're working within a known capacity. They're working within a known cost. They're also working within a known fact. I mean given that they're architects and engineers, they know that they've got a hospital to build. It just happens that this is a much more complex thing than ... say building a boat that was just a paddle boat. That isn't complex although a warship might be. But ... they do have the restriction on them that there is a cost. They do have quite a lot of knowledge of how things have been done ... it's not the first hospital that's ever been built. There is quite a lot of information. Building Note information, there is Nucleus information, there is Hospital Technical Equipment information. So what I'm really trying to ... why I'm accentuating that, I am beginning to wonder whether there is as much perhaps scope for disagreement on things as one might think in the first instance."¹⁵

(Borders Administrator : Interview Transcript)

Given the large bank of knowledge built up within the NHS since its inception, the existence of pre-existing practices bulks large in the design conceptions of staff. A key member of the Newtown planning group compared the design of hospital layouts to the growth of a cowpath.

Sub: "Yeah, its like a cowpath isn't it? Have you ever heard that poem about the cowpath? "

Int: No

Sub: No? Apparently, well you've only got to look at a city, you know, but a city is very often built around your roads. And you can go all over the damn place and they say that the first track, a calf wandered down it. It just wandered anywhere. You go and look at a hamlet, a country village and go down country lanes; think why do the lanes go around and around like this? And so in the beginning some animal made a track. And some other animals said, well it's easier to walk there than anywhere else, so they made it bigger. And then man came along and he made it bigger, and he just got used to walking in that manner. And then he built houses eventually, all over the damned place. And then you say to do that half a mile over there, you've got

to walk a mile. Why? You ask yourself because, somebody right at the beginning, or something, didn't say it would be easier to go across ..."¹⁶
(Westshire Officer : Fieldwork Notebook)

Thus to the working NHS planner/designer the organization-wide understandings involved in his work are elaborated into mythical, folkloric dimensions. These shared meanings incorporate many factors. The "functional relationships" between hospital departments are one aspect:

"People assume the functional relationships, they've been handed down".¹⁷
(Westshire Newtown Project Administrator : Interview Transcript)

Another Westshire Officer spelled out these elements in greater detail. The Newtown "Nucleoid" layout would have to prove its worth in terms of:

"...the location of departments ... trying to put the departments where most people go to, em, in close proximity to the catering department ... and trying to put that and all the central change in the middle, so that staff didn't waste time going backwards and forwards. And trying to get departments together that need to be together, and good communications between the theatres and the accident and emergency department. This sort of thing, and its basic planning stuff."¹⁸
(Westshire Officer : Interview Transcript)

The District Nurse Planner reinforced this point - the need to get basic flows correct:

"Its absolutely critical that we get good functional relationships between some departments like Accident and Emergency and X-Ray ..."¹⁹
(Westshire Nurse Planner : Interview Transcript)

The Politics of Designing : Conceptions of Pressure and Bias

Within the NHS the conjunction of circumstances upon which any project is based can be very fragile. Policy changes at governmental level can be sudden and unpredictable. This creates a sense of uncertainty:

"...until they start on site, there is always a possibility that something can happen on the resources. On the resources side there are changes from year to year. That's why health service planning is so difficult because you get a change ... each year they come out with a different policy."²⁰
(Westshire Treasury Officer : Interview Transcript)

Such macro-financial constraints are channelled through the Department. In the eyes of officers manning the lower tiers the actions of the DHSS are frequently capricious and arbitrary. The hidden operations of government within the Department take upon themselves an almost god-like status to Regional and District officers who are subject to them:

"... when it comes to the Department of Health there is an aura in my mind, it is an aura. But the Department have got a mighty great power to control people, for reasons which I often wonder, and that is me speaking, are all that hot."²¹
(Borders Officer : Interview Transcript)

Political pressures upon design activity also come from below. Some emanate from the political attachments of the lay members of District Authorities:

"The members of the Area Health Authority/District Health Authority are individuals ... some nominated by the Secretary of State, some from local authorities, and then obviously they bring with them their own conceptions of what health care should be. They're the decision making body, they're advised by the officers. But in the final analysis they can in fact tell the officers what they want done. So I think that these are political pressures, and I think that they're political with a

small 'p' rather than with a large 'P'. Although obviously some people come as lay members carrying their own large 'P' political dogma. But I think in general the experience has been in Westshire that they ... project the large 'P' political role into the arena of the Area Health Authority or the District Health Authority. So in these terms, yes, there is political pressure, but not party political pressure, its local political pressure ... on decision making. And I'm sure that this has occurred in terms of the Newtown Development."²²
(Westshire DMT Member : Interview Transcript)

As the case study has shown, political pressure often subverted the "rational" case presented by officers. Participants in the design process often expressed confusion and annoyance at the outcomes of political processes.

Professional Power and Competence : The Politics of Knowledge

Within the NHS most of the key decisions that influence layouts and the nature of resource distribution are in the hands of health care professionals. They constitute the "clients" who define the scope of "need" and who have a decisive hand in defining what design outputs represent a fulfillment of need. Within the service senior professionals have the discretion to frame the nature of provisions given to their professional peer groups. A DHSS officer describes the situation on the teams responsible for hospital designing:

"We have what we call client leads on each of the teams. What I mean by client leads is that ... for each Building Note there's either a doctor or a nurse and possibly an administrator or catering officer who takes the lead. And they are principally the people who are in touch with their appropriate numbers in the Service Development Divisions keeping their finger on the pulse in regard to changes of policy. And at the start of both Building Notes and Nucleus designs there is a policy document which is written, a brief, which is either written by the Service Development Group in conjunction with our own people here, the client side, or vice versa, its produced here and checked by

the Service Development Group. So that's a start, the policy side; the production of the initial policy upon which the Building Note Team or the Nucleus Team act."²³
(DHSS Administrator : Interview Transcript)

Pre-eminent in its influence is the medical profession. An authority with insufficient medical planning manpower is at a disadvantage in terms of negotiating muscle:

"...if you go back over the last six years, we have had ... a fairly substantial reduction in medical staffing. When I first came here I think we might have had about eight or nine planning doctors ... today ... we have one planning doctor. Now its clearly impossible for him to be associated with every development we've got. Although he may endeavour to be associated with the bigger ones you may recall, just by implication when we started speaking earlier, I did say to you we have very little ... by nature of reorganization etc., the medical input in this the Newtown Project , there was no medical input following the death of one of our people, a Dr. Thomson by name. We relied on the local ... and therefore whatever we looked at ... the medical profession is a very central and a very strong profession. And given if you had a very strong medical presence here, I think that there's more likelihood of a Regional ... strength vis-a-vis say Department of Health. Given ... that we don't have that, it's less likely."²⁴
(Borders Administrator : Interview Transcript)

This power of the medical profession to fundamentally direct the nature of outcomes is also present at District level:

"... things like the bed strategy, we don't make that decision in isolation. There's a lot of consultation that goes on with professional groupings ... so its not a case of things coming up from the Project Team to the DMT and we sit around and look at all the information we've got, and say yes, this is what we will do. There is, when we've got the nature of the decision that we've got to make, then the next thing is to see what other information we need and what other groups do we need to consult with ... like ... groups of consultants. On the acute side we have to talk to the surgeons, we have to talk to the physicians, to see what they see in terms of the whole giving of medical care throughout the county."²⁵
(Westshire DMT Member : Interview Transcript)

In framing major policy decisions on new hospital developments political dynamics decree that outcomes must be acceptable to senior medical employees.

Another Westshire officer talked of the district-wide planning implications and hospital content proposals for Newtown. He put the price to be paid for the doctors' agreement in blunter terms:

"It is quite certain that in some way or another we are going to have to buy off the consultant staff. No question ... it may be sufficient to say ... to some groups, yes, we will give you some extra staff on outpatient work. Or, yes, we will buy you an extra bit of surgical equipment. It could be that the only way we can get agreement is to say, yes, we will build you an extra ... which of course has major implications."²⁶

The strength of professional interests within the service is so great that those charged with more general management roles find it difficult to exercise authority. This makes the design of new work systems, for example, very difficult:

"...the ... attitude you find in many pockets of the health service. Unless you've been a nurse or something or other you cannot begin to understand their manpower problems ... the big difference between the private sector of industry and the NHS ... is that there is not effective core management, co-ordinated management in the National Health Service ... Now I'm not saying we can actually create one, unless you get into the medical directorate you'll certainly never get a chief executive level because of medical politics. So the only model could be a medical directorate. He's the only guy with total credibility. But what you experience at the Area Health Authority that's important. But in terms of power and, influence in the NHS it just doesn't happen. Just not there, the power isn't there."²⁷

(Westshire Officer : Interview Transcript)

This medical control of key decisions in the design process antagonises many other professionals. One officer remarked that no other organisation would tolerate a section of its employees making policy.²⁸ Another officer, closely involved with the Newtown Hospital spoke of the insidious nature of professional control over the service:

"Then there are the insidious controls: that sounds perjorative, perhaps I shouldn't say insidious. But they are unwritten, they're not even discussed but they're very real ... the sort of thing I'm referring to here are the controls by profession, whereby in our case we have the Royal College of Medicine, Surgery, and Nursing; all sorts of other professional bodies controlling standards, cartels if you like. They're fixing the price of their labour and so on ... one sees professionalism becoming less of a boast of the free world and more of a constraint ... a control over local management and local authorities' freedom to help their patients in the way they see best. Some professions, at their worst, actually act against patients' interests to protect their own skin and that occurs in the Health Service."²⁹

(Westshire Officer : Interview Transcript)

The same officer talked of the kind of limits that these considerations placed upon his desires for a new type of hospital organization at Newtown DGH.

"... in a greenfields site you find that the people you go to for advice, and I mean individuals who've got expertise right up to the Colleges ... you go to these people and they quite spontaneously and innocently will give you all sorts of feedback and vibrations which smack of the status quo ... And so you are constrained here in wanting to make a fresh start by people's own experience, and their hang-ups and their difficulties and their problems. And perhaps the most important of these is previous experience. If you're developing a new hospital you don't go to the newest trainee who has something to contribute. You're bound to consult with seniors, the people with some experience, typically those who have set up new institutions before ... that is particularly interesting in Newtown and Westshire's case ... we've got a lot of people, bless their hearts, who opened a new DGH within living memory at Bartley Down, and so it would be mad not to consult with these people ... Well that's fine, but nevertheless I've got this niggling concern that we are not doing lateral

thinking because its dangerous, you know. We don't do it because of various things. There are the constraints I've talked about, and one or two new ones. The medical profession ... is ultra-conservative and that's founded in a philosophy that you don't tamper in people's lives and health. You only go very slowly, plod, plod, along a road that's tried and tested."⁵⁰
(Westshire Officer : Interview Transcript)

Without professional support changes in the pattern of hospital organization are not possible. The Westshire Officer continues:

"You've heard me say, Gary, that the biggest local constraint, or should I say, the biggest ... machine for development and growth and renewal of ideas is the medical staff ... they're the pressure group for the greatest change or the greatest conservatism. They are the most highly qualified intellectually. They are the most respected and have the highest status, and they are without doubt the biggest Trade Union. And clearly nothing is going to be done without them, in terms of the philosophy of care given at Newtown, and the ... structure, management structures, management style and all that ... What worries me about the medical profession ... is that we train very bright people over many years to be consultants. And they work incredibly hard ... but at the end of the day there doesn't seem to be any mechanism ... for the average consultant to relate what he is doing to the needs of the population he is serving. What happens rather is that you get little pockets of care in the shape of consultants in their specialities, providing a service which G.P.'s then refer patients to. Because we don't have epidemiologists ... nobody is saying we have evaluated the kind of illness that people in Newtown suffer from ... we have also evaluated the prime causes of death, and therefore it's clear that we need the following type of hospital premises."⁵¹
(Westshire Officer : Interview Transcript)

This officer had generated some support amongst health authority staff for a service led by closer analysis of health care needs rather than by a competition between medical specialisms for resources. He was fully aware of the difficulty of dislodging existing priorities but wished to use the new hospital as a test bed for his ideas:

"Now I'm living in a cloud cuckoo land some would say, in that that isn't done. All I would say is, if it's not being done where do we start to get it going, and if we can't do it at least how do we cut our cloth? Can we get some debate about the case mix on specialities in Newtown which hopefully might relate to the actual health concerns ... of the patients and their G.P.'s in Newtown."³²

(Westshire Officer : Interview Transcript)

Given the existing structure of resource allocation the best this officer hoped for was to work through the medical hierarchy, encouraging the appointment of young consultants with a greater interest in epidemiological aspects of medical work.

Producing a design for a new district general hospital gives opportunities to reshape the distribution of health services within a District. The management of the activities involved is not however a straightforward problem for participants. Given the representation of different professional groups upon management teams inherited from the 1974 reorganisation some managers feel conflicts. There is a conflict between their husbandry of their own specialist services within an authority, and general corporate management matters. Perhaps more crucially there is a conflict between subjective visions of effective and decisive management decision making and the realities of restraint and compromise needed to get any agreement at all. A District Officer talked of the problems of working on the District Management Team.

Int: "How do ... people work, how are decisions arrived at given that overall managerial decisions may conflict, with say a specific individual's brief to look after a certain kind of service?

Sub: I think with difficulty ... I say all of us probably with the exception of the administrator who takes a very broad professional view, because the administrator's role is a broad professional role. They see themselves as the enablers ... for the other professionals to do their job. So

that they have ... very few professional axes to grind. But the rest of us are professionally orientated ... and I think we probably have more difficulty ... in ... representing the management view. But you've probably got to represent both at the same time, and that is difficult. But of course all decisions are based on consensus whatever that means. And I think that's a very useful safeguard ... On the other hand I think quite reasonably that you could say that that reduces the quality of the decision making quite probably. Because ... consensus means to me anyway that maybe the moves from the norm are very small. So that its incrementalism on a very small scale, as opposed to ... wide ranging debate and being able to move from the status quo to a large extent, because I think that consensus brings us back to incrementalism all the time."³³
(Westshire DMT Member : Interview Transcript)

It is argued in this thesis that design generally operates incrementally in that new developments are seen as located in past exemplars. The views of this manager indicate the limits placed upon change decisions by the contradictions inherent within the decision making system. What his analysis suggests is that traditionalistic elements of design thinking are accentuated in the NHS because of the peculiarities of its blend of professional/managerial political perspectives.

The Division of Labour in Designing : Conceptions of Hierarchy

N.H.S. design decisions are conditioned at the highest level by national budgetary considerations. The detailed disposition of resources embodied in exemplar designs is carried out by senior health care professionals. At Regional level the status of each hospital development is monitored by management teams upon which the interests of medical and nursing staff are well represented. At District tiers decisions on key resource issues are retained by the Management Team. These decisions cover overall spending considerations and those other allocative decisions which involve delicate negotiations with the leading professions within the authority.

There is a distinction drawn in senior managers' minds between design matters which are crucial and those which are purely mechanical detail work. A Westshire Officer referred to the design work done by the Project Team as "kids' stuff". He continued:

"...I mean this Westshire planning section in conjunction with other disciplines looks at various manpower planning aspects, at the same time the actual project planning. You may think its difficult; but I do not think its excessively difficult. And at the moment particularly with manpower availability indicators it is much easier than they were ten years ago. I don't think manpower planning is very difficult, it is just a matter of timing and just a matter of training them adequately. So I don't think its a daunting task at all."⁴

(Ex-Westshire AMT Member : Interview Transcript)

What is difficult is preserving and manipulating one's way through the complex relationships between different professional lobbies. The actual design process takes place within a given budget and is seen as well known and routine. It is dealing with the resource allocative decisions that it throws up that can appear "daunting". The problem is to convince hospital user groups that the pattern of intentionality attached to a new hospital provision matches their interests. In constructing and approving the design rationale senior managers must continually bear in mind the appeasement of the groups over whom they preside. Take, for example, the evolution of the Westshire "bed strategy", which would be affected by the Newtown provision. Control over hospital beds is an important constituent part of the hospital consultant's power base. Decisions to alter the allocation of beds amongst specialties changes the balance of work to be undertaken within a single hospital unit, and the overall balance within a single authority. Furthermore such matters affect the balance between different professional medical statuses.

"...the one thing we're talking about now is bed strategy for the whole of the District when Newtown opens. And that means how many geriatric beds we have throughout the county, how many general medical beds we will have, whether we will have obstetrics in Phase Two at Newtown or whether we will have Psychiatry in Phase Two. These kind of policy decisions are the ones which have to come from the D.M.T. ... the decision then goes back to the Project Team and they work within that policy."³⁵

(Westshire DMT Member : Interview Transcript)

The Experience of Designing Hospitals

Designing represents an opportunity to acquire and redistribute resources within an organisation. One Westshire officer spoke to the researcher of the Newtown project as a "vehicle" upon which managers rode.³⁶ The new DGH offered a chance to make other changes not directly associated with the Scheme itself. Given the scale of the development planners saw it as an excuse to get facilities whose relevance to Newtown needs was tenuous. Another of the District planners maintained that designers needed to "opportunists". There was the need to use a new development in one area of service provision as a basis for more wide-ranging changes. These more general intentions are often disguised from Departmental officers by embedding them deep in the detail of single project documents.³⁷

Yet whilst the planner/designer tries to capitalise upon unexpected monies and policy changes he must be a realist and come to terms with frustration:

"I don't just call myself a Nurse Planner because I get myself involved in all sorts of planning matters ... which are generic. So I think one of the first principles of any planner is to come to terms with frustration. But at the same time if you think that in planning anyway one of the prime considerations is realism, that answers a multitude of questions. That answers the thing about constraints ... you know ... practical feasibility

... if its a capital development like this Newtown DGH ... whether its going in the right place ... are you sticking a district general hospital down in rural east Westshire, because there would be no patients, and it'd be a white elephant. So the whole thing has got to be worked up around this, or have this aura of realism around it and be understood by everybody who is making any contribution - whether its a service planning contribution, and that's always the start you know, working at the case of need. Or whether its the capital end of need, or whether its the capital end result of a service planning solution in health care terms. So I think all planners tend to be a bit idealistic. Then if they really think about being realistic as opposed to idealistic that's the natural constraint in anything."⁵⁸

(Westshire Nurse Planner : Interview Transcript)

Being "realistic" is knowing and accepting what will "go" within the organization.

Int: ""By realism do we mean what you can actually get done and accepting that?

Sub: That's right, what you can get done, where you can get it done, how much you've got in the kitty to pay for it. Whether it's going to be feasible to run it when it's open, all these sorts of questions have got to be answered first. Well when you get down to planning a new hospital, like you read in the Capricode stuff, the first thing I gave you ... AI submission. That is really just a statement of functional content. So all the service planning has been done ... then you're saying what you need in terms of departments. And you're just talking about departments, you're not talking about a building shape or anything. You're just saying what departments and how big they should be ... So, all you're doing is grouping a whole lot of departments and saying, right, we'll do this one ... in complete isolation from anything else. The functional relationship comes at a later stage when we start slotting the jigsaw together in the design."⁵⁹

(Westshire Nurse Planner : Interview Transcript)

The size of departments and number of beds per specialty are worked out with reference to existing provisions and the bids of departmental heads:

"...before you get to a point of saying we need a hospital you've got to see how many beds in a particular specialty you want which means that you've got to add up all the beds you've already got in that specialty; and then you could be over-

provided already in a certain specialty. That gives you an indication of what ... you need put into the new development. And that's how you make decisions about rationalisation, like we did at Newtown, because a load of Newtown's population goes to Bartley. We said, O.K., what we'll do, we'll reduce some of the elements on Bartley, and transfer them to Newtown. And then you say, what are we going to do about the space we've created at Bartley? So we start looking at further rationalisations as a consequence."⁴⁰

(Westshire Nurse Planner : Interview Transcript)

The choice of design solution to house these projections of need is dependent primarily on cost considerations:

"On a design solution for a new hospital ... you're not forced to take a standard design. The major constraints in doing a one-off solution are the building cost allowances."⁴¹

(Westshire Nurse Planner : Interview Transcript)

There is a feeling of genuine autonomy within cost limits:

"...you don't have to remain hidebound by anything that has gone before as long as you do some evaluation and appraisal of what has gone before. As long as you can make a case ... for altering a design within the cost limits ... because you feel that they work more efficiently ... you're alright."⁴²

(Westshire Nurse Planner : Interview Transcript)

Often standard design formats are brought out and used as a "straw man" against which users' wants are measured and legitimated. The existing design thus functions as a measuring rule against which changes can be laid and their significance assessed. It is a format and level of provision that can be critiqued, enlarged upon if possible, and appealed to as a source of inspiration and continuity when choices are made. Through such a mechanism template assumptions are preserved and incrementally modified within a given project.

"...the internal design solution of a hospital was always agreed in co-operation with the users. So any standard material that was available was brought out ... purely as an Aunt Sally, and the users were allowed to knock it around; within reason, within cost limits ... and then the architect would try and interpret the users requirements within ... an 'x' percentage of standard design."⁴³

(Westshire Nurse Planner : Interview Transcript)

However, this same informant spoke of the "extreme pressures" to adopt the Nucleus design on the Newtown scheme. The Borders Administrator for the Newtown Project gave his perception of the Region's attitude:

"...We've got a Nucleus shape I think because ... Nucleus was the thing to be in. We didn't want to be seen to be opposing it, and we certainly didn't want to oppose anything that would delay the forwarding of the hospital."⁴⁴

(Administrator, BRHA : Interview Transcript)

There is an expectation of bargaining for provisions within the design system. Generally authorities will pitch initial bids higher:

"...as users we ask for 100%. Except we're going to get 95% and ... one accepts an element of compromise. But we ask for 100% always and I think that's what they Borders RHA want us to do. Then they tell us what the constraints are, then that forces us into making decisions on trimming. That's the idea of it really to ask for everything you want on the first instance, and then determine what you can have, what you can't have and why you can't have it, and then that forces you to think about ... solutions for getting most of what you want and keeping the rest. Sometimes you've got to trim everything ... But as long as you can end up with about 95% of what you're asking for I think that's the best you can hope to achieve."⁴⁵

(Westshire Nurse Planner : Interview Transcript)

Bargaining for resources in this manner was not affected by the arrival of Nucleus materials. The process of getting to know the baselines for negotiating provision remained the same:

Int: "...if you were comparing a Nucleus solution and the designing of a one-off solution. In terms of your own

satisfaction and involvement, and your own need to make decisions, would there be any differences?

Sub: Not really, not in the way that we did. There might have been more decisions made if we were doing a one-off design. But what we did in Westshire, we got hold of the Nucleus packs and we evaluated ... we hadn't got a ... standard entity that we could go along and live evaluate. So we said we're not going to accept this as being ... the real in thing. We're going to look at it in terms of our own experience and other people's experience and we're going to evaluate it. Anything, every bloody word they said, we're going to evaluate all of it to see if it fits our requirements."⁴⁶

(Westshire Nurse Planner : Interview Transcript)

Learning about a new design solution means a reconceptualisation of ideas by the designer. Existing stocks of knowledge have to be brought to bear to generate understanding:

Sub: "...I think I've undergone a change of behaviour on each project ... I've been involved in. Because you use what's gone before, you try to look into the future. You try to see what's on offer, and what your past experience has been. If when they're joined together they meet the requirements of what's proposed for the future. And I think everybody undergoes a change in behaviour, yes.

Int: But any changes that really you felt were ...?

Sub: No real frustrations, its just a different concept and adjustment of one's own ideas.

Int: Adjustment?

Sub: Yeah, you've got to, just by taking a template if you like, so how can you achieve at least the same level of service that we know about, or an improved level of service within that shape? So that re-orientates your mind somewhat.

Int: You found this reorientation process quite natural did you, or were there certain conscious elements that you remember having to change?

Sub: I think it was quite natural in a way. Obviously I mean, immediately you look at something which is quite strange to you, you say what the hell is this?

Int: What sort of strangeness?

Sub: I mean, just in having, you know we're talking about the Newtown project, Nucleus; just having the ancillary accommodation in the central core. If you look around our wards at Bartley Down we've got them so they've got the accommodation on one side, except that it's not on an internal wall. And you say, what environments is that going to have, that deep plan accommodation ... what effect is that going to have on natural ventilation?

Int: We were talking about strangeness. What elements in the process actually seemed strange? Was it when you came across the idea of Nucleus? Was it when you saw the drawings, was it when you came to working in some detail? When did this strangeness occur?

Sub: When I first saw the drawings it looked very attractive. When I started looking at ... the outline operational policies that ... the Nucleus Applications group wrote ... it was almost impossible to be able to say in a certain area getting a certain culture it would work in that manner. So when I started looking at the operational policies, then that's when the strangeness started to creep in. In certain little things which were not totally beyond my comprehension but I was not quite sure whether they would work or not. Like at the beginning, because we'd got nothing to look at anyway ... some of those doubts were fairly strong. But they were not frustrating doubts because immediately the mind starts ticking away and mowing around using your own experience. You say, oh yes, well that can do that and it can do that. It just needs to be organized slightly differently. The end result is the same. So ... it was purely a matter of accommodating to a newer standard design if you like.

Int: So the drawings were visually attractive then, but in order to understand the strangeness you had to translate it into your own sort of operational understanding?

Sub: Within the departments that I know and understand, yes ... outside of that it was other colleagues who went through a similar process.

Int: So in fact the drawings are not directly understandable to you in some senses, in some senses they are obviously.

Sub: Well, I think the drawings are understandable, it's just in the manner described. I have doubts about how ... a particular method of working could be as good as previous experience, because it was imposed if you like, and I think everybody does that. You've only got to relate and come back to a domestic house. You do that immediately, you don't do that consciously.

Int: So there was some feeling of imposition then, initially?

Sub: Yeah, yeah, I think there always is in any standard design. But because we know that we can use standard designs that's only temporary. So we look into a standard design, to see whether it meets the needs as we perceive them locally. And I think that that's the important point. That's only the start then.

Int: When we were talking about imposition what are we talking about? Just imposition of a set of drawings and a way of going about things? I mean how do you experience a feeling of imposition?

Sub: Not really, its just like they've just changed the whole traffic system in Bartley recently, and they've put in new traffic lights, junction boxes, new traffic flows. And they said this in terms of plans of the town is going to be a one-way street. And they said, O.K., from next Monday it's all change. So immediately we start looking into those drawings to see what implications they have for you, don't you? If you're going across town from east to west, and north to south you start saying how am I going to get there? And you work your way through it and say, oh well, it's not too bad, in fact I might save three hundred yards on that trip now ... which in terms of time and petrol if you're driving a car in multiples is good. So immediately you accommodate to that one, and you see another which might take you all around the town ... and you say I don't like that one, is there any alternative within that lot that I can fiddle. You do that automatically, don't you?"⁴⁷
(Westshire Nurse Planner : Interview Transcript)

This account exemplifies the way in which unfamiliar designs are accommodated to user requirements. Certain aspects stand out in contrast to the individual's own perceptual and action templates. Gradually each difference becomes assimilated and re-interpreted in terms of the designer's existing knowledge. Arrangements and imputed patterns of activity which seem too alien are altered to fit in with the individual's own schema.



The Nurse Planner described to the researcher how he visualised drawings and their implications for action. He was able to read into them his experience of a working hospital. However, he did not see in layouts the detailed nature of the job designs to be adopted, but just the main flows of movement.

Int: "When you're designing can you visualise the actual working experience on a ward or in an area? Or does that have to take a back seat to the physical ...?"

Sub: On no, no, no ... you've got to visualise it, you've got to think about ... how patients can be got into certain areas easily, how wide doors ought to be, how much space there ought to be in assisted toilets. How the nurses are going to manipulate a patient from a wheelchair into a toilet or an assisted bath. And you know that's part of your job really to put yourself into the position of a nurse. But the finite things that nurses do on a ward, I'm not competent now after all these years I've not worked on a ward. So I just go over to them and I say, these are my macro views on it, what've you got to say about it, is there anything I've missed?"⁴⁸

(Westshire Nurse Planner : Interview Transcript)

The skills of interpretation and template reformulation have to be learned by working in an organization over a period of time. They constitute a vital resource in persuading other design professionals to one's view. It has already been noted (Chapter 10) how the Bartley Pathologists used their monopolisation of skill to dictate provision levels. In the following section the Westshire Nurse Planner states his competence to determine design outcomes.

Int: "...there's this whole problem of having the difficulty to translating from a plan to an idea of the working institution. Well, perhaps, it wasn't a problem to you, was it?"

Sub: At the beginning it was, but certainly not on this job Newtown . When I first started in the job that I'm doing now it was quite difficult ... I got to know how to read drawings, but they were still static entities at that time. Now when I look at a drawing I can see everything moving on the damn thing.

Int: How do you visualise it then?

Sub: When I look on a Nucleus drawing of a ward I can see people moving there, and patients being took across there, and that's the way now I look at any drawing ...

Int: Is it in plan form or three dimensionally or ...?

Sub: No, I just see it in flows, up and down the wards. And you talk to an architect, he can't see that, he just can't. I mean he'll put a nurses station in, and he assumes that the nurses are all there at that nursing station. In the back of his mind he's been led to believe that nurses are there all the time and they don't move away from there. But I don't see things like that ... I see one nurse in the toilet, and another one with bedpans and another one picking patients up on the floor and banging ... I can really see that, and once you've done one or two it becomes easier."⁴⁹
(Westshire Nurse Planner : Interview Transcript)

It is the assertion and monopolisation of these distinct forms of professional visualisation of the detailed texture of a work practice that can be used in claims for authority in design formulation.

When different design professionals claiming different expertise meet together to determine outcomes jointly a relationship develops involving a recognition of each other's "technical" language. Areas of decision making competence are worked out. For instance, decision criteria which the Nurse Planner did not recognise as valid were dismissed as "architectural licence".

Int: "How difficult, then, as a person ... who's worked himself, and who has access to people who work, how difficult is it to communicate to other professionals like that? In what sense can you influence their own presumptions about drawings and what they mean?

Sub: I think the only caution I've ever had is with the architects. I won't talk about engineers because I don't know too much about engineering. But with architects they like to use a bit of licence, if you like, on the aesthetic side. And trying to convince them, that's the only problem really; its no problem really. I think we understand each other. A large amount of architectural licence sometimes, the practical function falls down ...!

Int: But then you've worked with them a long time so ...

Sub: Yeah, you develop a sort of chat form ... As soon as they see you can understand their language there's a relationship ... and its informal, calls, telephone calls. Like, I go in just to see if everything's alright really. As soon as they see you can understand some of their language they start listening to you."⁵⁰

(Westshire Nurse Planner : Interview Transcript)

So part of designing consists in mutual recognition of each other's technical language as well as maintaining one's own knowledge position. As a layout evolves in spatial terms the meanings of the resource distribution patterns it embodies are assembled and a consensus reached. A joint template is built up from the assembly of accommodated meanings. These meanings change over time but are recognised as a core of shared experience and legitimate knowledge. This accord can transfer across between different developments:

Sub: "...There's been changes in behaviour all along the line ... because its the same team doing Newtown, and a team is ... Regional officers and local officers. We all shared that experience at Bartley ... I mean in terms of technical people at the Region they will have done schemes even before Bartley. But each time they do a scheme that leads to changing behaviour. So anything which we picked up from the design and the evaluation of Bartley, you know, will eventually start thoughts ... very fortunately we had that follow on and it just ran on as a natural sequence from one project straight into another one. So there wasn't a gap ... and I think that's been to our advantage really because we've been able to pick up certain aspects of design and operation in the Bartley Down hospital which we liked and we would like to see incorporated in Newtown even though its a different sort of standard design."⁵¹

(Westshire Nurse Planner : Interview Transcript)

Whilst substantial areas of agreement are built up in designing, there is always an unresolved area of tension. Where definitions of need and existing solutions conflict, renegotiation occurs. This often occurs within a framework of time pressure. In the Newtown case this process is exemplified in the detailed fitting out of hospital rooms.

Working from an agreed sketch layout officers use completed room data sheets giving an equipment schedule. They attempt to arrive at an equipment layout within a given space.

Sub: It's very systematic. When we do room data sheets ... There are design architects and engineers there at, room data sheet meetings, and by that time they've got frozen sketch designs. All they have to do then with the assistance of the administrators at the Region is to transcribe those requirements from a data sheet to a drawing. And then the architect will say, we've got problems with this equipment, (a) it won't fit, (b) if it fits in something else won't fit in, can you help? ... or they will come up with ... a design that incorporates everything within a given area, and they may say because we've put all that in that area, it might now have to reduce the amount of space in another area. Do you want all that in, or do you want 95% of each in. So there's always a bit of to-ing and fro-ing give and take right the way through that."⁵²
(Westshire Nurse Planner : Interview Transcript)

Note here the implications for the detailed design of work deriving from these conceptions:

- (1) Activities are seen as generalised flows.
- (2) Designing is about the sequencing of spaces and territorial areas.
- (3) Devising room layouts is about putting things into agreed territorial spaces, not about the detailed texture of work around the equipment.
- (4) The design of discrete professional territories within a hospital is undertaken by user professionals with Regional technical officers in mediating roles.

- (5) The design of the physical layout is paramount. Although some knowledge of work practices is implied in the formulation of layouts it is not worked out fully.

The Westshire Nurse Planner gave his perceptions of the nature of the connections between physical and work design. His comments reveal a lack of specification of work organization at the initial stages of design. Readers should understand that the "operational policies" mentioned by informants in this thesis are only overall statements of gross movement patterns within the whole hospital and individual departments.

Int: Talking specifically about job design now, well nursing, medics, or whatever. How do you see this changing after Nucleus, perhaps as a response to it, or don't you?

Sub: Er ... its not very easy to answer other than by saying that people accommodate to environments and to designs. They accommodate to them themselves. I mean if you took somebody from Bartley Hospital and put them in Newtown, they might have some major criticism of Bartley or Newtown as a result of that. But if you took somebody out of a grotty mid-Victorian building and put them into Newtown they would think it was the best thing since cream cheese."⁵⁵
(Westshire Nurse Planner : Interview Transcript)

This officer's whole emphasis is on the attributes of staff - "they adapt" - he says. In fact they do not just adapt. As self-organizing professions many determine their own work practices and culture. There is no way in which the organizational climate of a hospital can be laid down beforehand in a detailed format so that it would remain uncontested. The reason that the NHS cannot do detailed work design in a co-ordinated way is that the power of professional definitions is so strong that these occupations can fight off this kind of imposition. This is a crucial weakness in the NHS design system. There is not the overall managerial power to insist that

certain types of work behaviour take place in specific places in a specific way. Health care professionals retain the right to adapt departments as they wish by the use of their own departmental budgets.

As the Westshire Planner continues he indicates the lack of influence over projected work patterns:

Int: "Would you see ... your own role intervening to affect this process of accommodation?"

Sub: Yeah, because I feel responsible during the commissioning period for detailing the advanced operational policies and practices and procedures and systems. All would be subject to an evaluation after about twelve months in operation. Because anything that we do in advance of real time, you know its still theoretical in a way. You ... are pre-empting others' behaviour and you can't do that necessarily. And it may well be that twelve months or eighteen months after we open that we'll have to re-think, and re-do the detailed operational policies. It's a sort of reconciliation period very often, to reconcile operations with the physical design of a building.

Int: What do you mean by reconciling. What sort of things, what sort of areas might that involve?

Sub: All areas, all areas of work. Im mean you can't discount individuals and I see hospitals like ant hills. If you kick a hospital over you see millions of ants and no structure. If you kick a hospital over you just see a whole group of people - patients and staff and no structure.

Int: What are your priorities going to be then? ... If you're kicking over the ant hill and looking for structure. What are you going to be after in this process of reconciliation. What are your priorities as a manager going to be?

Sub: I mean you have operational objectives to achieve all the time in terms of health care. These pre-constructed detailed operational policies don't meet all the requirements of what, of the knowledge we envisaged because of the behaviours of all the people who will be meeting these requirements. It may well be that the design is a false representation of behaviour and we've got to recognise that. It doesn't mean to say that we don't maintain our operational objectives. It just means we slightly alter the route ... to achieve it, because then we will have the opportunity of saying, now by doing this, and

we didn't think of it first, its very easy. We don't want to redesign, we just alter the system a bit.

Int: So this is where the unknown between physical layout and behaviour is perhaps affected by that in a running hospital. This is where those gaps become known and sorted?

Sub: That's right. If we'd have been doing a one-off design at Newtown ... following on very closely to the Bartley experience, we would have used all of that experience at Bartley. As it was we were forced into another standard design and variations, we could use part of the experience we had from Bartley, it was still valuable."⁵⁴
(Westshire Nurse Planner : Interview Transcript)

There are two main reasons for this lack of detailed consideration of work design. First, the power of professionals prevents imposition of general management prescriptions from the outside. Each department head considers him or herself as autonomous. Second, those professionals who design departments are not those who will use them. Given time lags rendering layouts obsolete and the individual differences in practitioners' preferences, it is impossible to predict the physical/work design interface with complete confidence.

Doing Manpower Planning for Newtown : Power and "Technical Reason"

The original Manpower Plan for the Newtown DGH was commenced in April 1979. Its aim was to tabulate the staffing requirements for the new hospital. Behind it lay aims going beyond those conventionally conceived within the service. Westshire staff claimed that it broke new ground and this view is born out by the fact that it was subsequently described in NHS literature relating to commissioning and was regarded as a model of its kind.⁵⁵ The following account rests upon statements made by one of the officers concerned in its production and stands in contrast to the considered methodology presented in the published article.

The story of the first Newtown Manpower Plan begins thus:

"... it must have been April 1979 ... Peter Healey ... called us up to his office ... there was Christopher there and a couple of guys from the Regional Manpower Planning Section."⁵⁶
(Westshire Officer : Interview Transcript)

After this initial meeting Westshire decided to tread their own path and reject help from Borders:

"So we told the two boys from Region to go away, politely obviously ... they didn't impress us as being particularly calibre types, and we could see that if we went down the Regional road we wouldn't get much out of it and it would take a long time."⁵⁷
(Westshire Officer : Interview Transcript)

Newtown Development Corporation offered to second Christine Jones, Ph.D., a member of their social research unit, to the Area and this offer was gladly taken up:

"...She previously had done a lot of work in nursing research and in fact I found out ... she contributed to the Royal Commission Report on a variety of other kinds of things."⁵⁸
(Westshire Officer : Interview Transcript)

The Manpower Plan was assembled by the Westshire officer and Christine Jones working closely together:

"Christine and I got stuck in. How was it devised ... how did we do it? Well, initially in this room, she sat at this desk and I had that bit there, and ... it was down to personalities getting along together. And you know, not being funny but it's a similar arrangement that I have with you ... you know we both

share the same room, and we've got to get on, it's to our mutual benefit that we do. Because at first, Dr. Jones ... you know how we feel about doctors, they've got high status in our organization. I thought, oh bloody hell, we're going to have some crackpot academic along who just doesn't know what's what. Fortunately Christine's quite a sensible person ... so we sat down ... the first thing we did is this one April '79, which being a good Taylorist you see [laughs] ... we set out all the categories of task that we had to achieve and the dates that we had to achieve them by ... Now to be perfectly honest, as I look down this ... some of these got deleted and other things got pushed in."⁵⁹

(Westshire Officer : Interview Transcript)

The two collaborators set their timetable and evolved their own logic of approach:

"All that happened was that we got a commission, do a Manpower Plan for that hospital, get on with it ... Christine did all the papers in the appendices, 'cause its logic, I mean, if you think about the hospital, and think about the manpower ... you don't have to be an experienced Manpower Planner as long as you've got a bit of commonsense you can think we'll need staff. Two, we need this type of staff. Three, and how do we find out how many ...?"⁶⁰

It should be remembered that much of this officer's rational accounting process had been affected by his subsequent assembly of material into a cohesive case. Yet it seems clear that the the two individuals concerned were compelled to construct their own justificatory logic in a managerial area which was not well developed:

"...Christine did quite a bit on travel to work and on various other aspects like training, and built up a knowledge base ... which ... is in the appendices. Towards ... September-ish, yes, beginning of October. We then did the front ... book which is all the policies and stuff like that ... which also gives how many staff you need."⁶¹

(Westshire Officer : Interview Transcript)

They relied on existing staff norms or upon the experience of departmental heads for staff numbers:

"For the nursing we used ratios, and Simon [the Nurse Planner] did a lot of work on that side ... in conjunction with Christine because she was quite knowledgeable on nursing. And the rest was either guesstimates, ... or wild guesses. Some were a bit more refined than that, being based on O. and M. kinds of things. It was literally just heads of departments saying we need so many if this is what its going to be like. And at the time nobody felt threatened ... I don't think anybody feels threatened now but people were saying, oh we'll take this or we'll take that and being fairly honest about it. Not doing our normal trick double up and then expect to get a half cut. I think they were giving us gen. information. Although now that I'm doing a review I've spotted a few things like the works. I've noticed that the revised plan would suggest that we need about a quarter less ... There are one or two others like in the path lab ... they had about forty-five technicians put down, and I worked it out nationally ... that you would only need thirty-two, thirty-three. So there's about a twelve difference there."⁶²

(Westshire Officer : Interview Transcript)

Once these estimates of staff numbers had been evolved and tabulated, the policy objectives were invented and welded to them. In the officer's account of proceedings there is little indication of formal logical process, although he was subsequently to claim the grounding of the proposals in scientific method. The logic was designed to match the problem in hand; it was shaped to "fit" the existing "needs" as he perceived them. The logic evolved was situation specific and geared to the pressures of time and the expectations of superiors:

Sub: "...the original plan had several purposes. One was to give us an idea of how much revenue we needed, O.K., and numbers of the staff and the grades that we needed. Plus, providing us with ... manpower policy, i.e. we'd always try to recruit trainees from Newtown ... Again, if you look in the Manpower Plan you'll see there are about six policy categories.

Int: Could you say something about the sorts of assumptions behind these policies? How were they evolved and really are they intended ...?

Sub: How were they evolved? I'll tell you, one of my favourite stories this. The six sections on policy in the Manpower Plan were evolved, if you want to put it that way, and I remember the day. I'm sat here all day with Christine; it was a very grey day, teemed down with rain outside. And we sat down and the conversation went something like this. Well, Norman, we're getting a bit behind time. Yes, Christine, we are getting a bit behind time. We'd better put something up, you know, show some goods. Right then we'll just invent 'em, or something laughs. And what we did, the first thing we did, was to say well what areas do we need to cover in terms of policy. So you start from that basis, and we had a little brainstorming and we arrived at six areas. O.K., one was training, one was recruitment policies with a section for new technology, although its not really well developed. We didn't know what we meant at the time, but we know that we ought to think about technology ..."⁶³
(Westshire Officer : Interview Transcript)

The officer explained this concept of technology:

"... technology literally meant hardware to me ... I wouldn't have thought of ... technology in terms of organization. I would have literally thought of hardware. The placing of things, the system, the physical system rather than the technique system ..."⁶⁴

He continued by outlining the reasoning behind the other policy headings:

"... what else was it? Public Relations, because we felt that public relations was a particularly useful concept ... it provided an image for the Authority to recruit from Newtown, who'd been battered somewhat. O.K. ... and secondly the public relations policy has spin-offs for recruitment ... Because when is recruitment advertising not public relations? So we took the notion it was all part and parcel of each other, so there were two aspects to that. Just let me refresh my memory... yes, there's obviously revenue policy ... that money was provided for pre-recruitment. Because unless you have that as a policy you can't actually move ... if there's no allocation of revenue for pre-recruitment then you're stumped. Recruitment policy, educational training, public relations, consultation, ... technology and then we said research and information."⁶⁵
(Westshire Officer : Interview Transcript)

The officer outlined his view as to the logic of the process in conversation with the researcher:

Int: "So if I sum up what you said, you evolved these categories in an afternoon and from what you said after that it seems to suggest they weren't categories plucked out of the air. They were ones that seemed quite normal to you?

Sub: Logical.

Int: Logical?

Sub: Not normal, because I don't know what normal is ...

Int: No.

Sub: Because I haven't been involved in that kind of thing. I don't know how anybody else has done that. I think one of the things about this whole Manpower Plan as it stands is we took a decision very early on ... You see what Godfrey [a member of the Westshire Treasurer's Department] wanted to do was to go away and research, i.e. read up. And I said no, and you might think that's the sign of an ignorant man. But I said no ... on a psychological basis being an individualist, and liking to do my thing my way. I didn't want to be contaminated by what had gone before. So we didn't go away and get books on Manpower Planning, find out and read up around the subject. Although I've maybe done a bit of Manpower Planning in my course at College I couldn't remember it. I couldn't tell what I did. So ... the discipline was logic, think it through ourselves, rather than dash off and find out how to do it in the service. Apart from my own individualistic traits I think there was the notion that Manpower Planning in the service isn't particularly well developed.

Int: Why do you say that?

Sub: Because we don't do very much Manpower Planning in the N.H.S., it's as simple as that. That's a fact. If you went around to see every authority and asked them and you got the truth from them ... you'd find very little. There's more done at Regional level but in my mind all that's concerned with is collecting statistics for Parliamentary questions. It's not really about trying to alter systems and produce ... in the beginning I said we won't do this we'll do it whatever way we think fit, and the proof is in the pudding. You look at that names a published document and which Manpower Plan's in there? This one, because it's crap, but at least its quality crap, and that's better than nothing. And it's a dose of Cyclop's Kingdom, the land of the blind, I'm afraid."⁶⁶

(Westshire Officer : Interview Transcript)

This officer is being less than candid when he implies that he invented a new approach. The methodology may have been different to that within the NHS, but it had its foundation within his own stocks of knowledge and leaned upon measures from existing health care procedures. The substantive content of his case was referenced to his previous work in the catering trade and the necessity of basing his projections upon the new DGH at Bartley Down.

When interviewed the officer was devising a revised Manpower Plan for Newtown. He was trying to reduce the overall staff numbers. It is necessary to quote at length to follow his reasoning:

"I haven't analysed jobs at Bartley Down. What I've done is developed a philosophy which goes along the lines that to get the best manpower plan ... what you should really do is to build a prototype, staff it, change the staffing levels and see what output you get. Now that's not practical is it? So what you've got to do ... is to take the nearest simulation to what you're building that you have and say ... what's their production level and how many do they need to produce that? And that's what I'm doing at the moment. I'm saying, they use ten full time equivalents and five thousand inpatients, therefore one equals five hundred inpatients. That's the production ratio per man or woman ... And then I say right, we'll assume that all other things are equal, therefore ... the people at Newtown should be able to produce at least that level of production. Even though the production is slightly different. But one assumes the technology will be better ... If you assume that the people at Newtown have just the same motivation as the people at Bartley Down ... then you can say ... that's how many people they need. You might say well its wrong to assume that everything's the same and I would argue that that is true, but you can't measure the variables ... So you've got to take that little bit of a risk that everything will be more or less equal ... in terms of the work groups, in terms of the systems of work. You just assume they'll be replicated in the new building...

... the revised plan will be a replica, a scaled-down replica of what's going on at Bartley Down. Now you might say that's rubbish, because how do you know a department is efficient or

inefficient? All you're going to do is build in efficiency or inefficiency. But I've cracked that one as well ... because what I do is to say ... I need some control figures, where do I get them? And we get control figures; you know Samantha? ... well she's doing a paper. I told her to go away and get norms, as many norms as she could get ... so what we'll do is we'll take the figures from the revised plan and we'll say well, what's the national norm for so many beds or whatever."⁶⁷
(Westshire Officer : Interview Transcript)

By comparing national norms with the Bartley norms incorporated in the Newtown Manpower Plan revisions are worked out. Notice the officer's lack of power to impose norms upon prestigious heads of departments. All he can do is to rely upon his credibility as the Manpower Planner and his "scientific" method of arriving at his figures:

"... if we've got sixty-five down and the norm would suggest that we'd only need fifty, I've got to ask why? And until I get an answer as to why, we don't go for sixty-five we go for fifty ... And ... I record the reasons so any chap coming after me doesn't say, well, where did he get this figure from? ... there would be reasons put down and those reasons I would extract from the head of department. I would challenge the head of department to persuade me ... It's not that I have any power, officially, but ... the fact that I'm doing the Manpower Plan and will walk up and talk to people gives me some kind of authority. Not to say, yes, no you can't ... but obviously if I'm, writing a report then I am gonna be a fairly influential actor in what amount of resources are involved."⁶⁸
(Westshire Officer : Interview Transcript)

The allocation of staff resources is a central concern for departmental heads. To attract good staffing ratios is a measure of an occupation's prestige and influence. So the outcomes of staff resource distribution bear closely upon the power interests of health care professionals. Good staffing gives more time to undertake work, to do original research into new techniques and to gain credit with one's peers. These in turn lead to increased status with which to bargain for more facilities.

Within the NHS the conventions of public service and gentlemanly politeness tend to play down the admission of crude struggles for resources, but the pressures are there. The Westshire Officer puts his view on the "consultations" over staffing:

Sub: "To an extent there's a negotiation. I mean if we take the path lab. I've been in there two or three times now ... But my negotiation tactic is to say that I will not proceed unless or until we agree on a formula to what I'm doing now.

Int: A formula?

Sub: Yeah. Well, its a formula you see ... I'm using production and labour at a given point in time to predict what levels of staffing we need in another hospital at a given level of production. That's basically the formula, but the content ... what figures we push in there are slightly negotiable. You see what I mean ...?

Int: Yeah.

Sub: ... but until he's convinced that the way I'm working is correct, then I won't be putting any reports in . Because ... my philosophy is that the plan has got to be a collaborative thing. It's not to be me forcing and saying this is this and that is that. 'Cause I don't know. I mean I could overlook some quite obvious things ..."⁶⁹

In the following passage, which follows directly on from the quotation above, the subject argues for the scientific status of his methodology. Remember that he has no executive authority over departmental heads. They can use their superior power and influence to bypass his figures if they do not get what they want. His elaboration of a scientific "technical rationality" serves three purposes. First, and on an interpersonal level, it avoids the open confrontation of power holders and saves face for whoever loses. Second, it preserves the illusion that what is going on is not a political matter at all, but a neutral decision process whose outcomes can be implemented unproblematically. Thirdly, the debates grounding in scientific method makes the outcome a binding condition upon future action and gives it the standing of a natural law.

Sub: "So ... its not negotiation, its more a consultative dialogue, because I'm not there to beat them down, I'm not there to beat them up. All I'm there to try and do, all I want to do, is to get a rational plan based on some kind of scientific basis. You know, some form of numbers which can prove what you've said is correct. I'm looking for proof you see? Now sometimes that proof won't be very good, but it'd be better than a whole lot of people moaning, and decibel decisions. Because then at least I'd have a bit of mathematics on a piece of paper to show precisely how you arrive at a decision.

Int: So then if this process is consultation and involves, presumably, some sort of compromise, how then is it scientific?

Sub: Doesn't involve compromise.

Int: What does it involve then?

Sub: It involves me having been articulate enough and having sufficiently a sensitive enough formula to be acceptable.

Int: Mmm ...

Sub: Now the principle will always be the same. No matter who I go and see, i.e. the principle of what can you produce with so many at the moment? And that's your starting point. Your finishing point is some sort of ratio which can then be divided into production levels ... but it can change at the edges you see, because your measures of production can be different to different groups ..."/0

The officer goes on to describe the application of his method. Although mathematical logic may inhere in the procedure, the meaning of that procedure and the mode of its application is interesting. The officer discusses the case of staffing the Newtown Pathology department.

Sub: "... to get back to that point, its consultations but they're departmental heads not going to persuade me to change my principle method, i.e. production and labour method of calculating future labour demands.

Int: What alternative grounds do they tend to argue with?

Sub: None, 'cause its totally logical you see?

Int: Is it?

Sub: Well, yes.

Int: In what sense logical?

Sub: Well its logical in the sense that ... you can see your production, yes, you can see your labour. Therefore yes you can see a relationship between the labour and your production. Therefore you can get a ratio. There's nothing more logical than that. Well, I say there isn't, perhaps that's showing a closed mind. But it sounds sensible, doesn't it? I mean its got the ring of commonsense about it so ...

Int: Yeah, I'm not being critical, I'm just trying to explore this issue in detail.

Sub: That's why they accept it you see, and Robert [a Pathology Officer] accepts it. I mean they all fight it, 'cause they're all now getting a bit closer, bit more involved and a psychological tendency in our organization is to always try and maximise the resources that are directed to you. Whether that's a rational thing or not it is."⁷¹

The determination of the staffing for Newtown Pathology was difficult for special reasons. Like the physical design of the laboratory, the staffing estimates were subject to political pressures.⁷²

Sub: "Let's take Robert Barker [a Pathology Officer], because he's probably the hardest one. Although in many respects he's the easiest because they produce a lot of data about their production level and they know precisely how many people. ... So I go up to Robert and say that's my plan. And he reacts and says but there's factor x and whatever training we've got to do ... you see up at Bartley they do a lot of training. Trying to account for all that and all kinds of things ... talking it through, getting more figures, we come to a point whereby he will accept ... I think he's accepted the rationale of production levels. We've got a lot of detail now about his outfit, what he's interested in doing ... therefore he's actually changed his tack a wee bit because what he's keen now to happen is for the predicted production levels at the other end to be as high as possible. And indeed I've done some work since which would suggest that my original production levels were a wee tight ... so I may be going up thirty-two to thirty-

three people ... but he'll still be coming down from forty-five ... getting ten off the plan.

Int: If you're in a discussion with say Robert on this problem of staffing or organizational design, and you were discussing with him the grounds on which your decision would be taken ... what sort of grounds would he use as his sticking point in saying no ... you're wrong and I wouldn't agree with you on that. How would he typically argue his case?

Sub: He would argue his case from his own experience. His perception of what happens. He would argue I've never worked in a path lab., therefore, I don't know the intricacies of the day-to-day. All I'm doing is playing with biggish numbers you see ... And another line of attack, if he was really fly, he'd look at the plans, and say well that plan's dysfunctional, or its not as functional as this existing technology, i.e. the layout."⁷³

The Officer found there were complexities in the case of the pathology laboratory going beyond the negotiation of meaning through technical professional arguments.

"I consider the path lab probably to be the most difficult of the departments. But that's for political reasons. Because Dr. Stilgo works in the path lab. He's also a member of the DHA. He's also done a lot of work on the project itself, and in fact what I've agreed with Robert is ... I will produce a revised manpower plan ... then I will take it to him ... when he accepts that that's what he's going to get, and he knows why he's going to get it ... then he has to go to the Division ... to the consultants and say, that's the Manpower Plan and I support it. Now if he went to that group and said that's what Norman Bailey says, and I don't like it, what we would then get would be a big row. We'd get the decibel lobby out, and we'd get the figures shoved up for no justified reason ... which would make the whole process null and void. You might as well not bother."⁷⁴

(Westshire Officer : Interview Transcript)

The degree of political influence brought to bear upon the manpower planning proposals varied between departments. Not all areas involved consultant intervention:

Sub: "... let's just take nursing, its nothing to do with consultants ... Pathology, yes it has. Robert and the Division which is a gang of consultants, plus themselves the head technicians. Radiography: again it'll be the Radiographer, but she will then run to Dr. N., who is in fact part of the DMT, so there will be a political dimension there. So there will be consultant influence on the Radiography and on the Pathology. Then there's the physiological measurement technicians, where there may be a consultant input ... The dental technicians ... it involved the Area Dental Officer who's a consultant on the peripheries, although they never argued the number ... Nurses, domestics won't involve consultants, catering work won't involve consultants. Porters, all the hotel services ...

Int: So they'd be more straightforward to work out?

Sub: Not necessarily ... If you take catering for example. I say they need fifty-three and a half people. Richard Irons didn't like that ... and in fact I got really brassed off with Richard because I expected him to behave rationally and he didn't. He did the same, the same ploy as other people.

Int: What was that?

Sub: To try and get more. In fact he disagrees with the Manpower Plan. And what he did, he went to the ... Regional Catering Officer and showed him our plans. The Catering Officer wrote back and said, no you don't need fifty-three, you need sixty. Which was a downwards revision of the original figure, but obviously higher than mine."⁷⁵

(Westshire Officer : Interview Transcript)

The manpower planner had catering experience of his own and was determined to put together a mode of calculation to discredit Richard Irons' assertion. He outlined this to the researcher and set out the tactics to achieve his aims:

"... if say the Regional Catering Officer said no you need fifty-five and I'd say fifty-three and a half, I would incorporate the fifty-five. I wouldn't waste time trying to prove that it was fifty-three and a half spot on. I would just write in the Manpower Report that the calculation based on productivity would give fifty-three, however using the experience of the Regional Catering Officer, we advise an extra one and a half bodies. And I would have that logged down so we know whom to blame, or not blame, but we know why. Now with him

saying sixty he can get stuffed. That's a substantive ... seven as a percentage of fifty-three is a biggish percentage ... too far away from what my theoretical model gives ... And if there is a disagreement, then there'll be a report, they'll be unbearable because they're written by me, which is naughty in a sense. I'll write that I say its fifty-three, he says its sixty, this is the difference in money, what d'ya wanna do? Trust me and believe the rational, or believe the irrational intuitive guess. And one would obviously phrase one's report to blacken ... no, not to blacken, but obviously there's no way you're going to write a report that's not biased if you believe you are right."⁷⁶

To base Newtown estimates on Bartley Down hospital involved the possibility of bias in all kinds of ways. This officer used his norms as a tool to discover what he regarded as overprovision. Discrepancies came to light in the staffing of a Bartley Down department which were difficult to handle except by the neutralising power of norm-based calculations:

Sub: "I'm saying they're national staffing norms only useful for control purposes based on what you think is locally correct ... Now if we find we're deploying a lot more than is nationally normal, it just raises the question why, and explains it. If it can't be explained and the reason why is for political reasons, for example ... If you look at the radiology department ... you'll probably find ... I don't know, I haven't got the evidence yet, but I'm told, confidentially told, if you look at radiography, you'll find there are more people involved in that outfit that is normal. And you say why is that? The reason why is because they've got a position of power in that one of their consultants is on the DMT, was around at the time that Bartley Down was built, was in a position to have resources ... funny isn't it? And quietly people would say its abusing the system. He got resources for his bit, which had he not been in the places that he was in at the time he was in, wouldn't have diverted in that direction. The proof of the pudding is in fact that in terms of clerical staff they were overstaffed and ... only in the last year have they reduced the number of clerical people. And the crease was it was a double-edged sword. It might seem great getting as much as you can ... but I was called in there to do an analysis of what was going on there. Well it wasn't, there was just too many people.

Int: In each other's way as well?

Sub: And they were bitching and there wasn't enough work for them to do. They were working in poor conditions. I mean

they were poor conditions for a new building, they didn't have any external light ...! Basically they had too many bodies around the place and they had to, you know, iron fingers and all that. So you can see that it's not good to all the staff in that place. That would have been a prime example of pushing too much resources ... Theoretically the more resources you have the better you are. There's an optimum level, there must be at a given period of time, at a given level of production ... If you go over that you can get all sorts of psychological problems; sickness, the bitching, ... discipline, as well as having poor management leadership there anyway ... This all added up and I had to turn round and say we'll do this, do that ... get rid of a few. Send a few off to medical records. And it was actually having no contact with medical records, because they weren't happy and quite messy. I think they've probably got too many radiographers, but that isn't the problem in terms of them bitching with each other or the rest of it. But one suspects they're highly resourced now. If you take the point that I was making ... that we are going to base our Newtown part on that, let's assume they are over-resourced and my suspicions are correct, then we're just going to build an over-resourced department unless I use these norms to catch that kind of situation."⁷⁷
(Westshire Officer : Interview Transcript)

At this point in the research the officer had yet to complete his revised Manpower Plan and deal with the prickly problem of Radiology staffing at Newtown. His activities to this point, however encompassed the main features of design activity: the use of templates and the deployment of technical rationality to overcome or accommodate power and influence systems within the Westshire Authority.

Conceptions of the Integration of Physical Layouts and Organization and Work Design

The physical shells of buildings house complex organizational relationships. It has been maintained that although layouts have implications for the way work is carried out, the detailed design and ordering of work activities are not considered in the process of physical design.

When a hospital design system like Nucleus is assembled current types of work practice are taken into account in a crude way. The main analysis is in terms of:

- (a) The production of discrete and defined departmental territories which can be assembled in a variety of situations. Each unit is devised with a general, not a specific, use in mind and must be capable of encompassing the wide differences in consultant/specialist practices within user authorities.
- (b) Finding a pattern of circulation spaces which will achieve economy of movement and an adaptable placement of departmental areas along it.
- (c) Determining that the general range of configurations produced by working (a) and (b) together will provide arrangements of standard departments accommodating the most important work flows between different areas of the hospital.

To an extent these major macro-design issues constitute organization-wide agreements as to what a hospital is. They supply the basic assumptions embodied in the physical template. Given that Regional and District authorities will work with local professional staffs with varying conceptions of "good practice" it is the limit of the work-oriented conceptions that can be imposed in respect of spatial design. The detailed layout of wards and departments is always likely to be changed by lower organizational tiers, so it is only the general workflow and overall envelope specifications that are unlikely to alter.

D.H.S.S. conceptions : The Nucleus Ward

When the DHSS produced the Nucleus ward design with its emphasis on compact groups of beds around the staff base there were certain assumptions about the way of handling patient throughput which underlay the configuration. These involved measures to deal with the changing mix of patients encountered under policies of "early discharge".

"...people's stay in hospital became shorter and shorter, so there were virtually no low dependency patients in. By the time you were low dependency you went home. Em, and the balance between high and medium was shifting. First of all it was about half and half and now you'll find ... in many specialties more high dependency than in medium. So this idea of moving from one ward bay to another became unsatisfactory because ... the continuity of care was the important thing, so we moved on in the Nucleus phase ... The Nucleus ward floor plan has most, has half the beds close to - two sixes opposite and two singles, out of a ward of twenty-eight, close to and very well supervised from the staff base. And another six bedroomed quite close, two singles and one six a bit further away and there lies the problem because we're now finding that some of those are really high dependency patients ..."⁷⁸

The use of bays and single-bedded rooms offers the opportunity to intensify ward utilisation by mixing sexes and specialties within a single ward. Other pressures leading to increases in the dependency level of patients were:

"... an increase of day surgery and day treatments ... most hospitals now have a day clinic and this will shift a great number of people with minor operations that otherwise ... would have to be admitted for one, two, or three days ... So all of this is reducing the number of beds and meaning that while you're in you're very much more ill. One of our nurses made a comment that yet another factor is that ... because they're doing operations ... particularly on older people which they would not have dealt with, or tried to operate on before. For example, a ninety-year old patient with an appendix, taken out, it's minor surgery, but they're high dependency because of their

age and frailty so there are several reasons why more people are regarded as high dependency than was the case. So I'm using all this as an illustration as you asked me to, of the way our analysis, as we're obviously working very closely with nurses here, our analysis of the function is one of the things which is ... leading to changes in planning."⁷⁹

(Superintending Architect, DHSS : Interview Transcript)

This designer's articulation of work design considerations is at a high level of generality. Taking nurse-determined practices like progressive patient care he is most concerned with overall surveillance and travel distance. The detailed demands of working practice are not regarded as the determining features. The same architect described his objections to the linear ward layouts of the pre-Nucleus era. Note that he is explaining to the researcher with sketch drawings. The account shows how his template knowledge has become regularised and an accompanying use-rationale attached to it.

"I'll just draw quickly a typical ward of the 1960's ... [draws sketch plan] ... um, six, six, six, that's the way it was, often in the form of, um, nurses station ... er ... er ... utility room [still drawing] and then single, single, single, something like that, um, baths, office, that was a typical ... Now it had several disadvantages. One it meant a lot of walking up and down. It meant that from here a lot of this was out of sight. And also that this was typically put into a recess which, when nurses are walking around here they tend to be fairly out of sight of things."⁸⁰

(Superintending Architect, DHSS : Interview Transcript)

The View from the Regional Health Authority

The amending of an exemplar design to District preferences takes place through the services of Regional design professionals. Here there is also a similar lack of concern with detailed working practice. Consider this discussion with the Borders Newtown Project Team Administrator.

Int: "... do people generally explicitly think about, say, designing the work system when they do the physical design? Or is that left to be done at a later stage ... in detail.

Sub: ... I would have thought ... that there isn't a massive amount of thought goes into that. Having said that, we've got to come back to the fact again that this particular department, whichever one it is, is going to be governed by a schedule of accommodation, we're going to know what's in there. It's not as if there's something different. In every ward that you've got you've got beds ... the question of the workflow will be something that certainly we have ... consideration ... questions that might make this different A from B, or one from another, would be dealt with in the broad working group context, when I said to you that we had meetings with the users, over a period of twelve months that would take care of the flows if you like in principle.

Int: Crude flows and relationships?

Sub: Correct. I might also ... go further ... I mean you've seen the red book the Stage Two submission document ... there's two operational policies. There's a whole hospital policy, which deals with things like the entrance, the staff, transport, parking and laundry, cleaning. But there's also outline policies which go into a certain degree of detail. Now beyond that the District themselves will produce, and certainly they did so in the case of Bartley Down. I'm sure they anticipate doing detailed departmental policies, but in honesty, of course, these are done when the department is built, or is planned. They're not going to have control over that ... so all that I can say to you again is that they are describing departments for which there is a fair amount of knowledge."⁸¹
(Borders Administrator : Interview Transcript)

Work Design at the District Health Authority

The lack of concern for detailed work design is shared by personnel at the District tier:

"If you take the idea that there are two things really, simply involved. Physically building something and the other thing is making that structure produce."⁸²
(Westshire Manpower Planner : Interview Transcript)

The Westshire Officers viewed the organizational design as something to be added on after physical planning was done:

"... why did we chose to do a technical manpower plan giving numbers, rather than thinking about the management systems? Which should come first? Well obviously the reason we chose a manpower plan is that it quite obviously has cost implications. The number of people that you employ at the new hospital is going to affect how much your revenue is. And we've only got so much revenue, so again the money side of its come in. Because that's the major constraint ... And therefore one might say what we ought to have done is simultaneously as well as develop the numbers picture, we should have developed the management systems picture ... In fact we didn't, we ignored the management problem, the technique of running the place, purely concentrating on what I consider the manpower plan, a mechanistic process, like the design, the physical design is a mechanistic process."⁸³

(Westshire Manpower Planner : Interview Transcript)

As far as the Westshire staff saw it calculating staffing numbers normally ended NHS conceptions of work design in projected hospitals. Most people in the service assumed organizational structure, and there were firm indicators of its preferred nature:

Sub: "We could just take the existing blueprint of how a hospital runs and just wham it in there.

Int: Where does this idea of a blueprint come from?

Sub: ... What would happen you see ... if we cut off the Manpower side. If we did the demand and supply ... we could cut off there ... I think that most people cut off at that level. They say that's the whole thing done. They've got the physical side, they've got the manpower in terms of number, function, costs. They consider ... that's the end of theplan ... and what they do, and what we could do if we chose would be to say right, well, the new hospital needs that. If you've got so many sisters ... they've got the same job description as sisters elsewhere. We've got a handbook you know. It ... defines generally what a sister's grade is, we've got all the rules we need. Because they already exist and all we do is to just plop them in the new place. Possibly they will be modified a little bit to suit local circumstances at the new hospital. So at the end of the

day you have a slightly different culture than at Bartley Down, but that would be the individual idiosyncracies that would cause that. It would certainly be unplanned."⁸⁴
(Westshire Manpower Planner : Interview Transcript)

Normally detailed work design is left to senior professionals upon appointment to head of department when a new hospital is nearing completion:

"What would normally happen is we would recruit somebody, and he would be given his section of that book the Stage Two document ... and he would be told certain things from that book. Then he or she would be expected to produce a more detailed operational policy ... and might suggest that the times be changed. And that will all happen within the individual hospital department."⁸⁵
(Westshire Manpower Planner : Interview Transcript)

Thus the possibility of altering internal conceptions of professional practice is minimal. There is a great difficulty in trying to override existing work routines and to effect change from outside self-governing professional groups. NHS hospital design procedures provide a physical shell with only outline prescriptions as to overall circulation patterns. Departmental heads are then permitted to undertake their own work design upon appointment. This policy remains the same whatever physical design is used. Indeed the introduction of a new design like Nucleus is seen as having a minimal effect.

"I mean essentially its just a variation on a theme ... We're still going to put all one kind of product line on one kind of track, aren't we? All of the geriatrics are going to one ward, all of the paediatricians are going to another, that's no more a different a technology ... than at Bartley. The only difference is ... that in the Nucleus design there is a different shape ... in the Nucleus design there's more ability to put things in small one or two bedded wards or rooms ... the view patterns that you get ... are slightly different. So obviously the observation's going to be different. But the ward itself will be literally the same as a ward we've got at Bartley Down. There will still be

the nursing process, assuming that that's still going at the new place ... So in many respects the physical design is different, but in relation the technology is still the same."⁸⁶
(Westshire Officer : Interview Transcript)

What emerges quite conclusively from the subjective evaluations of staff at all levels of the NHS is that they view physical plant design and organization and work design as uncoupled processes. Consideration of the latter elements receives little detailed attention. Such are the sedimented procedures and professional working codes that it is assumed that a hospital can be merely staffed and then left to run itself. Throughout these accounts runs a continuing reference to existing models of action which condition perceptions of innovation in design work. Technological change is seldom viewed as a radical departure, but seen as a repetition of familiar themes.

Combined with these more detailed considerations are perceptions of general shortcomings of the NHS hospital planning system. The length and complexity of the procedure are a source of dismay to many participants.

PART IV CONCLUSIONS

CHAPTER 12

DESIGNING TECHNICAL CHANGE: THE NEWTOWN PROJECT AND THEORIES OF PROCESS AND LEGITIMACY

This chapter attempts several tasks. Commencing with a review of the case study it proceeds to develop an outline model of political process and organizational change. The model incorporates the notion of templates developed during the research. The latter two sections treat two related issues arising from the case study material - the need for a reconceptualisation of process theories of change and a consideration of mechanisms of legitimation.

Technical Change in the National Health Service: The Newtown Case:

1. The Organizational Context

The NHS is a relatively long established organization which has built up strong patterns of design and operating preferences. Heavily influenced by the priorities of its professional employee groups its mode of working learns upon configurations of practice established in the 19th Century and beyond to earlier examples of organized health care.

With the establishment of a State sponsored service a process of routinisation and codification of hospital design began. This was largely led

and directed in its detailed content by the most prestigious groups within the service, the medical and nursing professions. An extensive design data base was assembled, offering the possibility of the implementation of a rapid and cost-effective new hospital construction programme. This goal was not achieved because of over-complex systems of internal consultation which resulted in the prioritisation of internal professional interests over and above the needs of patients for facilities on the ground.

Nucleus, as Chapter 7 has shown, was a strong central initiative to cut levels of hospital provision. The early schemes such as Newham DGH were kept under tight Departmental control. Yet in the Newtown case Westshire Health Authority succeeded in obtaining considerable modification and extra provision. The elevation of the pathology department from a Nucleus-style "outstation" for collecting samples to a large scale laboratory with training functions (Chapter 10), furnishes a perfect example of the victory of lower organization tier priorities over central government intentions. Here modifications followed local professional preferences rather than being related to a considered epidemiological analysis.

The nature of NHS hospital design actively centred upon the progressive elaboration and modification of existing layout forms. These were physically articulated so as to contain and separate the diverse and distinct work practices that comprised the existing practitioner-devised division of labour. Change was achieved through reference to service-wide template conceptions of hospital form. It can be characterised as a process of incremental change and addition rather than of reconceptualisation. There seems little doubt that this fundamental conservatism was as much due to a

need to accommodate the demands of organization power holders as to restrictions and disruptions caused by changes in State policy.

2. Design Templates in the National Health Service

Members of the NHS hold common assumptions about the preferred configuration of the physical layout of hospitals. These are rooted in work practices and modes of physical space organization going back several centuries. In the United Kingdom the decisive codification occurred before the establishment of the service through the agency of Florence Nightingale. She determined the basic segregation of nursing, medical, and hospital 'hotel' and ancillary services. Current design practice builds upon this approach in that it remains at a primitive level of conceptualising basic activity flows between spatially discrete hospital departments and ward facilities. The redesign of hospitals and the arrangement of detailed plans is based upon consensual understandings about "functional" relationships between departmental units. These embody qualitative rather than quantitative measures of the crude relationships between professionally segregated work activities.

The Newtown case study indicates the separation of the physical design of hospitals from the activity of work, job, and organizational design. This is a finding paralleled in the study of the design of Hollow Goods Production at Cadbury's (Smith, Child and Rollinson, 1987). These writers state that at the company's Bournville plant:

"The project team did not give any conscious attention to work organization design, nor indeed to the views of workers and their representatives until well into the commissioning phase"

(Smith, Child and Rollinson, 1987: Chapter 7, unpublished mss. 24-25).

This does not indicate that there is any uncertainty about how work should be shaped. On the contrary, most health care professionals have very strongly established and demarcated patterns of work activity. This is a view shared in research carried out in a recent study of laboratory services (MESS 1987), where the phenomenon was found to be applicable at an international level of focus. The essential point is that these are professionally rather than managerially determined and so remain unamenable to State direction. In principle it may be said that there are very strong links between different kinds of physical spaces and the activities traditionally carried out within them. Yet because of the peculiar political structure of the NHS these links cannot be preplanned and specified in detail in advance of the appointment of the practitioners who will operate the working of the facilities. This 'space' between physical design templates and the 'action' templates of work organization which will fill them has its basis in professional control of the service. This hiatus in the conceptual process of translating designs into working institutions denies the possibility of establishing new patterns of resource use and deployment when these patterns are not professionally approved. Imposition of changing State intentions and the implementation of managerial policies becomes difficult. Incremental change and the persistence of strong organization template forms is thus as much a consequence of professional control over the rate and direction of change as it is of the imposition of a 'one best way' of building hospitals and doing hospital work. One may argue that template conservatism as evidenced in the NHS derives from the desire of medical, nursing and other groups to avoid rapid and radical change in physical work environments which might

be used as a lever to disrupt current conceptions of work practice. It is noteworthy that those groups of NHS employees who carry out the more proletarian activities of hospital servicing are subject to more stringent managerial control. They are more subject to work measurement and the arbitrary introduction of new equipment and work methods.

This lack of ability to specify the exact nature of environment/work links means that a divide exists between the designing of hospital layouts and the equipping of spaces and the design of the work practices which inhabit them. Given a large measure of professional autonomy in determining the form and content of work, NHS design activity remains essentially disconnected from the processes of establishing the procedures governing the day to day running of new hospital buildings. Hospital designing in general and in specific project instances is separate from the act of staffing and commissioning a given built unit. There is no overall organizational mechanism for integrating the design of work spaces and the way they will work in detail in the actual hospital unit. Managerial imaging of hospital development as an uninterrupted socio-technical process is impossible. As it is not possible to construct a total design package that lays down the connections between work environments and work practice it follows that the possibility of overall organizational control is diminished. Managerial direction of change through the redesign of technical systems can be said to rest upon the degree to which the nature of physical plant can be bound to certain action projections, and the two integrated into plausible and "determining" wholes. As the NHS has no central managerial mechanism by which hospital buildings and equipment can be tied to specified modes of operation it lacks purchase upon a key dimension of organizational reproduction. In not being able to uniformly direct the

social construction of the connections between work environment and work design the NHS as a state agency loses the ability to redirect resources. The existence of strong professionally derived template forms means the preservation of existing patterns of inequality. The principle of "the same plus a bit more" was long the general policy in hospital facility provision. This approach preserved the domination of the hospital sector in its present form and weakened initiatives for a more community based and preventative philosophy of health care. However, within this overall curative tradition some facilities such as laboratory services have expanded faster than others, altering the overall balance of resource allocation between specialities.

Through the work of the DHSS, government has tried to develop an organized body of knowledge to codify the physical design of hospital buildings. Through the early development projects of the 1960s to the more detailed design specifications of Best Buy, Harness, and Nucleus it has tried to influence the specification and control of hospital environments, particularly with regard to cost. These efforts have been conditioned globally by the amount of expenditure granted to the service by central government. Each represented a different kind of control intention. The Departmental exemplar design programme was a limited attempt to move towards standardised configurations and content on a part hospital basis. Best Buy attempted to provide a model for a cheap package hospital. Harness embodied the ideal of a definitive "high tech" model of hospital provision on a modularised plug-in basis. Nucleus was a stripped-down economy solution premised upon greater reliance on community services.

It would be convenient for the evolution of theory if it could be shown that DHSS design intentions proceeded in a consistent direction: that of increasing their degree of control over the nature of physical templates. This view cannot be sustained. There is no unilinear pattern of increasingly stringent direction of the format layouts. There may have been a trend towards more severe monitoring of project costs, but placing a tighter cost envelope around the design process has not overturned existing template assumptions to any significant extent. The desire of the Ministry to exercise more rigorous supervision over individual projects has been countered by the insistence of Regional and District authorities of their right to tailor solutions to local "need" perceptions. Thus DHSS exemplar designs have not exerted a uniform, or in many cases even an appreciable restriction upon locally based design initiatives. Regions and Districts may have been compelled to work within the cost limits implicit in the Nucleus standard design solution, but they have used their political acumen to bargain for their own conceptions within these stipulated levels and to exceed the limits in many cases.

However, there is little doubt that Nucleus has been the most influential exemplar. In many ways it has been the least detailed standard design, in terms of stipulations concerning constructional techniques and physical form. It provides only outline layouts and equipment details. Its success may be characterised by saying that its acceptability and adaptation at District Health Authority level has been perfectly compatible with increasingly tight budgetary control by central government. The Newtown case saw escalating costs for the new hospital over a long development period. The initial DHSS Nucleus guidelines on provision were left far behind. However, the Department was still able to exert control through

the general level of resources granted to Border's Region when Nucleus norms had been breached on the Newtown scheme. Initial budgetary control over template norms was largely lost but overall financial control regained by alternate means. This control is reflected in the series of "delays" experienced during the approvals procedure and the changing priority of Newtown in the capital programme of Border's Region.

3. The Politics of Design in the National Health Service

To discuss the nature of design politics within the NHS is to approach an area which exhibits great surface complexity. The existence of multiple power structures and an extensive range of informal networks makes the prediction of detailed design action within any given scheme difficult. The matter is more complicated given that the provision of a new hospital has ramifications that extend throughout the whole of an authority's conception of health strategy. It is not just a question of how a new hospital is put together through political process. Regard must also be paid to the more general consequences that new hospital provision has for the status of existing hospital units. Adding a single new hospital means a total reshaping of District and to a lesser extent a change in Regional policy. These wider resource distribution issues become part of the process of the conception of a new facility. The breadth of these issues is well exhibited in the Newtown case.

The politics of design are therefore mediated through several connected networks. There is the system of central government and numerous local authority bodies such as county and district councils within whose areas health provisions are implemented. This is a political dimension outside the

NHS itself, but important in sustaining influence for new hospital provision. In the Newtown case the pressure of a government sponsored agency, the Newtown Development Corporation, was decisive in keeping the case for Newtown DGH alive. Westshire County and District councils also played significant roles in supporting, and in some cases attacking the proposed status of the hospital development. In the sphere of centre-periphery debates the prioritisation of health care is affected by wider considerations of regional policy standing outside the Health Service per se.

Within the NHS the political dynamics set up within the formally designated "structures" are important. Centre/local struggles for resource control express themselves through the efforts of DHSS & Regional and District Health authorities. This tension between the hierarchical tiers of the service, and the efforts of officers and staff at each tier to shape the determination of resource decisions leads to a complex picture of negotiation and compromise.

At each level of the "formal structure" the lateral division of the organization into professional hierarchies adds further complications. The pre-eminence of the medical interest and more recently its close association with the nursing profession in the leadership of hospital design means that the crucial definitions of design means-ends chains are supplied by influential employee groups rather than by a distinct managerial cadre. Thus designer professionals such as architects, engineers, quantity surveyors, traffic engineers and so on become interpreters of health care professionals' requirements. They have little influence upon the allocation of resources, but tend to mediate competing demands and rationalise in conceptual form decisions taken by others.

This is not to claim that the precise configuration of a given hospital development is determined entirely by pre-existing patterns of political/professional power. Within the kernel of design work there is a competition of technical knowledges in the shaping of each design outcome. This micro-political dimension of design is a crucial one in terms of the final disposition of physical plant. It determines the specific grounds upon which single decisions are taken and contributes to the elaboration of design rationales upon which each scheme depends for its legitimacy.

The Newtown case study shows the operation of all these national, organizational, professional and knowledge politics. An important contribution is the representation and alignment of local community interests within and beyond the NHS. Their operation makes for unpredictable outcomes which can condition the pacing and priorities of design work.

The question for the analyst is this: whose influence is crucial in determining outcomes in a case like Newtown?

There would seem little doubt that the chief channels of power and influence lie with health care professionals who have been co-opted and incorporated within the planning and design system. At DHSS level major budgetary issues may be under formal Ministerial control, but their actual allocation and distribution is a professional matter. When Aneurin Bevan granted control of the implementation of health care measures to the medical profession at the inception of the service he ensured that the direction it took would be influenced by the internal dynamics of medical

development. The emphasis was to be upon the pre-eminence of a highly capitalised hospital based service within which curative rather than preventative services took pride of place.

This was an approach that led to a particular pattern of action in design activities and which is illustrated by the Newtown project. The vital process of design in a given hospital development programme centres upon a competition for physical resources between medical, nursing, paramedical and support services. This competition takes place around an analytically separable series of resource issues:

- a) The allocation of designated physical territories.
- b) The location of territories within a projected development.
- c) The determination of territory size.
- d) The detailed internal subdivision of territories design.
- e) The equipping of physical spaces.
- f) The staffing levels of territories and subterritories.

The allocation of a specific territory to a work group is a measure of that group's status as a definable entity within the process of health care. Certain groups warrant a distinctive territory as of right, others have to struggle to establish a distinctive territory at all.

It will be recalled that at Newtown the centrality of the X-Ray department was a template assumption shared by all. By way of contrast Health Education warranted no provision in terms of rooms or staffing in the original design and was left to be added as an afterthought.

The location of a territory is an indication of the controlling group's centrality of involvement in health care work. Prestigious curative and diagnostic tasks secure central locations, support tasks are banished to the spatio-geographical periphery.

The determination of the size of territorial area is influenced by the professional ranking of the activity concerned, its degree of integration with curative and restorative aspects of therapy. It is also affected by the individual peer priority of the actors concerned.

The detailed subdivision of territories is derived from customary patterns of occupational and "client" surveillance, the current patterns of professional work control and the nature of equipment to be housed.

The equipping of territories and sub territories depends upon the nature of the work task. All other things being equal the level of capital equipment allocation depends upon the inter professional ranking of the activity concerned. High prestige curative specialisms will be able to attract the highest levels of equipment provision. Predominantly palliative procedures will be relatively sparsely provided for.

Calculation of staffing levels relates to existing levels of provision. The use of existing staff levels as a quantitative template tends to reinforce dominant patterns of resource allocation.

4. The Negotiation of Design Outcomes: Templates and Politics

Hospital design templates within the NHS represent the outcome of several influences. These are pre-existing institutional types, the development of medical practice and its internal sub-divisions, and the patterning of power within the organization relating to resource distributive decisions. In a sense they represent a realisation of past organizational political action embodied in concrete form - the ability of one group of interests to impose a particular type of solution in preference to others.

In the evolution of a particular design solution pre-existing physical design templates act as organizationally legitimate benchmarks for bargaining. They are not taken as binding but as points of departure in resource allocative competitions. Within the NHS system the DHSS has tried to develop various strategies of template pre-definition but these have not succeeded in enforcing a dominant design style. These exemplars have acted as minimum reference points from which lower tier authorities negotiate for extra facilities rather than maximum levels which must be adhered to.

In the case of any given project such as Newtown template prescriptions handed down to Regional and District tiers are taken as an initial orienting point of reference and local circumstances are used to justify increased resource bids. Standard designs became translated through a process of reconceptualisation in line with experience gained on previous projects within an authority. A process of meaning definition takes place through which the supposed intentionality behind the exemplar design is transmuted into terms acceptable at the local level. A complex resource allocative

contest takes place which is the crucial motor shaping eventual design outcomes. This is the nucleus of the design process. What is generally regarded as design work, i.e. the drawing up of layouts and the nuts and bolts of detailing, is a reconciliation and formalisation of the outcomes of the allocative process into a visually credible and realisable entity. So to speak of an NHS Design Team or Project Team as the designers is misleading. Designing encompasses all organization members who use power and influence to affect the distribution of organizational goods or the logics and structure of use rationales attached to a given design configuration.

This is a more far reaching view of design than that adopted by other writers. Noble (1977) views engineers as the bearers of capitalist rationalities and accords them a directing role in the designing of America. In contrast Hales (1980) sees chemical engineers struggling to deduce the "imperatives" of capitalism and to incorporate them into process equipment. Like Lawson (1980) these authors tend to see design as a specific professionally based activity. The view taken in this work is more akin to Pettigrew (1985) where redesign is viewed at an organization wide level. Pettigrew's OD consultants were dependent upon management sponsorship for the degree of influence they obtained. The perspective developed here goes further. Designing is not properly studied by looking at design professionals alone. One must examine the organization wide resource allocative and policy making process. Only by looking at the actions and beliefs of a wide range of individuals inside and outside of professional designer cadres can the "political architecture" of the design process be captured.

5. Professional Influence upon Design

The key distributive decisions within the NHS hospital design system lay within the hands of health care professionals, amongst which medicine ranks first. The detailed planning of standard design types at DHSS level is subject to their control as is the detailed implementation of schemes at Regional and District level. Senior staff within each hierarchical level participate in the negotiation of territorial allocation, location, and size. More junior staff carry out the detailed work within these overall constraints once an acceptable resource design has been arrived at. The patient interest remains unrepresented within the network of professional interaction. There is no lay interpretation of patients' need. Those lay personnel within the system who represent the public interest i.e. on Regional and Area Health Authorities, and within Community Health Councils do not participate in the formal NHS design process. The needs of the patient "client" group are typified through the ideographic perceptions of the designer professionals. The service's perception of the patient group is a generalized one. The emphasis is on how the patient as an abstracted unit can be passed through the system of expert care, rather than on how the system of care can be reformulated to serve the patient. Thus the patient is subjected to presuppositions concerning his or her nature which are at the best paternalistic. In preserving the Nightingale model of the hospital, albeit remodelled for contemporary use, the pattern of discipline and surveillance traditionally associated with it is retained. In public sector hospital design the patient is still an object to be ordered and chronicled within an open ward. In the private sector the patient is primarily a paying guest to be provided with hotel and medical services by attentive servants of all grades.

6. The Construction of Design Rationales

The outcomes of the politics of design are not predictable in any precise sense. Within the NHS one may know which activities are likely to attract most funds, but the nature of the design process in any given case follows an organizationally situated logic. The configuration of hospital facilities is generated in its scope and detailed arrangement by bargaining. In the "duration" or experiential flow of this activity it is difficult to adhere to a manner of logic which can be construed as "scientific" or "technical". Only in the reflexive gaze are the outcomes of political process explicable as rational. The operation of design is the operation of a power process in which actors within the service bring their own knowledge of possible and probable outcomes to the struggle in which they engage. Conceptions of "ends", "means", and "needs" are rhetorical devices used in resource distributive games and their meanings redefinable in the light of sustainable action. As the designing of a hospital proceeds initial definitions of means-ends chains alter. When the final design is arrived at and the projected distribution of organizational goods becomes relatively fixed actors restructure the meanings of their actions to fit the outcome. Thus the design of Newtown DGH exhibits a constant formulation and reformulation of legitimating rationales. Initially regarded as a major hospital during the first hospital project, Newtown's status was progressively relegated to that of a satellite served by Bartley Down. Conceived to serve the needs of Newtown alone the role of the hospital was gradually extended so that it was to serve the whole of Westshire. These reformulations were in line with the interests of the chief political forces operating on the project. They satisfied DHSS desires to cut expenditure

and local Bartley medical factions who wished to preserve the dominance of their unit. But these redefinitions also papered over points of conflict. Newtown was to become much more than a basic Nucleus hospital. Its final role was in fact hard to determine given shifting central government policies. It had the potential to become the major centre in Westshire if requirements so dictated. Thus the meaning of the new hospital premises and their significance for the professional and lay audiences they were to serve was subject to constant reinterpretation. The necessity to erect an explanatory framework to justify the new design to these different publics took place through a process of successive and reflexive "accounts" of the proper nature of the evolving hospital design. In this process of accounting the sensible foundations of design actions were established through a referencing process in which the proper deployment of neutral science-based technique was the chief legitimating strand. The substantive rationality of political acts and intentions was masked by the reduction of measures of need and provision to quantified indices of shape, area, volume, and capacity. That these mathematical expressions of required provision were the outcome of inter and intra-organizational power contests was a consideration not mentioned in public justifications of the design. Indeed the public debate surrounding the provision of the Newtown hospital, whilst recognizing that hospital development was a political matter, never construed the actual work of hospital layout formulation as anything other than a neutral technical matter. Whilst the activity of specifying what Newtown Hospital was in design terms proceeded, conceptions of politics in community circles centred around the viability of Newtown DGH vis-a-vis Bartley Down. They did not penetrate or critique the political moves inherent in the framing of the physical plan itself. These remained privy to NHS design and health care professionals as a matter of "technical" discretion not to be questioned.

As the explanatory rationalities for the Newtown layout followed one upon another several components could be discerned. Presented as a Nucleus derived development and in accord with current DHSS thinking it was explained as gaining its detailed format from current District health care needs. It was put forward as a valuable but subsidiary provision to the Bartley hospitals. Claimed to help achieve a better distribution of local resources it was interpreted as a key facility in the expansion of Newtown, an aid to local employment, and as an asset to the whole of Westshire. It was to offer the best of current medical practice and to replace existing outdated units.

This vision was very distant from the first conception of the Newtown hospital at the commencement of the first design project in the late 1960s when a major hospital was envisaged dedicated almost exclusively to serving the needs of Newtown. The long history of translation from this initial idea to the ultimate project bears the marks of Departmental definitions, local medical and community interests and the pressure of financial cutbacks and recession.

Designing Technical Change in Organizations:

Towards a Model of Political Process

1. The Need for this Model

This research concludes that existing accounts of technical change in organizations (reviewed in Chapters 1-3) are inadequate and that expositions of the design process embodied in current writings need to be enlarged and changed.

Designing must not be regarded as a taken-for-granted activity which unproblematically proceeds from problem formulation to solution in a rational and logical manner. It cannot be captured through purely psychological categories such as creativity, or adequately through concepts such as innovation and diffusion. Design must be analysed as primarily a political activity; as a process through which solutions and solution meanings are bargained for and contested. It would seem likely given studies within the private sector (e.g. Pettigrew 1985) that this principle remains constant over organizations with widely differing systems of ownership and management. Furthermore, one could suppose that the significance of politics for the design process increases as the degree of organizational systematisation of innovation increases. One would expect less "political" inputs where design is confined to limited and localised changes of service, product, or process within an overall system.

The direction of changes enshrined in design work cannot be laid simplistically at the door of the professional training of engineers. It is not to be seen as a single minded drive for economy of materials and effort in a capitalist directed labour process. Thus the views of Noble (1979) and Cooley (1980) are misplaced. These studies tend to emphasise the situation of capitalist enterprises operating within competitive markets with functions supported by an ideology of profit making. Public sector organizations operate according to ideologies of cure and care. Economic constraints are filtered through a system of national political priorities. Yet since 1974 economic pressures upon hospital designing have increased sharply. However NHS design methodologies remain little changed. The case study has shown that the possibility of demonstrating a consistent

drive towards the increased control of labour through design is an illusory one. There is no deterministic link between apparatus and work organization. The task for management is to construct these links, they do not emanate magically from flywheels, production lines, or silicon chips. There is no universal trend towards deskilling as claimed by early writers in the labour process debate. The design of work systems may aim at increased pacing and direction of labour forces, but an articulate and professionally astute workforce may still retain the design of its own work practices against corporate attempts to impose uniformity. Thus the findings of Wilkinson (1983) are supported, "shopfloor" (in this case medical and nursing) politics play an important role in design.

Decision-making theory is an incomplete way of imaging the design process as it tends to ignore the existence of shared conceptions of resource configuration within organizations. To focus upon a decision act is to look at choice-making rather than consensual agreements about the organizational benchmarks in relation to which a decision is regarded as legitimate.

Systems theory and socio-technical visions of designing are unsatisfactory in that they assume key features of designing which need to be explained. In focussing upon linkages and the stable and proper functioning of elements they ignore the processes by which this appearance of coherency is established. Individual actors and groups of actors disappear within the working organism. There is no consideration of how these arrangements are to be formulated, negotiated, and accommodated to meet the perceptions of influential organizational power holders. Similarly functionalist models held by designers themselves are also inadequate.

How one can claim that form derives from function is hard to explain. Given the possibility of many rival forms satisfying a similar function and the problems of defining the nature of optimum functioning, simple "form follows function" assertions do not examine the phenomenon of organizational problem definition. The question is rather under what conditions is the range of functionally equivalent forms greater or lesser? Additionally, at a specific level of technical change choices may be limited or absent. We are led to ask what minimal material and organizational resources are really necessary, for say, a certain type of surgery to take place? Neither is the "structure follows technology" argument tenable in a mechanistic sense. This debate in organization theory is revealed to have based its assertions on simple correlational studies which could not capture the empirical richness of process methodologies.

Crude Marxist theory which sees designers as the agents of the control intentions of capital is misplaced. The assertion that the formulation of plant layouts aims exclusively, inevitably, and irresistably towards greater domination of the worker is unrealistic. Similarly discredited are more sophisticated Marxist accounts which argue that capitalist design aims at the intensification of labour and the securing of greater value added. The ability of professional groups within the Newtown project to impose their own definitions of work practice, staffing, and output levels makes unrealistic the assertion that redesign of technical systems inevitably means harder work and greater "efficiency". Organizational control is a complex issue. It cannot be assured merely through the use of pre-programmed and standardised design repertoires. The implementation of a new design solution will vary widely between production sites. Local preferences and experience will play a part. The designer cannot totally

pre-structure reality in such a way that its meanings are clear, unambiguous, and binding.

Designing is therefore far from being a science-based deployment of technical procedures. 'Science' and technique are ideological banners employed to rally the commitment of users of new design outputs. The binding together of physical plant and its associated work practices is a problem of meaning imposition and negotiation for managements and workforces, not simply a situation of task deriving from the nature of equipment.

2. Organizational Continuity and the Nature of Templates

The process of technical change within organizations does not proceed by sudden overturnings of existing physical arrangements and modes of work organization. Within any field of production there tend to be well established traditions governing the configurations of production apparatus, plant layout, and the nature of work. This conclusion substantially parallels Pettigrew's (1985) view of the Billingham Plant of ICI. However the Newtown case suggests that less emphasis should be placed on concepts of "revolutionary" change stages. Established templates are harder to dislodge than he implies. Although universal enough within a sector of industry to be regarded as a determining and determinate method of tackling the production aims of enterprises they are expressions of consensus about the best way to proceed. They are not an indication of technical necessity.

These shared assumptions range across different enterprises within the same sector. They are carried and transmitted by personnel at all levels of organizational authority who pass between one "firm" and another. These knowledge configurations are developed within each enterprise and interpreted with variations within each distinct production unit.

If a sector of productive effort endures for an appreciable time and builds up a stable bank of personnel through the operation of an internal labour market, professional restrictions, company training programmes, or whatever, the strength of these intersubjective agreements will increase. This mutual knowledge about the shaping of a production technology will congeal into a "design template" - a recognized way of imaging physical and human resources. A template form provides a "shape" to be matched to when additional production units are required or when the significance of proposed changes needs to be compared to existing practice.

Separate templates tend to be evolved for physical plant design and for work organization.

3. The Production of Templates for the Design of Physical Environments and Apparatuses

When a "new" type of productive enterprise is established the new mode of production has its roots in established methods. New apparatus is past-referenced in that it is based upon changes to or combinations of adaptations from existing plant configurations. A "new" approach can only be cognitively understood if compared to an existing practice. Given that the physical reproduction of organizations involves the exercise of power

and influence amongst organization members, the new arrangements must be acceptable to those who wield authority. Change is validated by reference to existing technique. Through the evolution of template conceptions connected by meaning chains to practices already accepted by organization members, change is portrayed as non threatening to existing power relations.

Physical design templates operate at several levels. For individual designers they preserve sufficient elements of past practice to enable cognitive schema to be reformulated within known categories and levels of performance. Where change seems intimidating the presence of template knowledge provides reassurance to the individual that his feelings of strangeness can be overcome. Templates provide a firm core of commonsense thinking which he or she can muster as grounds to situate changed behaviour as proper, normal, and in accordance with a rule.

At group level the template provides a common grammar of discourse through which individuals with different biographies can co-operate to engineer change processes. It provides a structuring of issues thought to be important. The template provides a common conceptualisation of physical entities upon which modifications can be worked and grafted.

At an organization-wide level templates provide an organizational identity, a corporate image which makes possible the demarcation of an individual firm and its location within a productive sector as a whole.

This study has elucidated the nature of template knowledge within the NHS. Within the service the DHSS has developed a highly codified and

formalised system of design layouts which provide an organization-wide level of identification. However the Newtown case has shown that Regional and District preferences are used to legitimate substantial departures from "official" template forms. This knowledge is sometimes highly rationalised as in the case of Regional "type" plans, but often less explicitly stated and deriving from the preferences of particular staff. It is here that "group" level templates figure, often being developed through the existence of stable work groups. The Newtown case displays continuity of approaches transmitted from the Bartley Down project. At an individual level the interview material obtained from Westshire officers has shown subjective template conceptions operating as frameworks for action (Chapters 10 and 11). Underlying all of these levels of template knowledge are the historically transmitted conceptions of hospital form explored in Chapter 7. These are so generally diffused that many of their more general elements operate at a society wide level explaining the general role of and rationale for hospital provision throughout a whole population.

4. Work Organization Templates

There also exist within organizations customary ways of working within environments and with production equipment. The definitions of managers and workforces about the proper ways of interacting with equipment endure over time. The configurations involved are less explicit than those existing in the realms of physical forms. Conceptions are more closely related to individual work experience. They are less clearly articulated because they lean more heavily upon subjective interpretations. Physical Plan forms cannot change from day to day, but labour is more adaptable. Given changes in management policy and the changing economic location of

employee groups the experiential links binding action to equipment are more malleable. They are social products and exist as beliefs rather than in corporeal form as physical objects do. The patterns of behaviour by which operatives relate to physical plant are also politically determined. They result from managerial attempts to impose use definitions and the workforces' ability to resist this control and impose their own practices and meanings.

Work organization templates can therefore change more rapidly than those of physical plant. Given that work practices can be manipulated more quickly than equipment the association between physical and action templates is capable of alteration. Each working individual must constantly assess, monitor, and renew the meaning of his or her actions towards it.

The integration of physical and action templates is problematic. It is possible to operate the same environment in different ways. Similarly it is possible to conceive of working in broadly the same manner with different equipment. The meaning links that assert the necessity of working in a certain way in a certain situation are artificial, and there exists between them a conceptual space which must be filled by politically constructed intersubjective meanings.

The following diagram briefly sets out these ideas in schematic form:

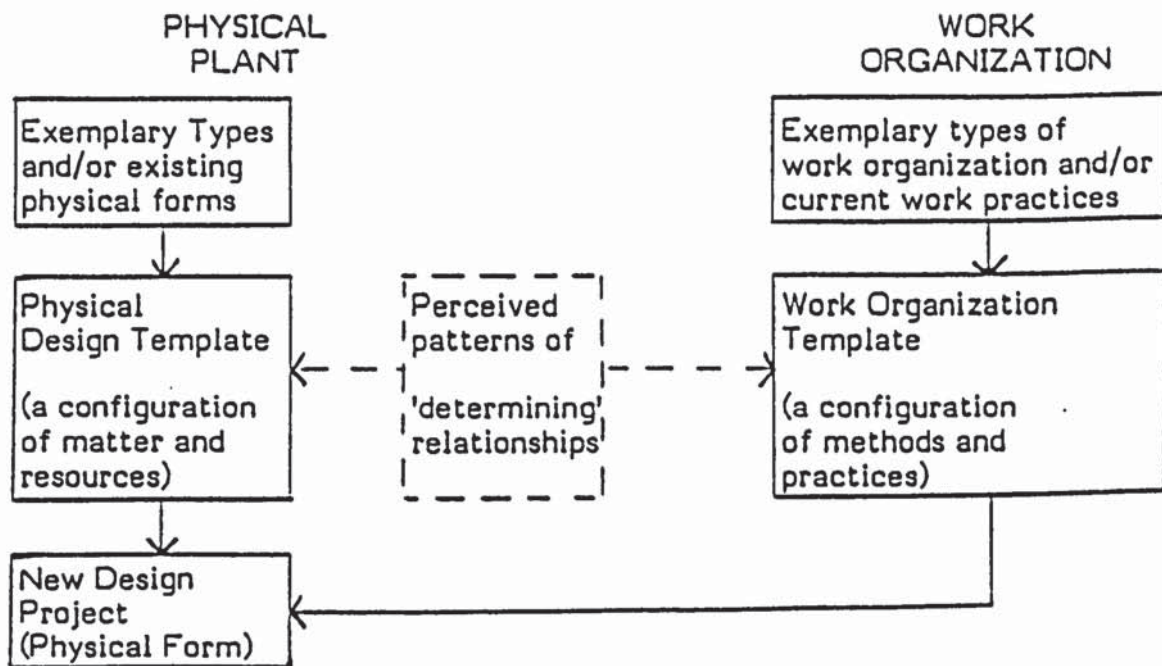


Fig.12:1 Relationships between Physical and Work Organization Templates

The case study suggests that the matching of physical and action templates is chiefly realised when the new physical apparatus of production comes into being. Here the remarks made by the Westshire Manpower Planner (Chapter 11) are characteristic. They are supported by the District Pharmaceutical Officer's approach (Chapter 10). The latter's concerns are with security and staff numbers. No determining relationship is seen between physical planform and detailed work practice. It is possible to project patterns of work organization that will be associated with a given piece of equipment, but the full texture of meanings-in-use is only achieved in an operational context where the operator brings his or her perceptions into play. It would seem impossible to control user meanings completely from the initial design stage. The drive for autonomy in a workforce will mean that significations will be modified when a new facility is commissioning. Worker groups will explore, colonise and make new work

environments their own. These conclusions are broadly in line with those reached by Bryn Jones and Mike Rose in Knights et al (1985). Assuming that the nature of work/plant linkages are not realised until operation commences, their projection at the design stage must be achieved through ideological means and by appeals to the necessity of certain precedents embodied in shared template conceptions.

5. Organizational Politics

Design activity involves the distribution and redistribution of organization resources. It concerns issues of authority, power, and the reproduction of organizational stratification. Changes brought about by redesign mean loss of power and influence for some and gains for others. The introduction of new plant or extensions to existing units brings about a resource allocation contest. This competition must establish its grounds within legitimate organizational knowledge. Design templates supply this knowledge. Using their experience of the structuring of power and influence organization members seek to use and reinterpret consensual knowledge categories to achieve gains or to protect present allocation patterns.

In this sphere of political action preliminary definitions of change are refined and adjusted to "rationally" accommodate the consequences of ongoing events. Once a decision outcome has been formulated it is retrospectively reintegrated to match the common cognitive gestalten present within the organization.

This analysis bears strong similarities to that of Pettigrew (1985:41-46). Here the author talks of the "management of meaning" (p44) and the

Importance of cultural elements in organizational politics. The present study seeks to replace conceptions of culture with that of template knowledge. Templates are used in the politics of meaning but are more resource centred than are Pettigrew's cultural norms. If one is to understand the detailed texture of organizational resource bargaining it is necessary to realize that actors do not just compete for global amounts in organizational finance competitions. Resource bids are premised upon assumptions projecting structured interrelationships of resources and practices. We need not only to look at the social behavioural norms conditioning bargaining procedures, but at the physical disposition of resources implied in the political moves involved.

The process of template redefinition mirrors Quinn's (1980) incrementalist approach. Change which is template referenced is seen as gradualistic rather than exhibiting periods of radical and rapid change. In the Newtown case actors tried to reformulate the new exemplar (Nucleus) in terms of previous conceptions. Nucleus could be viewed as a "radical" change in terms of levels of provision, but in practical social action this surface radicalism was illusory. Those who "invented" the new scheme stressed its continuity with the past. Those on the Newtown Project Team who were to interpret its meanings for the new hospital reformulated its significance in terms of their own understandings. This research finds like Quinn that change is a process occurring over long time periods with many stages of learning and meaning reconstruction occurring before change takes place. However this work agrees with Clark and Starkey (1986:58) in emphasising Quinn's prescriptive bias. Quinn's approach is also vulnerable to criticisms similar to those levelled against Pettigrew (1985). Quinn tends to concentrate on meaning transformation at the expense of ignoring the

resource base upon which his transformational processes operate. This thesis maintains that conceptual reorganization within organizations must always be analysed simultaneously against the resource redistribution which it accompanies.

6. Template Redefinition through Political Action

Templates are not static expressions of legitimate knowledge and action. Employed as a sedimented point of reference for organizationally located rationalities of conduct they are transformed through the exercise of influence and power. The mutual articulation of template elements changes when a new design configuration is arrived at. Templates are successively transformed as each concrete development project is realised, although the amount of change may be small and change denied in the interests of overall consensus. When a modified template is produced through redesign it becomes generalised and disseminated as a prescriptive basis for future action.

Fig. 12:2 attempts a summary of the political dimension of designing. Zig-Zag lines indicate the operation of organizational political process.

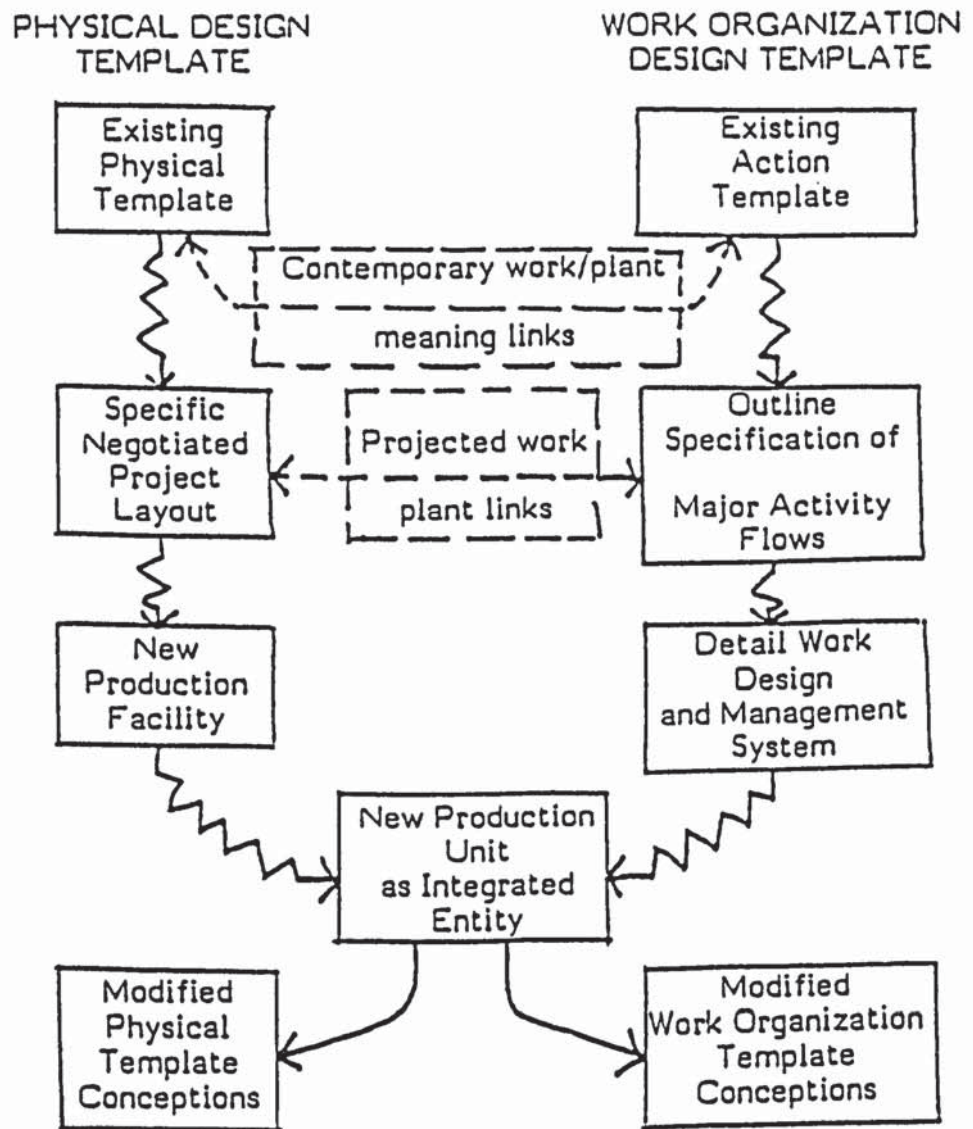


Fig. 12:2 Template Reformulation Through Organization Politics: a Provisional Model

In putting forward this model one major difference between physical design and the design of work organization should be emphasized. Work organization is rarely formally organized. One does not find a system of project teams and so on. Often certain steering devices of key parameters are set (cost, manning levels, etc.). Local section/departmental management is typically left to devise solutions within these limits.

Therefore the reader should not assume from Fig. 12:2 that parallel processes imply a similar degree of planning organization.

7. Rationality and Ideology: The Social Construction of Determinism

The meanings of design projections are explained in organizations through the assembly of design rationalities. These are accounts purporting to explain the reasoning processes behind, and the action potentials of new physical and organizational arrangements. They seek to underpin the validity of intended means-ends chains of action embodied in the design. Rationalities present to organizational and external publics a logical and scientific vision of design change, a presentation of what had to be. These accounts seek to reshape prescriptive design projections in terms of common sense and routine necessity. Given the changing political environment of any enterprise these rationales alter as political pressures make certain of their constituent elements unacceptable. They function like a political manifesto whose content changes with changes in the perception of "client" publics.

Design rationalities deny the power elements which have shaped the design outputs they promulgate. They attempt to disguise the substantive irrationality inherent in the operation of coercion and compromise. Politics and power are not amenable to explication in terms similar to those of natural causation. The task of rationality is to attempt this transmutation from the play of personal influence to an apparently determining set of relations. Arguments are advanced in terms of scientific and technical reason. Designer prescriptions are translated into "consumer" necessity. Design change is imaged as coherent, natural, and inevitable.

This process of rationalisation draws upon elements of society-wide ideology and incorporates components of the general economic and world views of the nation state. In the process of projecting change within a limited sector of productive activity a sense of harmony is achieved by an appeal to and incorporation of overall societal values. Rationality attempts through an incorporation of global ideological considerations to create within consumer publics an acceptance of design led change as a natural outcome of overall societal processes. The ideological underpinning of design activity helps ensure that new arrangements are accepted with limited disruption. The planned and conscious insertion of a modified process is portrayed in terms of societal evolution connected with positive assertions of progress as a motor for the improvement of the human condition. Thus ideology sidesteps the problems of portraying design as it actually is, and masks attempts to impose the intentionality of a specific organizational designer group.

Process Theories of Change: the Need for Reconceptualisation

The modification of design theory by the introduction of the concept of knowledge templates forces a review of the literature of process in organization theory. What pointers does the Newtown study offer for the revision of present ideas? How does it enlarge upon and force reinterpretation of process models of change? The first summary section of this chapter has provided a few indicators of the relationship of the Newtown findings to the work of existing writers. It is now necessary to address the literature in an organised way to evaluate the need for rejigging current models of change processes.

Broadly speaking there are five distinct process perspectives. These are:

Rational Model

Boundedly Rational Model

Garbage Can Model

Incremental Model

Political/Cultural Model

Theories of rational change find their roots in models of Economic Man. Omniscient and omnipotent the rational manager isolates and evaluates every piece of change relevant information. With unerring accuracy he/she selects the optimum course of action which leads to the achievement of maximum advantages. This simplified view is, of course, a caricature, but the ghost of "classical" rationality - the belief in the possibility of finding the one best way - survives amongst many practising managers. Many officers working on the Newtown DGH project clearly cherished idealised views of maximising outcomes. The Westshire Manpower Planner with his norm-referenced calculations is a typical example (Chapter 11: pp 374 - 387). Actual events showed that his reasoning was conditioned by the constraints imposed by power holders. It seems likely, then, that rather than existing as a mode of conduct in itself concepts of rational change act as a device to legitimate action and to discredit the actions of other agents as irrational. Certainly the NHS planning process as a whole and the NHS hospital design system with its "option appraisals" seeks to preserve the myth of rational decision making and the possibility of optimising choices in relation to a set of formal criteria.

To attack "rational" models of process is to assail a position that few, if any, contemporary theorists hold. It is to approach a topic that belongs more to the discussion of legitimation later in this chapter. Rational planning can be regarded as another pseudonym for scientific method. Yet the examination of the phenomenon of design makes certain criticisms of rational choice necessary. Rational decision-making in processes of change puts an emphasis upon an appraisal of existing knowledge to project changes in the near or distant future. Thus there is a right-minded emphasis upon elements of continuity in organizational knowledge. However, what rational planning avoids is an examination of the affective and social control dimensions of knowledge. To the rational planner all knowledge is equally valid and usable. Rationality inheres in assembling the most economising form of logic. Anything is possible given that the interests of the organization are furthered. Thus rational man forgets that there is a genesis of knowledge through which certain combinations of information become systematically related and constitute preferred schemes of action. These knowledge patterns, which in designing become the basis for action projections, are more than just familiar and habitual ways of proceeding; they have a part in the preservation of power and status orders in society. They have predictable and valued consequences. They are restrictive covenants upon the future.

So much for Reason's ahistorical conception of knowledge utility. Now a more fundamental criticism; that of knowledge stability. There lies within the rationalist perspective the assumption that once decided upon the parameters of change continue forward into the future unaltered. In other words the unexpected is discounted. Economic Man forgets that his own caveat *ceteris paribus* seldom holds in complex society. Everything does

not remain equal once a choice option is projected forward into an unknown future. Extrapolation founders upon the limits of present knowledge. Classical economic models which reduce and classify knowledge to elementary categories ignore the need for the invention of new knowledge types whose implications for action cannot be known until they are brought into being.

If the Newtown case shows anything it demonstrates that ideals of rationally directed change are untenable. Hospital designing's long history provided a vocabulary of antecedents guiding choice. There was a tradition of preferred solution types established by organizational politics over time. Although early design conceptions for Newtown DGH laid down an outline pattern of intentions, the detailed outcomes were largely unforeseen at the initial planning stages. What the Newtown Hospital was to be like physically and what it was to mean in operational terms became known only as the design of the shell proceeded. The sheer scale of the project demonstrated the weakness of rationalist concepts. The combination of complex elements of knowledge, the presence of uncertainty, and the operation of the unknown, meant that the design task exceeded the information processing capabilities of individual participants.

Discussion of the fallibility of the human brain brings us to models of process which stress the boundedness of change processes. The bounded view of rationality incorporating a portrayal of the limited and satisficing nature of choice processes emerges in Simon (1957) and March and Simon (1958). These authors point out the cognitive limits of human individuals, the varying knowledge of different people, and the practical constraints upon the scope of knowledge search processes. There is much to support

the assertions of these two writers in the Newtown design exercise. The Westshire Pharmaceutical Officer's remarks cited in Chapter 10 exemplify the limited knowledge and research capacities of working managers. Yet the bounded rationality view is damaged through its inability to account for why certain ways of thinking are suppressed. In giving an individualistic view of the decision maker and planner the bounded-rationality model is over psychological. Large organizations can hire personnel of widely different biographies and competances. If their skills are co-ordinated surely limitations can be overcome? Why does planning and design activity tend to revolve around certain regularised conceptions. The Newtown research would suggest that the reason is due to systems of organizational governance through which certain knowledge definers limit decision parameters. Organizational control structures filter choice options to preserve power and status.

Cyert and March (1963) extended the bounded rationality model by admitting political factors. Interest groups, coalitions, and the operation of conflicts of interest are recognized. Yet their exposition is hampered by a lack of specification about how a corpus of legitimate design knowledge is assembled within the firm. Their analysis remains at a level of abstraction that cannot explain how certain preferred solution sets become espoused by certain groups. Such an approach cannot explain elements in the Newtown case such as the rejection of the Central Treatment Area by the Westshire designers. It is apparent that the deployment of CTA facilities in Westshire would have affected local preferences for limiting day surgery work. The CTA concept would have brought about the possibility of the abbreviation and trivialisation of certain surgical procedures and an intensification of the work load. Traditional ward

treatment rooms were retained because they preserved established patterns of work demarcation. Furthermore, the "interests" that deleted the CTA concept could marshal the capacity to suppress the debate and to rationalise choice by an appeal to wider values of economy of expenditure and effort. "Boundedness" thus has more dimensions than Cyert and March anticipate. Boundedness is produced in process by the structured editing of knowledge and action exercised by groups engaging in organizational politics. Boundedness is not merely produced by a lack of knowledge, it must also refer to those kinds of solution which can be envisaged but which organization power holders will not permit others to think or articulate.

Rationality, bounded or otherwise assumes a knowledge of alternatives. In turn knowledge of alternatives assumes time for data gathering and assessment. Given the complexity of organizational life such presuppositions can be a luxury. Sudden changes in conditions caused by stimuli in the external environment create pressures for choice which appear cataclysmic. There is no time to understand and weight alternative courses of action thoroughly. A quick reaction is necessary. This kind of situation occurred in the Newtown funding crisis related in Chapter 9:pp279-292). There was no perfect solution and the Westshire Authority had insufficient time to calculate in detail the probable consequences of alternate forms of action. There was a suspension of customary conceptions of proper health care provision. The pressing need was to find a solution, any solution which could be sustained and which would ensure the preservation of the hospital project. The production of extra "growth money" by the Minister, plus Regional willingness to redesignate some funds made a financial solution possible, but one which flew in the face of accepted resource allocation protocols. The conduct of actors appeared to

be governed by expediency rather than by considered judgement. There was a panic driven effort to devise answers and to match them quickly to the problems that were emerging as government spending restrictions began to bite. Participants lost all sense of normal structural choice:

"I still think its chicanery"
(Westshire Officer: Chapter 9, p.289)

In looking at the Newtown data the analyst senses more than chicanery. The reactions recorded in the files and respondents comments reflect a state of confusion bordering upon anarchy, a condition in which finding some sort of problem/solution match is the chief priority.

An explanation of such situations is aided by reference to the garbage can conceptualisation of process. (Cohen, March and Olsen 1972). In this view there is a lack of knowledge of the interests of groups, and inconsistent participation by decision actors. Solutions search for problems and problems for solutions. The construction of rationality emerges from action as organization members operate within a decision field that lacks clarity and is only partly understood. Clearly the panic matching of problem and solution described above in the Newtown case can be attributed to incomprehension in conditions of rapid change. But a general review of the attitudes of managers involved in the hospital scheme shows that such episodes were rare. There is no denying the sense of stability and continuity asserted by participants in their design decision-making. The change options generated by the Westshire DMT (Chapter 9: pp270-272) were structured to recommend a course of action which would cause the least disruption to the status quo. Furthermore, although the choice process was impelled by the emergence of a series of unpredictable events

and was marked by some confusion eventual outcomes could have been predicted from pre-crisis conditions. Acute treatment facilities within the District were preserved. Monies were diverted from less sensitive and powerful sectors of the delivery system. A major shortcoming of the garbage can model in explaining the Newtown model is this: some development processes in organizations take place over an extended period. There are customary and sedimented preferences about the way they should be handled. Garbage can imagery suggests a constant state of confusion and flux. It tends to ignore the constraints imposed by previous decisions. During the funding episode the Newtown design existed in fairly complete conceptual form. Westshire and Borders Region were committed. They had taken a certain planning path and were constrained by it. Thus crucial choices had already been made and could only be reversed at a considerable cost in terms of money and design time. There may have been a surface behavioural disruption, but this did not mean that any combination of problems and solutions could have been accepted. Those involved in problem resolution were aware of the audiences that their proposals had to satisfy. Thus the decision set they were operating within was hedged around by quite definite expectations. Their resolution had to be capable of comprehension by interest groups. They could not undermine existing resource patterns too radically without damaging the existing benchmarks of provision upon which Westshire as a functional organizational sub-unit depended. Their actions had to be explicable in terms that were recognized as legitimate by other power holding groups. What ever was produced at the end of bargaining processes had to be recognizable as a continuation of past practice. Design participants could not just pick up any "problem" and weld it to any "solution". They were forced to limit choice procedures to a well known grammar of conduct.

This is far from the randomised vision of the Garbage Can theorists who emphasise surface irrationality at the expense of deeply imbedded structures of behaviour.

Studies of the evolution of hospitals as a design type set out in this work have indicated that "new" solutions are adapted from and legitimated through appeals to established solutions. Expressions of change are couched in incrementalist language. Such concerns are present in the process literature notably in the contributions of Lindblom (1959) and Braybrooke and Lindblom (1963). For these writers present practice constitutes a base upon which successive limited comparisons bring about incremental change. The decisional context is one of "muddling through". This conception maturely recognizes the confusion changes create in the minds of planners and anchors innovation to current behaviour.

The Newtown development would certainly support these ideas of gradualistic evolution. However, within Lindblom's scheme there is too much reference to muddling through as a strategy itself without a thoroughgoing appreciation of power contexts by which the apparent "muddling" is modelled.

Mintzberg et al (1976, 1978) stress the exploratory nature of conduct oriented to redesign. Aims evolve in process, they are not preconceived. Solutions emerge through a cycling and recycling around planning problems. There is a tendency to move towards implicitly preferred solutions. The Newtown study attests to this phenomenon of groping towards solutions, but stresses the importance of rationality construction. In NHS hospital design template preconceptions set an outline exemplar.

How the exemplar was reconstituted in the project depended upon specific bargaining dynamics. Rationales were erected to explain project/template correspondence. In one sense the major planning of the hospital was settled in principle before it began. Disputes centred around the detailed apportionment of the resources available, not about the basic provisions required. What a hospital should be like was well known at the outset. The advent of standard planning material like Nucleus only gave a finer prescriptive framework to the debate. There was less strategy searching than Mintzberg would have us suppose. Unintended consequences there were, but organizational rationality-making integrated them as products of necessity rather than acknowledging design failure. Designing did not involve discovering the meaning of unexpected circumstances but rather marrying them skillfully to well known configurations of resources and intentions. Confusions often arose because this matching process was disrupted by external constraints. It was not so much a situation of altered circumstances leading to experiment, with a sense of bewilderment created by the exploration of unknown terrain. Rather it was frustration arising from external complications which prevented the achievement of an easy fit with existing physical and action templates. As template reformulation proceeded designers accommodated novel elements to the known. Newtown planners sought to suppress the innovative and edited out change references to placate organizational publics. To be seen to be making "radical" alterations would have been to elicit opposition. This tendency bears upon the issue of "non-decision making" which was not considered fully by Mintzberg. Non-decision making can be regarded as a rejection of options brought about by the existence of knowledge-hegemony. The Newtown materials suggest that non-decisions are not only related to the non-emergence of issues. They are also linked to the camouflaging of

change. New potentials are not announced within a new design, possibilities are disguised to be exploited opportunistically later on. Westshire planners recognized the change possibilities of the Nucleus cruciform layout, but the potential for rapid structural change in use was not emphasised to those departmental publics whom it might threaten.

The incrementalist model has been given its most elaborate statement in Quinn (1980). Quinn's view is that planning and design strategies evolve steadily in a continuous manner. Whilst the Newtown study supports this analysis of progressive redefinition, there are few grounds for confirming the complexity of the model that Quinn advances. His ordered and detailed sequencing of change would not have been recognized by the designers of Newtown DGH. Quinn's exercises in modelling exhibit stages of development that are certainly redundant to an understanding of NHS hospital design. Design is far more pragmatic and less considered than he suggests. Although the Quinn model is extremely useful in providing a paradigmatic exposition of a possible way of designing, it is of value chiefly as a yardstick for evaluation. It lacks, however, the specification of organizational design knowledge built up over time as a methodological resource.

The most recent of the process models is that developed by Pettigrew which finds its fullest exposition in "The Awakening Giant" (1985). This politico-cultural model of organization redesign gives stress to the contextually bound nature of change. Proceeding from a macro-economic analysis of the changing business situation in which ICI found itself the author seeks to show how distinctive divisional cultures variously aided or retarded the acceptance of organizational development. The analysis

deployed emphasises the conditioning of the political process engaged in by individuals and groups by the overarching dynamics of international trade. The Quinlian perspective of steady incremental change is rejected. The writer takes up Mintzberg's model of change which portrays redesign as marked by periods of radical change followed by periods of consolidation. Change consists of:

"...radical packages - revolutionary periods indisposed with long periods of absorbing the impact of the radical changes, of further periods of incremental adjustments, and then a period of education, persuasion and conditioning leading up to the next revolutionary break (Pettigrew 1985:xix).

Change processes in ICI are seen as having four stages - developing concern, getting acknowledgement and understanding of problems, planning and acting, and a period of stabilisation (Pettigrew 1985: 434).

Like the Newtown study Pettigrew relies on the linked concepts of rationality and ideology. He maintains that organizational groups:

"...may have different rationalities, which provide the motive forces for their actions and reactions, along with the language and styles of behaviour to express those actions...Strategy formulation and change processes in organizations may be understood as the outcome of processes of competition between these rationalities expressed through the language, priorities, and the values of technologists; of accounting and finance - the bottom line; or of the more diffuse perspectives adopted by specialist groups from planning, operational research, organizational development, or personnel". (Pettigrew 1985: 42-43).

Many of the methodological tools apparent in the ICI study will be found developed separately and in different terms in the first chapters of the present book. However, several points of disagreement occur which are partly due to differences in focus, in part to differences between the objects of study, and also to differences in the content of findings.

Pettigrew's emphasis on economy as the stimulus for change is certainly well placed. World economic conditions and their influences upon State finances undoubtedly provided the triggers for Best Buy, Harness, and Nucleus, and their filtering down through the NHS planning system led to the later economic complications on the second Newtown project. Here similarities end. DHSS concerns were not shaped by a competitive commercial scenario but by changes in State policy made against an ever increasing level of health care consumption. Although DHSS efforts at redesign over a long period took cognizance of developments abroad the content of internal NHS template assumptions remained decisive. OD solutions in ICI seem very much to have been an alien importation of values in crisis circumstances. The hostility of some ICI management to "sandals and beads" OD exemplifies this assertion. Whilst international trading disadvantages led ICI to import solutions, the Ministry approach was to abbreviate and streamline internal design forms which had already been developed. Thus the Newtown case implies that state welfare agencies will search for internally validated solutions. They will not initiate a wide range of scanning strategies to solve threatening economic circumstances.

This latter tendency in the case study may be taken to indicate that processes of redesign in some organizations are less radical than the ICI study asserts. An evaluation of hospital design literature does not reveal a widespread emphasis on revolutionary change. Best Buy, Nucleus, and Harness all represented changes in levels of provision but service-wide concepts of hospitals and hospital operation seemed to have remained relatively static. The Newtown study thus challenges us to look at statements about revolutionary ruptures in the process of organization

redesign. There are several problems. "Revolutionary" is a value-laden term and very much a qualitative one. It involves several ideas; the dissimilarity of "innovatory" trends to existing practice, the number and pace of changes, and the level of generality of changes taking place. In NHS hospital designing, template traditions decreased the degrees of dissimilarity perceived. Although many decisions are made when a new design is concocted, these bunches of decisions need not engender any feelings of radical breaking with the past. Producing a new design may involve many choices in rapid sequence without introducing a need to label the emerging solution as "new". Conversely infrequent but important changes in periods when designs are being assimilated and interpreted can have fundamental change effects. These change consequences may not be recognized or fully harnessed at the time. As to levels of generality it is a characteristic of design that overall outline decisions condition the limits of those which nest inside them. But the overall decisions may not be the "radical" ones. In the Nucleus layout the CTA concept was one of the more potentially radical elements, but it was not a fundamental tenet of the Nucleus philosophy. Overall parameters were related to cost and area. Until more study is made which quantifies the nature of change such terms as "radical" are misplaced. They relate as much to the reactions of design actors and research observers as to anything else. This study is entitled "designing technical change", yet contains numerous statements by NHS staff denying change. Newtown D.G.H. caused a basic reconsideration of Westshire health care priorities, but actors did not perceive a radicalisation of the methods of health care delivery. The present writer prefers to use the word "change" alone without such qualifying terms as "radical".

Another point needs to be made. The direction and outcome of change in process is unclear. The change potentials projected by designers may not be realized when a design passes through translation stages into a functioning entity or system. The projection of images of radicalism is part of the commodification of change - change seen as the raw material from which managers' personal reputations are fashioned. One should thus be cautious of assertions of radical change which emanate more from the claims of ambitious men than from the nature of design itself.

The term change is difficult enough to approach. Restyling a refrigerator represents design change, but may not make a jot of difference to the way it works. In design we approach problems of change significance. Which kinds of revision truly produce differences? Which are merely cosmetic? The Newtown case may indicate that the consciousness of change is an entirely different phenomenon from actual physical and organizational discontinuities thrown up by different design solutions. Design change is a matter of alterations in the distribution of physical and human resources. Assessments of radicalism derive from judgements about the meanings of these changes.

The issues raised in the discussion above partly arise out of the differences in the changes studied at ICI and at Newtown. Pettigrew's OD consultants sought an attitudinal reconstruction which would smooth the way for more tangible organizational modifications. Several of the OD agents were proselytisers first and designers second. Psychological conversion preceded organization change. The Newtown project did not need a symbolic reconstitution of the organizational world to bring about its achievement. Design change was smoothed by reference to well known

template definitions. Explication followed upon change. Alterations in design strategy came first, and in the case of DHSS Nucleus they came surely and quickly. One may well ask whether Pettigrew's OD men contributed much to overall change in ICI at all. Economic and market pressures may well have brought about redesign unaided; the ideological "fixing" by OD staff could then be seen as largely redundant to the central dynamics of redesign.

"The Awakening Giant" places its analysis of process within the enabling catalyst of culture - culture being the expression of the publicly accepted meanings of a group. Use of this system enables change to be effected through the management of meaning (Pettigrew 1985:44). From the Newtown research it is apparent that this view has its limitations. When we examine the physical design of new production equipment which involves quantitative changes in resource patterning we require a more explicit medium of change than "culture". Template notions supply us with these means of explanation. Physical redesign deals with the shaping of things. In accounting for physical designing one has to trace the negotiation of the meaning of objects produced by reference to temporally transmitted gestalten. Some attributes of design are communicated through iconic rather than verbal symbol systems. For Pettigrew the transformation of cultural consciousness through the formation of rationalities is a mode of control. Rationalities legitimise change. Several elements of this formulation need to be modified. Processes of meaning definition are not just brought about by the use of a shared symbolic language. They are the outcomes of the reconciliation of distinct professional knowledges and the integration of different symbolic sub-universes. This is evidenced neatly in the Newtown case where the

Westshire Nurse Planner's comments in Chapter 11 demonstrate the process of meaning alignment between individuals with varying concerns. In physical design the motor of change is the struggle for resources themselves - meaning formulation follows upon the politically tempered division of the spoils. Cultural meanings are therefore largely epiphenomenal - they provide explanations, they are not the causes of redistribution of organizational goods. This is not to say that culture has no role in the selection of design solutions. Elements of culturally determined presupposition are embodied in template knowledge; they frame the configurative relationships at the heart of template knowledge. But the change trigger is practical resource redistribution itself, a redistribution that often seems to violate organizational agreements. This was indeed the case in the Newtown project where Westshire plans brought about opposition from the Bartley Down hospital.

What then is the relationship of the economic base to the formulation of explications by organization members engaged in redesign? In discussing political change processes in ICI Pettigrew states that organizational interest groups:

"...are likely to have different goals, time orientations, values and problem solving styles. In short, they may have different rationalities, which provide the motive forces for their actions and reactions, along with the language and styles of behaviour to express those actions". Pettigrew (1985:42).

In the Newtown study there is a clear recognition of the importance of rationalities for redesign processes. However, the position taken is different from the one adopted above. The analysis adopted here sees rationalities as less permanent and more transient. Rationality

construction occurred in the Newtown case to explain the often unpredictable surface patterns of political events. In political process the debates of actors seek to undermine the positions of antagonists. Rationalities are modified to fit the outcomes of these contests. Rationalities are thus malleable. Processes of rationalising are constantly confronting different combinations of resources and power which crop up in redesign. What Pettigrew does in the passage cited above is to construe the nature of rationality as a propelling force; as a sedimented system of belief deployed by groups and individuals which merits action. In the Newtown project rationalisation is seen as a post decision process through which actors justify their deeds. Thus rationality does not propel action, since in political contests actual outcomes are uncertain to a degree. Rationality enters after the event to tell us what happened. Explanation follows upon action, it does not cause it. What the ICI study omits is a theory of intentionality. The Newtown case stresses that design is to be explained by the coupling of patterns of intentions to resource redistribution exercises. During the development of the second hospital project the rationalities that explained the changing shape of the hospital plan were in a state of flux. The initial ideas of the scope and functioning of the hospital had changed considerably by the time the design was "frozen". The designers involved had to change their initial conceptions of the "reasons" for the Newtown scheme. At each stage in the process justifications were altered to match events. By no means could the initial rationales of actors have been said to be the driving force behind events. Now the concept of intentionality, unlike rationality, suggests a predisposition for certain patterns of action projected into the future. Linked to this definition is the possibility that intentions may not be realised. Rationality serves to explain the working out of the conflicting

intentions of actors in political action. Rationality is the "because" of intentionality. Intentions relate to goals, rationality provides the legitimating linkages. Actors rationalise to maintain a sense of purpose. Rationalities maintain a sense of goal directed behaviour.

Perhaps the disagreements highlighted here between the ICI and Newtown cases can best be understood in the differences between rationality seen as a relatively permanent expression of established procedures of organizational life (i.e. rationality as an ongoing but stable system of meanings), and rationality as an adaptive process of explanation relating to changes in practice. The latter view sees rationalising as a phenomenon which fills in the gaps in contextual meaning created by new configurations of resource and power distribution. The Newtown case would tend to show that rationality as a stable-system of means-end justifications is best replaced by the concept of shared template assumptions. Rationalities seek to support and justify changes in or the preservation of existing elements amongst these assumptions. They do not drive change-actors intentions and economic interests do that. Furthermore rationalities must be viewed as public statements oriented to audiences. Rationality may have a private dimension in that its construction depends upon the subjective meanings of actors. But this internal form of life cannot be directly accessible to the researcher. This distance between private belief and public announcement also opens up possibilities of deceit. Public reasons may cloak personal aims. Thus research must address the language of designer rationales. It must explore, as does this work, the way in which the language of justification is assembled. The Newtown case shows through its examination of the identification of Newtown DGH as a Nucleus derivative the way in which a legitimating case can be erected through the

deployment of visual and verbal symbolism (Chapter 11: pp216-217). "The Awakening Giant" falls short on this criterion. Its explanations of rationality look back to the cultural differences between the symbol systems of different sectors of the company and to the biographical backgrounds of individuals. It does not examine the moment by moment process of rationality assembly and reconstruction. Thus the ongoing dynamic of rationalising is omitted. The rationality of the ICI study is overturned by historicism - the past is overactive. Individuals are constrained by predefinitions of reality which overdetermine their actions.

This discussion of process therefore finds all present models of process inadequate. The political-cultural approach is of most utility but in its present form pays insufficient attention to definitions of change (ie "radical" versus "incremental"). Furthermore it lacks a clear distinction between rationality and intentionality at a theoretical level. If language and symbolism are at the root of rationality their specific operation in relation to political resource distribution contests must be looked at in detail.

Designing Change: The Problem of Legitimacy

A discussion of rationality in design leads on naturally to questions of legitimacy in organizations. After the preliminary analysis of Chapter 2 it is time to reconsider these questions in detail and place them within a more general context. Rationalities seek to present actions as reasonable conduct. What rationalities do is to select from amongst several bases of legitimacy to produce an explanation of action and meaning which will obtain approval from organizational members. Pettigrew (1985:44) has said

"A central concept linking political and cultural analysis is legitimacy. The management of meaning refers to a process of symbol construction and value use designed to create legitimacy for one's actions, ideas and demands, and to delegitimise the demands of one's opponents. Key concepts for analysing these processes of legitimisation and deligitimisation are symbolism, language, belief, and myth."

This exposition asserts the need for an examination of how acceptable solutions in the process of redesign are reached through organizational politics using the consensual language of culture. The Newtown study has illustrated the possibility of refining this kind of approach through an overview of the sequential redefinition of design accounts which brings actions into line with customary grounds for decision within an organization.

A simplified setting down of the place of legitimacy within organizational life would run as follows. The presence of complete organizational control displaces the need for legitimacy mechanisms. Where there is no challenge to authority justifications will not have to be made for schemes of conduct. When control breaks down, where there are rival definitions of the meaning of action, legitimisation is required to contain the possibility of revolt or non-compliance. Thus legitimation is an aspect of organizational control. It is a device by which organizational continuity is maintained. The Newtown case study demonstrates that a hierarchically organized system such as the NHS contains many horizontal divisions of interest between tiers. These schisms are further complicated by vertical divisions between professional and occupational groups.

So much for overall issues. One or two riders need to be added to this edited vision of legitimacy. First, even given a relative "stability" within organizational life, legitimacy devices will be required to reaffirm the organization as an entity. Second, in the specific case of planning and design which involve uncertainty, the projection of action in the future raises the problem of temporal uncertainty. What will the modified arrangements mean? How can these be construed as sensible in the light of present actions? There is a need to ensure that the future can be explained, and what is more accepted, in terms of a language that avoids anomie and a sense of helplessness in the face of the unknown.

Legitimacy, or the explanation of conduct through an appeal to recognized grounds of action can invoke several bases of authority. A perusal of the Newtown materials suggest that managers find several means of demonstrating the sensible nature of their design intentions. Notable amongst these are norm-based criteria. The case study showed how NHS designers used past levels of provision and output to extrapolate likely requirements for the future, e.g. in terms of the number of beds per speciality. These simple rules gave confidence through their relationship to known levels of performance. Hence they preserved the existing service structure whilst giving an impression of impersonal and disinterested process.

A development of norm-based criteria and a distinctive discovery of this study is the use of template exemplars which relate not only to levels of resource provision, but to their interrelationship with physical form as customary modes of operation. Functioning at individual, group, and organization-wide levels, template knowledge furnished a comprehensive

overview of the proper nature of hospitals developed over a considerable period of time. Templates supply not only continuity of meaning but are an important component in the iconic reproduction of organizations through their physical apparatus of production. In the present study they are well evidenced in the Nightingale configuration and the exemplar designs of the DHSS.

Two bases of legitimacy connected with hierarchical office were also encountered. One aspect relates to the position of the office holder and the particular decision powers and competency allocated to a particular organization post holder. The other dimension is the knowledge of incumbency, i.e. those particular kinds of decision knowledge available to individuals who are in post for a long period. These knowledges deriving from hierarchical position derive their legitimating force for their "special" status and from their scarcity. They relate to a uniqueness of competency deriving from the monopolization of a key position within an organizational network. Knowledge of this kind was exercised in the Newtown development by individuals like Maurice Stilgo whose occupation of several key roles over time gave a unique assembly of grounds for determining the shaping of the design process in certain ways.

The Newtown papers and interviews also provide support for the operation of personal charisma. Charisma in previous sociological writing has tended to refer to the exceptional qualities of individual leaders - the projection of personality and the generating of respect through the possession of unusual qualities. It is such supposed attributes which generate over time organizational myths. After death the individuals concerned become heroes and heroines with god-like status. Thus legitimacy derives from

association with the character, actions, or opinions of the deified leader. Such is certainly the place of Nightingale within nursing and medical circles. Her religious and moral convictions are lauded in the popular imagination, whilst her practical talents as politician and work organizer are largely unappreciated. Such examples of high societal esteem are few but every organization boasts individuals who are accorded some degree of respect for their personal charisma. Within the Westshire Health Authority certain figures commanded respect. One such was Peter Healey, the administrator on the Newtown scheme in its early days. Although he had moved on and up by the time of this study informants spoke glowingly to the researcher on the subject of his personal qualities. The role of the Westshire Pharmaceutical Officer also attests to the importance of personal attributes in achieving credibility. Of this man it could be said that he had few enemies. His personal modesty, charm, and reputation for honesty meant that his resource bids were accorded respect. His cultivation of a reputation as a reasonable and fair dealer was part of the legitimacy that his practical planning ability only served to reinforce.

Technical competence has tended to be the most universal legitimacy base uncovered by the Newtown study. Its salience was due to the significance of professional politics within the NHS. The foundation of technical reason incorporated two sub-bases of legitimacy - generalised scientific knowledge (i.e. the knowledge of organized experience cited as precedent). These two variants of technical reason were encountered in many circumstances. They emerged particularly strongly in the design of the Newtown Pathology laboratory where the hospital consultants concerned took upon themselves the determination of the nature of need and provision. Claiming a monopoly of knowledge of the trends in their

disciplines and of its significance for the future pattern of services, they used their own idiosyncratic conceptions of proper layout and equipment to defeat higher tier personnel and get what they wanted.

Can these sources of legitimacy be ranked in any order of overall importance? The use of certain modes of legitimation was more extensive than others in the Newtown case. Technical grounds were very common, whilst charismatic intervention was unusual. The Newtown study suggests that those attributes relating to hierarchical office were less important than many theories of organizational structure would suggest. The present writer prefers to stop short of firmer pronouncements than these for one simple reason. The legitimation of any given design "decision" or design configuration seldom derives from one discrete basis of authority. Legitimacy typically stems from several sources in any given situation. One base may be the key element for the mobilization of a certain sector of support, but design action is usually referenced to several bases simultaneously. This may well be a response to the plurality of organizational publics. To generate support from several groups at once may require a "scaltergun" use of techniques so that each individual or group may find at least one point of connection with the proposals being voiced. Thus arguments for the combined education centre at Newtown Hospital were supported by reference to the accepted norms of Westshire practice and buttressed by the hierarchical position and technical competence of senior medical staff (p.252). With different design issues the activating elements will vary and different supporting bases will be associated with them. Invocations of legitimacy are therefore premised upon contextual factors. They are determined by the client publics to whom they are addressed. To study legitimacy is thus necessarily to

examine the management of design in process and the skillful deployment of a multitude of grounds of acceptability over time and related to specific issues.

Are there any overall tendencies in the negotiation of design outcomes? Is legitimation an ad hoc exercise? Does an organization stagger on from one crisis of authority to another, drawing eclectically upon different bases of legitimation as particular situations demand? The writings of Gramsci (1971) would suggest otherwise. Through his concept of hegemony Gramsci suggests that a dominant coalition of social groups can suppress debates that undermine its authority. Certain things cannot be spoken about. They are defined as illegitimate areas of concern. The range of issues to which tests of legitimacy are applied is edited before options are selected from the remaining vocabulary of acceptable formulations.

The Newtown case illustrates tendencies of this kind. there were alternate views of how to design hospital provision and health care in Westshire. The comments of the Newtown officer (pp. 356-357) articulate some of these projections. An examination of the hospital project design process, however, shows the reinforcement of established curative approaches rather than a significant move to community based care. The influential design actors within Westshire, the medical staff, did not succeed in preventing the new hospital but managed to ensure that it was not used to dislodge existing patterns of practice. Furthermore the overall concept of the hospital was perfectly in line with entrenched ideologies of care. During the case study research officers often demonstrated to the researcher their unwillingness to submit certain decision issues to the vote. To do so would have provoked fierce opposition from influential

power holders. Realising that their ideas were outside the general vocabulary of accepted purposes, they avoided being branded as lawless by not submitting these "rogue" options. This situation lay at the bottom of the non specification of detailed work design in the project. It was virtually unheard of for hospital administrators to impose work methods upon medical, nursing, and other professionals. Thus the whole design development assiduously avoided the question of laying out the hospital as a preconceptualised work system. Given the power and interest groups threatened by such a move no attempts to legitimise such changes could have succeeded.

CHAPTER 13

THE CONTRIBUTION OF THE NEWTOWN RESEARCH TO ORGANIZATION THEORY AND THE MANAGEMENT OF CHANGE

A Review of Contemporary Research on Processes of Design and Redesign in Organizations

The Newtown research represents but one strand of a body of study into the problems of plant and work organization design which is currently reaching publication. Much of this literature has emerged from the activities and interests of the Work Organization Research Centre at Aston University. It is to this body of work that the following exposition is in the main related.

Much of the new work in the area of design in organizations has used a longitudinal case study approach. Another common feature is the tendency to reject assumptions associated with the "rational" planning models discussed in Chapter 12 above. There is a general willingness to question prescriptive frameworks characteristic of the writings of designers themselves and to adopt an avowedly empirical and frequently eclectic approach to the characterisation of change processes.

Pettigrew's (1985) work marks the emergence of a distinctive political-cultural perspective and has already received close attention in this book. Its particular focus is upon organizational design. Thus it stands apart from most of the other contemporary essays in that it does not attempt to treat in detail the design or redesign of physical plant. The redesign of ICI

presents as an intra-organizational ideological restructuration propelled externally by changing environmental and market conditions. In contrast many of the Aston studies, and indeed the Newtown case, seek to integrate plant design as an additional set of variables and to examine their articulation with work organization and managerial strategy. These three factors - strategy, physical plant design, and work organization constitute an interrelated set of problems which must be investigated jointly. Strategy formulation lays down the projected ends to which the other two components constitute the means of achievement. Thus there is a need to specify the links between the three.

An appreciation of these elements is evident in Abernathy (1978) where a study of the US auto industry revealed that product innovation could be theorised in terms of a sector life cycle with three stages: founding, expansion, and plateau maturity. A fourth stage "de-maturity" was subsequently hypothesised by the same writer. Drawing upon Abernathy's ideas Whipp and Clark (1986) explored the development of the British Leyland SDI project against a history of design innovation in the Rover car company. They claim that from their own studies and the reactions of research informants the design process could be split into four distinct stages. These comprised concept, translation, commissioning and operation.

The Newtown findings are not amenable to Abernathy's classification because the scope of the study is too limited. However, some conclusions may be drawn in relation to the history of hospital design in Britain. Abernathy's model is extremely limited in its degree of generalisability. Derived from the particular circumstances of automobile production it

proposes a rate of design modification and codification which is not applicable to hospital construction. Taking as its exemplar the industrial firm it assumes a degree of product commodification that is not paralleled in health care. Cars are a physical product; medicine is a service exercised within hospitals. Thus the degree of linkage between consumer market and designed form is less direct in the latter case. As for the stage aspects of the theory it must be said that these relate to the development cycles of products within oligopolistic markets. There is thus pressure for change for reasons of product appeal. The history of hospital designing exhibits more continuity and in the case of the State sponsored NHS there is not the element of product competition to be taken into account. Health care markets are not so tightly constrained - "customers" will continue to consume the product until its marginal utility is zero. Professional definition of the nature of the product, latterly combined with State finance represent monopolistic market conditions. The resurgence of private health care at the present time has not greatly changed the situation. The insertion of more private sector enterprise has widened the number of outlets and revised the packaging, but it has not reformulated the product. Thus we cannot easily speak of a life cycle model in hospital designing. The history of DHSS standard designs is a denial of the principle. Best Buy and Harness were evolved, used briefly and abandoned. Nucleus was never a fully detailed exemplar at all and local modifications to the standard template made the maintenance of a uniform provision impossible. Sector life cycle models are non-starters for analyses of hospital design, especially so in public sector enterprises.

Whipp and Clarks' model has greater utility. The Newtown hospital development could be said to fall into the first two stages of this

framework: conception and translation. The conception and translation activities can be seen in the work carried out by DHSS staffs in the production of the Nucleus design. Yet the subdivision of design responsibilities within the NHS is such that the work of Regional Design and Project Teams overlaps those of the central department. The design work on Newtown DGH was not just a continuation of the detailed translation process. A degree of reconceptualisation occurred through which the concept of Nucleus was revamped for District needs. Whipp and Clark recognize the iterative nature of design but the four stage sequence as evolved by them does not capture the politically driven reshaping of design configurations when innovation is successfully opposed by powerful groups within organizations. Whilst the Rover casebook is highly informative with regard to macro-economic influences upon designing, it operates at such a level of generality that the interpersonal dynamics of design are largely lost. There are other criticisms of this model, appealing as it may be clothed in its commonsense terminology. To some extent these weaknesses are inherent in all stage models of development. First, in proposing stages one ignores those overlaps of stages and the possibility of disruption of hypothesised stages by external events. Second, stage labels are by their nature summatory labels encompassing diverse trends. Labelling phenomena does not explain them. Third, a concentration on identifying different types of activity does not explain the propulsive motors of human effort - it does not expose the operation of intentionality and power. Last, stage theories discount social action as a form of life which is always in the condition of becoming. They impose an explanatory structure of logics without probing the construction of logic itself. In arguing that their subjects identified with the four stage model Whipp and Clark take the justificatory frameworks of designers themselves as

explanations, without asking if they are just but the nomenclature of legitimation.

Smith, Child, and Rowlinson (1987) give an account of the design of the Hollow Goods production line at Cadbury's Bournville factory. They find their research amenable to Whipp and Clark's four stage model. Several of their findings parallel the Newtown research. Organization politics are viewed as a key element in change processes. Work organization at Cadburys was presented within the company as issuing from engineering ("technical") criteria. Physical plant design and work organization design were separated. Smith et al regard the rational-linear model of design as untenable. They stress that the existing methods of production coloured managerial and operative reactions. However in the Cadbury's study the main emphasis is laid upon "radical" change elements such as the new microprocessor control system adopted in the plant. Design change at Bournville is regarded as sudden rather than incremental and little consideration is accorded to reformulations of meaning during the design process. Probably the sense of rupture experienced at the Cadbury works was due to the antiquated nature of much of the equipment that the new development replaced. Cadbury's imported new specialist machinery from abroad. Thus the new production machines represented a quantum leap in technology. If the study had approached design of equipment from the processing machinery manufacturer's point of view change would not have seemed to be so radical. In the Newtown case the genesis of hospital designing was known throughout the service. The production of hospital layouts "in house" by Regions made the "distance" between hospital designer and user health authority much less than in the Cadburys case where management shopped around for a package "not invented here".

In the Cadbury report we read of the concern of engineers seeking to solve practical problems. Whilst organizational politics is given some weight and the role of important actors delineated there is no detailed consideration of how resource contests within Cadbury's shaped the physical plant layout. At Bournville most of the equipment was bought in as a package and the absence of data from firms supplying industrial plant makes a detailed consideration of the design "imperatives" behind the manufacture of confectionary machinery impossible. This is a study of the adaptation of pre-existing design solutions to a particular plant. There is no general review of the gestation of technical developments within the industry.

In the Newtown materials it is the examination of the history of hospital design that facilitates the teasing out of template knowledge. The Cadbury study draws too much upon the roles of the influential actors concerned and their distinctive personality "styles" without giving due weight to the technical traditions of the sector of production concerned.

The methodology of longitudinal process research designs is clearly advantageous for looking at the design of change. All of the contemporary studies adopt it (ie. Pettigrew 1985, Whipp and Clark 1986, Smith et al 1987). In the Newtown development it proved useful in deducing the existence of template knowledge. However, the level of focus adopted makes further work necessary. The concept of templates needs further examination with reference to the nature of the knowledge conceptualised and the dimensions along which that knowledge can be characterised. The research discussed above examines private industry whilst the Newtown hospital scheme looks at public sector management. Future investigations

would find it valuable to conduct an examination of template construction and interpretation in private and public organizations with different "political" structures. Attention should be given to the rate at which templates are modified given different perceptions of change within organizational environments. In this context it would also be interesting to look at the effect of organization size upon the rate of template formation and change. Comparisons between "high tech" enterprises and small traditional "craft" industries would be of utility in indicating differences in the process of template reshaping. This comparison might well lead to an overall theory of technological change using design method as a central perspective.

In contrast to organization-wide dimensions of template knowledge there needs to be investigation of the individual designer at work. There should be micro-sociological studies of designing in action. The chief foci should be the modes of conceptualisation and explication used by designers as they carry out their tasks. Methodology should centre upon verbal accounts and elucidate the legitimization of design activity and seek to detect the presence of subjective interpretations of template knowledge. Questioning should incorporate an examination of the everyday consciousness of designers. The imaging of design outputs would be a main theme of this exploration. An associated area of interest, touched upon in the Newtown casework, is that concerned with the micro-politics of design. Given that much design work takes place in large project teams there is a need to give further attention to the negotiation of mutual knowledge between different design professionals.

One of the problem areas raised by the Newtown hospital study is that of implementing design intentions during commissioning. In Whipp and Clark's (1986) terms this means bridging the gap between conception/translation stages and the commissioning/operation phases. It would be interesting to have case studies of projects comparing designer projections/intentions with actual outcomes. This would indicate the degree to which planned change is realisable and what the most effective "bridging" strategies are.

A difficult area in design research is that concerning the Gramscian notion of "hegemony". Whilst studies such as Newtown can be viewed superficially as pluralistic exercises of power the presence of certain hegemonic tendencies were noted. These were present in the preservation of "acute" medicine at the expense of preventative health care, and in the ranking of professional statuses. Studies of design in action should consider the process by which designers avoid presenting certain types of solution. Why are certain options edited out? Research must address those aspects of organizational politics which lead to the selection of an outcome from a restricted range of preferred options. Work of this kind will require a more detailed analysis of the terms "power" and "influence" as used in present methodologies.

Much of this work would need to be undertaken as fundamental research. Certain aspects might be explored as part of action research programmes. Nevertheless research workers would need to preserve sufficient autonomy to investigate areas beyond those relating to immediate managerial objectives.

The general thrust of future investigations should be to assemble a body of theoretical and empirical materials which relate to the actual grounded strategies of change in enterprises of widely differing types. Managerial groups would benefit from an organized account of real behaviour and enabled to facilitate change in terms of commonly shared organizational perspectives. This would be more satisfactory than the imposition of alien categories from general theory.

The Contribution of the Newtown Study to Empirical Knowledge and Theory

The first part of this chapter has looked at some of the most recent studies of designing in organizations and criticised them in the light of some of the findings of the present study. At this point it may be asked what is distinctive and additive about the Newtown research? What does the hospital case study tell us that is new?

The Newtown case takes it as axiomatic that resource distribution is at the heart of designing in organizations. Allocative processes are situated within the framework of organizational politics. The exercise of these politics encompasses the use of designer rationales which are situation specific and related to various bases of legitimacy. The structuring of rationalities and the deployment of legitimating devices relates to deeper organizational and societal ideologies. Thus the accounts of designers and the arguments they advance for the acceptance of design solutions are expressed in a language which seeks congruence with overall organizational and societal value assumptions.

These patterns of social meaning which are attached to the physical objects which they purport to describe have an emergent character. The meaning of objects derives from a process of accounting for the processes of organizational politics by which they are constructed. Thus "designs" as plans for action and as concrete artefacts have no meaning in themselves. The meaning adhering to them drive in part from the historically conditioned meanings associated with objects of their kind and from the renegotiation of these significations by actors participating in the activities of design and redesign.

The Newtown case is significant in its confrontation of these areas of concern. The bridging of the object-meaning gap is one of its particular aims. Designing physical objects such as hospitals means the assembly of material resources in a conceptual and subsequently physical form. The Newtown study is unique in that it has presented the problem of the explication of objects, and the growth of a specific mode of explication over time in a particular design field. The case study shows how an initial vaguely construed set of physical requirements "the functional content" were translated step by step into a detailed project design realisable in built form. It does so by attempting to synthesise the different technical knowledges of designers within a unifying theme of political action. Thus it avoids a simplistic acceptance of design theory as what really happens and is able to rationalise designers' technical languages as vocabularies of justification as well as explanation. By adopting a process approach which emphasises meaning constitution and reconstitution it is able to penetrate formal accounts of designing and to critique their methodological bases. Thus the study questions presentations of design as a distinctive

occupational and professional activity demarcated from others (as suggested in Lawson 1980) and is able to expose specific instances of organizational patterns of design prescription (e.g. Millard 1981) as technicist glosses upon operations of power and influence.

The Newtown research shows that the bringing off of designing as an activity and the process of managing that activity is not subject to rational-linear models of planning. It is "scientific" only in the formalised languages used to calculate its physical parameters and to furnish a precise description of its attributes. The substantive rationality underlying design is political. Politics is the propulsive force behind design action, design forms, and design outcomes. Those who seek to understand the production of designs will not reach an organization level comprehension if they take professional designer statements at face value.

The design of Newtown DGH is an instance of the significance of knowledge in the mediation of design outputs. "Technical" solutions derive from the competition of many knowledges. Knowledge salience is determined by power and operates through a graded system of significance. Within the NHS certain forms of knowledge which threatened the preservation of the status quo are edited out during the design process.

Solutions which attack the existing distribution of power and influence are not voiced or are suppressed. The Newtown case study thus presents an opportunity to assess the way in which the mobilisation of bias operates through a pluralistic competition of knowledges to produce hegemonic outcomes. Gramscian notions of hegemonic power have tended to call to mind images of a monolithic state apparatus imposing solutions through a

cooperation with the dominant elements of civil society. Hegemony thus construed is wrongly understood. Under hegemony oppositional creeds are not entirely erased. Individuals and groups can think that the world should be otherwise, but lack legitimate channels of communication to sustain a vision of their world. The NHS design process has been shown to produce outcomes in line with practitioner-dominated curative philosophies. Yet materials cited in Chapter 11 demonstrate that alternative conceptions were voiced. Superficially there was a pluralistic struggle amongst alternatives. This competition was not sustained at crucial decision points within the design process. The decisive allocative procedures were in the hands of the dominant professions who determined hospital content. The role of DHSS was largely one of financial braking to meet overall budgetary constraints. At crucial points in the development the researcher observed the limitation of the debate by self-censorship.

For example, the Westshire Manpower Planner wanted stronger controls over medical professionals in the Newtown Hospital. Yet in producing papers advancing recommendations he was aware of this own lack of power. Consequently, he avoided the promulgation of views which he regarded as unacceptable and potentially damaging to his own career. Options advanced by him had to be underpinned by arguments acceptable to hospital staffs - they had to conform to a professionally sanctioned rationale. The charisma of certain District medical staff also aided their control of certain aspects of the design. We should picture this process of knowledge filtering thus: design options are passed through the mesh of the designer's own conceptions of legitimate organizational knowledge. Only the ideas that seem likely to have credibility in the eyes of organization power holders are passed through. Any chance mismatches that survive in

the design will be adjusted in subsequent processes of scrutiny. This design hegemony is achieved by a two stage process. First the private editing of the possible by the designer and second by the scrutiny of influential groups of organization power holders controlling design work. Design rationales preserve hegemonic domination by filtering out discordant and disruptive use potentials. Thus a pluralist conception of politics may be reconciled with hegemonic outcomes. There is a contest of options, but it is a competition amongst choices that have been limited by actors own appreciations of sustainable action. Large institutions such as the NHS should therefore be seen as being characterised by a "psuedo-democracy" which disguises a deep seated structuring of choices through knowledge of the preferences of dominant groups and the prohibitions and vetos exercised by that group itself. This "quasi-pluralism" has only the effect of slowing down the speed of design and redesign. It does not affect the direction of resources towards certain well known aims.

To ignore this design of future realities by knowledge structuration is to take the positivistic language of design at face value and to miss the essential nature of design as an activity. The negotiation of technical knowledges regarded as decisive in reaching design solutions is not to be seen as a dispassionate evaluation of alternatives. Neither do solutions emerge from the well known "folkways" of organizational cultures. Designing is characterised by a dynamic tension and by a symbolic system of tactics in which certain units on the battlefield have their weapons loaded with blank ammunition. The reconciliation of expertises has a ritual quality in which ultimate points of deference and submission are understood in the light of the outcomes of past campaigns. To study design is to engage in this area of political phenomenology. It is to this dimension of understanding that the Newtown materials contribute illumination.

Another important issue raised by the study is that of organizational rationalities, which have been extensively discussed in Chapter 12. The Newtown case shows that a complex organizational political system makes nonsense of attempts to deploy rational planning techniques. The design of the new DGH, marked as it was by unexpected policy changes and resistance from significant groups of opponents, could not be pre-planned with any degree of certainty. At each stage of design and development the intervention of different actors compromised any certainties there had appeared to be in the initial project proposals. Informants constantly stressed to the researcher that the design of the hospital was a routine process following a known course. Initial ideas as to the overall hospital configuration were present and stated in formal expositions. Combined with these were participants' own template knowledge about preferred layouts. However, these preliminary design rationales were soon overcome as designing began in earnest. Actors attempted to refer outcomes back to their original conceptions and to preserve an impression of sensible action even though circumstances were so changed that the artefact they were producing had little relationship to their first ideas. Logically speaking rational planning has achieved its objectives if all initial projections of desired outcomes have been achieved in design terms if each detail has been reached in the designed product exactly to specification. The question then arises, how many deviations from an intended course of action can be allowed before the original aims can be said to have been invalidated? How in the face of fierce internal bargaining procedures modifying the nature of design output can the original aims be said to have been preserved?

Some answers need to be attempted. The Newtown scheme suggests that managers act to construct a projection of design outcomes in line with circumstances at project inception. Designing then brings about changes which diverge from these frameworks. Conceptions of rationality are successively modified to accommodate these alterations. However, a back-referencing process takes place by which the new rationalisations are linked to initial proposals to create a sense of organizational continuity. The meaning links embodied in rationales derive from organizational vocabularies of causation and purpose. In principle a hospital design can be explicated in an infinite number of ways. The layout means nothing in itself, its purposes and causal underpinnings are a construct. Thus the significance and meaning of a design relate to the experience and purposes of actors as they seek to use it to different ends. Recognized template knowledge guides these endeavours and prevents political disputes from bringing about institutional disintegration. Therefore a distinctive finding of the research is the past groundedness of design activity. This referencing to the past takes place through temporally transmitted schemes of knowledge. Although designers may stress the novelty of their solutions to external publics, they tend not to stress terms suggesting innovation to internal organizational publics.

A final and important discovery of the Newtown research is the finding that the design of physical environments takes place with little reference to the work activities it will enclose. Thus the claim of many designers that environment determines human behaviour can be discounted. In the Newtown case study the determination of detailed work design was to be left to the operating staff upon their appointment. Those who suggest that design of work and work environments is leading inevitably to a greater

control of operatives should think again. If the Newtown results are applicable at least in part to all production plant design it must be admitted that workers entering a new workplace have a significant ability to control their own working conditions. But this assumes that employee groups realise that this potential exists and grasp it.

In the final analysis it must be stressed that designing involves not only the assembly of matter to carry out production tasks. It also includes the redesign of an organization as an interacting system of beliefs and evaluations. For every physical transformation there is a psychological and social transformation to be undertaken. It is the continuing struggle to manage this new congruence that the Newtown study seeks to illustrate.

The Significance of the Newtown Study for those engaging in the Design of Hospitals

The lessons of this research for those engaging in hospital design are several. First, design professionals should exercise a healthy scepticism towards the published accounts of design and design method advanced in the relevant literatures. Designing in process rarely accords with the sanitised descriptions of logical process provided by design theoreticians. Physical design of hospital shells involves more than just the conception of wards, departments, hotel services and circulation areas. It includes the demarcation of separate territories whose size and disposition are the close concern of professional groups. More is involved than aesthetics and spatial "logics". Design crucially affects the existing political balance of an organization. Thus there needs to be an awareness that physical

redesign precipitates other redesign, notably in organizational rationality, ideology, and beliefs. These need to be coped with in parallel to the design of a new production unit.

Designers need to fully appreciate the sedimented nature of the design knowledge they employed. They are not the free and creative agents that they might suppose. The building up of design traditions in the NHS in accordance with the varying systems of managerial and professional control is an important cornerstone of the Newtown study. Design form relates to the pattern of power and control within an organization. These forms of knowledge are hard to displace and must be given full attention by those who wish to design successfully.

A crucial gap exists between the design of hospital premises and the organization of hospital work. Hospital designers should be aware of the need to undertake a consideration of work organization at the earliest design stages and not leave the main *raison d'être* for hospitals - the work that goes on in them - to be fitted in afterwards.

The Newtown research offers a picture of designing as a resource-centred political process. Those engaged in hospital design must recognise that this process is the propulsive force behind their activities. They should accept that this form of political life is natural and necessary and adjust their own conduct to the operating realities of the organization. This is especially significant for external consultant designers. Architects, engineers, and other design specialists who fail to understand their clients' organizational culture are almost certainly bound to produce solutions which exacerbate organizational dissent, thwart the smooth carrying out of work, and are marked by a host of design mismatches.

Recommendations for the re-organization of design and planning activities
within the National Health Service

The examination of the Newtown development and the subjective impressions of those involved in it (see Chapter 11) reveals that many members of the service regard NHS planning and design as being hampered by an overprovision of channels of consultation and advice. This situation wastes time and money and diffuses the clarity of managerial and health care objectives. It decreases the possibility of policy change within the hospital system.

An aspect of this problem is the failure to create truly effective core management teams. Post-Griffiths structures have failed to meet this need. Senior management groups still embody a mini-parliament whose members have dual managerial/professional loyalties. Managerial Teams need to be constructed so as to avoid undue pressure or interference from professional employee staffs in policy matters. The Newtown case amply illustrates how overall objectives on hospital form and size can be distorted by professional action at District level. The strength of the professional lobby within Westshire meant that the management team was under constant and often effective pressure to abandon its policy of service redistribution. The Bartley and Danesworthy initiatives acted to preserve existing inequalities and the District Management Team found it difficult to impose an area wide scheme in the face of persistent opposition. The ability of staff groups to exert influence at Regional level compounded

these difficulties. The fact that senior medical staff held contracts issued at Regional level meant that Westshire managers felt they had no control over their own senior hospital personnel.

A major cause of delay in hospital planning would seem to be that created by the mediating role of Regions in design activities. It is suggested that the planning and design functions of RHA's should be drastically modified. Regional Health Authorities should no longer design hospitals. Design activity should be centralized within the DHSS. Standard hospital designs should be developed in detail, revised every five years, and tailored to District Authorities' needs by project specific design teams. The planning role of RHAs would be recast to concentrate upon the gathering of epidemiological data covering the incidence, rate, and distribution of morbidity and mortality within their own catchment areas. This information should be supplied to Districts to facilitate their identification of the nature of "market demands" for different types of health care. This would certainly provide a more sensitive measure to indicate the nature of provisions required in new hospitals than the current system of norm based calculation. It would also eliminate a large measure of professional definition of need and act as a check upon organizational "empire builders". Districts should be encouraged to employ such data to devise programmes of preventative health care. There should be an emphasis based upon measures to reduce the need for expensive hospital based curative facilities. It is relevant to note in this context that the Newtown Hospital project made no provision for health education. To encourage such provision would be a move in the direction of reducing the total amount of hospital provision required.

Given that design responsibility should pass to the DHSS, the activities of the central department should be extended to cover all stages from initial development work to the completed contract documents for any given project. District authorities would present cases of need for new hospital facilities directly to the DHSS, whilst undertaking responsibility for repair and maintenance of existing stock. District Authorities would be allocated a guaranteed five year expenditure budget within which new projects would be financed. Budget sums should be related to redistribution formulae such as those contained within the RAWP system. A four year hospital design cycle should be aimed at. This would minimise the impact of political changes at Parliamentary level. It would aim at saving design and development monies and make new hospital buildings less subject to built-in obsolescence.

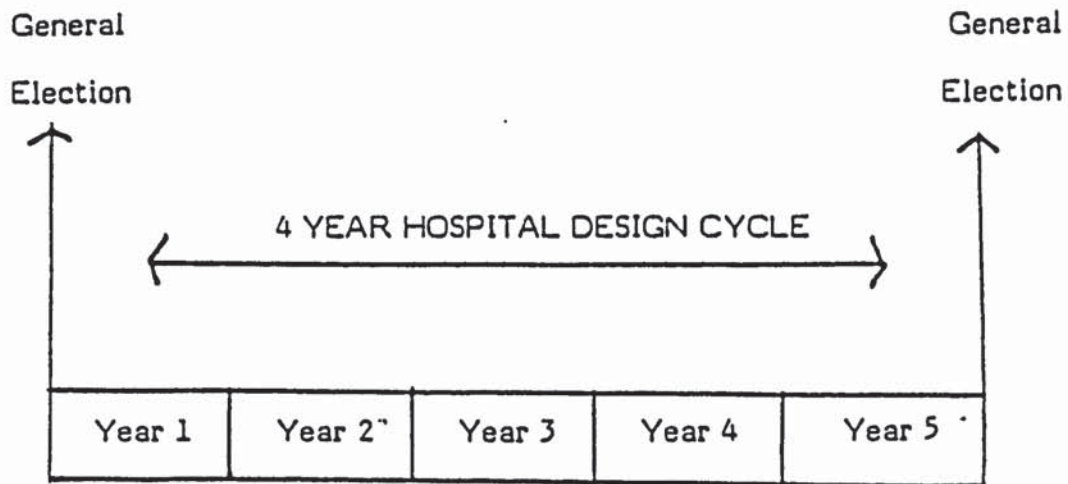


Fig. 13.1 Four year planning cycle for NHS Hospital design

Figure 13.1 gives an indication of this proposed decision and design cycle.

A more detailed development of planning stages is given in Fig. 13.2

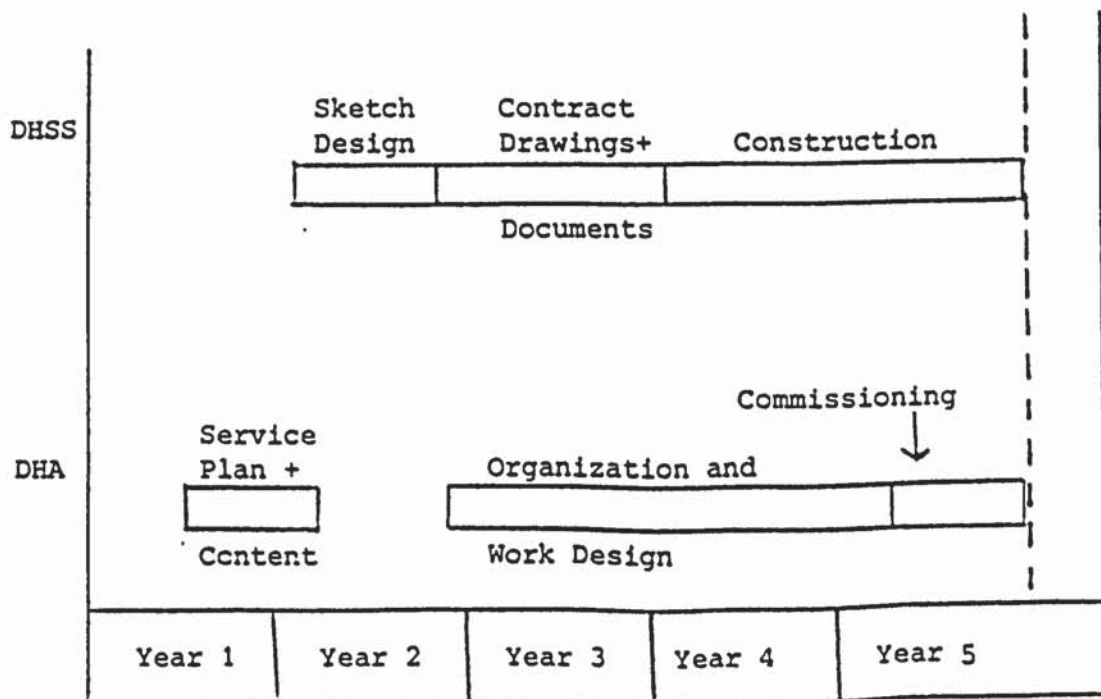


Fig. 13.2 Planning Stages at DHSS and DHA levels to achieve four year design cycle.

Using centrally devised standard designs this timetable should be realisable. New hospital development work would not be undertaken at times of Parliamentary change. If changes of government are more frequent and cancellation is necessary any aborted work will be reduced in terms of time and cost. Government should be able to reduce expenditure on hospital building and be able to make more modest but regular and guaranteed capital sums available. The suggested framework would also eliminate the Regional tier of activity, cutting down the numbers of decisions to be made and eliminating certain dimensions of intra-organization politics. The removal of hospital building programmes from Regional budgetary control would prevent the pattern of recurring delays so evident in the Newtown case where changing Regional funding priorities were an important inhibiting factor. There is a need to evaluate the output levels that can be achieved with the use of different kinds of building layout. Measures of patient throughput should be studied in relation to planform and staffing levels. Medical auditing should become mandatory within operational hospital departments and ward areas and relate to all activities carried out within each area. Thus measures of effectiveness could be made across the complete range of professional and ancillary occupations. Information gathered at District level should be provided to DHSS design agents. This data base should be used in the refinement of standard designs. Furthermore the DHSS should consider ways in which traditional ward and departmental boundaries can be broken down to avoid duplication of facilities. Experimental work should be carried out to develop different patterns of hospital care. Consideration should be given to the creation of multidisciplinary treatment teams which operate from self contained areas with a basic range of facilities extending across existing specialist medical and surgical boundaries. Practices such as

wound dressing technology and sterile procedures should be redesigned to allow more mixing of patients at present treated in different specialist areas and ward spaces. Wherever possible the only segregation of patients should be by level of dependency. Thought might be given to modifications in medical and nurse training to ease the adoption of these measures. To assist in experimentation resources should be made available to encourage multi-skilling amongst health care professionals. Concepts such as the "expanded role" of the nurse could be used to break down inhibiting divisions between work roles. Such moves could reduce the wastage of expensive medical manpower and gear treatment to the minute-to-minute condition of the patient. The use of more compact computer-based equipment should be encouraged to decrease the need for purpose built diagnostic departments.

Within District health authorities certain changes need to be made to tailor hospitals more closely to patient need and to obtain closer control over staffing. Lay members of authorities should be appointed to bodies concerned with hospital provision. Their specific responsibility should be to ensure that local community conceptions of need are voiced. Their brief should include primacy of concern for the patient. It was observed in the Newtown case that the Westshire CHC played a peripheral role, and was certainly not effective in sustaining a patient-oriented perspective upon the design process. Lay representation should also be present on working groups undertaking organization design to gear projected working arrangements to patient comfort rather than merely adopting the aims of professional expediency. In evolving systems of organization for new hospitals health authorities should have the discretion to vary terms of contract according to the nature of work organization envisaged. All staff of all grades should be subject to contracts issued at District level.

Recommendations for the management of the design of change in organizations generally:

The Newtown study illustrates the central importance of political action in resource distribution within organizations. Managers involved in the implementation of planned change should therefore be aware of the political character of design/redesign activities and endeavour to channel and control design methods by adopting the range of policies enumerated below.

The design of physical plant should be connected to the organization of work in a clearly articulated manner. Work practices do not derive from equipment. The two elements must be conceived and related in a well argued manner. They must be communicated in such a way as to be understandable in terms of current organizational practice.

In the matching of physical plant and work system organization politics will play a pivotal role. This often unpredictable element of design must be used to advantage. To permit the play of power and influence helps ensure that outcomes will be matched to context. Therefore the operation of organizational dimensions of bargaining, negotiation, and domination must be recognized, but limited in degrees of discretion if the projected purposes of change are to be obtained.

The internal political system of an enterprise poses further problems for managers introducing "radical" change policies and methods. Attempts to impose solutions "not invented here" are almost certain to fail. New design

formats introduced from beyond an organization need to be filtered through existing template conceptions and redefined in terms of prevailing systems of rationality.

It is possible to speed up the rate at which change occurs by imposing abbreviated timescales. This helps to avoid excessive pre-conceptualisation and the phenomenon of "over-design". Designs that are formulated rapidly and translated quickly into working realities will tend to draw upon only the most salient elements of template knowledge. Prolongation of the design phase may well result in over complex and futile consultation and waste planning resources. Built in obsolescence will be increased as planning periods are extended.

Managers need to clarify the nature of existing template knowledge. It provides a legitimate framework to which change proposals may be attached. Clarification of shared assumptions will also tend to increase levels of motivation and enhance communication. The exposition of recognized template forms and the framing of change proposals in terms of modifications to these forms will make acceptance of change more likely. Suggestions of abrupt departures from current practice should be avoided. Referencing to known template configurations will also make detailed design work simpler. It will be possible for individuals to modify their own tacit knowledge of plant and process effectively and enable them to retain a sense of structured action. Overall control will also be enhanced in that "new" solutions can be measured against existing ones.

Whilst utilisation of template knowledge in redesign will maintain organizational stability those undertaking re-design should guard against

existing template preconceptions becoming too entrenched and over elaborated. Preservation of long established customs may indicate a movement towards workforce control rather than managerial control of an organization. This phenomena was evidenced in the Newtown case where it was Regional designer groups and Westshire hospital professionals who sought to modify Nucleus layouts to bring them into line with pre-existing types and work practices. In monitoring design activity managers should limit the degree of formalization and rationalization of procedures to that necessary to accomplish the task in hand. The existence of multiple measures of provision, layout and so on will tend to complicate change processes and provide a data base for those resisting change.

Change agents need to recognize that design is not simply about shaping layouts of equipment and combining them with certain quantities of labour. Design is also a matter of meaning transformation. It has ideological components and involves the construction of rationalities to legitimate change. The logic chains linking plant to work processes have to be created. These logics are patterned systems of intentionality and must gain acceptance from those who will implement the projections they advance. As political action develops around change proposals the legitimacy underpinnings of a design's supporting rationale will change as unexpected outcomes materialise. Managers must ensure that their patterns of means-end projections are sustained during the design period. The tacit knowledge of employees, or "shopfloor wisdom" as the Japanese call it may be fed into the design process, but managerial interpretations of purpose and goal must be preserved if the desired direction of change is to be retained.

The conception and translation of a design into a configuration of resources is not the end of design activity. As Whipp and Clark (1986) note designing continues until new production facilities are fully operational. Commissioning and operating stages involve design and redesign elements. Thus monitoring of design and the degree of congruence with original design aims must go on continuously until new procedures are firmly in place and have become templated. Workforces will seek to impose their own definitions of plant operation. Achieving managerial specifications in plant design does not guarantee that production aims will be met in operation. Political action will take place at every stage of the innovation process.

A characteristic feature of design politics is the use of arguments from "technical reason". Technical limitations to action derive from a given design solution and inhere in the deployment of materials each with their respective physical limits. Each differing design solution imposes a set of constraints. Where designers are left to choose their own means of reaching a solution technical problems derive from the characteristics of physical resources embodied in the solution set.

Managers need to be aware of alternative patterns of constraint implied by different solutions, but also of alternate ways of conceptualising a given solution in use. In this manner the objections raised to managerial aims can be checked for validity. Issues of "technique" need to be searched for bargaining ploys in resource distribution contests and not be allowed to pass by unexamined. Selective presentation of data and legitimacy rationales embodying hidden value assumptions are characteristic of technicist modes of persuasion.

The overall lesson of this research is clear. Effective design and redesign can most successfully take place through re-interpreting "novel" elements in terms understandable within current organizational knowledges. Innovation must be presented so that a sense of continuity is maintained.

APPENDIX 1

RESEARCH PROPOSAL SUBMITTED TO WESTSHIRE HEALTH AUTHORITY AT COMMENCEMENT OF THE PROJECT

The Design and Commissioning of a District General Hospital: a longitudinal case study

Research will be carried out by G. M. Vann-Wye, a postgraduate student within the Organizational Sociology and Psychology Group of the University of Aston Management Centre. Academic supervision and direction will be by Professor John Child.

A long term case study is envisaged, extending over two years, and including an account of processes involved from the initiation of the first hospital project. It is intended to investigate the evolution of building design, organizational design and associated technical systems. Some attention will be given to job design. Modes of implementing proposals will also be examined.

It is hoped to assess the degree to which the procedures adopted represent innovatory trends within the NHS, and to what extent they demonstrate continuity within the system. There will also be an attempt to measure the influence of different levels within planning structures to ascertain the degrees of freedom and constraint experienced by planners. The nature of decision maker's perceptions will be an important area of investigation.

Valuable initial discussions and fact finding facilities have been provided by the AMT and MCT and it is intended that this work should continue in detail. However, Westshire DHA's support is requested in the establishment of wider contacts which are essential in gaining a comprehensive view of the design and planning process. Information is required from DHSS, Borders RHA and DHA levels to ascertain their influence in the development of Newtown Hospital. Similarly it is desirable to establish contacts with other authorities within the NHS who are introducing Nucleus developments to establish tests of comparability/difference. Reference will also be made to the work of NDC, community groups, and local statutory bodies and their representatives.

Examination of technical systems makes necessary access to the various user groups - professional, technical, paramedical and so on. Here it is hoped to gain some insight into the likely changes in work experience linked to the introduction of a new hospital design. Reference may also be made to the policies of professional and other employee associations insofar as they relate to the determination of working practice and are involved in the commissioning procedure.

Study methods will be intensive, and initially it is anticipated that the following will be adopted:

1. Document Search (includes relevant files, minutes of meetings, detailed design information).
2. Attendance at Meetings.

3. Interviews - both structured and unstructured with use of taped and video-taped sessions where appropriate.
4. Observation of the design and decision making process generally.

The researcher would anticipate working in close contact with the authority's officers for considerable periods of time to gain a thorough appreciation of the many difficulties and opportunities involved in complex planning. In return for such a large measure of trust and autonomy the authority may be assured of complete discretion and confidentiality.

The findings of the study will be incorporated in a thesis for submission to the University of Aston in Birmingham for the degree of PhD, and this document could, in itself represent final feedback.

In conducting social research of this kind it is undesirable to structure outcomes being observed by detailed premature reporting. However should the authority feel that interim feedback is desirable this may be arranged between its representatives, the researcher, his supervisor and members of the University.

21.4.82.

APPENDIX 2

DHSS "Capricode" Procedures

Hospital development projects within the NHS are subject to certain rules, chief among which is the DHSS Capricode procedure which lays down an order of working and a series of approvals stages through which schemes must pass. The following simplified version of "Capricode" is taken from Chaplin (1982:303) and reference should be made to this book by those interested in the development of Capricode and the stages of revision through which it has passed.

CAPRICODE

(1974 Revised version)

STAGE 1

- 1A outline project policy
- 1B briefing of project team
- 1C outline management control plan
- 1D assessment of functional content
- 1E site appraisals
- 1F cost and phasing
- 1G approval

STAGE 2

- 2A management control plan
- 2B site selection
- 2C planning policies
- 2D building shape
- 2E development control plan
- 2F confirmation of functional content
- 2G budget cost
- 2H selection of contract method
- 2J approval

STAGE 3

- 3A notional cost plan
- 3B design brief
- 3C sketch plans
- 3D equipment schedules
- 3E check on design
- 3F detailed design
- 3G summary cost plan
- 3H approval
- 3J tender documentation

STAGE 4

4A contract

4B construction

4C engineering commissioning

STAGE 5

Commissioning (to start any time after Stage 3E)

STAGE 6

evaluation

It is against this structure that the Newtown Project design process must be viewed, although the actual design work and the activities concerned do not match the simple linear arrangement of the Capricode categories

20.4.83	D.H.S.S. Superintending Architect
10.5.83	Westshire Nursing Officer (Bartley Down Commissioning Officer)
11.10.83	Borders R.H.A. Administrator, (Newtown D.G.H. Project Team)

Notes and References

Chapter 8

1. Interview with Westshire District Management Team Member at Westshire H.Q. offices, 8 July 1982.
2. Interview with Westshire Planning Section Officer 7 July 1982. This individual had been a Newtown Development Corporation employee during the first Newtown D.G.H. scheme.
3. Interview with Newtown Development Corporation official, 15 February 1982, at N.D.C. headquarters.
4. Newtown Development Corporation, 1974, Site for the Newtown District Hospital, p.1.
5. Borders Regional Hospital Board, (BRHB). December 1971, Newtown D.G.H.: Draft AI Assessment of Functional Content
6. BRHB, 9 December 1971, BRHB Press Release: Newtown Hospital Development, pl.
7. Newtown D.C., 13 December 1971, Letter from Newtown Development Corporation Secretary to the Group Secretary, Bartley Down Hospital Management Committee
8. BRHB, March 1972, Draft Activity Network for Newtown D.G.H. submitted to Newtown D.G.H. Project Team Meeting on 7 April 1972.
9. BRHB, 26 June 1972, Newtown D.G.H.: Summary of Departmental Areas.
10. Interview with Ex-Westshire AMT member, 22 March 1982, at Westshire H.Q. The limited Westshire involvement is stated thus:

"Mr. James and I used to travel twice a month to the Regional Hospital Board where both members of the Project Team had to deal with all various details of planning...we were the principal representatives of the Authority"

11. BRHB, 4 May 1973, Letter from Secretary of the Board to the Westshire Secretary, Page 1, states:

"...there is no particular advantage in including 'Harness' departments in the design and that, without detriment to the end planning date, it has been agreed to proceed with the design based as closely as possible on the Bartley Down D.G.H. departments".

12. Op.cit. 4 May 1973:

"The introduction of 'Member' representation on these occasions could cause the DHSS officers to 'clam up' and adopt an entirely official line, which would be regrettable".

13. Westshire H.M.C. 2 May, 1973. Letter from Group Secretary to BRHB Secretary. This letter requests an HMC meeting with DHSS Casework Team. The B.R.H.B. refusal contained in op.cit. 4 May 1973. (reference 12 above). The itinerary of the Casework Teams visit contained in B.R.H.B. Visit to Newtown D.G.H. site and Bartley Down Hospital by DHSS Casework Team and the Area Team on Friday 6 July, 1973, 2nd July, 1973.
14. BRHB, 9 August 1973, Works and Buildings Committee: Newtown DGH Site - environmental implications of proposed industrial development near hospital site. Gives an initial assessment of the "pollution problem".
15. Newtown & District Trades Council, 23 August, 1973: Letter from Secretary to Westshire HMC, Bartley Down Hospital refers to the Westshire chairmans statement and to a public meeting arranged for 3 September, 1973.
16. BRHB, 6 September, 1973. Letter from Principal Assistant Secretary Planning/Capital Works Division to Group Secretary, Westshire H.M.C.
17. Border's Regional Health Authority, 3 July, 1975, Newtown District Hospital pp 1-8 of this booklet gives Border's perception of the history of this issue. Included also is the report by Border's consulting engineers on the refinery development and details of alternative hospital sites.
18. Bartley Down Hospital Management Committee, 10 August, 1973. Letter from Group Secretary to the Secretary B.R.H.B
19. Westshire M.P., 5 November, 1973 Letter to Sir Keith Joseph, Secretary of State, DHSS.
20. Westshire M.P., 11 January 1974, Letter to B.R.H.B. Chairman.
21. BRHB 13 November 1973, P.R.O.'s letter published in Westshire Gazette headed "Hospital Concern".
22. Scorer, R.S., 25 September, 1973. Air pollution due to the proposed aluminium recovery works at Newtown.
23. NDC, 1974, Site for the Newtown District Hospital pp 1-7.
24. Borders Regional Health Authority, 6 September, 1974. Bartley and Newtown Hospital Developments: Minutes of Project Team Meeting p.5.

25. Op.cit. 6 September 1974 p.6.
26. NDC, 20 February, 1975. Letter from General Manager to BRHA Regional Administrator, p.1.
27. Wardell, K., and Partners, 21 February 1975. Geological and Mining Report for the site of the Newtown District General Hospital, p.4.
28. BRHB 8 February, 1975, Bartley and Newtown Hospital Developments, Project Team Minutes, p.4.
29. Op. cit., 8 February 1975, p.4.
30. DHSS 12 July, 1973. Letter to Newtown Project Team Administrator BRHB sets out the original Departmental "reservations". The detailed DHSS view is contained in: Division of Chemical Contamination of Food and Environmental Pollution, DHSS, 3 April, 1974. Proposed D.G.H. at Newtown, Implication of adjacent industrial development, p. 9; "...a site adjacent to an industrial estate is not ideal and if a better site is available it should be used".
31. Westshire Health Authority, April 1975; Site of the New Newtown Hospital - Views of the Area Management Team.
32. WHA 3 April, 1975 Minutes of the Westshire Health Authority p.4-5.
33. Newtown Hospital Action Committee, 4 April 1975, Letter from Secretary to Secretary, Westshire Health Authority
34. Westshire Professional Advisory Committees, August 1975 Site for New Newtown Hospital pp. 1-2.
35. BRHA 29 September, 1975, Letter from Regional Administrator to Westshire Administrator
36. BRHB 1 September 1972. Newtown Hospital Development, Project Team Minutes show the Region's commitment to their own departmental designs. BRHA 9 May 1975. Newtown Project Team Minutes show early references to Nucleus. Up to this time Newtown was conceived using a Bartley Down exemplar.
37. See Westshire Nurse Planner's comments in Chapter II on the influence of the Bartley Down design experience upon Newtown.
38. BRHA 4 October 1974 Newtown Project Team Minutes Item 6. Shows the Borders architect fitting the 'old site' designs onto the "new site".

39. Notes of a meeting between the Bartley Hospital Management Committee and Newtown Development Corporation 22 March 1973 were the start of "liaison committee" moves. The final Regional rebuffs are contained in 11 May 1973, Letter from Secretary BRHB to General Manager Newtown D.C. and 11 May 1973 Letter from Secretary BRHB to Westshire Chairman.
40. 18. April, 1973. Letter from Westshire Chairman to Chairman, BRHB.
41. Westshire Area Medical Committee, 24 July, 1975 Minutes of AMC meeting.
42. 11 January 1974. Letter from Westshire chairman to BRHA chairman.
43. Bartley down Group Hospital Management Committee, 11 September 1973. Letter from the Group Secretary to HMC chairman contains the following words:

"In essence, we could have, with certain weather conditions, a pall covering the new hospital of any colour ranging from grey to brown, which would of course totally cut out the sun...I personally feel that on the evidence to date posterity would judge us very harshly and rightly if we were to proceed with the present site".

Chapter 9

1. Interview with a senior Westshire Officer, 22nd June 1982, at Westshire H.Q.
2. During the research several Westshire staff indicated that contacts with the Bartley medical staff were being restricted. This stance was possible given the lack of commitment to Newtown amongst Westshire medical circles.
3. See Chapter Ten and the design of the Pathology department.
4. Given the abbreviated content of the Nucleus layouts this standard design could be used to convince Newtown opponents of the new DGH's subordinate status.
5. Westshire AHA, (WAHA) 6th August 1975 Memo from Westshire Administrator to General Administrator for Newtown DGH
6. WAHA, 26th August 1975, Letter from Newtown General Administrator to Westshire Administrator.
7. DHSS, 19th September 1975, DS 278/75 Nucleus Hospitals
8. Borders Regional Health Authority, (BRHA) 30th September 1975, Letter from Regional Capital Services Officer to Area Administrators
9. Newtown Development Corporation, 22nd October 1975, Letter from General Manager to Westshire Administrator
10. WAHA, 27th October 1975 Memo from Administrator to Chairman and 28th October 1975 Memo from Chairman to Administrator
11. The personnel officer's views are set out in a letter to the Westshire AHA Chairman 25th June 1975) headed "Casualty Centre", and refer to a letter (undated) published in the Westshire Gazette. He met the Westshire Area Team of Officers on 12th November 1975 (recorded in memo from Area Administrator to Area Chairman, 13th November 1975). The personnel officer was a Labour Party activist and his campaign set in motion other events e.g. Memo from Area Chairman to Area Administrator 29th September 1975:

"...I note from the local press that the East Westshire Women's Conservative Advisory Committee are now agitating that there should be a minor injuries unit at the 'Z' hospital and, if we do not deal with this matter ...I can see it becoming a real political hot potato."
12. BRHA, 20th November 1975. Letter to General Manager NDC from Regional Administrator; BRHA, 29th November 1975 Letter from Regional Administrator to Westshire Administrator; NDC, 21st November 1975 Letter from General Manager to Regional Administrator.

13. WAHA, 27th November 1975, Letter from Westshire Newtown Project Administrator to Principal Assistant Secretary, Planning, BRHA and November 1975 Newtown District Hospital : Suggestions for a First Phase.
14. Westshire Gazette, 4th December 1975. Newtown Chief wants a firm hospital date, p.19.
15. See Chapter Seven for a discussion of this speech and its policy implications (OWEN, D., 1975) Nucleus Hospitals - The Basis for Future Development. London, DHSS).
16. WAHA, 29th December 1975, Letter from Chairman to Area Administrator
17. WAHA, 31st December 1975, Letter from Area Administrator to Chairman.
18. WAHA, 2nd January 1976, Letter from Chairman to Area Administrator.
19. WAHA, 14th January 1976. Letter from Area Administrator to Chairman.
20. BRHA, 31st December 1975, Development of Nucleus Hospitals by DHSS. Brief Description and Comment, gives the Regional Architect's view of Nucleus. BRHA, 5th December 1975. Bartley and Newtown Hospital Development Project Team Minutes contain the phasing discussions.
21. BRHA, 16th January 1976. Newtown Hospital-Acquisition of Site.
22. BRHA, 4th February 1976. Letter from Regional Engineer to Westshire Adminstrator.
23. BRHA, 6th February 1976 Bartley and Newtown Hospital Developments : Project Team Minutes, p.4.
24. BRHA, 2nd April 1976, Bartley and Newtown Hospital Developments: Project Team Minutes, pp.4-5.
25. BRHA, 16th May 1976 Letter from Principal Assistant Secretary, Planning to Westshire Administrator.
26. BRHA, 5th May 1976 Draft Management Control Plan - Newtown DGH.
27. Op. cit BRHA, 16th May 1976.
28. Newtown News, 18th June 1976 People of Newtown must carry on Hospital fight.
29. Westshire Gazette, 15th June 1976, Newtown's population creeping up.
30. Newtown Hospital Action Committee, 12th August 1976. Secretary to Regional Administrator, BRHA.
31. Westshire CHC, 12th August 1976 Letter from CHC member to Chairman, BRHA.

32. WAHA, 9th September 1976. Letter from Westshire chairman to CHC Chairman.
33. BRHA, 2nd July 1976. Health News.
34. BRHA, 3rd September 1976, Bartley and Newtown Hospital Developments : Project Team Minutes pp.4-6.
35. This meeting set out in BRHA, 10th November 1976 Letter from Principal Assistant Secretary Planning to Westshire Newtown Administrator and in BRHA, 10th November 1976 Letter from Principal Assistant Secretary Planning to Capital Project Administrator North East Thames RHA.
36. WAHA, 25th November 1976. Functional Content : Immediate Scheme - Comparison.
37. BRHA, 1st December 1976 Letter from Principal Assistant Secretary, Planning to Westshire Administrator.
38. WAHA, 16th December 1976 Letter from Administrator to Planning Department BRHA, and Newtown District General Hospital - Functional Content, December 1976.
39. Newtown Hospital Fund, 10th November 1976, Letter from Secretary to Regional Administrator and BRHA, 6th December 1976, Letter from Regional Administrator to Secretary, Newtown Hospital Fund.
40. Frimley Park Hospital, 16th January 1977. Operational Policy for Central Treatment Rooms.
41. See the Westshire Nurse Planner's comments later in this chapter.
42. BRHA, 4th February 1977, Bartley and Newtown Hospital Developments : Project Team Minutes.
43. DHSS, March 1977, Nucleus Hospitals, Key Plans.
44. BRHA, 4th February 1977, Bartley and Newtown Hospital Developments : Project Team Minutes, pp.5-6.
45. WAHA, 9th March 1977 Summary of Functional Content for Newtown District General Hospital, Phase I, draws together the Westshire Planning Section proposals finalised in February 1977.
46. WAHA, 5th April 1977, Newtown Hospital Informal Consultation with CHC about Closures : Advice from DHSS (File Note).

47. Westshire Gazette, March 1977, Health Chiefs go to Premier over new hospital.
48. BRHA, 4th March 1977, Bartley and Newtown Hospital Developments : Project Team Minutes, pp.5-6.
49. WAHA, 5th April 1977, Notes of the first meeting of the Newtown District General Hospital Policy Working Group.
50. Op. cit. WAHA, 5th April, p.2.
51. See, for example WAHA, May 1977, Functional Content for Newtown DGH and attached planning paper of same date for justifications of hospital size.
52. Op. cit. WAHA, 5th April p.3. The visit took place on 21st April 1977.
53. WAHA, 10th May 1977 Notes of the meeting of the Newtown DGH Hospital Policy Working Group pp.2-3.
54. Op. cit. WAHA, May 1977 Functional Content for Newtown DGH; A: Main Points arising from Functional Content p.1.
55. WAHA, May 1977, The Future Pattern of Hospital Services in Westshire (Draft) subsequently issued in a shortened revised form in June 1977 under the same heading.
56. WAHA, 1st June 1977, Letter from Administrator to Regional Administrator. Staffing shortages are raised in WAHA, 23rd May 1977; Letter from Administrator to Regional Administrator.
57. WAHA, 9th June 1977, Notes of Meeting of Newtown DGH Policy Working Group p.1.
58. Westshire Gazette, 24th March 1977, Doctors in bid for all-in-one Hospital.
59. Westshire Gazette, 31st March 1977, Health Chiefs stick to Newtown hospital plans.
60. Westshire Gazette, 12th May 1977, Confidence vote for new hospital.
61. Westshire Gazette, 22nd June 1977, Callaghan replies to hospital query.
62. Department of the Environment, 9th May 1977, Letter from Principal Planner (Borders Conurbation) to Borders Regional Study Group with enclosures relating to reduced population projections (See especially p.5).
63. For Westshire County Council's objections to taking more "socially disadvantaged see: Westshire County Council, 26th May, 1977, Letter from the Chief Executive to Principal Planner D.O.E., and W.C.C., 17th June, 1977, Chief Executive to D.O.E. and appended consultation documents on Newtown New City.

64. WCC, June 1977, Additional Disadvantaged Population in Newtown, pp 1-7.
65. Westshire Gazette, June 15th, 1977. Two articles: Dramatic change ahead for town and County sets 'right target for Newtown', p3.
66. BRHA, 28th July, 1977, Letter from Regional Administrator to Westshire Administrator
67. WAHA 7th July, 1977, Notes of Newtown D.G.H. Hospital Policy Working Group Meeting. p.4.
68. BRHA, 2nd August, 1977. Letter from Principal Assistant Secretary (Planning) to Westshire Administrator.
69. Westshire AHA's vacillation is apparant in W.A.H.A., 1st June, Newtown DGH, p.1.
70. WAHA 21st September, 1977, Rough notes taken at meeting by Westshire Nurse Planner.
71. BRHA 20th and 21st September, 1977, Notes of a Meeting at BRHA Training Centre in connection with Newtown D.G.H.
72. Op. cit., 20th and 21st September, p3 and p5.
73. Op. cit., 20th and 21st September, p2.
74. Op. cit., 20th and 21st September, p6.
75. Op. cit., 20th, 21st September, p3.
76. Op. cit., 20th, 21st September, p5.
77. Op. cit., 20th, 21st September, p6.
78. BRHA, Comparative study of schedules of accommodation provided in Newham Nucleus development and Phase III Bartley Down Hospital (undated) p.1.
79. Op. cit., BRHA (undated) pp. 3 - 4.
80. Op. cit., BRHA (undated) p.4.
81. Op. cit., BRHA (undated) p.5.
82. Op. cit., BRHA (undated) p.8.
83. This point was made to the researcher by many officers at Westshire although the issue never appears in written form in documentation.
84. Op. cit., BRHA (undated) p.10.
85. WAHA, 1st October, 1977, Newtown D.G.H. Combined Education Centre - Phase I

86. Westshire Gazette, 19th November, 1977, Hospital facilities 'not enough'.
87. BRHA 13th January, 1978. Newtown D.G.H.: Minutes of the Project Team p.1.
88. Op. cit., BRHA, 13th January 1978, p2.
89. Op. cit., BRHA, 13th January 1978, p3.
90. 17th June, 1982, Transcript of Interview with Westshire Nurse Planner.
91. Op. cit., 17th June 1982.
92. Dr. Maurice Stilgo His influential political role is discussed in detail in Chapter 10.
93. 25th June 1981, Conversation with Westshire Officer (recorded in fieldwork notebook).
94. Op. cit., 17th June 1982.
95. Op. cit., 13th January 1978 p.3.
96. BRHA, 3rd February 1978, Newtown D.G.H. Minutes of the Project Team pp 2 - 3.
97. BRHA, 15th February 1978, Newtown D.G.H.: Stage I Functional Content Submission for the Project and for Phase I (The Scheme)
98. BRHA 7th April 1978 Newtown D.G.H.: Minutes of the Project Team
99. BRHA, 3rd March 1978, Appendix A: Minutes of the Newtown D.G.H. Project Team.
100. Op. cit., BRHA, 3rd March. The Minutes show that Borders and Westshire ploughed on with Stage 2 work without waiting for Stage 1 approval from DHSS;
101. Newtown & District Trades Council., 6th March 1978. Letter from Secretary to Westshire Administrator
102. WAHA, 29th March, Letter from Administrator to Newtown Trades Council Secretary, p2.
103. See for example Dr. Stilgo's influence on interdepartmental relationships in Newtown D.G.H. in B.R.H.A., 25th April, 1978. Appendix A: Project Team Minutes pp 1-3.
104. Op. cit. BRHA 3rd March 1978.
105. BRHA 20th March, 1978 Comparison Schedule (Appendix B in Stage 1 Submission).
106. Op. cit., 7th April 1978 p2.

107. Op. cit., BRHA 25th April, pp 1-2.
108. BRHA, 5th October, 1978, Design Notes related to Nucleus Policies p.1.
109. Op. cit., 5th October, 1978 p.1.
110. Op. cit., 5th October, 1978 p.1.
111. Op. cit., 5th October, 1978 pp 2-10.
112. BRHA, 6th October, 1978, Newtown D.G.H: Project Team Minutes, p.1.
113. Op. cit., 6th October, 1978 p.3.
114. Op. cit., 6th October, 1978 pp 3-4.
115. BRHA October 1978 Newtown D.G.H.: Management Control Plan
116. BRHA, 6th October 1978: Newtown D.G.H.: Ground Floor Block Plan, % use of Nucleus.
117. BRHA and WAHA, November 1978, Newtown D.G.H: Basis for proceeding to Capricode Stage 2
118. DHSS, 14th November 1978, Letter to Regional Planning Administrator, B.R.H.A.
119. Westshire Gazette 4th September 1978, Doom Price on Hospitals
120. Bartley Chronicle, 16th September 1978, 'Newtown Hospital No Threat to Bartley Down Staff' shows Health Minister Roland Moyle reassuring the Bartley doctors.
121. House of Commons, 6th December 1978, Letter from Westshire M.P. to Westshire AHA Administrator
122. WAHA, 5th January 1979, Letter from Administrator to local M.P.
123. BRHA, 20th February 1979, Newtown D.G.H.: Minutes of Joint Area/Region Working group
124. House of Commons, 14th March 1979, Letter from local M.P. to WAHA Chairman
125. WAHA, 27th March 1979, Letter from Chairman to local M.P.
126. BRHA, April 1979 Sketch Block Layouts for Newtown D.G.H.
127. BRHA 6th April 1979, Newtown D.G.H. Project Team Minutes p3.
128. Westshire staff told the researcher this policy resulted from Area initiatives.

129. BRHA, 4th April, 1979. Newtown DGH: Revised Management Control Plan No. 6.
130. Newtown Development Corporation, 9th April 1979, Letter to Administrator, BRHA
131. N.D.C., 5th October 1979, Letter from Assistant General Manager to Newtown D.G.H. Administrator, BRHA lays out the agreed conditions.
132. Op. cit., 4th April 1979.
133. BRHA 4th May 1979, Newtown D.G.H: Project Team Minutes record continuing delays by the Treasury. The level of anxiety at Region and Area emerges in documents cited below.
134. Bartley Chronicle, 27th July 1979, Tory Chairman takes over health authority
135. BRHA, Architect's Division, 6th August 1979; Newtown D.G.H. Comparisons of Block Plan Options E, F/G, H, I, J, Kp.1.
136. See Chapter Eleven for some of these shared assumptions.
137. 6th May 1983, Interview with Westshire Officer. This information stressed the use by the Bartley Consultant Radiologist of his A.M.T. influence to get more resources. On 7th July 1982 another officer commented on the Radiologist's role in Newtown design. He was "a big wig and an extremely active bloke" with the HMC chairmanship as an additional power base.
138. Op. cit., 6th August p.1.
139. DHSS 7th August 1979 Letter to Regional Administrator, BRHA
140. Op. cit., DHSS, 7th August, 1979 and BRHA, 30th August, 1979 Letter from Administrator, Newtown Project Team to Administrator WAHA.
141. WAHA, 7th September, 1979, Letter from Administrator to Newtown Project Administrator, BRHA p1.
142. Ove Arup & Partners, 1st October 1979, Information required from Hospital Authorities. The Westshire staffing estimates inserted as rough notes on this document and sent to Ove Arup on 8th October 1979.
143. BRHA, 27 November 1979, Letter from Regional Planning Administrator to DHSS, Euston Tower
144. Op. cit. BRHA, 27th November, 1979 p3.
145. BRHA, 1st November 1979, Newtown DGH; Timetable for Room Data Sheet information and Meetings and BRHA, 5th December, 1979 Newtown DGH; Pre-Tender Programme No. 5
146. DHSS, 14th December, 1979 and 3rd January, 1980 to BRHA. These are mentioned in BRHA, 16th January 1980, Letter from Newtown Project Administrator to DHSS, Euston Tower

147. Op. cit. BRHA, 16th January, 1980, p.1.
148. Op. cit., BRHA, 16th January, 1980, p2.
149. Westshire Area Management Team, 16th January 1982, Minutes of AMT meeting
150. DHSS, 24th January 1980. Letter to BRHA pp 1-2.
151. WAHA, 24 January 1980. Minutes of Westshire Health Authority: Agenda Item 3b
152. WAHA, 24 January, 1980 Minutes of Westshire AHA pl.
153. Op. cit., WAHA 24th January 1980.p.4.
154. Op. cit., WAHA 24 January 1980 p4. This is Dr. Maurice Stilgo. See Chapter Ten and the Design of the Pathology Department.
155. Op. cit., WAHA 24th January 1980, p5.
156. Referred to in WAHA, 22nd January 1980. Letter to DHSS from Westshire Administrator
157. Op. cit., WAHA, 22nd January, 1980, p2.
158. Op. cit., WAHA, 22nd January 1980, p2.
159. DHSS, Alexander Fleming House, 5th February 1980, Letter from Joint Parliamentary Under Secretary of State to Dr. B, Bartley Down Hospital p.1.
160. Op. cit., DHSS, 5th February p1.
161. Dr. B., Bartley Down Hospital, 7th March 1980, Letter to Joint Parliamentary Under Secretary of State, DHSS pp 1-2.
162. BRHA, 27th March 1980, Letter from Assistant Secretary (Planning) to DHSS, Euston Tower
163. Op. cit. 27th March 1980.
164. DHSS, Alexander Fleming House, 25th May, 1980 Letter from Medical Planner to Dr. B
165. Westshire Gazette, 21st March 1980, Call for a new area health service
166. BRHA, 1st February 1980, Newtown DGH: Project Team Minutes
167. Conversation with Westshire Officer, 6th May, 1983.
168. BRHA, 15th February 1980, Newtown DGH Project Team Minutes

169. BRHA, 12th February 1980, Minutes of Meeting at Bartley Down East to discuss sketch plans and operational policies
170. BRHA, 22nd April 1980, Notes of Working Group Meeting at Bartley Down East Hospital pp 1-2.
171. WAHA, April 1980, Newtown DGH: Capital Planning, Draft Notes by Nurse Planner, pp 1-4.
172. WAHA, 13th June 1980, Newtown DGH, Phase I, Progress Report p1.
173. WAHA, 26th June 1980, Area Health Authority Minutes
174. Ove Arup and Partners, August 1980, Newtown DGH: Traffic Studies Report - Internal Movement
175. Westshire Gazette, 20th September 1980, Rethink plans to build new hospital says critic
176. Westshire Gazette, 27th September 1980. Cash worries over Newtown Hospital Plan
177. Westshire Gazette, 27th September 1980. Newtown hospital cash fear is lifted
178. Westshire Gazette, 20th November, 1980. Nursing chief tells pupils of hospital jobs
179. 1st July, 1982. Interview with Westshire Director of Nurse Education (recorded in Fieldwork notes).
180. Op. cit. 1st July 1982. Fieldwork Notes.
181. BRHA and WAHA, November 1980, Newtown DGH Stage Two Submission
182. Op. cit. BRHA and WAHA, November 1980, Introduction: Section 0.1 pp 1-3.
183. Op. cit., November 1980, Section 0.2 p5.
184. Op. cit., November 1980, Section 0.2 p9.
185. WAHA, 5th February 1981, Newtown DGH: Pharmacy Requirements file note.
186. BRHA, 6th February, 1981. Newtown DGH Project Team Minutes, p3.
187. WAHA, 25th February 1981, Record of Area Management Team discussion p1.
188. Op. cit., 25th February 1981, p1-2.
189. WAHA, April 1981, Newtown Hospital News, Issue 1
190. BRHA, 3rd April 1981, Newtown DGH: Project Team Minutes

191. BRHA, 3rd July 1981, Newtown DGH: Project Team Meeting Minutes
192. Op. cit., BRHA, 3rd July 1981 p4. these difficulties concerned ventilation to the lab. See Chapter Ten for the full laboratory design process.
193. DHSS, Euston Tower, 13th July 1981. Dex message to Newtown Project Administrator BRHA
194. DHSS, Euston Tower, 14th July 1981, Dex message to Newtown Project Administrator BRHA.
195. DHSS, July 1981, Newtown DGH Stage 2 Submission - Agenda of Meeting to be held on Thursday 16th July, Room 1120, Euston Tower
196. DHSS, August 1981, Meeting between representatives of DHSS and RHA held on 16th July to discuss aspects of the RHA Capricode Stage 2 submission
197. BRHA, 16th July 1981, Notes on discussion with DHSS Nurse Planner re Newtown Development Private notes by BRHA Nurse Planner, rough typed with handwritten reactions in margin.
198. Op. cit., BRHA 16th July 1981.
199. DHSS, July 1981, Newtown DGH: Stage 2 Submission: Combined Education Centre, Phase I pl.
200. Op. cit., DHSS, July 1981. pp1-2 contain initial reactions in the document margins.
201. BRHA, 10th August 1981, Notes of Meeting held in connection with the Proposed Combined Education Centre included in Phase 1 of Newtown DGH
202. Op. cit., BRHA, 10th August 1981 p1.
203. Op cit., 10th August pp1-3.
204. WAHA, 6th October 1981, Letter from Nurse Planner to Administrator, Newtown Project, BRHA
205. Op. cit., WAHA, 6th October 1981 pp2-3.
206. BRHA, 12th November 1981, Informal Notes of Meeting concerning Stage 2 Newtown DGH sent to medical planner DHSS from Newtown Project Administrator p1.
207. Op. cit. BRHA, 12th November 1981, pp 2-3.
208. BRHA, 24 November 1981, Letter from Newtown Project Administrator to DHSS p2.
209. Op. cit., BRHA, 24 November 1981, p3.

210. Westshire Gazette, 24 July 1981, Newtown to get only 3 health authority seats
211. Newtown News, 27 November 1981, Cash threat to Newtown's new hospital
212. WAHA, December 1981. Westshire Area Health Authority Area Profile, Chap. 6 General and Acute Hospital Services p1-2.
213. DHSS, Euston Tower, 23 February 1982. Letter to Newtown Project Administrator, BRHA and Appendix I p2.
214. Westshire Gazette, 26th February 1982, Supremo to hear battle for hospital
215. Westshire Gazette, 1st March 1982, Westshire in hospital delay
216. WAHA, 24th February 1982, Deputation to BRHA 2nd March 1982 p2.
217. Op. cit., WAHA, 24th February 1982, p2.
218. Westshire Gazette, 18th March 1982, Go ahead for hospital
219. Westshire Gazette, 23rd March, 1982. 'Experts bid to halt new hospital' claim
220. BRHA, 2nd April 1982. Newtown DGH Project Team Minutes
221. WAHA, May 1982, Newtown Hospital News, Issue 2 p1.
222. Op. cit., WAHA, May 1982 p2.
223. WAHA, 12 May 1982. Medical Organization - A Time for Job Re-design
224. WAHA, 20th May 1982. Newtown Manpower and Commissioning Team: Minutes of a meeting to consider Revenue Funding, Approvals and Recruitment Timing p1.
225. WAHA 3rd June 1982. Newtown MCT: Minutes pp2-4.
226. BRHA, 24th June 1982. Notes of visit to site in connection with preliminary site works for Newtown DGH.
227. At the start of the research at this date informants regarded Newtown DGH as a frozen design and the researcher was told this many times.
228. BRHA, 2nd July 1982. Newtown DGH: Project Team Minutes The researcher was present at this meeting.
229. Newtown News, 30th July 1982. Hospital a step nearer
230. DHSS, Euston Tower, 23rd September 1982 Letter to BRHA Administrator: "Capital schemes with revenue consequences" (The "Rayner Letter").

231. BRHA, 6th October 1982, Letter from Regional Administrator to Administrator WAHA
232. WAHA, 8th October 1982, Letter from Area Building Officer to Newtown Project Administrator (WAHA)
233. WAHA, 12th October 1982, Newtown DGH: MCT Minutes pp2-3.
234. BRHA, 10th November 1982, Letter from Regional Treasurer to Area Treasurer enclosing copies of "Rayner forms" to be completed for the Newtown DGH.
235. Op. cit. BRHA, 10th November 1982.
236. Westshire Gazette, 18th November 1982. New Threat to Hospital
237. Op. cit., 18th November 1982.
238. Op. cit., 18th November, 1982.
239. BRHA, 3rd December 1982. Newtown DGH: Project Team Minutes
240. Op. cit., BRHA, 3rd December 1982 p6.
241. Westshire Gazette, 3rd February 1983. Yet another Hospital delay Letter from Chairman, Newtown Hospital Action Group to the Editor.
242. Newtown News, 4th February 1983. Hospital fight pledge
243. Westshire Gazette, 10th February 1983. Action snub by Minister jolts hopes for hospital p1.
244. Op. cit., Westshire Gazette, 10th February 1983. p1.
245. WAHA, 11th February 1983. Letter from Administrator to Regional Administrator
246. 3rd April 1983. Interview with Westshire Officer. This section of the narrative follows his account.
247. WAHA, February 1983. Summary of Options sent to BRHA on 11th February 1983. Westshire's position summarised in WAHA, 11th February 1983. Letter from Administrator to Administrator BRHA
248. Op. cit., 3rd April 1983.
249. Op. cit., WAHA 11th February 1983.
250. Op. cit., February 1983, WAHA, Summary of Options: Option B
251. Op. cit., February 1983, Option D
252. Op. cit., February 1983, Option E

253. Newtown Area District Council, 18th March, Letter to Secretary of State, DHSS p1.
254. Op. cit., 18th March, pp1-2.
255. Op. cit., 3rd April 1983.
256. Op. cit., 3rd April 1983.
257. Op. cit., 3rd April 1983.
258. Westshire's position at this meeting is in WAHA, 13th April 1983, Annual Review: PAG Westshire DMT Meeting
259. WAHA, 13th April 1983 Funding for Newtown DGH p3
260. 4th May, 1983, Conversation with Westshire Officer
261. Westshire Gazette, 3rd May 1983. Hospitals to 'Pay' for Newtown pp1 and 3.
262. 4th May, 1983 Fieldwork observation at Westshire H.Q., Bartley
263. 5th May, 1983 Conversation with Westshire Officer
264. Westshire Gazette, May 6th 1983 Hospitals axe threat like scalpel in the back - councillor p6.
265. Op. cit., 6th May 1983.
266. 10th May 1983, Fieldwork observation, WAHA H.Q. at Bartley
267. 12th May 1983, Fieldwork observation, WAHA H.Q. Bartley
268. 17th May, 1983 Conversation with Westshire Officer and examination of documents (recorded in Fieldwork notebook)
269. The Guardian, May 17th 1983. New town hospital plans in danger p6.
270. DHSS, May 1983 DA(83)26 Circular to Health Authorities.
271. 17th May 1983 Conversation with Westshire Officer, Westshire H.Q., Bartley.
272. 15th May 1983 Weekend World - ITV programme The Westshire Chairman was clearly identified in this feature as a pillar of the Bartley Conservatives. Given the coming General Election his decisions on Newtown had extra significance given Bartley based opposition to the new development.
273. Op. cit., 17th May 1983. Conversation with Westshire officer
274. Op. cit., 17th May 1983.

275. 17th May 1983 Conversation with Westshire Newtown Project Administrator, Westshire H.Q., Bartley.
276. Contemporary estimate of Newtown costs by BRHA, (recorded in Fieldwork Notebook).
277. 17th May 1983, Interview with Westshire Newtown Project Administrator
278. 17th May 1983, Interview with Westshire Newtown Project Administrator
279. 18th May 1983, Observation at Westshire H.Q. Bartley
280. 18th May 1983, Observation and discussion with Westshire Planning Officers at Westshire H.Q. Bartley
281. 18th May 1983, Observation at Westshire H.Q.
282. Op. cit., 18th May, Observations
283. 19th May 1983, Discussion with Westshire Officers, Bartley
284. Op. cit., 19th May 1983.
285. Westshire Gazette, 19th May 1983, Hospitals Battle Looming pp1 and 3.
286. Op. cit., Westshire Gazette, 19th May 1983
287. Op. cit., 19th May 1983.
288. Op. cit., 19th May 1983.
289. 26th May 1983 Observation at Westshire Area Health Authority Meeting, Bartley Down Hospital
290. Op. cit., 26th May 1983.
291. Op. cit., 26th May 1983.
292. WAHA, 26th May 1983, WAHA: Minutes of Meeting. Agenda Item No. 6 p 8.
293. Op. cit., 26th May 1983 WAHA Minutes p 9.
294. WAHA, 26th May 1983 WAHA Minutes: Agenda Item No. 8 pl.
295. WAHA, 30th June 1983, WAHA Minutes pp 2-4
296. 16th October 1983, Interview with Westshire Officer
297. Op. cit., 16th October 1983.
298. WAHA, 21st July 1983: WAHA Minutes The details of the meeting at the House of Commons discussed on 30th June are minuted here, p3.
299. Op. cit., 16th October 1983.

- 300. Op. cit., 16th October 1983.
- 301. Op. cit., 16th October 1983.
- 302. BRHA, 13th July 1983, Letter from Chairman to Westshire Chairman p1.
- 303. Op. cit., 13th July 1983. Appendix
- 304. Op. cit., 16th October 1983.
- 305. Op. cit., 16th October.
- 306. Op. cit., 16th October. This section of the account follows the Westshire officer's statement.
- 307. Op. cit., 16th October.
- 308. Op. cit., 16th October.
- 309. Op. cit., 16th October.
- 310. WAHA, October 1982, The Funding of Newtown DGH and the Future of Westshire's Health Services p9.

Chapter 10

1. WAHA, 11 May 1978, Determination of Space Allowances for Pharmaceutical Department pl.
2. Op. cit., 11 May 1978 pl.
3. 7 July 1982, Interview with Westshire Pharmaceutical Officer, Westshire H.Q., Bartley.
4. Op. cit., 7 July 1982.
5. Op. cit., 7 July 1982.
6. Op. cit., 11 May 1978. p2.
7. Op. cit., 11 May 1978 Proposed Areas of Rooms, p3.
8. Op. cit., 7 July 1982.
9. Op. cit., 7 July 1982.
10. Op. cit., 7 July 1982.
11. Op. cit., 7 July 1982.
12. Op. cit., 7 July 1982.
13. Op. cit., 7 July 1982.
14. Op. cit., 7 July 1982.
15. Op. cit., 7 July 1982.
16. Op. cit., 7 July 1982.
17. Op. cit., 7 July 1982.
18. BRHA, 20 March 1979 Newtown DGH: Notes of Working Group Meeting at Bartley Down Hospital in connection with the Pharmacy for Newtown DGH pp 1-4.
19. Op. cit., 7 July 1982.
20. Op. cit., 20 March 1979.
21. See the Westshire Pharmaceutical Officer's comments later in this chapter for the easy style of design interaction (Footnote 26 below refers).
22. Op. cit., 7 July 1982.
23. Op. cit., 7 July 1982.
24. Op. cit., 7 July 1982.

25. Op. cit., 7 July 1982.
26. Op. cit., 7 July 1982.
27. The Research examined the entire Pharmacy documentation and the absence of protracted correspondence seems to bear out the Westshire Officer's assertions.
28. BRHA, 4 May 1979. Newtown DGH: Minutes of The Project Team p4.
29. BRHA, 14 August 1979. Newtown DGH: Minutes of a Room Data Sheet Meeting pp1-2.
30. BRHA, 2nd April 1980. Newtown DGH: Minutes of Working Group 1.
31. Op. cit., 14 August, 1979.
32. Op. cit., 2 April 1980.
33. Op. cit., 7 July 1982.
34. Op. cit., 7 July 1982.
35. Op. cit., 7 July 1982.
36. See Chapter 11 and the description of Manpower Planning for an elucidation of this process.
37. Op. cit., 7 July 1982.
38. Op. cit., 7 July 1982.
39. Op. cit., 7 July 1982.
40. See the numerous examples of medical opposition to Newtown in Chapters 8 and 9.
41. The evaluations in this section are assembled from several informal assessments given to the researcher by Westshire staff.
42. The events of late 1982 and 1983 chronicled in Chapter 9 were especially difficult as the Newtown project had to be defended from the Rayner cuts and the outrage of Bartley medical staff against the redistribution of resources away from existing hospitals.
43. WAHA, 16 February, 1977, Letter from Newtown Project Administrator to Secretary, Bartley Division of Pathology
44. WAHA, 28 February, 1977. Letter from Secretary, Division of Pathology to Newtown Project Administrator
45. Bartley Down Pathology Division, 25 May 1977. File Note by Chairman, Pathology Division

46. See the views of Dr. B. of Bartley Down in his correspondence with DHSS in Chapter 9.
47. DHSS Hospital Building and Equipment Notes number 15
48. Bartley Pathology Division, June 1977. Biochemical Services at Newtown DGH and the Eastern Sector pp1-3.
49. Bartley Public Health Laboratory Service, 3 June 1977. Letter from Chairman of Pathology Division to Westshire Administrator
50. WAHA, 9 June. Letter from Dr. Stilgo to Westshire Administrator
51. WAHA, 14 June, 1977 Letter from Administrator to Chairman of Pathology Division. A copy of this letter was sent to Dr. Stilgo. In a covering letter the Administrator says

"...an error did occur and there is certainly no attempt by the Area Management Team or the Area Health Authority to impose a policy decision on laboratory services...I can understand your sensitivity about this matter as I am well aware of the considerable and extremely valuable assistance you have already given to the Newtown project, as a member of the Project Team and the Policy Working Group".
52. WAHA, 22 June, 1977. Letter from Secretary Pathology Division to Area Administrator
53. WAHA, 27 June, 1977. Letter from Westshire Newtown Project Administrator to Newtown Project Team Administrator BRHA pp 1-2.
54. Bartley Department of Pathology, 31 October, 1977. Memo from Pathology Chairman to personnel attending meeting with HIPAC on 15 November 1977.
55. WAHA, 4 November 1977 Letter from Westshire AMO to Chairman, HIPAC
56. WAHA, 8 November 1977. Maurice Stilgo to Peter Healey
57. Bartley Division of Pathology, 15 November 1977, Pathology Chairman's Minutes of Meeting Re Newtown Pathology Department
58. Op. cit., 15 November 1977 p1.
59. Op. cit., 15 November 1977 p2.
60. Op. cit., 15 November 1977 p2.
61. Op. cit., 15 November 1977 p2.
62. BRHA, 15 November 1977. Brief Notes of a meeting at Bartley Down Hospital in connection with the proposed Pathology Laboratory facility for the Newtown DGH.

63. Op. cit., BRHA, 15 November 1977 p1.
64. Op. cit., BRHA, 15 November 1977 p2.
65. Op. cit., BRHA, 15 November 1977 p2.
66. Op. cit., BRHA, 15 November 1977 p2.
67. BRHA 2 December 1977. Letter from Principal Assistant Secretary (Planning) to Westshire Administrator.
68. Cited in BRHA, 15 February, 1978. Brief Notes of a meeting at Bartley Down Hospital in connection with the proposed Pathology Laboratory facilities at Newtown DGH p1.
69. Op. cit., BRHA, 15 February 1978.
70. Op. cit., 15 February 1978 p1.
71. Op. cit., 15 February 1978 p1.
72. Op. cit., 15 February 1978 pp2-3.
73. See op. cit. BRHA 15 November 1977.
74. BRHA, 3 March 1978. Project Team Minutes: Departments included in the Stage I Functional Content Submission which were considered with a view to their possible reduction or omission in the event of DHSS, in informal discussion, requiring reduction in cost or content of the first Phase.
75. Op. cit., BRHA 3 March 1978.
76. BRHA, 10 March 1978. Letter from Regional Scientific Officer to Westshire AMO pp1-2.
77. BRHA and WAHA September 1978 Newtown DGH: Schedules of Accommodation: Pathology
78. BRHA, 5 October 1978. Design Notes related to Nucleus Policies p4.
79. WAHA, 4 April 1979. Westshire Newtown Project Administrator to Bartley Down Consultant Representatives
80. Op. cit., 4 April 1979.
81. BRHA, 4 May 1979. Operational policy, sketch design and room data sheet programme 1979

82. WAHA 13 July 1979, Letter from Dr. M. Stilgo to P. Healey (Westshire Newtown Administrator) and enclosed documents: Newtown DGH: Department of Microbiology and Central Wash-Up/Media Dept./Sterilising Department
83. Op. cit., 13 July 1979.
84. WAHA, Dept. of Pathology, Bartley Down 24 July 1979. Letter from Senior Chief MLSO to Peter Healey
85. Department of Pathology, Bartley Down. 28 November 1979. Letter from Senior Chief MLSO to Peter Healey Contains references to the Working Group Meetings proposals as well as the Bartley Division's reactions.
86. Op. cit., 28 November 1979. A plan accompanies this letter showing the Division's replanning of the Laboratory: 28 November 1972, Pathology Dept, Newtown DGH - Revised Plan for 1st Floor North-East facing Wing
87. BRHA, 11 November 1979. Minutes of Working Group Meeting at Bartley Down Hospital to discuss the Service zone pl.
88. Op.cit., 11 November 1979 pp 1-3.
89. BRHA, 5 February 1979, Minutes of Working Group Meeting at Bartley Down pl.
90. BRHA, 2 April 1979 Minutes of Working Group Meeting at Bartley Down p4.
91. Op. cit., 2 April 1979 p4.
92. Op cit., 2 April 1979 p4.
93. WAHA, 29 May 1980 Letter from Pathology Department Laboratory Coordinator to Peter Healey, WAHA
94. Bartley Department of Pathology, 23 May 1980. Newtown DGH - Arrangements for Outpatients
95. 6 May 1983. Comment by Westshire Nurse Planner
96. Department of Pathology Bartley Down, 14 August 1980. Letter from Pathology Laboratory Co-ordinator to Peter Healey WAHA pp 1-2.
97. Department of Pathology Bartley Down, 10 April 1981 Letter from Pathology Laboratory Co-ordinator to Newtown Project Administrator, WAHA
98. Department of Pathology Bartley Down 9 December, 1981. Letter from Pathology Laboratory Co-ordinator to Newtown Project Administrator WAHA

99. Op. cit, 9 December 1981.
100. BRHA, and WAHA, November 1980 Newtown DGH: Stage Two Submission Section 7.13.1 p50.
101. 12 May 1985. Comment by Westshire Officer
102. See Chapter Nine for details of this incident.

Chapter 11

1. 19th May 1983. Interview with Westshire Officer
2. 22nd March 1982. Interview with Ex-Westshire AMT Member
3. 6th May 1983, Westshire DMT member's comment
4. Op. cit., 19th May 1983, Westshire Officer
5. Op. cit., 19th May 1983
6. Op. cit., 19th May 1983
7. Op. cit., 19th May 1983
8. Op. cit., 19th May 1983
9. Op. cit., 19th May 1983
10. Anonymous document found in Westshire Planning Office
11. 20th April 1983, Interview with Administrator, DHSS Nucleus Team (from interview transcript)
12. 20th April 1983, Interview with Superintending Architect, DHSS
13. Op. cit., 20th April 1983, DHSS Architect
14. Borders Region had developed its own standard layouts for wards and departments and these were used at Barley Down Hospital
15. 4th October, 1983, Interview with Administrator, Newtown Project Team, BRHA
16. 17th June 1982, Interview with Westshire Nurse Planner
17. 17th May 1983, Interview with Westshire Newtown Project Administrator
18. 22nd March 1982, Interview with Westshire Administrator
19. Op. cit., 17th June 1982
20. 23rd March 1982, Interview with Westshire Treasury Officer
21. Op. cit., 4th October 1983
22. 8th July 1982, Interview with Westshire DMT member
23. Op. cit., 28th April 1983, DHSS architect
24. Op. cit., 4th October 1983, BRHA Administrator
25. Op. cit., 8th July 1982

26. 22nd June 1982, Interview with Westshire Planning Officer
27. 25th June 1982, Interview with Westshire Officer
28. 1st July 1982, Conversation with Westshire Officer, Fieldwork Notes
29. 22nd June 1982, Interview with Westshire Administrator
30. Op. cit., 22nd June 1982, Westshire Administrator
31. Op. cit., 22nd June 1982, Westshire Administrator
32. Op. cit., 22nd June 1982, Westshire Administrator
33. Op. cit., 8th July 1982, Interview with Westshire DMT member
34. Op. cit., 22nd March 1982
35. Op. cit., 8th July 1982
36. 15th March 1982, Group discussion with Westshire Newtown Planning Officers
37. Op. cit., 15th March 1982
38. Op. cit., 17th June 1982, Westshire Nurse Planner
39. Op. cit., 17th June 1982
40. Op. cit., 17th June 1982
41. Op. cit., 17th June 1982
42. Op. cit., 17th June 1982
43. Op. cit., 17th June 1982
44. Op. cit., 4th October 1983, Administrator, BRHA
45. Op. cit., 17th June 1982
46. Op. cit., 17th June 1982
47. 28th June 1982, Interview with Westshire Nurse Planner
48. Op. cit., 17th June 1982
49. Op. cit., 17th June 1982
50. Op. cit., 17th June 1982
51. Op. cit., 28th June 1982
52. Op. cit., 28th June 1982

53. Op. cit., 28th June 1982
54. Op. cit., 28th June 1982
55. An outline of the Newtown Manpower procedure was published in an authoritative document on new hospital planning. For reasons of anonymity a detailed reference is not given here
56. 30th June 1982, Interview with Westshire Planning Officer
57. Op. cit., 30th June 1982
58. Op. cit., 39th June 1982
59. Op. cit., 30th June 1982
60. Op. cit., 30th June 1982
61. Op. cit., 30th June 1982
62. Op. cit., 30th June 1982
63. Op. cit., 30th June 1982
64. Op. cit., 30th June 1982
65. Op. cit., 30th June 1982
66. Op. cit., 30th June 1982
67. Op. cit., 30th June 1982
68. Op. cit., 30th June 1982
69. Op. cit., 30th June 1982
70. Op. cit., 30th June 1982
71. Op. cit., 30th June 1982
72. Readers should refer to Chapter 10 for a wider understanding of the political influence of the Bartley Down Department of Pathology
73. Op. cit., 30th June 1982
74. Op. cit., 30th June 1982
75. Op. cit., 30th June 1982
76. Op. cit., 30th June 1982
77. Op. cit., 30th June 1982
78. Op. cit., 20th April 1983, DHSS Architect

79. Op. cit., 20th April 1983, DHSS Architect
80. Op. cit., 20th April 1983, DHSS Architect
81. Op. cit., 4th October 1983, Administrator, BRHA
82. 16th June 1982, Interview with Westshire Manpower Planner
83. Op. cit., 16th June 1982
84. Op. cit., 16th June 1982
85. Op. cit., 16th June 1982
86. Op. cit., 16th June 1982

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