POTTERIES THINK BELT

A plan for the establishment of a major advanced educational industry in North Staffordshire

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February
1966

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1.0 INTRODUCTION

1.1 GENERAL

While the selection of press-cuttings included with this Report isolates various shortcomings of the current advanced educational system in this country, the major weakness is considered to be the lack of awareness of both the correct scale and intensity at which such education should occur.

Present institutions are both too small and too exclusive.

Through lack of acceptance of advanced education as a prime national industry, the present context is in danger of lacking, on the one hand, recognisable social relevance, and on the other, the capacity to initiate progress rather than attempt to catch up with it.

This study helps to indicate a valid national and regional distribution of educational institutions.

In addition, through postulating varied forms of exchange utilising electronic static communication systems and equipment together with mobile and variable physical enclosures, the Study demonstrates the resulting physical organisation and indicates the changing validity of finite location.

Both the overall planning and detailed architecture of this project suggests the likelihood that education and the need to exchange information can equate to past needs for defence, energy and commerce as a generator of urban location and form: cities caused by learning.

However, the current analogy between existing universities and ideal town forms is considered both false and dangerous.

The re-assessment of the contemporary housing requirement in this Study together with an avoidance, at the first development stage, of any "civic design" indicates the order and priorities proposed for urban design method.

1.2 ACKNOWLEDGEMENTS

Valuable information and assistance were received from the following during the preparation of this study:

Peter Laslett M.A.

Professor Harold L. Cohen

Sol Cornberg

British Rail

City Architect's Planning and Reconstruction Department, Stoke-on-Trent

City Engineers and Surveyor's Department, Stoke-on-Trent

Federation of Clay Industries

Ministry of Labour

National Coal Board

Public Health Department, Stoke-on-Trent

Consulting Engineer

Frank Newby MA Cantab MI Struct E M Cons E

2.0 NATIONAL POLICY

2.1 GENERAL

Primarily it is considered that further education and re-education must be viewed as a major industrial undertaking and not as a service run by gentlemen for the few. Its resultant quality must estimate its further use and not, as at present, merely enable statisticians to predict the national demand for such a service under present conditions.

2.2 EDUCATIONAL

The P.T.B. is planned to break down the isolation and peculiarity associated with further education.

It is of sufficient magnitude to cause involvement of the whole community and thereby help cause the realisation that further education is not merely desirable but essential.

"Grants" must become "salaries".

3.0 REGIONAL IMPLICATIONS

3.1 Ref. TO WEST MIDLANDS REGIONAL STUDY. HMSO 1965

This area of North Staffordshire – including the Potteries and Newcastle-under-Lyme is economically less prosperous than the rest of the region.

As far as built physical environment goes it is a disaster area – largely unchanged and uncared for since its industrial expansion throughout the 19th century.

With a population of between ⅓ and ½ million concentrated in the conglomerate of towns the surrounding country is easily accessible.

Its proximity to both national routes and existing national movement patterns is at present unexploited.

The present industries, steel, pottery and rubber, though reasonably prosperous show little sign of major expansion.

The major coal industry is likely to contract still further.

3.2 EDUCATIONAL

Further education facilities including technical colleges and W.E.A. are fragmented. The first post-war New University at Keele has shown the slowest growth of all Universities (present student population approximately 1000) has little contact with the area and few faculties related to the industrial content of the area.

There is a large movement of University entrants to other major Midland Universities – Birmingham, Manchester, Nottingham, etc.

4.0 P.T.B.PLAN

4.1 RELATIONSHIP TO EXISTING UNIVERSITIES

Its size, 20,000 students, is such that its effect will be national rather than regional. Thus its relationship to all other Universities is likely to be similar, unaffected by their location.

The emphasis on science and industry is hoped to produce closer links with similar faculties in other Universities, thus contributing towards the diminution of the finite quality of the latter.

4.2 RELATIONSHIP TO EXISTING AREA

Primarily P.T.B. will add a major industry providing a wide range of employment for the present and future population of the area. The usefulness, one to the other of the P.T.B. and the existing community will be two-fold. The P.T.B. will enable a desperately needed tuning-up of the area's socio-civic amenities; while local major production and manufacturing industries will provide the immediate locational links required for the related faculties.

5.0 PROPOSALS - GENERAL

5.1 EDUCATIONAL

The proposed development is planned to enable advanced education to be undertaken in conditions taking full advantage of present day national and individual mobility. However, it is so designed to prevent its form and organisation from being restrictive in the future.

Full use is made of technological resources at present reserved for post academic activities. It is intended to replace the existing rigid age and time structuring of university occupancy with a more elastic system enabling full participation by pert-time and re-education factions.

The pure and applied science and engineering bias of the P.T.B. involves an emphasis on large flexible organisation of faculties with easy links to national networks.

A far greater mobility of students between all educational establishments is envisaged. This necessitates calculated "slack" in the educational spatial capacity so planned.

5.2 OVERALL HOUSING POLICY RELATED TO P.T.B.

At present a special and artificial status is accorded to student housing programmes while ignoring their peculiar position within the community living cycle.

The P.T.B. programme reverses this by accepting the student as an integral part of the Local Authority housing programme but using the 3-5 year static student cycle as an opportunity for "hot-house" research into new living patterns. Furthermore, the size of the student population proposed makes economic a far greater degree of choice than is at present practicable within the current L.A programme. Moreover, the requirements of a student population approximate closely to the future pattern of … society.

The four main housing types place little strain on the existing building industry in the area since a major portion of construction work would be undertaken by other, possibly national, industries such as shipbuilding and aircraft.

Similarly, the use of land at present considered unsuitable for housing is made possible while the use of "packaged" power generation and water purification plant, not only places no additional strain on the existing services network but also amplifies the network to the benefit of the community as a whole.

The location of housing areas produces in effect suburban sprawl, which when planned, enables existing urban settlements to be re-inforced without making impossible demands on their physical communications structure which itself is likely to be little more than an 18th century or earlier, left-over.

In itself, such planning helps to increase the individual's freedom of movement rather than order it.

The total capacity of the housing is approximately 40,000 which does not cover the areas shown for future expansion. It is envisaged that occupancy by those directly involved in the P.T.B. will be phased with those already on the housing list and the increased population caused by the development. At every stage a proportion of the housing will be occupied by non-P.T.B. personnel.

5.3 TRANSPORT AND COMMUNICATIONS

A progressive increase in the number of car-owning students means that the ultimate passenger-carrying capacity of the P.T.B. rail net will not necessarily become a determining factor in the ultimate size of the P.T.B. But though the relocation of equipment will assume a progressively more important part of P.T.B rail activity, Student transport by scheduled railbus services will still remain a fundamental function of the rail net.

Similarly, the outer triangle of the road net uses routes with potential capacity for higher than the load they are called upon to bear at present, the progressive introduction of more sophisticated information transfer equipment to housing units is likely to cause a levelling-off in usage before saturation point is reached. The outer triangle effectively reverses the present situation of traffic concentration into congested radial arteries, a situation still implicit in the current Local Authority proposals.

The availability of choice between road and rail transport, and the emphasis on construction of non-physical links between student and information store, except in cases where actual physical contact is important, allows the student to discover the method and rhythm of study most suited to his or her capabilities.

National transport links occur at the three corners of the P.T.B. triangle; at Pitts Hill to Liverpool, Manchester and Sheffield (road and rail), at Madeley to Liverpool, Manchester, Birmingham and London (M.6), and at Meir to Leicester (road and rail) with national air links via Meir airport. Stoke-on-Trent station provides a direct rail link to London via Stafford and Birmingham. Advantage will be taken of the existing rail network and stations. The Madeley and Pitts Hill limbs of the P.T.B. rail net are surplus to British Rail's passenger carrying requirements and are due to be closed to passenger traffic. The very conditions which make the Pitts Hill limb, in particular, uneconomic for normal passenger working – numerous stations at extremely short intervals – make it extremely well suited to P.T.B. working by railbus with constant density, as opposed to peak working. The Meir limb of the rail net, though open to passenger working is not a main line and does not carry unduly heavy traffic.

5.4 INDUSTRY

Physical links with existing industry will be used primarily as short term reinforcement for both sides. Thus the nature of such links requires to be of a temporary nature as detailed in the faculty plant.

Long term operational links with both local and national industry require, on the part of the P.T.B., capacity for the type of experimental plant construction at present confined to the very large industries and state institutions.

The present shortage of such capacity is evident in Colleges of advanced technology. (e.g. Manchester).

Other links are achieved by the provision at the transfer areas for rapid movement in bulk and quantity of people, goods and hardware in and out of the P.T.B. network.

5.5 SOCIAL SERVICES

The proliferation of minority activities to be expected in a student community of the size proposed will enable the community as a whole to obtain access to specialised plant for leisure recreation currently unavailable in the area.

Similarly, the information and learning facilities provided by the P.T.B. are intended for use by the whole of the are population.

The system by which the "public" is self-consciously invited to participate, on sufferance, in certain activities in existing universities will not obtain in the P.T.B., since the flexibility of learning equipment and methods will allow national participation by students in fields at present rigidly defined as "secondary" or "adult" education.

5.6 EMPLOYMENT

Though the effect of the P.T.B. in provision of new forms of employment directly related to the complex will be of short-term benefit to a community heavily dependent on two basic, and contracting industries, the long-term value of the P.T.B. will rest in the ability of its research facilities to attract new industries to the area and to re-orientate and revitalise existing industries such as ceramic manufacture.

6.0 PROPOSALS – PARTICULAR

6.1 MEIR TRANSFER AREA

Road - P.T.B. air link providing facilities for rapid exchange of personnel or lightweight goods from P.T.B. to national or international networks. Work accommodation provides fixed general student and staff accommodation (single floor) leading directly to mobile rail-based laboratory conditioned gantries travelling over and providing access to a zone reserved for short-term portable enclosures. Provision is made for multiple banking of the gantries for linked use. High-level partial enclosure can be achieved between gantries. A mono rail goods feed joins the two blocks to an inspection, storage and customs hall which in turn is linked with the accommodation block. This block and the hall have direct links to the road/rail exchange zone. The accommodation block provides, in addition to public rooms, bedroom/offices with access to small conference/seminar rooms. It is envisaged that the accommodation will primarily be used by short-stay visitors to both the P.T.B. and local industry.

6.2 MADELEY TRANSFER AREA

Motorway – P.T.B. rail – road link providing facilities for handling, assembly and construction of large scale goods and equipment. Two "workshop" zones with varied high-level servicing and access are adjacent to enclosed conventional work areas capable of cellular variation which in turn adjoins the reception, public and amenity facilities. Rising from the latter are the accommodation towers. These provide minimal "hotel" accommodation and are likely to be used by short and medium term visiting staff.

6.3 PITTS HILL TRANSFER AREA

National rail - P.T.B. rail – road link providing facilities for rapid and continuous bulk goods and personnel exchange.

Valley sited vertical and horizontal communication for goods and people creates conditions for large scale installation of experimental plant etc.

The serviced "plant pit" adjoins an open floor area for small scale temporary enclosures. This is covered by a fully serviced accommodation roof containing living and small cell working areas, and is equivalent in operation to a large static gantry of the type installed at Meir.

The accommodation would be for varied stays of any associated with continuous processes being undertaken in the transfer complex.

6.4 FACULTY AREAS

These provide for the disposition of rail based, mobile learning units in accordance with the immediate requirements of each faculty.

Five main types of units are proposed:—

(a) Seminar units. These may be used either in conjunction with normal railbus services, or in separate services with long strips of scheduled duration at P.T.B stations, or in static condition at small faculty sidings, providing random discussion opportunities or scheduled teacher feed to student areas.

(b) Self-teach carrel units. Used in conjunction with closed or open circuit T.V. Transmission or linked information and programme store.

(c) Information and equipment storage units.

(d) Fold-out, inflatable units. Providing either two orthodox 30 person lecture areas or one demonstration/T.V. studio area linked to information and equipment stores.

(e) Fold-out, decking units. Used either for access to other units, or as support for specialised or fine-control rigid enclosures positioned on units by mobile crane.

Separate units provide motive power and packaged services boost in areas.

MAIN FACULTY AREAS

Three in number, one situated on each "limb" of the P.T.B. rail net. These are new sidings built up in assembly zones, each capable of receiving up to 12 learning units, and separated by transfer zones for the removal and relocation of units.

- SILVERDALE: 4 assembly zones.
  Stage 2 area dependent upon eventual closure of Silverdale Colliery.
- TUNSTALL/PITTS HILL: 5 assembly zones.
  capable of extension to south.
- FENTON/LONGTON: 5 assembly zones.

SHARED FACULTY AREAS

Existing industrial sidings used for co-ordinated work between industry and P.T.B.

- HANLEY
  Shelton Iron and Steel Works
- SILVERDALE
  Silverdale Colliery

FACULTY SIDINGS

Small existing sidings, generally at stations, used mainly for self-teach learning units and information storage units. Often dual use by P.T.B. and community as a whole.

KEELE FACULTY AREA

Existing plant provided for Keele University will be used by P.T.B., but no extension is anticipated.

6.5 CRATE HOUSING

For use on reasonably level non-subsidence prone sites. Permanent 13 storey reinforced concrete frame, pressed steel living units positioned by mobile hoist and gasket sealed to frame. Airspace around units provides acoustic insulation and background temperature control.

The possibility of one, two or three unit linkages enables variation in space usage such as increased demand for working area while improvement in living standards is achieved by replacement of units with more sophisticated models.

6.6 SPRAWL HOUSING

An additive system of timber-framed prefabricated units capable of housing families of any size or age range. The use of a space-frame "tray" with 3-point jacked support enables siting on uneven, waterlogged or subsidence prone ground. Grouping of units may be in "open" or "closed" formation dependent on environmental conditions over the site as a whole.

In either case, units are serviced by "packaged" heating, power and sewage purification units.

All equipment except for wet servicing is capable of mobile positioning.

The sequential positioning of spaces can provide the bulk of the activity separation required apart from particular demands for privacy and acoustic control.

In general, a change in living requirements involves change of occupancy rather than extension or alteration of a particular unit.

6.7 BATTERY HOUSING

This consists of a sealed environment sandwiched between space-grids containing a total servicing network.

Subdivision of living units is achieved by non-loadbearing wet construction on 5-7 year cycle enabling progressive expansion of space provision. (This element can provide foul-weather employment for conventional building industry).

The roof area is used for self-contained "promenade" activities (Variants A and C) for parking (Variant B) where the immediate surroundings provide pleasant external environment.

Jacked supports allow siting on uneven or subsidence-prone ground: the basement area thus formed may be used for parking (Variant C).

6.8 CAPSULE HOUSING

Primarily intended for single person occupancy, though capable of short-term use by two persons.

Complete unit, factory assembled, consists of metal frame with fibre-glass infill construction including peripheral clear and translucent glazing. All equipment and furniture is built-in to provide maximum space, economy and alternative function usage. Units are positioned by means of jacked supports on almost any site that provides reasonable environment and/or good views. The self-contained nature of the units allows them to be used as a housing "pool" during construction of other housing types or during periods of unforeseen fluctuation of choice of living pattern.

6.9 SOCIO-CIVIC DEVELOPMENT

In the first stage of development, the construction of housing areas will result in an immediate gain to the community in terms of improvement to the environment and provision of specialised leisure equipment. For example, housing sites 1, 2 and 3 encircle Westport Lake which will be rehabilitated for recreational activities such as sailing and water-skiing, allowing access from the Tunstall/Burslem area to the open country beyond Broadwell Woods. Similarly, the provision of even such small scale specialised enclosures such as squash courts on the "promenade" of battery housing blocks will have an effect on the surrounding existing comparable to the use of packaged sprawl housing servicing to improve adjacent sub-standard dwellings.

It is assumed that entrepreneurial instinct will rapidly satisfy demands for greater flexibility and choice on a basic consumer level, but pressure by the community for more complex leisure and recreational plant once the P.T.B. begins to function for the population as a whole will require co-ordinated action by local authorities and the P.T.B. Though the P.T.B. will, in a sense be an instigator of such development it will be through its effect on the community as a whole rather than as a purveyor of "amenity".

7.0 GLOSSARY OF TERMS

E.A.V.E.T.	Electronic Audio and Visual Equipment and Techniques
L.A.	Local Authority
P.T.B.	Potteries Thinkbelt
T.A.	Transfer Area
W.E.A.	Workers Education Association

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9.0 GOVERNMENT POLICY AND PARLIAMENTARY DISCUSSION

9.1 The West Midlands — A Regional Study

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9.2 Hansard (Higher Education) Vol.270 no.12 1 December 1965

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10.0 STATISTICAL APPENDIX

10.1 TRANSFER AREAS: SPACE PROVISION

	Variable volumes	Static areas	Living accommodation
Pitts Hill	31,212,000 cu.ft	288,000 s.f.	
Madeley	47,520,000 cu.ft	448,000 s.f.	113,400 s.f.
Meir	22,680,000 cu.ft	360,000 s.f.	12,224 s.f.

10.2 FACULTY AREAS: SPACE PROVISION

Silverdale	53,760 s.f.
Tunstall/ Pitts Hill	67,200 s.f.
Fenton/Longton	80,640 s.f.

10.3 HOUSING AREAS: UNIT PROVISION

Total number	32,372 units (excluding expansion areas)