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THE NATIONAL HOUSING EXHIBITION

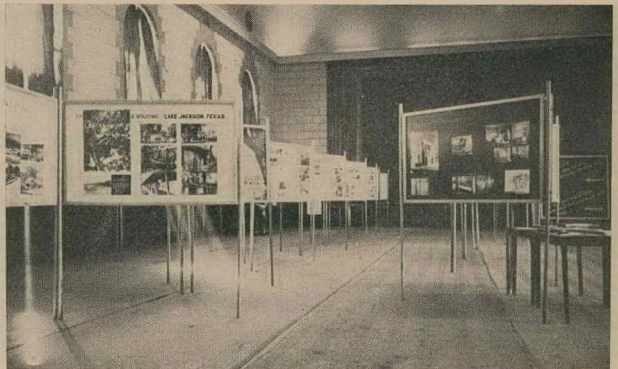
The National Housing Exhibition, sponsored by the United States Office of War Information, the Institute of South African Architects and the Students' Architectural Society of the University of the Witwatersrand, was held in the Selborne Hall, Johannesburg, between July 30th and August 3rd. This exhibition was made possible by the kind co-operation of the United States Office of War Information, who made available to the Institute on exhibition, "American Housing in War and Peace." In addition, the students of the Faculty of Architecture, University of the Witwatersrand, were largely responsible for the preparation of an exhibition illustrating South Africa's approach to the problem, while a full-scale model of the utility services of the National Houses was included.

The American exhibit covered the whole field of the housing problem and its solution, and included the planning and administrative organisation as it exists to-day, as well as a comprehensive analysis of constructional methods and building efficiency. The examples illustrated in an impressive series of photographs ranged from the temporary trailer houses to the most recent of America's permanent housing developments.

The South African exhibit, presented in a clear and concise manner, with the aid of photographic and graphic illustrations, the administration, methods and planning by which we in this country are now tackling our housing problem. The model of the utility services of our National Houses, which concluded the exhibition, demonstrated the standardised plumbing unit and kitchen and utility room equipment. This latter, which is manufactured in the country, is both well designed and gives ample hygienic storage accommodation and work space. The cabinets are high quality products in pressed steel, while the scullery and laundry unit is shown finished in galvanised sheeting with the intention, we understand, of using stainless steel when this is again available.

General Holcomb, American Minister to the Union, opened the exhibition, and the Hon. H. C. Lawrence, Minister of Welfare and Demobilisation, also addressed the gathering.

This valuable and well-timed exhibition created wide public interest, not only because of its own positive merit, but also because it coincided with the launching of the programme of South Africa's National Planning and Housing Commission.



ADDRESS OF MR. D. M. COWIN, CHAIRMAN OF THE EXECUTIVE COMMITTEE

In opening the proceedings Mr. D. M. Cowin addressed the gathering as follows.

Your Excellency, the Hon. the Minister, Your Worship the Mayor, Ladies and Gentlemen:

In the absence of our President-in-Chief, it is my pleasure to welcome you to the opening of this exhibition of contemporary housing in America and South Africa.

On behalf of my Institute and the public of South Africa, I must thank the United States Office of War Information for their co-operation in making the exhibition available, particularly as its opening coincides so closely with the launching of our Housing Commission's National Plan.

Although in the past the United States has had its great individual architects, such as Frank Lloyd Wright, it is only during comparatively recent years that the country has taken a world lead in domestic architecture. America's timber and steel resources undoubtedly have contributed largely to this advancement, and her architects have been considerably assisted by a very advanced standard of industrial design, which is evident in the exhibition before you.

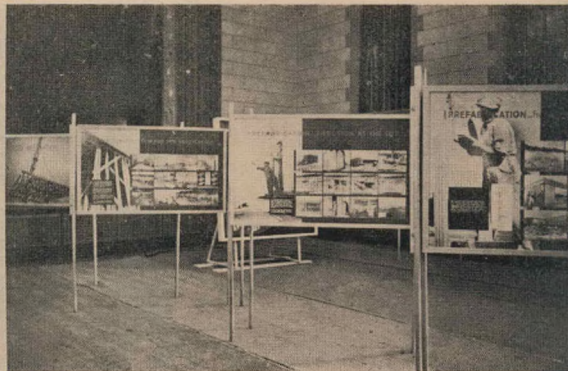
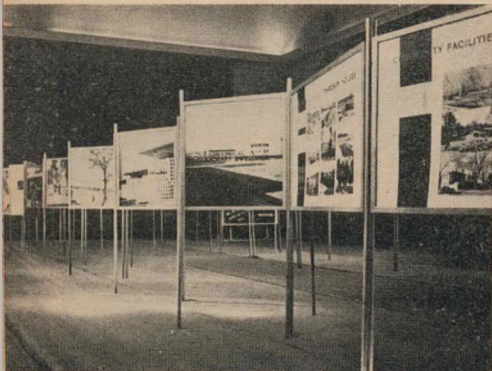
One of the aspects to which I wish to draw particular attention is the overall dimensions of the houses now being provided for families, not only in America, but in Great Britain as well. The areas rarely exceed 900 sq. ft. for a house of three bedrooms, a standard which has hitherto been found unacceptable in this country. The increased costs of both material and labour render it essential that our dwellings be smaller, and I confidently anticipate that our national

houses, the design of which has now been entrusted to the architectural profession, will prove that small rooms competently arranged have no disadvantages.

During the present war our engineering light industry has expanded considerably in the manufacture of munitions, and its post-war potentialities must not be overlooked as a tremendous asset in solving our own housing problems. In the full scale model at the back of the hall are examples of what local industry can produce, and their quality cannot be denied.

Their costs can be brought within economic limits only with the introduction of mass production methods, and this can only be achieved if supplies of the raw materials are made available. As an indication of the present critical situation in this respect, I hope I shall be forgiven by the Hon. Minister if I mention that the sheet metal for the sink unit is "black market," and several enquiries have already been received for the purchase of the bath!

My final word is a request that the technicians responsible for housing in South Africa be not judged too harshly in making comparisons with the excellent standards exhibited from America. In the past adherence to somewhat obsolete regulations have prohibited the use of new methods and materials where these have been available. Apart from the powers granted to the Commission under the amended Housing Act, there is evidence of a new approach by Local Authorities, and there is every reason to believe that we shall now see some "concrete" results to our ever-growing housing problem.



ADDRESS OF GENERAL HOLCOMB, UNITED STATES MINISTER TO THE UNION

The exhibit which we are opening this afternoon has exerted considerable influence on American architects, contractors, city planners and the building industry. In their post-war plans for meeting the tremendous housing demand that will inevitably sweep the United States at the end of the war. Perhaps it will be of some benefit as well to those individuals and institutions who have comparable responsibilities in meeting the post-war problems of the Union of South Africa.

The productive energies of the United Nations' industry are to-day completely mobilised in turning out weapons of war. However, without detracting from our production of ships, planes, tanks and guns, we are allocating as much time as we can to thinking about the needs of our countries, and of the world, after the war.

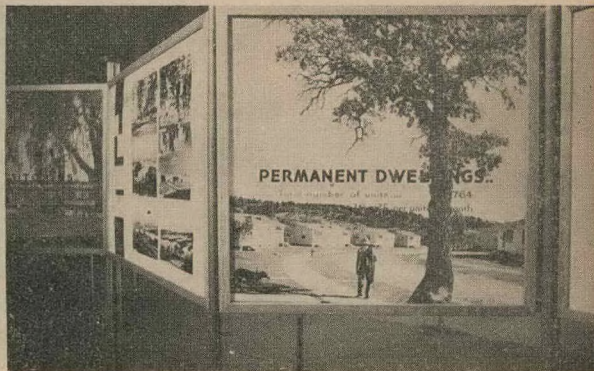
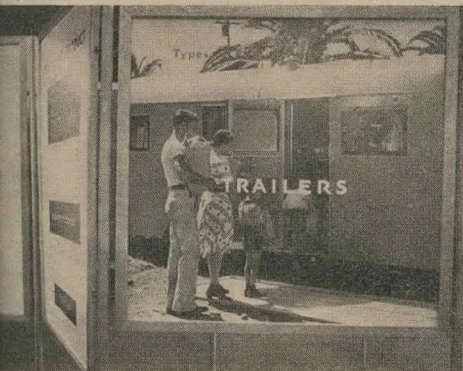
The war has taught everyone that there is nothing which reasonable men determine to do that cannot be done. There is no obstacle—political, economic, financial or social—that can stand in the way. Industrialists of all nations can satisfy the needs of the world for better transportation, better highways, essential medical care, and better housing. Not one of these needs is more widespread nor more pressing than housing.

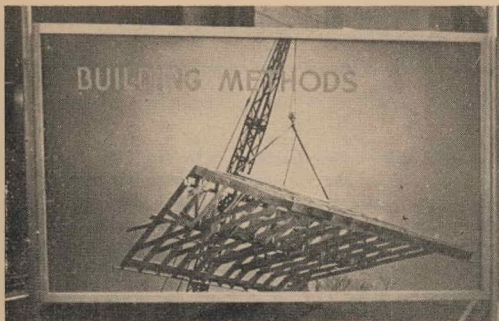
Under war-time conditions, it has been impossible to meet the housing need by unlimited construction of new housing. To build a house requires steel, copper, zinc, lumber—the same materials that go into planes, ships, tanks and guns. Clearly, materials could be diverted from these needs only

to serve equally vital war functions. In the face of the tremendous demands of the war, upon manpower and materials, there has not been enough of either to build new houses for all workers, let alone continue normal peace-time housing construction. In the United States—and here as well, I am sure—only the minimum requirements have been permitted, in the way of maintenance and repair. Thousands of housing units will have outlived their usefulness by the time the war is over. Years without proper maintenance have speeded the rate of deterioration towards the point where innumerable homes are no longer fit for human habitation. According to the estimate of the U.S. National Housing Agency, the United States will need over 12,500,000 new dwellings during the first ten post-war years.

The men and women who will return from the world's battle fronts have a right to good homes. That means homes structurally sound; that have adequate light, air and space; that are fit places to rear families in privacy and in health; homes designed for human enjoyment; that allow for pride and pleasure and creative living; homes in reasonable relation to all the essentials of a fully rounded family life—employment, health, recreation, education and worship.

Now all we can do is plan—not in the sense of idle dreaming, but in the sense of concrete terms and specific measures and procedures. By planning now, we will be ready to move, with a minimum of delay, from war-time production to peace-time construction. If we think ahead now with vision and





determination—when victory is finally won we can devote the same unstinting energy and vigorous leadership which have characterised our war effort to the problem of rebuilding present cities and building new ones.

In the United States nearly every municipality has a planning commission, which has been blueprinting its hopes for a better, more modern city when peace comes. Under federal guidance, several small cities have been formulating planning techniques. Far-sighted city councils are now studying the present zoning laws to make sure that as the new homes, new businesses and new schools are constructed they will harmonise with the municipality's dream of an increasingly beautiful city.

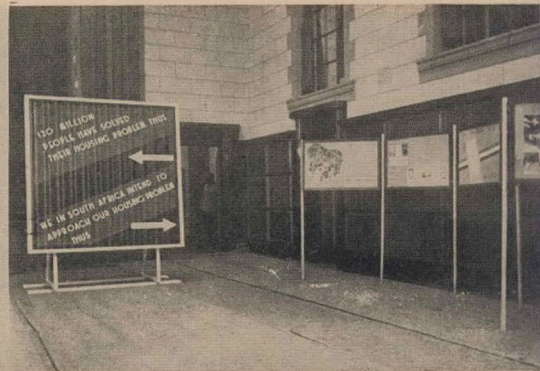
The forward-looking city realises that, although it cannot be reconstructed except over a period of many years, mistakes need not be made along the way. In other words, each year's new construction will be built to a plan which looks to the future, when there need be no slums or blighted areas.

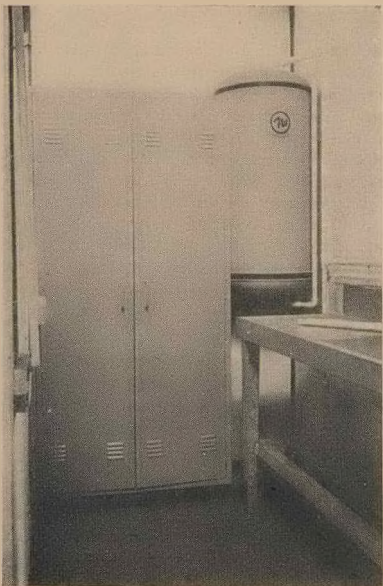
In America, large-scale housing operations are being undertaken at low interest rates, as an investment, by banks, insurance companies and other institutional investors, acting singly or in groups. In both New York City and Chicago, large housing developments were built by private capital on the sites of vast slums. The rentals in both cases are little or no higher than the wretched slum flats they are replacing.

Recently the Metropolitan Life Insurance Company purchased a site of nearly twenty acres in one of New York City's slum areas. To-day there is a ghost town of deserted flats, stores and factories. To-morrow this is destined to become Stuyvesant Town, the second largest flat development in America. It is planned to construct 35 buildings, each 12 storeys high. The entire development will contain about 9,000 living units, ranging from two to five rooms, with an average monthly rental of £3 10s. per room. The total cost of the Stuyvesant Town project is expected to approach £12,500,000.

And though these projects house thousands of people in a relatively small area, provisions are made for open spaces where children may play in safety, for schools and shopping districts harmoniously placed in relation to the residential areas, and for highways that route the heavy streams of metropolitan traffic to the outskirts of the developments. These towns within cities are proof that even within the most congested area of a metropolis housing for the average man does not need to be sub-standard.

Planned housing is an opportunity for the nations of the world. One of the blessings of peace will be the opportunity for the nations of the world again to exchange with each other the thoughts and plans which will contribute to a better and fuller life. Some of the lessons learned in this war can be turned to the benefit of humanity by peoples of good will.





UTILITY ROOM FITTINGS FOR THE NATIONAL HOUSES
BELOW : FOOD AND CHINA CUPBOARDS IN KITCHEN

In housing construction under the pressure of war, techniques and methods and the use of new materials have been learned. A broader concept of the needs and facilities of community life has been adopted. Ways are being planned to bring to the lowest income groups the values of decent homes and neighbourhoods, which are now universally considered the right of everyone. America hopes that from our experience we can effectively contribute toward the rehabilitation and rebuilding of war-torn countries.

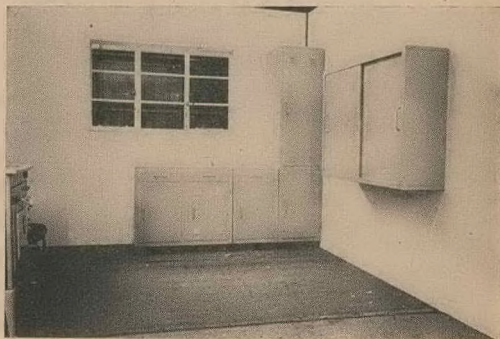
Already American housing planners have been in contact with representatives of a dozen other countries. In the days to come we hope for a closer relationship, so that whatever is good in our own planning and theirs can be devoted to our common problems—to the universal task of making a better life for all the free peoples of the world.

The Hon. H. G. Lawrence, Minister of Welfare and Demobilisation, said he was delighted to have the opportunity of being on the same platform as General Holcomb, the representative of the United States Government, and delighted to feel that General Holcomb was identifying himself with the efforts being made in South Africa to deal with the housing problem. He paid tribute to General Holcomb as a man who probably more than any other was responsible for the mobilising and organising of the great American Marine Force which had played, and was continuing to play, so conspicuous a part in the war; if General Holcomb was behind the housing of those Marines and their dependants at the conclusion of the war, then the results of America's housing schemes were assured.

South Africa was grateful for the opportunity afforded by this exhibition of seeing something of the way in which the great American nation was tackling its housing problem.

He was also glad to be present because the exhibition was being sponsored by the Institute of South African Architects, in conjunction with the United States Office of War Information. He especially wished to pay tribute to the Institute for the way in which it was collaborating with the Director of Housing, Major Collings, and the Chairman and members of the Housing Commission, in planning the future housing programme for South Africa.

For the first time in the history of South Africa, all the elements comprising the building profession—the Institute of South African Architects, the Chapter of Quantity Surveyors, the Federation of Master Builders and the Building Trade Unions—were collaborating as a whole in formulating schemes to meet the needs of the country. Very soon the Housing Commission would have to be reconstituted, and he was glad to say that he would be able to appoint as one of the new members of the Housing Commission the nominee given to the Government by the Institute of Architects.



General Holcomb had, in his address, given them a picture of the way in which America, with her tremendous energies and resources devoted to the prosecution of the war, none the less was faced with a housing problem. That was also the experience of Australia and New Zealand. It was important to remember that in those countries the housing problem did not arise from the destruction of property, but because, as a first priority, so much of the nations' resources of materials and labour were required for the prosecution of the war. America had had the experience of not being able to keep pace with population needs resulting from population migrations to war industries in the towns; and General Holcomb had also told them that America would need 12½ million new dwellings during the first ten post-war years.

On a much smaller scale that was also the problem in South Africa, especially in regard to the availability of materials, manpower and so on. It would only be possible for South Africa to cope with and to overcome these difficulties if there were complete co-operation between all those who knew how to do their jobs in the building industry and those who were competent to make constructive suggestions towards solving the problems with which South Africa was faced.

From that point of view South Africa was extremely fortunate in having the opportunity of this exhibition, illustrating what America's experts, with their greater resources and

greater experience, had done and were doing. As prefabrication had been referred to, he could only say—and he wished to make it clear that he was not an expert—that there was a good deal of difference of opinion on that question. It might very well be that certain prefabricated methods were not suitable for certain types of housing. Nevertheless, he was very interested to learn that recently those who had been applying their minds to the problem in South Africa had been able to produce a prefabricated plumbing unit which it was proposed to incorporate in the first houses to be erected under the National Housing Scheme. If that prefabricated unit proved a success, it would be a most helpful contribution to solving one aspect of the labour problem.

Finally, he wished to say how grateful they were to the United States Office of War Information for placing at the disposal of the people of South Africa the valuable information contained in the exhibition; and to the Institute of South African Architects for its initiative in making the exhibition possible. He therefore had great pleasure in asking General Holcomb to declare the exhibition formally open.

General Holcomb then declared the exhibition formally open.

Professor G. E. Pearse cordially thanked General Holcomb and Mr. Lawrence for their kindness in being present at the opening ceremony.

COVENTRY

The Work of the City Architectural Department

by P. J. Marshall

A PAPER READ BEFORE THE INDIAN INSTITUTE OF ARCHITECTS

Much has been heard of Coventry in the last two years of the great Blitz, of the amazing recovery of its people, and also of the plans for reconstruction which were published soon afterwards, but newspaper sensations are one thing while the results of technical endeavour are another, and it is the latter which this review attempts to record.

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Like many English cities, Coventry was without a City Architectural Department until 1938, and the City Engineering Department had assumed the duties not only of engineering but also of municipal architecture (with the exception of housing), town planning, building inspection, and the preparing of building bye-laws. However, in 1938, the City Council decided to create a new City Architectural Department, and chose for their City Architect Mr. D. E. E. Gibson, a brilliant architect and planner, still in his early thirties. Many of the younger members of the architectural profession felt that it was a noteworthy step, and this may be judged by the fact that for some of the new appointments in the office there were over 700 applicants. Thus, when the new office opened at the beginning of 1939, it had a staff of keen, highly-trained young men who were determined to show that a municipal authority could do work comparable to the best in private practice.

The organisation of the staff is worthy of note, as one of the aims was to introduce into municipal departments the new ideas of group working. Up to this time most central and local architectural offices had been marred by the fact that they copied private practice organisation, i.e., an architect with assistants, the latter for the most part having underpaid temporary appointments, lacking both status and responsibility. In the new department, however, Mr. Gibson endeavoured to make all the appointments on a permanent basis and to adopt the salary of the A.A.S.T.A. (now A.B.T.), of which he himself was a member. Also, all those fully qualified were to be called assistant architects instead of architectural assistants, and to be given maximum responsibilities whenever possible; a staff meeting being held once a month for the purpose of considering criticisms and suggestions

from any members of the staff. It is hoped that at the conclusion of hostilities the city will be divided into areas, each having its group of architects, with quantity surveyors, structural, heating and ventilating engineers, and working in close collaboration with the City Engineering Department.

The office began with a large programme of hospitals, schools, and other Municipal buildings, including several which were taken over from the City Engineer's Department, and as the Housing Director retired shortly afterwards and his department was absorbed in that of the City Architect, Corporation housing also became one of its responsibilities.

It was considered that architects, working a city department, have a great opportunity to influence the public taste in good design, not only through planning and building, but also, by collaboration with the staffs of other Corporation departments, by careful attention to the design of the countless objects of city equipment, i.e., gardens, lamp standards, letter baskets, bus shelters, signs, railings, etc. In order to stimulate keenness in design, spare-time competition sketches were held in the office for the smaller design problems when time permitted, and if possible the winner carried out his design. Most important of all was the basic lay-out or skeleton of the city. This was in the most deplorable condition, owing to the rapid and practically unplanned growth of the city, especially in the last ten years, although there had been a Town Planning Section attached to the City Engineer's Department for the last seven years; and of the five separate planning schemes only one had got past what is significantly known as the interim stage, while the whole centre of the city was termed an excluded area for planning purposes. However, the more progressive citizens had long felt the need of an adequate plan for this area, even if it was confined to the civic buildings which were so urgently required in a city which had almost quadrupled its population in 20 years. When the new architectural office was formed, public interest on this subject, stimulated by the local newspapers, was keen, and although the City Engineer's Planning Section had produced some plans, the only proposals worth considering had come from the City Guild, or local Civic

Society, and were similar in conception to the civic centre schemes of such cities as Southampton and Swansea. Several acts served to make the problem more acute. Such as (1) the erection by an assurance company of a large pseudo-Tudor office building on a site previously owned by the Corporation, between the central place (Broadgate) and the Cathedral, which everyone wished to see left open, and (2) the gift of a large sum by a wealthy local manufacturer for the immediate construction of an art gallery. The only site available to the Corporation for this purpose was one which would have continued the existing congestion, but in spite of energetic criticism by Mr. Gibson, work on this site was commenced.

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Realising the urgency of the problem, Mr. Gibson set four members of his staff*, Messrs. J. T. Pinton, K. Lycett, P. F. Burgoyne and P. T. Powell, under the supervision of P. J. Marshall, on the work of designing a correlated scheme for all the civic buildings considered necessary, and of preparing a large model for display purposes. This scheme took an area of 40 acres around the Cathedral, and, using the latter as the centre piece, grouped a new library, museum, civic hall, police and law courts and municipal offices around a dignified and spacious close. The groups included a new Government telephone exchange and offices which were under consideration, and about the siting of which the Office of Works were found to be very helpful collaborators. All the buildings were kept comparatively low in order to emphasise the verticality of the Cathedral of Trinity Church, and were to be faced with brick and stone to harmonise with the local red sandstone of the old buildings. The remainder of the area was laid out as a small central park with a lake. (It had been known since Mediaeval days as Pool Meadow.) The old fire station and bus station were re-designed on the northern part of the site. The next step was to make the people of Coventry planning and design conscious, and a scheme was arranged with the Director of Education to enable qualified members of the staff to lecture to all the senior school children in the city. Mr. Gibson, too, led the way in giving talks to such bodies as the Rotarians, etc., and a large collection of coloured slides was built up by the staff for this purpose. Then, the Coventry branch of the A.A.S.T.A. (now A.B.T.), which was almost entirely composed of members of the department, decided to hold a planning exhibition, and with the financial assistance of the A.A.S.T.A., the City Guilding, N.A.L.G.O. (Coventry Branch) and the active co-operation of the artists, sculptors and engineers, the "Coventry of To-morrow" Exhibition took place. Large models were obtained from several Schools of Architecture, many photographs and the complete Small House Exhibition

were loaned from the R.I.B.A., and famous town planners were invited to come down and lecture to the public. Thanks to energetic publicity, which was greatly assisted by the three local newspapers, several thousands of people visited the Exhibition, as well as all the senior school children of the city, and naturally the exhibition attracting most attention was the model of the proposed city centre. After this the Department was wholly occupied by the many and varied demands of civil defence, and also the provision of housing for war workers. The solutions finally adopted for the latter have been illustrated in most of the English technical journals, and the planning principles were described in an article of the Town Planning Institute journal of August, 1941. As a result of all this experimental work, Mr. Gibson was asked to give a lecture on "Problems of Building Reconstruction" to the Royal Society of Arts, which was given shortly after the great raid of November 14th, 1940. After the Blitz an enormous problem of war damage to houses was created overnight, and it was decided to divide the city into 35 districts, each with an office and store in charge of a Clerk of Works. Builders and contractors were allocated to the various districts, and although several regrettable cases occurred in which the Corporation was obliged to prosecute building firms, the work proceeded at high speed, and the majority of repairs were carried out in a relatively short space of time ("Architectural and Building News," 1941). In the meantime Lord Reith, then Minister of Works and Buildings, selected blitzed areas in three cities to assist in determining what new planning legislation would be required for reconstruction. The centre of Coventry was one of these, and he asked the Council to prepare a comprehensive scheme for this purpose. The latter then instructed the City Architect and City Engineer to collaborate on the work, but owing to the fundamental divergence of opinion they submitted separate schemes to the Re-development Committee, who chose that of the City Architect. This scheme was then put before the Council, who decided to submit it to the Minister of Works and Buildings as their comprehensive scheme on February 28th, 1941. A new Re-development Office was then set up for re-planning purposes, consisting of three architects and three engineers, and immediately commenced work on a civic survey, as, although a Planning Department had been in existence for several years, a negligible amount of the necessary survey information had been obtained. Within a few weeks, however, the three architects were called up, and although their place has been taken by women architects and men discharged from Service owing to injuries received on active service, the work has been considerably hampered. Also, Lord Iliffe gave £1,000 for a model 12 foot square of the new scheme to be constructed, and much research has been necessary to ensure that each individual building embodies the result of the latest technical research. The main principles of the city centre scheme are to include within the inner ring road all the necessary central buildings for a city of approximately 250,000

*Of these, one was taken prisoner at Crete, two are serving in the Armed Forces in India, and one in the Middle East.

people, and to plan these, not only so that each building can be designed without the prevalent site restrictions, but so that each group of buildings is related to the other for the greatest convenience of the public. A typical example of the new approach is the shopping centre, which is grouped round open squares not accessible to wheeled traffic, and which is arcaded throughout.

Further models are now under consideration to show how all new houses and flats could be built in community groups, and each group provided with community and health centres, schools, baths and adequate recreation space.

In connection with these post-war problems, difficulty has been experienced in preventing owners of bombed premises from rebuilding their premises in such a way as to prejudice re-planning, although the Ministry of Works and Buildings Restriction Order assisted in this preventive action. In order to avoid the difficulty itself, the Department has deliberately constructed all war-time buildings, on sites where re-planning will take place, of light materials such as corrugated asbestos with light welded steel or timber frames. War-time work has included Corporation shops, mortuaries, British Restaurants, etc.

In consequence of the various experiments carried out in this war-time building programme, the Department has been given a grant to construct experimental houses, in which Mr.

Gibson's suggestion of prefabricated parts, manufactured in the armament factories, could be developed more fully.

In conclusion, the following are some of the factors which have emerged from the experience of the Coventry Office:—

- (1) Although for the purpose of the new city plan the population of 250,000, as existing at the outbreak of war, was taken as a basis, it is obvious that the size of the city is closely related to regional and international factors, ultimately depending upon national and international planning bodies which do not at present exist.
- (2) That every city should have a planning office consisting of fully qualified architects and engineers, and that, even though a city may have a Planning Department, it may not necessarily be "planning" as understood to-day.
- (3) That the war has thrown into relief not only the chaos of our cities, but also the lack of organisation among the technical men [in spite of the urgent war work in the office, members were called up when most needed owing to the general de-reservation of architects].
- (4) Finally, that a genuinely progressive City Council can appoint a group of enthusiasts and highly-trained architects, who, guided by a far-seeing chief, can make architecture perform an invaluable service to the community.

CHEAP VERSUS ECONOMIC CONSTRUCTION IN HOUSING SCHEMES

by H. A. Smith, B.Sc. (Eng.), M. Inst. C.E.,
A.M.I. Mech. E. City and Water Engineer, Durban.

A Paper presented at the 23rd Annual Conference of the Institution of Municipal and County Engineers (S.A. District), Bloemfontein, 1944.

INTRODUCTION.

City Engineers have, during recent years, had considerable criticism levelled at them by the public regarding the cost of sub-economic houses. This criticism is generally voiced by means of letters to the Press which often call for mass production, prefabrication, use of substitute materials and so on. Unfortunately, most of this criticism is based on ignorance of facts or perhaps the misapplication of ideas obtained from articles read about housing in other countries under totally different conditions.

I would venture to say that had it not been for the war much, if not all, of this criticism would not have been heard, as the pre-war cost of the houses would have been considered very satisfactory.

The critic from the ranks of the general public does not appear to realise that their City Engineer is in a far better position than he to become acquainted with all methods of construction and possibilities of economising in the type of house which has to be constructed.

Fortunately, the City Councillors representing the public and men who are in close contact with their technical men are acquainted as a rule with the facts, and realise the impossibility of reducing costs beyond certain limits.

The policy laid down by the Durban City Council is that it will not build houses which will create potential slum dwellings: the houses must be of sound construction and must provide a certain amount of comfort to which every individual, whether he be European or non-European, is entitled.

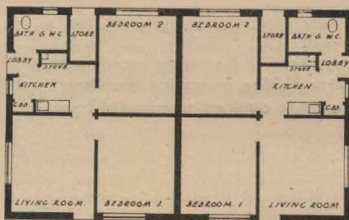
THE MINIMUM SIZE.

Houses built on a sub-economic basis are, therefore, intended to provide all the amenities necessary for the maintenance of health, e.g., sufficient air space, dry walls, floors and roofs, running water, sinks, showers and W.C.'s. Nothing is provided above this bare minimum.

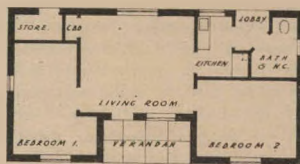
The Native housing scheme at Blackhurst, where the maximum accommodation has been provided with the funds available, is considered by many authorities to be one of the best examples of Native housing in the Union.



TYPE 1.
NATIVE SUB-ECONOMIC HOUSE - BLACKHURST



TYPE 2.
NATIVE SUB-ECONOMIC HOUSE - BLACKHURST.



TYPE 3.
INDIAN SUB-ECONOMIC HOUSE - SPRINGFIELD

SCALE 1/8" = 1' 0" PER FT.

The exclusion of dampness and humidity have been the primary factors, and it has been proved that if the 9-inch walling is laid correctly in stretcher bond no dampness will penetrate.

Considerable variety has also been obtained in the variation of brick combined with plaster and the painting of window frames.

The walls are constructed in 9-inch brickwork and the roofs in asbestos sheeting. In other schemes, the concrete slab roofing covered with tiling makes an excellent finish, both externally and internally, the tiling preventing any sweating; it also compares favourably in cost on account of the elimination of ceilings.

The most economic plan has proved to be the oblong shape with a double gable roof.

The accommodation is as follows :

Accommodation :

Living room, 15' 0" x 9' 0".

Bedroom 1, 11' 9" x 7' 6".

Bedroom 2, 11' 10" x 7' 9".

Bathroom and W.C.

Back lobby.

Small kitchen with coal burning stove and sink.

Small food cupboard with fly-proof doors.

Storeroom for bicycles, etc.

The average height of rooms is 9' 6".

Overall size of house, 30' 6" x 16' 6".

Average size of plot, 100' x 50'. (This allows for a small garden for cultivation purposes.)

First-class macadam roads are provided and the whole scheme is supplied with water from the Corporation mains.

The sewerage is of the most modern water-borne system.

Stormwater drainage is provided by utilising the paths as water channels.

Medical attendances will be available. A recreation hall and sports ground will be provided.

PRESENT-DAY COSTS.

This house in pre-war days could have been constructed for £280 to £290, and is now being constructed for £392.

In this regard it may be of interest to show the variation which has taken place in building costs of the same house

BLACKHURST HOUSING SCHEME.

Section	Contract	No. of Cottages	Date	Average Cost of Cottage
1	B.1361	117	17.11.41	£420
2	B.1390	100	29. 6.42	£443½
3	B.1396	100	24. 8.42	£454
4	B.1405	100	9.11.42	£483
5 and 6	B.1408	200	15. 2.43	£442½
7 and 8	B.1416	200	8.11.43	£413
9 and 10	B.1418	200	4. 1.44	£402
11	B.1436	82	15. 9.44	£401
12	B.1443	168	18.10.44	£392

during the last few years. The amounts stated include 2½% departmental overheads, Clerk of Works' wages and 10% for contingencies, which, among other items, also cover the fluctuations in costs of materials and labour, a very uncertain factor during the war period.

CHEAPER HOUSES.

Let us now deal with the several suggestions made from time to time which critics maintain would produce cheap houses and large numbers of them :

(a) Prefabrication and Mass Production.

Generally, this refers to the prefabrication of concrete houses.

Hundreds of patents have been placed on the market, the most common being slab construction between piers. Unfortunately, very few of these patents have overcome the difficulty of producing an effective joint and a homogeneous structure.

As we are dealing with a sub-economic house only, expenditure on refinements such as waterproofing cannot be allowed for. Generally, therefore, condensation and dampness cannot be eliminated as in the case of an expensive concrete house. This factor contributes largely to the unhealthy conditions often found in sub-economic concrete houses.

Concrete houses are not recommended for the coastal towns in South Africa, and particularly in the case of Durban, where the climatic conditions are rather severe in respect of humidity and condensation.

Mass production, as envisaged in many proposals, is based on the erection of houses on fairly flat lands. In Durban the difficult topography of the sites available for housing purposes makes such schemes practically impossible. The average slope is about 1 in 7 or worse, and is not conducive to the movement of the mobile plant necessary for rapid erection of some types of prefabricated slabs, for the standardisation of sections or for the preparation of construction platforms.

If by mass production we mean rapid construction of houses, then I must disillusion those who imagine that with proper organisation it is impossible to produce brick houses on a mass production basis.

If at the present time materials and labour were freely available and the Building Controller were to permit construction of an unlimited number of houses at any particular time for any scheme, it would be possible to build houses at the rate of at least 60 houses per month by each individual contractor or organisation employed, even on such difficult terrain as obtains at Durban. That is to say, where two contractors are employed on a scheme of 1,200 houses, these would be completed within 10 months.

(b) Walls.

As a result of the cost of providing a house with the bare minimum of amenities being high in relation to the means of the tenants, criticisms and suggestions have departed from rational paths, while quite impracticable ideas have gained currency as being sound, and their adoption is alleged to be obstructed only by the conservative attitude of responsible authorities.

Foremost among these ideas is the one that savings can be made in wall costs either by prefabrication or by means of adopting some patent form of construction. The most optimistic of these does not claim a saving greater than 50% and does not attempt to disprove the fact that the life of the house is much shortened. Assuming the life of a normal house to be 40 years, an optimistic expectation of life of a house with patent walls would be 50%, or 20 years. Bearing in mind that walls do not generally constitute more than about 25% of the expenditure per house, the annual costs to be borne by the alternatives are set out hereunder: the table also includes the respective costs of a "cheap" house and illustrates the false economy of such schemes:—

Remarks	Normal House	"Patent" Wall House	"Cheap" House
Cost of house, including services	£400	£350	£150
Repayment of Capital per annum	£10	£17	£30 to £15
Assumed "Life"	40 years	20 years	5—10 years

(c) Roofs.

Roofs constructed of purlins covered with corrugated asbestos sheets have been adopted in Native sub-economic housing schemes, no ceilings being provided. Similar roofs, but with ceilings provided, have been adopted for Indian sub-economic housing schemes.

Alternative tenders for the Native sub-economic schemes have been obtained in which prefabricated concrete rafters and plates, covered with roofing tiles, have been substituted for the asbestos roofing. This substituted roofing is very satisfactory, but involves additional cost in Native housing schemes where ceilings are not provided, and has, therefore, not been adopted for these latter schemes.

The underside of the prefabricated slabs is an effective substitute for a ceiling, and the additional cost of the concrete and tile roof is more than compensated for by the saving of ceilings which have to be provided with the corrugated asbestos roofing. The use of prefabricated rafters, slabs and tiled roofs has therefore been adopted in Indian housing schemes.

I doubt whether any other prefabricated and satisfactory roof will be more economical than the one adopted.

The following table indicates the costs of the three types of roofs referred to above:—

Type of Roof	Cost of Roof per Single Cottage	Cost of Roof in Semi-Detached
Prefabricated Concrete and Tiled Roof	£62½	£57½
Asbestos Roof without Ceiling	£47	£43½
Asbestos Roof with Ceiling	£87½	£80½

(d) Spill-out System.

Another saving in cost has been argued as possible by adopting the system known as a "spill-out." This may be permissible in flat, dry areas, but near the coast it is not possible to omit such services as stormwater drainage and hardened roads—and, in fact, pit privies upon which the system mainly depends will seldom function, due to unsatisfactory site and geological conditions, together with the high rainfall and humidity—and the result is merely that the final cost of services is more than doubled, due to the large lots attached to each house. It has then been argued that buckets could be substituted for pit privies. Assuming (as the system does) that these are a temporary expedient and sewers will ultimately have to be provided anyway, a fair comparison of cost is made by setting out the cost of the bucket service alongside the cost of a temporary sewage disposal works. The initial cost of a comprehensive sewage disposal works should not average more than £10 per house served, and a generous charge for maintenance would be 1/- per house per month. As a modern, hygienic, air-tight bucket service costs 11/- per month, the saving is 10/- per month. This means that in as short a time as 20 months the full capital cost of the disposal works is recovered, and the works can be scrapped when the main sewers reach the area. In the meantime, slop water is also satisfactorily dealt with, whereas with a privy or bucket system it is not.

The above figures are applicable to schemes to serve, say, 500—1,000 houses, but in the case of "very temporary" works, the capital outlay could be much reduced and corresponding savings made.

Thus, even as a temporary expedient, both buckets and pit privies can be proved as unsound financially as they are unsatisfactory hygienically.

(e) Substitute Materials.

These should only be used if sound and proved, and if there is no hope of obtaining the genuine material for a considerable period.

Our experience with some substitute materials is given in the following brief commentary:—

Concrete Window and Door Frames :

Cost about same as timber.

Cost to erect more than timber.

Not considered more favourable than timber.

Gum Poles as Purlins :

Slightly cheaper than other timbers—used as makeshift only
—not recommended to be permanently adopted.

Terrazzo Sinks :

Not as good as vitreous, earthenware or fireclay—have no overflow and not as hygienic and will not wear nearly as well.

Terrazzo Draining Boards :

About the same cost as teak and not as suitable, being more easily damaged, and does not wear as well.

Asbestos-lined Doors :

Very little experience yet in cost or durability. Up to the present appear to be giving satisfaction.

Asbestos Cisterns :

About the same cost as cast-iron, but latter is preferred and are now becoming available.

Asbestos Downpipes and Gutters :

About same cost as galvanised iron and is proving satisfactory.

Black Water Piping :

Is cheaper than galvanised and is obviously inferior.

Prices :

Generally, it is difficult to compare prices, as these are constantly fluctuating.

NATIVE ARTISANS.

Many opinions have of late been expressed on the advisability or otherwise of training and utilising Natives as artisans on the construction of Native houses, with the main object of lowering the cost of construction of such houses.

In so far as Durban is concerned, this policy is impracticable and inadvisable for the present housing schemes within the city owing to the danger of construction of an unsatisfactory house.

It is, however, intended to experiment with this type of labour in proposed large schemes just outside the city, where the system will be tried out, and, if found successful, will generally be adopted.

If Natives are to be trained as skilled artisans, this would involve considerable time and expense, and on completion of such training there is a possibility that difficulties would arise with the various Trade Unions regarding admission of Natives and the remuneration to be paid to such skilled workers. If wages paid were made identical with those paid to skilled Europeans the question then arises as to whether any advantage would accrue. Until the time arrives when Natives are thoroughly trained and accepted in all trades connected with building, road development, soil and stormwater drainage and water services, the adoption of Native labour on the building of Native houses must be restricted to certain classes of work only.

I understand that several municipalities are now experimenting with this type of labour, and it would be interesting to have the results collated in order to act as a guide for all municipalities in their future policy regarding the use of Native artisans for the building of houses in Native housing schemes.

CONCLUSION.

Plans of the Blackhurst (Native) and Springfield (Indian) sub-economic types of houses will be exhibited; also a plan of the tiled roof on prefabricated concrete rafters and plates.

It is hoped, in conclusion, that this paper will assist materially in clarifying some of the obscure issues which have been raised recently in regard to the carrying out of sub-economic housing schemes.

TRENDS IN AMERICAN ARCHITECTURE 1940-1945

by William Wilson Wurster, Dean of the
School of Architecture and Planning,
Massachusetts Institute of Technology.

Before we list the technical accomplishments of recent American architecture or rate the progress in design, it is necessary to know the temper and the limiting factors of the era between 1940 and 1945.

The year 1940 makes a very natural turning, for we had climbed out of the depression years and it was becoming increasingly clear that the European war would become a world war. The census was also taken in 1940, and for the first time it listed rents, incomes and the condition of buildings on a nation-wide basis, as well as obtaining the customary population data. It was now possible for the building industry to compute needs and set goals, and a factual basis was given to what had previously been guess-work. In 1939 the Temporary National Economic Committee testified before the U.S. Senate on the construction industry, and publication of their findings added further facts to be placed with the census data.

In the U.S. building industry itself the year 1940 could be called a normal year, if you grant such a condition ever exists, and the buildings of this period have been widely publicised. The type of construction used in dwellings varies with the climate and many other factors in this wide-flung country of ours. The norm was still wood-frame, free-standing houses, often with their design unrelated to the truth, but the public housing and slum-clearance programme was developing with its group planning and careful use of permanent materials for long life and low maintenance costs; the results not always inspired but none-the-less decent.

The first work of the Bauhaus group in America had been built, and the studio of Frank Lloyd Wright was crowded with jobs. The achievements of the Swedish and Finnish architects had been publicised even before this period, but knowledge was accelerated by their work at the New York World's Fair in 1939. In California there was evidence of an accepted modern vernacular. In fact, all over the country there was a stir and these new influences were felt in the work of the students and the eager young practising group.

Early in 1941 there came the increasing acknowledgment of the serious loss of shipping from submarines, and a new activity surged through the shipyards of our country. This same urgency stimulated our airplane factories. Attention was thus dramatically focused on the need for housing the workers in

greater concentrations in these vital areas—possibly for a temporary period—and the Government turned to existing agencies and created some new ones to meet this need. The entrance of the United States into the war in December, 1941, brought this tentative, experimental pre-war era to a close, and the general stoppage of all but essential war building took place on April 19th, 1942.

PERIOD OF WAR ACTIVITY.

From the 1942 date on, all construction fell into two categories—military and industrial building and dwelling units and community facilities for war workers. In the secondary category is included the conversion of old large residences, and even loft buildings, into apartments. The conversions have formed only a small part of the effort and are, we hope, mainly temporary, for permission was often given to violate local building code requirements. There have been new developments in industrial building, making for speed and economy in the use of steel and concrete and other materials, but the methods cannot be discussed yet because of military secrecy. This paper is thus concerned with the dwelling units and community structures built for U.S. war workers.

Let us follow the dwellings built by the Government, which give a rich field for tracing experimentation in materials, techniques and design. One of the first projects which came to my knowledge was that of Linda Vista—a group of 3,000 houses built for airplane factory workers on a desert plateau several miles from San Diego, California. There was much fumbling on this project, so in the beginning there were no schools, no commercial or community facilities, and no transportation. These had to be supplied after years of limping operation. This was the first lesson of how physical shelter satisfies only one aspect of human needs and how impossible it is to omit educational, social and commercial structures.

As project after project was built over the entire country, a plan for full community services has been demanded by industry, the Army and the Navy. This is particularly cited here, as often an accusation is made that this sort of demand would come only from dreamers and socially-minded reformers, and not from so-called "practical" people.

At long last here was the opportunity for testing that magic catchword "prefabrication." The use of prefabrication

methods to the full was sensible. Often the sites were removed from available construction labour and the roads were already clogged with the workmen for the shipyard or factory who were in need of the very houses in question, so any elimination of work at the site was gain. As the permanence of the need was often doubtful, to make the houses demountable, as well as prefabricated, was another possible gain.

The Government, at this early period, allowed great latitude and asked for proposals from the prefabricators, just as it would for motor cars—the specification outlined the size, the accommodation, and the equipment, but did not specify the details of manufacture. This resulted in experimentation which would never have been possible had one agency attempted complete design and specification.

In these first days, the greatest development occurred with the use of the four foot by eight foot (1.2 x 2.4 metres) plywood panels, with inner and outer sheets glued to a frame, with doors and windows prebuilt into the panels. The exterior panels used resin adhesives for the bonding of the veneers which made them waterproof. The space standards were moderate in these first houses, allowing 672 square feet (62 square metres) for living room, kitchen, bathroom and two bedrooms. Space heaters, kitchen stoves and electric refrigerators were included. The construction cost, not including site and site work, was about \$3,000 per dwelling unit. The amount varied, of course, depending on the section of the country, and even more upon the date, for costs were steadily rising.

NO METALS EXPERIMENTATION.

One of the great disappointments has been that none of this great experimentation could be directed at the exploration of the use of metals instead of wood for panels. This is regrettable, because after the war we shall have great need of a market for aluminium and magnesium, the production of which has been so enormously expanded by the war. Wood, as we all know, has the great virtue of being simple to work on the site, for it does not depend upon precision and is so adaptable to sawing and nailing. Unfortunately, wood is not fireproof and needs upkeep. On the other hand, light metals are fireproof and need no upkeep, as well as perfectly fitting the precision methods of shop fabrication.

As 1942 came to a close, there was increasing need to conserve materials and man-hours, so the space and material standards were reduced and so-called "temporary dwelling

units" were built, known in the jargon of the housers as T.D.U. These are not prefabricated or demountable and are lined with wall boards on the interior.

What, then, can be offered as the writer's conclusion on the experiments in prefabrication? Great gains were made in speed and lack of site work, but there is no proof of great cost saving. The actual effectiveness of "demountability" can even be questioned, for it is now found that sawing up the units into large sections, whether traditionally constructed of prefabricated, is cheaper and easier for the moving process than demounting them panel by panel. After the war, the advantages of speed and minimum work at the sites will not be so important and the cost item becomes the real matter of interest. And there is no proof yet that we can expect any financial miracles from "prefabrication."

At the same time that 500,000 dwelling units of all types were built for rent by the Government, private industry (in the main with Government insurance) produced a like number for the better-paid workers, mostly for sale. Here the experimentation came mainly in the improvement of large-scale site operations, such as pre-cutting and framing lumber.

Now to turn from technical to the architectural design. In the group produced by private industry, the plans could be said to aim at a desired American "norm" which would include a garage, a utility room for the laundry, and a dining alcove, in addition to minimum requirements. Aesthetically, these houses were meagrely conceived in the image of sentimentality for past styles; speculative builders rarely employ architects worthy of the name.

The housing sponsored by the Government, although reduced to bare minimum living standards, runs a tremendous architectural gamut, from the traditional, through the fake modern, to the real contemporary, with a much greater proportion of fresh, progressive work than in the period just preceding the war. There is the neat, arbitrary quality of the Bauhaus School, but this gradually gives way in this country (even with the same designers) to the simpler, natural-coloured wood-sheathed projects which become part of the scene, rather than cutting free from it. In fact, all about one sees the designers in this country, particularly on the west coast, producing a free, indigenous version of the new credo. Without doubt, there is great inspiration from such varied leaders as Wright and Gropius, but their final importance for us may well be the paths they opened for our own development.

CONTEMPORARY JOURNALS

"ARCHITECTURAL FORUM," April and May, 1945.

The April issue of the "Forum" presents a housing omnibus featuring the domestic design attitudes of seven popular American magazines, which are devoted either wholly or in part to the home. This issue reflects American public taste as interpreted by the respective journals and public response to planning developments: it is a handbook of ideas for the improvement of the contemporary home, presented by editors of experience in this subject. It is profusely illustrated with plans, diagrams and photographs of both scale models and existing houses.

★ ★ ★

The May issue provides, on the other hand, a wide selection of interests, commencing with a most dramatic outdoor theatre by Burnham Hoyt. By a skilful use of the natural setting and a minimum of applied architecture, the architect has achieved an outstanding result, chosen by the Museum of Modern Art as one of the 47 best buildings in the last ten years.

In the "Commercial Portfolio," six delegates are included, comprising shops and an office, all of which, while they capitalise shortages and space limitations, are striking examples of contemporary commercial planning and detailing.

Following three American houses there is a full account of the British Iron and Steel Federation's steel houses designed by Fredercik Gibberd; and to conclude this issue there is a well illustrated and documented review of "Lighting the Small Home," in which lighting fundamentals, methods and requirements are reviewed and analysed.

★ ★ ★

"ARCHITECTURAL RECORD," May, 1945.

This is an issue which all architects interested in the house and the trends in its design, planning, construction and equipment might well take a quiet hour off to read and contemplate, for the issues raised by the several contributors are provocative and not without bearing on the problems facing house designers in this country.

Joseph Hudnut, Dean of Harvard's Graduate School of Design, starts the ball rolling with his persuasive discussion of "The Post-Modern House." His argument is both stimulating and challenging—that the architect should transcend the



RED ROCKS OUTDOOR THEATRE, COLORADO.

Burnham Hoyt, Architect.

"Architectural Forum," May, 1945.

scientific and technological sufficiencies and reinterpret the rôle of beauty and the 'human' scale on which houses are built. He says: "I am for every change in construction or equipment or organisation which will promote comfort or security or economy in the modern house. Nevertheless, there is, I think, an attitude of mind, a valuation or—perhaps more precisely—a way of working which is more important in architecture than science and which is by no means universal in our practice. I mean the way of working which gives to things made by man and to things done by man qualities beyond those demanded by economic or social or moral expediency, the way of working which complements utility with spiritual qualities of form, sequence, rhythm, felt relationships. . . . I mean, in short, that search for expression which transforms the science of building into the art of architecture."

On the subject of "Space," Royal Barry Wills, recognised by many as a master of the small house plan, looks forward to the planning developments resulting from a post-war demand for better living. His answer to the problem realistically points to a more flexible and usable space, and his analysis of the house contains many practical suggestions towards this end.

The third of this series of articles is by Robert L. Davidson, who, by reason of his long acquaintance with technological research, is well equipped to review "Possibilities and Trends in Post-War Construction, Materials and Equipment."

Following five small house plans for various purposes, F. R. S. Yorke, the well-known architect and author, writes on the subject "Prefabrication in Great Britain"; and as an attractive

conclusion there is a short but telling review of Swedish contemporary architecture, furnishing and textiles.

★ ★ ★

"PENCIL POINTS," May, 1945.

The results of the Pencil Points—Pittsburgh competition for post-war houses representing "the sort of improved living environment to which 'G. I. Jones' should be entitled," with the inclusion of an article, "Glass in House Design," fills this issue. Both the widely varying solutions to the design of "A House for Cheerful Living" and the Jury's report are worthy of study. While one may not be in sympathy with many of the designers' interpretations, yet there are many interesting and well-organised plans and delightful details in the solutions presented.

★ ★ ★

"JOURNAL OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA," May, 1945.

This special number presents material regarding the preliminary report on the Master Plan for the City of Montreal. This summary "Planning for Montreal" contains facts and studies which, although not complete, form a basis for works to be undertaken in the immediate post-war period. The site and growth of the city is first analysed and then follow studies on Traffic, Zoning, Housing and Open Spaces. The report is well illustrated and contains a coloured folding map of the city to illustrate the preliminary studies.

BOOK REVIEWS

"ARCHITECTURE AS A COMMUNAL ART," by Sir Charles Reilly. Published by B. T. Batsford, Ltd., London, for the Council for Education in Appreciation of Physical Environment [C.E.A.P.E.], 6d.

In this little pamphlet, complete in 16 pages, with well-chosen illustrations and a foreword by Sir Giles Gilbert Scott, the author surveys concisely and with historical references the general picture of the incidence and nature of the communal aspect of architecture. He sees the resurrection of a real communal architecture dependant upon the "discovery and development of new building materials which will lead to new and universal methods of construction, and consequently to new forms of architectural expression," and upon "some new social need or needs of a similar universal character." In reviewing the fundamental rôle materials have played in architectural design and in discussing the new trends towards a greater social consciousness in planning, Professor Reilly shows that, with a public aware of the meaning of good architecture, the harmonious environment is capable of achievement.

MAPS FOR THE NATIONAL PLAN, prepared by the Association for Planning and Regional Reconstruction. (Lund, Humphreys & Co., Ltd., 15/-.)

The comprehensive series of maps presented in this publication, size 13 in. by 8½ in., with ring back binding, have been prepared as a background to the Barlow, the Scott and the Beveridge Reports to provide the basis for discussion and informed criticism for post-war reconstruction. Passages selected from the text of these reports, and, in one case, from the White Paper on Educational Reconstruction, are quoted opposite each map. These maps, which with two exceptions use the standard 100 kilometre grid and are drawn to the same scale and projection, have been presented in black and white to facilitate reproduction. Two transparent maps are provided in the back pocket of the book, which can be placed over the other maps. The one determines the location of places and the other the distribution of population.

This work has been completed during the war years, and in the absence of the ten-yearly census of Britain due in 1941, and the frequent lack of comparable statistics for Scotland, it has meant that some are not complete or up-to-date. This Association, which comprises a number of men and women

from many professions, has presented the planner and the public with a valuable, easily assimilable and attractive document.

"ART AND EVERYMAN," by Hervey Adams. Published by B. T. Batsford, Ltd., London, for C.E.A.P.E., 1/-.

Presented in pamphlet form, with a foreword by Clough Williams-Evans, this is a brief analysis of the part art and art-consciousness plays in our daily lives, and in the compass of some thirty pages Mr. Adams surveys in a light but erudite manner the whole conception and meaning of art as it affects us and our environment.

As a basis for an understanding and study of the ramifications of art and design in its many forms, this is an excellent handbook, and that it is not merely an "artistic" summary is shown by the inclusion of architecture and town and country planning, and the reasoned critical approach the author has adopted in his discussion of these subjects. This is a stimulating and persuasive argument which encourages one to go further and re-read those old friends, many of which are included in the author's list of "Suggestions for Reading" at the end of the pamphlet.

"ARCHITECTURAL PRACTICE AND PROCEDURE," by Hamilton H. Turner, F.S.I. B. T. Batsford, Ltd., London, 15/-.

Few will require introduction to this standard work, which for many years has been a recommended text-book for those studying the complete subject of "Professional Practice." That it has enjoyed such sustained popularity amongst architects, quantity surveyors and students alike since its first appearance in 1925 is ample proof of its worth. The present edition has been thoroughly revised and re-set in clearer type. Among additions introduced are the latest R.I.B.A. Form of Contract, as well as the shorter form for minor works. The chapter on the London Building Acts has been re-written, as well as that dealing with the important subject of Approximate Estimates. A Schedule of Condition of Repairs of Property and an Inventory and Valuation of Furniture and Household Effects have been added. Altogether this is an extremely valuable book for all those concerned with the practice of architecture.

W.D.H.

LEGAL OPINION ON "UNDERPINNING"

Extract from Minutes of Meeting of the Executive Committee of Central Council, August 7th, 1945.

The Chairman said that, as the result of an inquiry put to him by a member of the Institute, he felt that, as the matter affected the whole profession, counsel's opinion should be obtained. Accordingly the following statement of case had been submitted, and the following opinion obtained :

STATEMENT OF CASE :

" I am directed to ask you to obtain the opinion of Mr. Advocate Vieyra on the following :

1. (a) An architect is commissioned by a client for a building, the construction of which necessitates the underpinning of an adjoining building.
2. The owner of the adjoining building refuses permission for the underpinning to be performed.
3. (a) Is such owner within his legal rights in refusing such permission ?

(b) What remedy, or procedure, is available to the architect's client in respect of his proposed new building ? "

COUNSEL'S OPINION :

" One of the members of the Institute of South African Architects has in hand the erection of a new building which, as is normally the case with such buildings, will involve the removal of lateral support from an adjoining piece of ground on which there is another building. The method by which it is desired to overcome the difficulty is by underpinning the adjoining building. This, I am given to understand, is effected by the erection of piers under the foundations and into them, thus giving the support which has been taken away by the excavations for the new building. In the particular case in question the owner of the adjoining property refuses permission for this to be done. I am asked to advise whether he is within his legal rights in so doing, and as to what remedy or procedure is available to the architect's client in respect of the proposed new building.

" Lord de Villiers, in the case of the London and S.A. Exploration Co. vs. Rouliot (8, S.C. 85, 91), stated that ' The theory of the law is that the owner of land owns it upwards to the skies and downwards to the centre of the earth,' but

he goes on to state that such rights must be exercised with due regard to the rights of others, and one of the rights that adjoining landowners have is the right to lateral support which exists as a natural right incident to ownership of land. This right of lateral support connotes that no one is entitled to dig down into the earth and by so doing cause a removal of support for neighbouring ground and whatever may be built on that neighbouring ground.

" This view has been accepted also in the case of the Johannesburg Board of Executors vs. Victoria Building Co. (1, O.R. 43), the headnote of which reads, ' Owners of adjoining erven are mutually obliged to refrain from doing anything by which the necessary support for buildings on the neighbouring properties is removed.' In 1888 the plaintiff had erected a double-storey building on Stand 898, Johannesburg. At that time there stood on the adjoining stand a small building which was pulled down in 1893 to make room for a large double-storey building, the foundations for which were excavated in the immediate neighbourhood of the plaintiff's building. About the same time as the western wall of the defendant's building was finished the eastern adjoining wall of the plaintiff's building began to crack, and eventually had to be pulled down and rebuilt. The Court found that these cracks were the consequence of the removal of lateral support, and granted damages accordingly. See also Philips vs. S.A. Independent Order of Mechanics (1916, C.P.D. 61).

" It follows, then, that where excavations are being made close to other buildings and thereby lateral support removed, there is a duty on the person causing the excavations to be made to avoid the damage which may follow from such removal. He must provide other support for his neighbour's ground. The question is whether he can do this by entering upon the neighbour's property and erecting structures there.

" In my opinion he is not entitled to do anything of the sort. He has a duty of lateral support. He is, in the first instance, not allowed to remove such support. It does not lie in his mouth to say ' I know I have no right to remove the lateral support to which you are entitled, but please let me come on to your property and build piers or other works there so that the result of my removal of such support may be avoided.' If he removes lateral support by means of excavations he must provide some substitute by works on his own ground, but cannot insist that his neighbour shall allow him to meddle with the ground or building belonging to him. One might compare this with the question of rain water falling on

one's ground. The owner is not allowed to interfere with the flow of such water if in so doing he causes damage to his neighbour which otherwise would not have occurred. Having meddled with the flow so as to cause such damage, if no precautions were taken, he cannot insist to be allowed to come on to his neighbour's land in order to build structures there which would avoid this damage.

"In the matter under consideration, then, either some agreement must be arrived at with the neighbour or otherwise the works necessary to avoid damage by reason of the removal of lateral support must be effected on the property where the new building is to be erected."

(Signed) HUBERT J. B. VIEYRA.

A MEMORIAL TO SIR EDWIN LUTYENS.

A committee, set up to consider the best form a memorial to the late Sir Edwin Lutyens could take, has concluded that the publication of a book in three or more folio volumes covering all aspects of his work would provide the most fitting monument. The aims of this committee are, therefore, to guarantee the publication of this book and, in addition, to endow an annual scholarship at the School of Architecture of the Royal Academy. This further object will only be capable of achievement if the amount subscribed is sufficient.

Mr. Christopher Hussey and Mr. A. S. G. Butler have agreed to act as joint authors and editors of these volumes, which will contain plans, detail drawings, and photographs, as well as analytical notes intended to illustrate the genius of Sir Edwin and his high position in the historical sequence of architecture.

★ ★ ★

In support of the appeal for contributions to the Memorial Fund, Jasper Ridley, chairman of the committee, writes as follows:—

"Lutyens's high place in the historical sequence of architecture is not likely, I think, to be disputed. The extent of the value of his work to posterity, however, will depend not only on the critical analysis of his work, but on the availability to students of his drawings and details, as well as access to his derivatives in the architectural traditions of our country. The responsibility of the next generation of architects cannot be exaggerated. It is for this reason that we decided that our tribute to this master should, in the first place, take—in the words of 'The Times' leading article—"an unusual but very happy form of memorial. The proposed book in three or more folio volumes, containing plans, drawings, photographs and analytical notes of his work, will be a fitting permanent tribute to one who contributed so much to the beauty and grace of town and countryside."

"No architectural library would be complete without these volumes, but the scope of the volumes envisaged, involving as they will a great deal of patient research, is likely to

involve a capital outlay a good deal in excess of what a publisher would regard as normal to a purely commercial undertaking. The Memorial Fund, therefore, is designed to serve both as a guarantee and a means of securing the book to architects and specialists, among others, at privileged rates. It is, nevertheless, anticipated that the volumes will eventually pay to a great extent for the cost of their production, and we therefore entertain the reasonable hope that a large proportion of the Fund will remain available after publication for the furtherance of the same objects by the direct endowment of architectural education.

"At a time of such universal destruction, it seems to us more than ever important to bring the resources of modern scholarship to the task of ensuring that this great artist's work can be studied and none of its lessons lost, in the manner in which the Wren Society has so admirably performed a similar mission. Like Wren, Lutyens may be said to have raised his own memorial in the outstanding buildings of a generation. It is, we believe, for all those who recognised his irreplaceable genius to make sure that a full record of his immense output—buildings, monuments, craftsmanship and gardens—with detailed plans, is made now while it is intact and memories are fresh, in a form accessible to students, not in England only, but throughout the world.

"The list of subscribers should be as representative of the architectural profession as it can be made, for nothing else would be a fitting commemoration of so outstanding an architect. The immediate object of this appeal is to have as many societies and names as possible on the subscription list and to make sure that there is a guarantee that the volumes will be as noble and lasting a record as they can be made.

"The advantage of subscribing to the Memorial Fund now will be well worth while, as it is intended that such subscribers will receive a special discount of 25% on the published price of the volumes. There will be two editions of the volumes—one for donors to the Memorial Fund and the other for the general public. A list of donors will be published in the volumes. It is hoped that the volumes will work out at four guineas per volume to subscribers: it may be less, but this is dependent on the total of the Memorial Fund."

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