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# SOUTH AFRICAN ARCHITECTURAL RECORD

*THE JOURNAL OF THE CAPE, NATAL, ORANGE FREE STATE AND TRANSVAAL PROVINCIAL INSTITUTES OF SOUTH AFRICAN ARCHITECTS AND THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS*

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W. DUNCAN HOWIE

**ASSISTANT EDITORS**
UGO TOMASELLI
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VOLUME 35

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General view from the North-West

# RAND AID ASSOCIATION SOCIAL WELFARE BUILDING IN COTTESLOE JOHANNESBURG

FLEMING & COOKE, AA.R.I.B.A., MM.I.A., Architects.

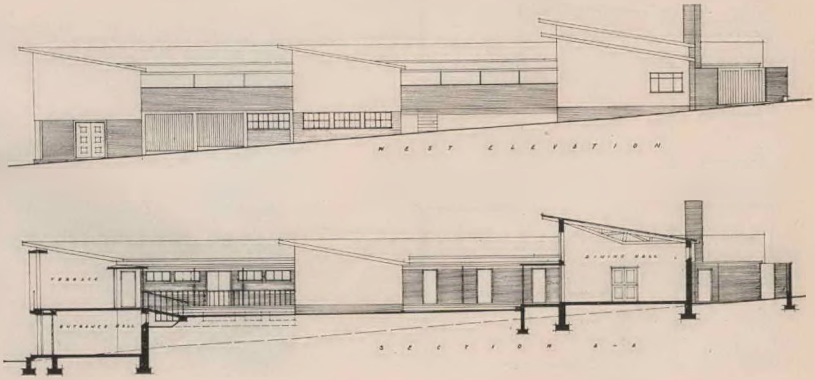
The Rand Aid Association is a social welfare organisation. It is sponsored by a number of concerns, namely; the Union Social Welfare Department, the Mining Industry, the Governor Generals National War Fund and the City Council, as well as by public subscription.

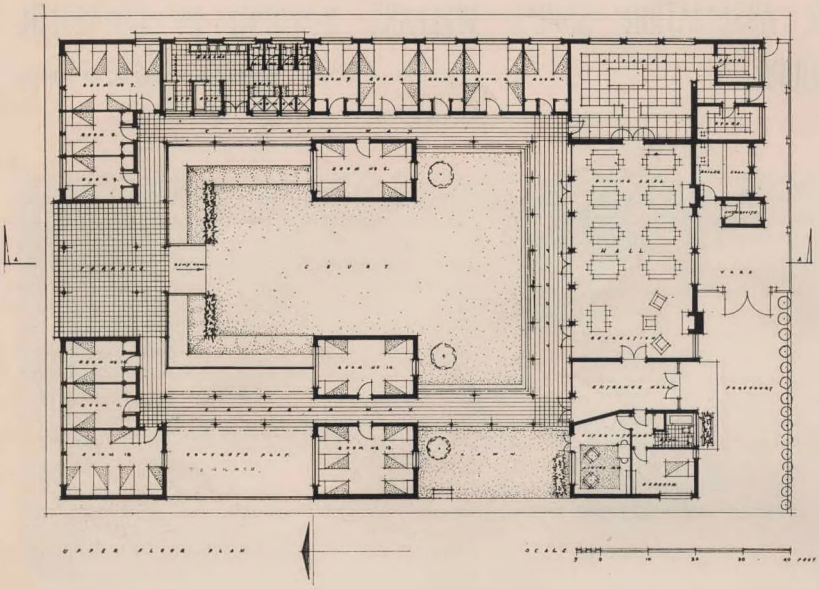
The Association has many activities, one of which is care, cure and rehabilitation of alcoholics. During the first period of their care the patients are treated in a sanatorium situated on the outskirts of Johannesburg. Then follows a period of "after care", which is to ensure the gradual transition from institutional life to that of the community. The men are now considered fit to take their places in society and they gradually become re-employed and re-absorbed into normal life again. The new hostel here described is designed to accommodate the men during this period. It replaces the old premises in Fordsburg, the site of which has been taken over by the Government.

According to recent theory alcoholism has more a physical than psychological cause. It is considered that some people have a physio-chemical constitutional composition which causes a pre-disposition to alcoholism. Nevertheless psychology forms an important part of the cure. The contented social adjustment of the individual to his fellows and an environment of cheerfulness and expressive of hope; are factors which contribute to the rescue of these men, whose affliction may result from overwhelming experiences and depressing surroundings. These are men from all walks of life to whom an institutional atmosphere would be abhorrent; as would the hint of incarceration or excessive discipline; although complete control is an essential. The residents largely organise their own internal administration among themselves. They elect their own administrative committee and all the work of the hostel is done by the men. There are no servants and no natives. Only one resident official of the Association acts in a supervisory capacity. The great value to the community as a whole of the rehabilitative work done by this organisation, can well be imagined.

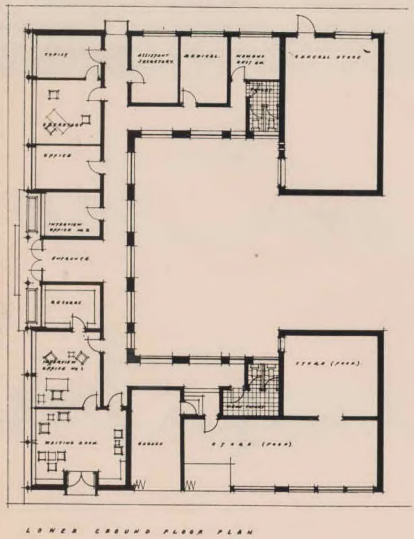
This, then, was the problem for which an architectural solution for the hostel had to be found. In addition, headquarter offices for the Rand Aid Association had to be provided, as well as a bulk provision depot for distribution to this hostel and five other branches; accommodating in all six hundred persons.

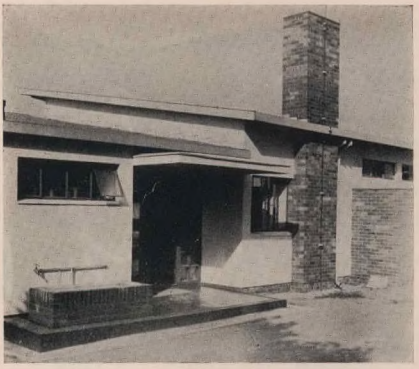
Advantage was taken of the sloping site to arrange the offices on the lower half of it, and then by considerable earth filling — as much as six feet deep in the courtyard — to form a level podium on which the hostel was built.






## SOCIAL WELFARE BUILDING AT COTTESLOE



Entrance Porch from the forecourt on the South. Flower box at left

Detail of the North Elevation.



The hostel is planned round a courtyard. This was an essential requirement to ensure complete control; there is only one entrance, which passes the superintendent's flat. From it he is conveniently able to keep on eye on all entering and leaving the hostel; to see clearly into the court; and to watch deliveries and despatches to and from the food store at the lower level. In the planning of the courtyard these requirements of control have been made as inconspicuous as possible. Every attempt has been made to avoid the restrictive feeling of a closed court and to aim at a free spaciousness on the small site. The court is opened up to North and West giving long views in these directions. The Dining and Recreation Room faces, through its glass wall, the alternate widening and narrowing form of the courtyard space and then across the open terrace to a distant view Northwards. The two rooms in the court also enjoy this open view. The West side is lightly enclosed by open covered ways, and parapets with railings. There is thus a distinct flow of space through the whole building complex from South to North and a subsidiary one from East to West. This "space flow" through the courtyard forms the aesthetic theme of the composition, it is emphasised by the series of parallel sloping roofs and implied in the North and West Elevations. Interruptions such as columns, railings and slabs are kept as slender as possible.

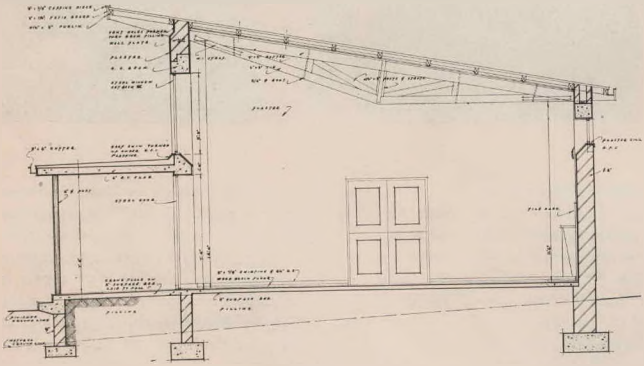
The hostel accommodates forty-six residents in rooms with two, four and six in each. Residents occupy these according to the length of their stay in the hostel and their general conduct. The Dining Hall and all residents' rooms in the hostel face North or East and the hot West aspect is avoided. Moderate storeroom space only is required for the kitchen in view of frequent deliveries; the large bulk food store on the lower floor; and the fact that the catering is on the whole of a simple nature. The grassed courtyard and the two terraces provide considerable space for outdoor recreation.

The offices on the lower ground floor are the general administrative headquarters of the Rand Aid Association of which the hostel above is but one activity. Thus no direct connection was desirable between the two sections of the building. On the lower floor are arranged rooms for the interview of residents or prospective residents of this and other hostels, also general administrative offices and a room for medical examination and treatment. All of these offices face North except two on the East. On the side adjoining the Street on the West is the bulk provision store previously mentioned. This is not used for perishable foods.

As the Rand Aid Association is a charitable organisation



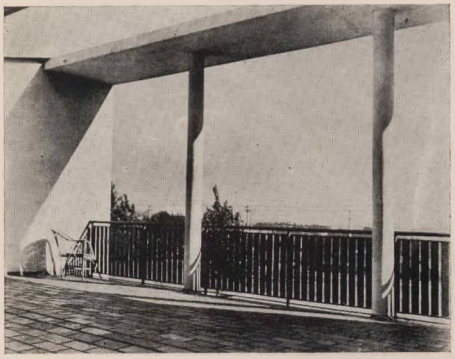




ABOVE, LEFT: General view of the Dining Room seen across the grassed court. ABOVE, RIGHT: Dining Room looking through to the court. LEFT: Detail showing the section through the Dining Room.

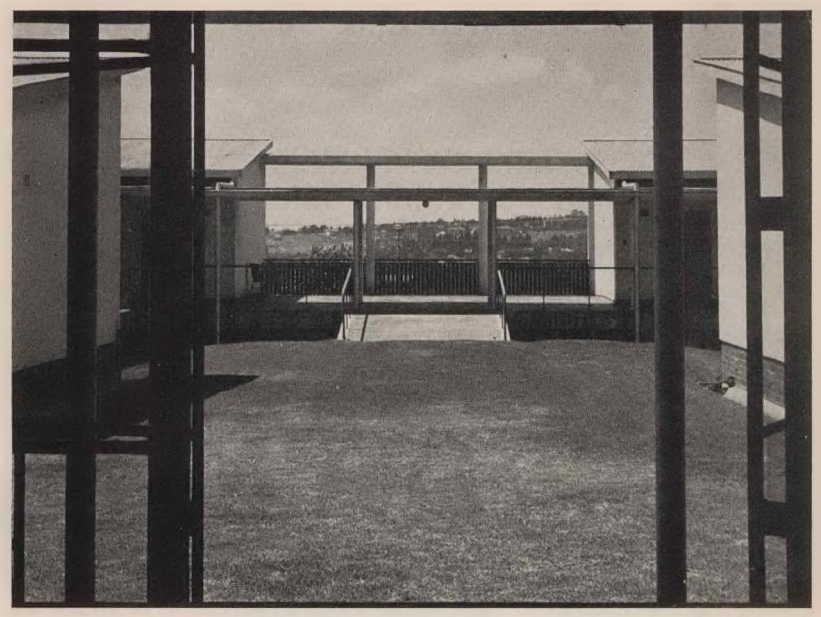
The colour scheme in the dining rooms is as follows: North wall and window frames, ivory; South wall, flesh pink; end walls, light blue-grey, and the exposed trusses are painted yellow ochre.

BELOW: Detail of the terrace on the North front, looking from the Court to the view beyond.



the cost of the building had to be kept as low as possible. It was constructed in 1948 at a cost of £22,750 resulting in a rate of 33/9 per square foot.

The construction generally is orthodox, it consists of load bearing brick walling with reinforced concrete structure where required. The roof is a single pitch type, covered with corrugated iron, with the timber trusses exposed in the Dining Hall. Finishes throughout are as simple and economical as possible. Exteriors are plastered and colour washed a very pale biscuit colour with windows painted terracotta and a blue grey soffit to the eaves.



View across the court and the open terrace to the landscape beyond seen from the interior of the Dining Room



Detail of East Elevation.

# SOUTH AFRICAN PEASANT ARCHITECTURE

## NGUNI FOLK BUILDING

By JAMES WALTON, B.Sc. (Land.), Dip.Ed. (Leeds).

The framework of the *mahlongoa-fatse*, as employed by the Southern Sotho of Basutoland is not confined to that country. An identical structure is met with among the Nguni of the Cape where existing evidence indicates that it was formerly the usual dwelling of these tribes. The Vundle branch of the Bafokeng, who left Ntsuanatsatsi to live with the Xhosa peoples of the Transkei and settled in the Mjanyane Valley of South Basutoland in 1848, still retain this hut type (*ngqu-pantsi*) for certain purposes. When a son of a chief is about to be married he builds such a hut on the extreme left of the semi-circular kraal. In this the bride lives until the marriage ceremony is completed and the newly married couple occupy it until a more substantial structure is erected or until the son leaves his father's kraal to establish his own kraal elsewhere.

The *ngqu-pantsi* consists of a ring of stakes whose tops are bent inwards to a point and which are bound together by concentric hoops in exactly the same manner as the *mahlongoa-fatse* (Plate I, Fig. a). Over this framework is laid a covering of grass which is secured by means of a loose network of grass rope comparable to that employed by the Southern Sotho for their *lephephe* (Plate I, Fig. b). Certain lengths of rope stretch like the spokes of a wheel from the apex to the ground, where they are either secured to a large hoop of saplings, fastened to the upright stakes, or they are anchored by heavy stones which form a low foundation wall around the base of the hut. The network is completed by latitudinal circles of rope which are knotted at their junctions to the radial lengths. A low arched doorway, from 3 to 4 feet in height, is covered at night by a hide stretched over a wooden framework. Inside, the floor and walls, to a height of about six feet, are smeared with a mixture of clay and dung. A raised circular rim in the centre of the floor serves as a hearth which assumes an importance comparable to the hearths of the Natal Nguni. The right hand side of the Vundle hut, as one enters, is reserved for men and the left side for women. A wife will sleep on the same side as her husband, except during menstruation, but a daughter-in-law will never sit on the men's side in her father-in-law's hut. The delightful protective cappings of the Natal Nguni are rarely met with in the south although forked sticks are driven into the thatch as a protection against lightning. Chief Maama Vova, chief of the Vundle, asserts that this is the traditional dwelling of his people.

An identical hut was formerly widespread amongst the Xhosa. "In nomadic times, during those times when the tribes were migrating, the construction of the huts was of the simplest kind. They were of one pattern, *Ngqu-Pantsi* (Bang Down). These may still be occasionally seen, but have been largely superseded by more permanent kinds. The skeleton of this hut is formed of saplings stuck upright in the ground and bound along with cross saplings at intervals of a couple of feet between each row, to a height of about seven feet. The ends of the upright saplings are then bent inwards towards the centre to form the roof. These are bound together, and the rings of cross saplings are continued to the top. This being completed, grass of a tall reedy variety called *i-Dobo* is sewn or thatched on in layers of considerable thickness to the whole hut from top to bottom by ropes of plaited grass or wood bast. Then a coating of mud, mixed with the droppings of cattle to give it toughness, is plastered all over the inside to a height of about six feet up. This is then smoothed down by a top dressing of liquid mud after the first rough coating has dried. This gives the walls a smooth surface, filling up any cracks which may have formed in the first coating." (Soga, J. H.: *The Ama-Xosa: Life and Customs*, 1931, p. 409.) The same construction is used for the circumcision lodge, *i-Tonto*, but the walls are not smeared inside.

The subsequent development of the *ngqu-pantsi* followed similar trends among all the Cape Nguni tribes but whether this was a normal evolutionary process sponsored by a desire for increased living space or whether the penetration of the "rondavel" type resulted in an attempted emulation it is impossible to determine. All the essentials of a progressive evolution can be traced, however, even in districts where the "rondavel" is not found. In the first stage the *ngqu-pantsi* framework was retained but vertical walls of earth or stone were built around the framework to a height of five or six feet (Plate I, Fig. d). Later a cylindrical earth or stone wall, about seven or eight feet high, was built and saplings were driven into the top of the wall. These saplings were then bent over to form a dome-shaped roof similar in construction to the *ngqu-pantsi* (Plate I, Fig. c).

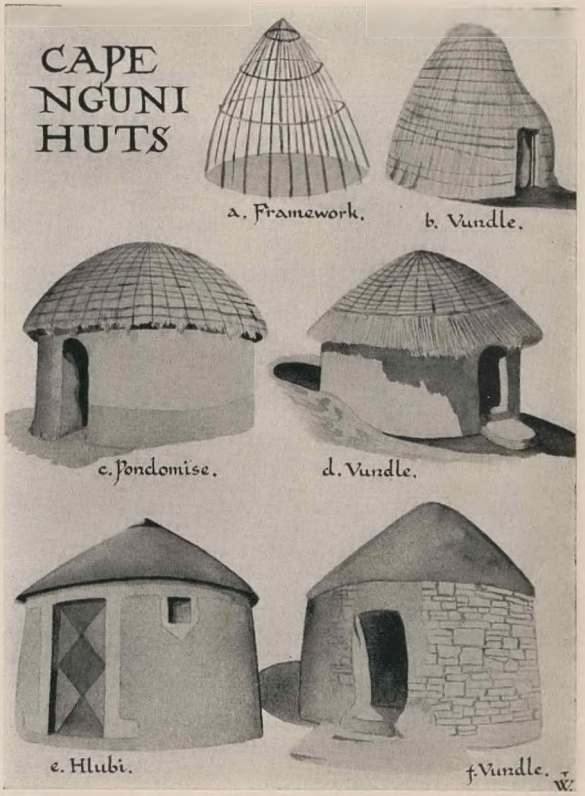



*Plate I*

This may be considered as the typical Southern Nguni dwelling for it is found amongst the Xhosa, Fingo, Pondomise, Thembu, Vundle and, in fact, all the Transkei peoples. Only within the present century have the true conical-roofed "rondavel," *rontawuli,* and the rectangular European dwelling replaced the dome-roofed *isi-Tembiso*.

The thatching is exactly the same as that of the *ngqu-pantsi* but the method of securing the radial ropes varies. Among the Vundle huts with a *ngqu-pantsi* framework and low vertical walls a ring of saplings or grass rope passes round the thatch at a point level with the top of the wall and this is sewn to the stakes of the framework. All the radial ropes are then fastened to this hoop which thus firmly holds the network over the thatch. Below the hoop the thatch projects considerably to give a wide, shady eave (Plate I, Fig. d). In the *isi-Tembiso* variety the thatch rarely projects much beyond the wall and the radial ropes are either secured to wooden pegs driven in the wall around its upper perimeter (Plate I, Fig. c) or to a sapling hoop as previously described. The dome-shaped roof does not require a finishing cap but sticks are occasionally stuck in the top as a protection against lightning whilst among the Xhosa a plant, *ntelezi,* is planted in a quantity of soil on the roof top where "it grows undisturbed and conveys to the inmates of the hut a feeling of confidence and safety, which ignorance alone can justify." (Soga, J. H.: *op. cit.*, p. 216.)

The "rondavel" has in recent years encroached on the traditional Nguni types. In general structure it conforms to

the Southern Sotho "rondavel" already described. The walls are usually constructed of earth blocks and taper inwards slightly towards the top. The roof has a tidy sewn thatch with a neat conical capping. The conical roof framework is often made on the ground and lifted onto the walls after the manner of the Thonga and many Sotho tribes. Much use is made of natural ochres in decorating the walls. A white or light coloured band often extends completely round the top of the wall for a depth of from six inches to a foot. Among the Bhaca and Hlubi this band does not pass completely round the hut; it terminates in a border to the small windows which are a common feature of these huts and also extends down each side of the doorway. (Plate I, Fig. e.)

The doorways also shew a progressive development commencing with the arched opening of the *ngqu-pantsi* which is so low that one must crawl on hands and knees to enter and which is closed by a hide or reed screen. The Vundle *rontawuli* serves as the next type. The doorway is still lower than the height of a man and it is approached by one or two steps leading up to a floor above the level of the surrounding ground. The peculiar feature of these doorways is the way in which they widen out in the middle and narrow towards the top and bottom. I have been unable to ascertain the reason for this but it seems probable that it was done originally to prevent animals from entering the hut in the same way as some stiles in England are narrow at the bottom and widen out towards the top. Finally a normal doorway, high enough to admit a man, is found in the true "rondavel" hut types.

The doorway opening in the most primitive cases is closed by a hide or wattle screen barred on the inside. The first true door type is also a wattle screen which is "harrhung"; that is to say it is pivotted on two spikes, one fitting into a hollow in the ground and the other into a hole in the lintel of the door frame. It seems unlikely that the "harrhung" door is a normal African innovation; it is a form of door hanging known by the ancient Egyptians and Etruscans and it was apparently introduced into South Africa from the north or from the east coast. It is distributed widely among tribes along the eastern coastal belt of Africa. The halved-door, introduced by early Cape Dutch settlers, and the solid hinged door are both commonly used to-day.

It is beyond the scope of this paper to deal in detail with the arrangement of huts in the settlement and among the Cape Nguni this arrangement is not always clearly defined. Each household, *umzi*, exists as a separate entity with its huts arranged in a semi-circle around the cattle kraal. The principal hut faces the entrance to the kraal and usually occupies the central position. "The first wife married is always the principal wife, *inkosikazi*, except in the case of a chief, whose principal wife is often chosen only after he is well established in the chieftainship. . . . Among the other wives, one other stands out in the typical polygamous household. She is the 'right-hand wife,' *umfazi wasekunene*, so called from the position of her huts in the household, the Xhosa counting right and left from the point of view of a person who looks out of the hut door towards the cattle kraal." (Haernle, A. Winifred, in Schapera, I.: *The Bantu-Speaking Tribes of South Africa*, 1946 edition, p. 75.)

But this relative position of the huts is not always maintained and the subsidiary huts "whilst observing the semi-circular contour of the residential quarters at intervals, by their position do not declare their status. For instance, the right hand house, which is next in importance to the principal house, may be either to the right or left of the principal one, and so also with the others. Their position is mainly a matter of convenience for the head of the family and to a certain extent is determined by the time when the different wives were married, for as is often the case, the most important wives according to status are married later than the less important ones and thus the latter have priority in choice of site." (Soga, J. H.: *op. cit.*, p. 408.) This is also true among the Vundle where the right hand wife and the subsidiary wives of Chief Vova all dwell to the left of the group of huts belonging to the principal wife.

The huts of the Natal Nguni and Swazi bear a superficial resemblance to those of the Southern Sotho and Cape Nguni already described, but the framework, which is constructed by the men, shows a very definite difference. Instead of the circular ring of stakes being bent over to meet at a point, among the Natal Nguni they are bent over into semi-circular arches, two sets of which cross each other at right angles (Plate II, Fig. a). This is a very different construction from that of stakes bent to meet at the apex and secured by concentric hoops.

The thatching of the framework is the work of the women and, especially among the tribes living under the Drakensberg, it often reaches a very high standard. The framework is covered with grass, *ukufulelu*, which is secured by a network of plaited grass rope, *izintambo*. A few inches from the ground a thick grass rope, *umphetho*, passes round the hut and this is firmly secured to the struts of the framework, *izintungo*. Other thick grass ropes radiate from the apex and are fastened at intervals of from six inches to a foot to the *umphetho*. The network is then completed by a series of closely-spaced concentric ropes passing around the thatch and knotted to the radiating ropes already fixed. This provides a very neat, efficient and ornamental covering which is usually surmounted by a carefully fashioned finial, *ingqongwana*.

The technique of rope network thatching appears to have reached its culminating development among the Nguni tribes living on the eastern slopes and foothills of the Drakensberg but there are several variations. In some

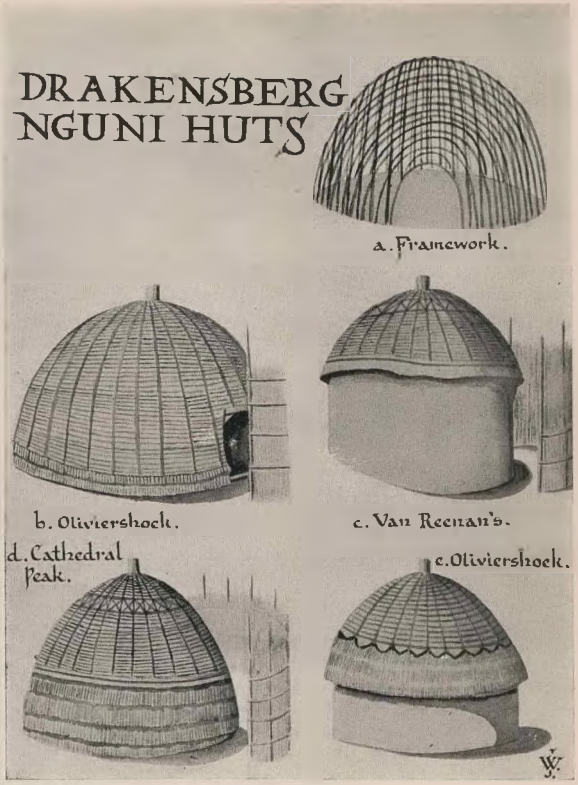



*Plate II*

cases the *umphetho* is made of saplings and the rope network may terminate about one-third of the way up (Plate II, Figs. d and e). In many instances too, both in Zululand proper (Plate III, Fig. a) and in Swaziland (Plate III, Fig. b) the thatch may be secured by concentric ropes only, each being fastened at the ends to a single rope secured by wooden pegs driven into the thatch. Where withes are available plaited bands of these are sometimes used instead of grass rope, and they may be secured to the framework by taking alternate withes underneath the *izintunga*, thus providing a very strong roof covering indeed (Plate III, Fig. e).

Normally the entrance is a low arched opening some three feet high, through which it is necessary to crawl in order to enter the hut. This may be closed by a hide, a wicker screen secured from the inside with a cross-stick (Plate III, Figs. a and c) or a hinged wooden door. The entrance to the Swazi hut is protected by a porch of arched saplings, *umpheme* (Plate III, Fig. b), comparable to the *mathule* of the Southern Sotho and found also in the Ngoro district of Uganda (Plate IV, Fig. b) and amongst the Bantu tribes of the Congo (Plate IV, Fig. c). Such porches appear to be characteristic of the early Bantu tribes which settled in Central and Southern Africa prior to the Bantu invasions which brought the "rondavel" type.

The subsequent development of the Natal Nguni hut followed the same trends as already outlined for the Southern Sotho *mohlongoa-fatse* and the Cape Nguni *ngqupantsi*. The beehive framework was retained but low vertical mud walls were built around it (Plate II, Figs. c and e)

giving a form almost identical with that of the Cape Nguni.

The interior of the Natal Nguni hut is divided into a man's side, on the right when entering (Plate III, Fig. g(g)) and a woman's side (Fig. g(h)). The floor is smeared and occasionally highly polished. In the centre is a circular raised rim forming the hearth, *iziko* (Plate III, Figs. g(c) and h(c)), flanked on each side by raised "wings," *izimpundu* (Plate III, Figs. g(b) and h(b)). Upright stakes, *izinsika*, (Figs. g(a) and k(a)), are embedded in the ground at the ends of the *izimpundu*. These carry a number of curved posts, *imishayo* (Plate III, Fig. h(1)) which support the roof. In a large hut other upright posts are also added for the same purpose. The space above this framework, immediately over the hearth, is known as the *ithala* (Plate III, Fig. h(1)) and here mealie cobs are preserved in the smoke of the fire which quickly blackens the entire roof. Around the hearth may be seen shallow depressions in the floor (Plate III, Fig. g(d)) in which the round-bottomed earthenware pots rest. At the back of the hut is a raised platform, the *umsamo* (Plate III, Figs. g(e) and h(e)), on which the pots are stored when not in use; the equivalent of the Southern Sotho *mahaoloana*. Occasionally a crude shelf is built above the *umsamo* (Plate III, Fig. h(f)) for keeping meal and personal belongings. Objects such as assegais, hoes, knives and gouges are stuck in the thatch.

In front of each hut is a circular courtyard (Plate III, Fig. g(j)) sheltered from view by a high rush screen, *iguma*. In the space immediately around the hut and courtyard, *ibala*, (Plate III, Fig. g(k)), medicine is dug into the ground to protect the hut against evil influences. When the hut site is marked out three pegs or horns of medicine are buried at points marking the entrance, the *umsamo* and the hearth; these serve as a protection against lightning and wizards. Medicine, *izintelezi*, is sprinkled over the hut on completion and before it is inhabited. Sticks are stuck in the *ingqongwana* as a protection against lightning, whilst larger sticks, having special properties of the same type, are normally kept inside the hut except when it is lightning. Then they are taken outside and placed on the huts and cattle kraal.

The Natal Nguni huts are arranged in a complete circle around the kraal, the whole being traditionally surrounded by a thorny fence, *uthango*. The huts of the "great wife" are at the far side of the circle facing the main entrance, *isango*. These comprise the big hut, *indlunkulu*, with its kitchen, *ixhiba*, on the left side, the Natal Nguni considering left and right from the point of view of a person looking at the huts from the kraal. Between the kitchen and the great hut is the food store, *inqolobane*. Within this store hut are a number of circular wickerwork containers each resting on a raised platform of branches and covered with a conical thatch. Mealie cobs are stored within these *izilulu*, the largest cobs being placed at the bottom. To the right of the big hut are the huts of the sons and daughters of the "great wife," placed at such a distance away that the noise of the young people will not disturb the occupants of the big hut. To the left of this main group of huts are those of the *ikhola*, the first married wife of the head of the kraal, together with the huts of other subordinate wives still further to the left. On the right of the *indlunkulu* are the huts of the *inQadi*. There are slight variations from tribe to tribe, but these three main groups invariably occupy the positions indicated in the *umuzi*.

The main entrance, where an outer fence exists, is flanked by two stout upright posts, *izigxoba*, across which horizontal poles are placed at night. The centre of the *umuzi* is occupied by a circular cattle kraal, *isibaya*, in which the court, *ibandla*, is held. Calf and goat enclosures are attached to the main kraal in front of the *indlunkulu*. Within the kraal are also to be found the grain pits, *izingungu*. These are pits, some six feet deep, covered with flat stone slabs, sealed with cow dung and hidden under a covering of earth.

## ANALOGOUS HUT TYPES

The hut whose fundamental framework consists of a circle of pliant stakes bent over to meet at a point or to form a series of semi-circular arches has already been noted among the Southern Sotho and Nguni tribes but its distribution is much more widespread. Either as a relic survival or as the normal dwelling type it still extends over the whole of Southern Africa and the "rondavel" is undoubtedly a later intrusion into this area.

Reference has been made to the Bushman huts seen by Veldt-Cornet A. Venter in 1823 between Aliwal North and Herschel which were pointed at the top and covered with a thatch secured by grass ropes. Stow has described two Bushman settlements in the Pniel area the huts of which were rather different. "The position of most of the huts which covered the crests of both these hills is marked by a semi-circle of stones with the opening towards the east; whilst that which formed the residence of the chief can also be distinguished from the rest, not only because it is larger, but the rocks also around it are very much more ornamented than any in the immediate neighbourhood of the others, while two or three smaller ones are placed close against it, forming probably the sleeping apartments of some of his wives. These semicircles of stones show that the diameter of the general huts was about four feet and those of the chiefs nearly five. Their framework was formed of a few bent withes, and this again was covered with rush or grass mats. These were most commonly made of rushes laid longitudinally side by side and then sewn neatly and closely together with either a twine made of the back-sinews of an antelope or of a kind of cord composed of rushes bruised and closely twisted together. The holes through which the twine or cord was passed were perforated through the body of the rush by means of a bone awl made for the purpose.

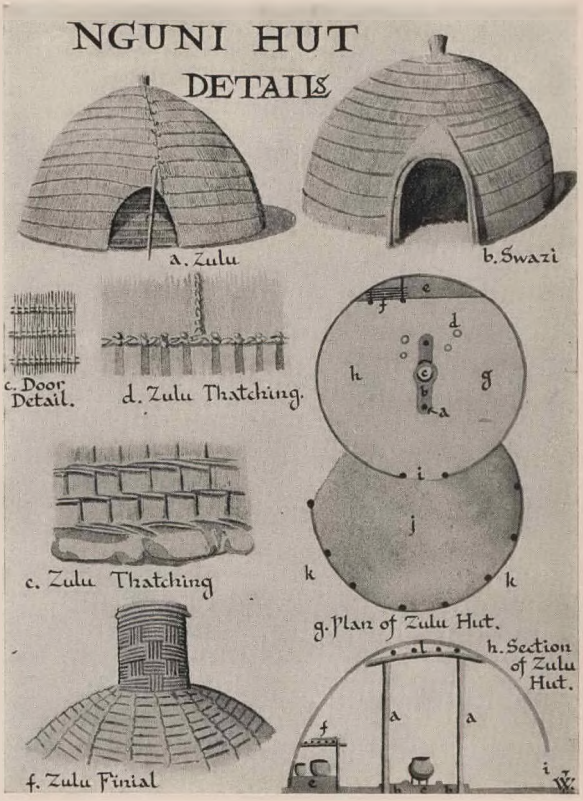



*Plate III*

These huts were more in the shape of magnified Dutch ovens than that of anything else.

"The huts used by the men of the plains differed somewhat from those just described. They were not strengthened at the bottom with the rows of stones used in the more permanent dwellings. They were taken down in the morning, the mats rolled up, the sticks tied into a bundle, and carried from place to place after the game. The wife constructed for herself a fireplace with three round stones." (Stow, George W.: *The Native Races of South Africa*, 1905, pp. 43-4.] Larger huts of a similar type are found amongst the Hukwe and some of the Hiechware. (Schapera, I.: *The Khoisan Peoples of South Africa*, 1930, p. 89.)

Among the Naron and most of the other Northern Bushmen the women do all the building. "The men may cut a few branches, but their wives plant them in a semicircle, tie the tops together with a thong or bark fibre, put smaller sticks in between them, and thatch the whole with grass, making a cosy little wind screen. In bad weather chunks of wood are often laid on top to keep the grass in place. The size and the care with which the hut is built vary with the season: in dry weather a very slight shelter suffices, just a little sloping screen perhaps made by sticking grass in the branches of a bush. As the rainy season approaches a proper semicircular hut is made, from four to five feet high, the opening to leeward of course, and when the rain really comes, the half circle is increased to about a three-quarter circle, often thereby changing the direction of the opening in accordance with the different wind. There is no door; the opening is about four feet high." (Bleek,

Dorothea F.: *The Naron, a Bushman Tribe of the Central Kalahari*, 1928, p. 5.)

The Bergdama build huts consisting of broken branches stuck in the ground in a circle of from two to three metres in diameter and bent inwards at the top. This framework is covered with dried grass or often large pieces of bark. The doorway, which is about 50 cm. high, is closed by means of a skin which can be rolled up when required. These Bergdama huts are built by the women to whom they belong and the men have no rights of ownership. (Vedder, von H.: "Die Bergdama in Südwest Africa," in *Africa*, 1930, Vol. III, pp. 182-3.)

The Hottentot huts (Plate IV, Fig. e) are more closely related to those of the Cape Bushmen and Natal Nguni tribes. "The huts themselves (*omi*) are much superior to those of the Bushmen, and well adapted to the nomadic life of the people. They provide an airy shelter from the wind and the sun, are light in weight, simple in material and structure, and can easily be taken down, packed up, transported, and rebuilt. The skeleton is a frame of long light pieces of supple undressed wood. Twenty to sixty of these, according to the size of the hut, are planted vertically in holes dug into the ground in a circle of three to five yards diameter. Their upper ends are then bent inward and tied together in the centre, until the framework is complete. The whole frame thus approximates to a hemisphere, varying in height but averaging about two and a half yards. Its erection is the work of the men. Withes are now twisted round the structure, and fastened on outside. Over these are tied layers of rush mats constructed by the women from reed grass, usually *Cyperus sp.* The stalks of reed are bored through and sewn together with bark thread. The finished mats are then laid round and directly over the wooden framework. Long mats are placed edgewise on the ground and tied to the sticks, other mats are placed higher up and tied in a similar manner, and one or two additional mats form the roofing. The hut when complete is of beehive shape. It is cool in the summer, when the rushes contract in the heat and allow the air to play freely through the hut; perfectly dry in the rain, when the rushes swell and grip closely to one another; while a lining of prepared skins makes it snug and warm in winter. When the camp is shifted, the structure is taken down; the mats are rolled up and the sticks are tied into bundles. They are then transported to the site of the next encampment on the backs of oxen, some of which are specially trained to carry packs, and are there again put together.

"The main entrance to the hut is usually opposed to the direction of the prevailing wind, and on the other side is left a smaller opening. The main opening can be closed by means of a piece of rush matting just fitting into it, and attached to a cross-pole situated about three feet from the ground. This mat door can be rolled up and fastened or let down. The position of the opening is easily changed from one side to another, according to the direction of the wind, by shifting the mats of the hut. The floor in the interior is smeared over with a mixture of cowdung and blood, often renewed, and is covered with skins. In the centre a depression is made as a hearth for the fire, and round this are stretched the mats or skins on which the inmates sleep. To the right of the rear opening is erected a frame of four poles with a net spread over them. On and under this are placed all sorts of household possessions." (Schapera, I.: *op. cit.*, pp. 229-30.)

A semicircular hut in which the branches are bent over in arches is found amongst the Pygmies of the Belgian Congo (Plate IV, Fig. e). (Schebesta, von Paul: "Meine Forschungsreise in Belgisch-Kongo, 1929-30," in *Africa*, 1931, Vol. IV, Plate IV.) This type is further developed in the domed huts of the Basongo-Meno and in the conical or pyramidal huts of the Aruwimi region, whilst some of the Ababua tribes also build round huts of beehive shape (Plate IV, Fig. c).

On the eastern coast the Thonga boys build beehive huts, *mitjhonga*, after the Zulu fashion, but these are rarely more than six feet in diameter. (Junod, Henri A.: *The Life of a South African Tribe*, Vol. II, 1927, p. 110.) A hut type from Ngora, Uganda (Plate IV, Fig. b) also belongs to this class (Jones, Thomas Jesse: *Education in East Africa*, c. 1923-4, Plate XXa.)

Of particular interest are the stone beehive huts recorded from northern Orange Free State and the Transvaal. (Hoernle, R. F. A.: "The Stone-hut Settlement on Tafelkop, near Bethal," in *Bantu Studies*, Vol. IV, 1930, pp. 34-35; Riet Lowe, C. van: "A Preliminary Report on the Stone Huts of Vechtkop," *J.R.A.I.*, Vol. 57, 1927, pp. 217-33; and Hoepen, C. E. N. van: "A Pre-European Bantu Culture in the Lydenburg District," in *Argeologiese Navorsing van die Nasionale Museum*, Deel II, 1939, pp. 47-74.) The Hoernles and van Riet Lowe ascribe the huts from Tafelkop and Vechtkop to the Leghoya and Hoepen suggests that those of Lydenburg and the northern Free State were built by early Bantu tribes. This is in agreement with other evidence which also indicates that the early Bantu tribes adopted a beehive hut form. The contention that these people derived their technique of building in stone from an Hamitic source (Hoepen, E. C. N. van: *op cit.*, p. 65) may be true, but building materials in themselves can rarely be accepted as a diagnostic cultural feature. It is only by means of structural plans and the rarer building techniques that one can correlate the different dwelling types. Timber, mud or stone may be employed by the same people depending on the availability of these materials.

The rectangular hut type has been adopted by almost all African peoples in recent years. It is a pure European introduction and generally follows the pattern described




*Plate IV*

for the Southern Sotho. Two earlier infiltrations of rectangular dwellings are noteworthy. One was from the west coast into the Congo basin and the second was from the Mombasa coast towards Lake Victoria. Just as the fusion of the "rondavel" with the rectangular ground plan produced the oval hut, so the application of the semicircular supports of the beehive hut to a rectangular ground plan resulted in a new hut type—a type for which I propose the term of "waggon-tilt" hut from its resemblance to the arched cover of the trek-waggon. This consists of a series of semicircular arches set at regular distances apart giving a vaulted framework identical in form with the present-day Nissen hut and having a rectangular plan.

Whether the "waggon-tilt" hut originated as a result of people familiar with beehive hut construction adapting their technique to a rectangular plan introduced from the coast or whether it represents a different fundamental use of arched supports it is difficult to determine. It is significant that such a hut type is found in regions where the rectangular dwelling has impinged on the beehive hut as in the Congo basin and in the country occupied by the Masai, which indicates that it does represent a modification of the beehive hut under the later influence of a rectangular form.

In the Congo basin the Basonge and Bateke both have rectangular houses with rounded roofs of the "waggon-tilt" type (Plate IV, Fig. a) whilst the Masai *tembe* is also of the same class. The latter "can best be compared with a round-topped trunk. Though the Masai usually stand well over six feet, their huts, which (quite comfortably with the owners' mode of life as cattle breeders *par excellence*) are neatly

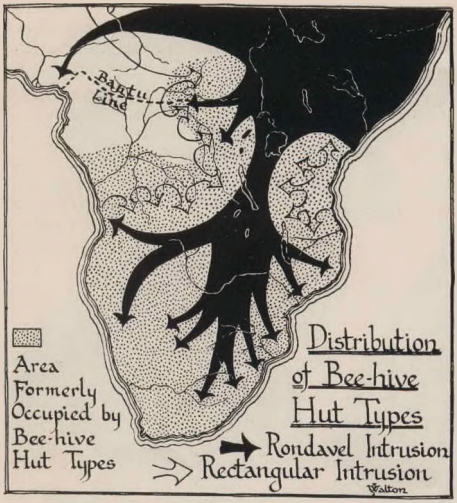



*Plate V*

and fragrantly plastered with cowdung, are so low that even a person of normal stature cannot stand upright in them." (Weule, Karl: *Native Life in East Africa*, 1909, p. 86.] "The women do the work of building. They procure poles, and put one end in holes, which they dig in the ground; they then bend the poles together with cord made from trees; after which they cover the frame with long grass. When they have finished this, they plaster the whole of the outside with cowdung and mud." (Hollis, A. C.: *The Masai*, 1905.]

The "waggon-tilt" hut occurs sporadically throughout the world in regions entirely disconnected. Apart from the African instances already mentioned, it is found amongst the Todas of Southern India where it is almost identical with the Bateke hut. Similar reed huts, *sarifa*, are also to be met with in the marsh areas of Southern Iraq.

## DISTRIBUTION OF BEEHIVE HUT FORMS

The northern limit of the beehive hut almost coincides with the "Bantu Line." Formerly in the whole area south of this boundary the beehive hut, in its many varieties, was the sole dwelling type apart from simple wind-screens and rock-shelters. The early Bantu tribes, the Hottentots, the Bushmen and the Congo Pygmies all favoured this method of hut construction. The later Bantu invaders had already accepted the "rondavel" from the Eastern Hamitic and Sudanic Negro tribes before setting out on their migrations to the south and these various Bantu waves were apparently responsible for the gradual diffusion of the "rondavel." This penetration by the "rondavel" is not yet complete; it still continues among the Nguni tribes on the south-east coast and only the widespread adoption of the European type of rectangular dwelling will halt this penetration. To-day it is common for a people to change direct from the beehive hut to the rectangular without passing through the intervening "rondavel" stage.

Beyond the northern limit of the beehive hut the "rondavel" is again dominant, probably having spread westwards from the same common source as that from which the Bantu "rondavel" was derived. The most westerly occurrence is found among the Ikwe of the Cross River, an isolated instance of "rondavel" construction in a traditionally rectangular hut region. The common origin of these "rondavel" types is supported by the fact that the Ikwe conical roof framework is constructed on the ground after the widespread Bantu manner.

Although the distribution of the beehive hut type has been mapped as an uniform architectural group (Plate V) such huts are only analogous in the one sense that their framework consists of a circle of stakes bent over to form an approximate beehive shape. Within this large group there are two main divisions:—

1. The Early Bantu Type, characterised by a framework consisting of a circular arrangement of saplings bent over to a point at the apex and joined by a series of circular hoops parallel to the ground. This section can be sub-divided into:—

   (a) The true early Bantu type having a sewn thatch and a porch, e.g. the Southern Sotho *mohlongoa-fatse*, the Ngoro hut type (Plate IV, Fig. b) and the beehive hut of the Congo Bantu (Plate IV, Fig. c).

   (b) A simpler type having the same framework but without a porch and having a rope network thatch, e.g. the Cape Nguni *ngqu-pantsi* (Plate I, Figs. a and b), the Southern Sotho *lephephe* and the Basutoland Bushmen huts.

2. The hemispherical type having a framework consisting of a circle of saplings bent over into semicircular arches.

   (a) Primitive shelters of the Congo Pygmies (Plate IV, Fig. d] and most of the Northern Bushmen; loosely thatched, unsewn and unroped.

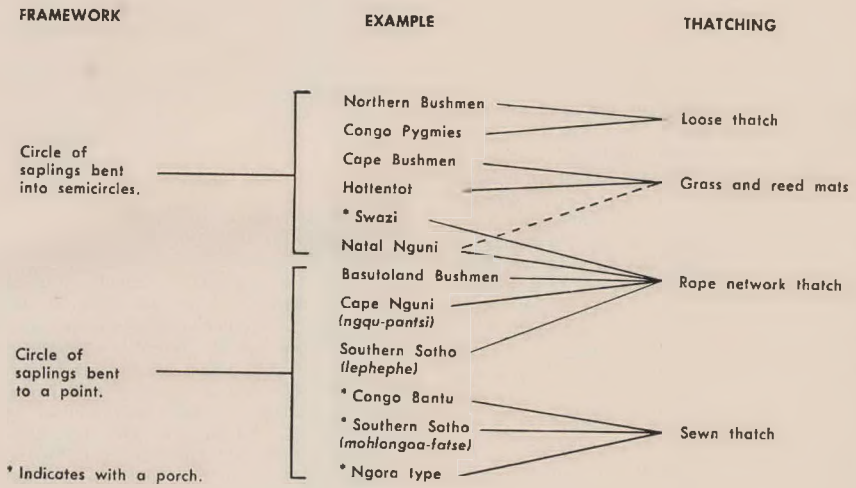
   (b) The Hottentot (Plate IV, Fig. e) and Cape Bushman type. Thatched with reed mats.

   (c) The Natal Nguni type (Plates II and III). Rope thatched.

Although the above types are fairly well defined there are certain instances where these features overlap. Thus the Swazi hut belongs to group 2, but it has a porch of the early Bantu type, and the Natal Nguni huts are rope thatched but grass mats are sometimes spread on the outside over the thatch (Schapera, I.: *The Bantu-Speaking Tribes of South Africa*, 1946, p. 144) suggesting Hottentot or Cape Bushman analogies. Slight regional variations of this nature will naturally result from cultural contacts over a long period.

The main features of beehive huts can be conveniently summarized as follows:—

**CLASSIFICATION OF BEEHIVE HUT TYPES**



# *INCIDENTALLY . . .*

**A MONTHLY COLUMN, by GILBERT HERBERT**

Architects are talkative fellows; when together they talk shop interminably, and if one of them gets a chance to talk in print . . .! which is all by way of introducing this column, in which I intend to talk at random of architectural matters to a circle larger than I can usually buttonhole.

## A MATTER OF OPINION.

A columnist gives you his opinions. Some, such as Walter Winchell, deal with personalities and events. These personality columns are in a strictly specialised field, and great humorists such as Damon Runyon have found them an admirable medium for their art. But columns which deal, not with personalities, but with ideas, are, though of the same genus, yet of a different species. This sort of column is written by a person who has all sorts of personal axes to grind. He wants to tell you what *he* thinks.

This may be put differently. My University colleague, Dr. Sonnabend, writes: "The column belongs to the literature of persuasion; the columnist wishes to convert people to his point of view. . . . It is not an expression of public opinion, it is a personal point of view. In this cold and confused world, the column has come into existence, because man wants the warmth of a personal opinion and the certainty of yes or no."

## SPATE OF WORDS.

The introduction of a column of this nature means an increase in the proportion of text to pictures in the Architectural Record, which is a move in opposition to the present trend in magazine production. The success of this column depends on the assumption that architects like to listen as well as to talk, to read as well as to write. Now, while I would be the last to imply that architects as a profession are illiterate, yet to many "reading" and "looking" are synonymous terms. Most architectural journals pander to this intellectual laziness, and as a result tend to become catalogues, in colour or otherwise, rather than for an intelligent discussion of architectural problems. I believe that there is a place for provocative text as well as pleasing illustration.

## A READING PUBLIC.

I have noticed, amongst students and the younger members of the profession, an increasing interest in architectural theory and architectural philosophy. Since Functionalism has lost its appeal we have been floundering in an architectural vacuum, and architects are seeking for new policies, a new direction.

During the past week I have been approached, quite independently, by three people, all of whom commended the latest issue of a contemporary journal to my notice. This magazine turned out to be, not a bumper issue with even more photographs in even more glorious technicolour, but an issue containing a highly stimulating article on the philosophy of landscape design.

This evidence of the existence of a reading public has encouraged the Editors of the *Architectural Record* to present this, the first of a series of columnar comments, and I intend to take the article in question as my text.

## HATS OFF !

The article causing all the excitement is I. de Wolffe's "Townscape" in the *Architectural Record*. This journal has, during many years, published interesting and controversial articles, and has succeeded in creating, or finding, an architectural public that reads them, agrees or disagrees with them, and sometimes even gets worked up over them. As a result many architects are taking an interest in their subject more penetrating than a mere knowledge of current work, and more vital than a smattering of professional gossip. For its part in this intellectual revival, we doff our hats to the *Review*. This particular article is the latest blow in the campaign to "sell" Sharawaggi, and whether or not one approves of this architectural philosophy one must congratulate the *Review* on its positive and consistent approach to architectural policy.

## PROTEST MEETING.

"Townscape" propounds the thesis that the art of landscape design has no adequate theory and no adequate terminology, a state of affairs "which this article sets out, if not to cure, to hold so to say a protest meeting about." The meeting rules that an analogy may be drawn with politics, and that its terminology be borrowed and applied to the art form. The basis for this decision is the German writer E. T. A. Hoffman's "surprising confession that when he 'breathed the odour of red or brown nasturtiums' he seemed to hear 'afar off, the grave deep note of an oboe.' " De Wolffe thus enlists Hoffman, and also Baudelaire, to support him in a campaign to point out the essential correspondence in human activities, believing that, while comparisons are odious, analogies are just the thing.

THE EGALITARIAN AND THE SNOOK-COCKER.

Consequently, it is desirable to find in landscape design of the 18th century (which is cited as the crucial one) echoes of the political theory of the time. Surfaces correspondences are dangerous, and it is necessary to delve deeply into the true meaning of "liberty," which differs in its French and English conceptions, the former being Egalitarian in concept, the latter Individualistic. The Frenchman is "a man who wants liberty because it will leave men free to be rational, that is, come to common conclusions about life and society," while the Englishman is "a man who wants liberty so that man can be free to differ, be themselves, cock a snook at their fellow democrats," which incidentally goes to show that Winston Churchill was utterly unrealistic when he proposed an Anglo-French Union in 1940. There are apparently grave differences in temperament and outlook on either side of the Channel (which George Mike's noted when his bitter pen wrote : In Europe they have sex; in England they have hot-water bottles.)

PRICE vs. BROWN AND OTHERS.

Although by definition the latter, or individualistic, conception of liberty seems to be altogether on a lower plane, Mr. de Wolffe is patently proud that it constitutes the true spirit of England. Dealing with the landscape design of Capability Brown, he states that, although superficially it might seem free enough, yet inherently it implied a system; it was thus more rational than it seemed, and consequently (as I read the inference) definitely un-English. This seemed the bone of contention between Sir Uvedale Price and the "Improvers." De Wolffe claims that it was the especial contribution of Price and the "Picturesque" school that they realized that rationalized, systematized design was not appropriate for, that is, did not correspond to, the individualist English tradition. The author then states "that with Picturesque Theory as developed by the anti-Brown, anti-Repton gang, we attend the delivery of the first Western *radical aesthetic*, under which *be-thyself* comes to mean not more quintessential but be more unique . . . the individualizing impulse traditionally associated with the English outlook . . . the differentiating as against the universalizing tendency."

SHARAWAGS, UNITE !

This theory of biological differentiation, is the core of the Sharawaggi movement, and the author of "Townscape" believes "that a large majority of those who inherit the English tradition and temperament, technicians no less than poets, are potential radicals, potential Sharawags."

So the stage is set ! The scene: the English landscape. The time; the present. The characters; sterling heirs to English tradition. The plot: an intrigue of significant differentiation and contrasting situations. De Wolffe marshalls his orchestra of English civic designers. He taps his baton on the stand. "Come on," he seems to cry, "ring up the curtain." And the Sharawaggi claque prepares for rapturous applause.

THE MORAL.

This is a clever essay on the evolution of a design philosophy: it is interesting, it is provocative. It must be said that as a theory, in the scientific usage of the word, the thesis has too many loose ends, and too many assumptions that remain to be demonstrated. To catalogue these would require a longer and more thorough analysis than I have attempted here; but certain flaws in reasoning are apparent. It is based largely upon the undemonstrated analogy between art and political theory, which may or may not be justifiable; and on the assumption that the political theory of the 18th century stems from certain characteristics of English temperament which are constant and immutable, and which operate in the same manner to-day—an assumption which to say the least is open to serious question. And the use of a system of correspondence and analogies to prove the advantages of the unique over the universal is an acrobatic contradiction of logical method.

For all that, it *is* good reading, it *is* cleverly thought out, and it *is* a theory. It is an attempt to give a rational philosophical basis to a movement which has always seemed to be to depend on intuition and feeling. It is an attempt to give logical direction to that movement, and any such attempt should be welcomed by we of the Architectural Vacuum.

# BOOK REVIEWS

BRITISH ARCHITECTS AND CRAFTSMEN, by Sacheverell Sitwell. Publishers: T. Batsford, Ltd., London.

Mr. Sitwell presents a survey of taste, design and style during three centuries, 1600 to 1830. It is a book of interest to the informed layman, to architectural students, and architects. The picture presented of architecture in England during the period under review will help to round off and enrich the impression gained from standard histories on the subject. Mr. Sitwell is not concerned with a comprehensive study of influences, he adopts a more literary and human approach. He describes the architects of the period in some detail, the clients they served, craftsmen who assisted, rivalries that existed, contemporary opinions of the work executed, and so on. Quite a comprehensive account is thus presented of architecture in relation to the life of the day. In the process of developing his subject, Mr. Sitwell also assesses the achievements of English architecture in terms of France and Italy, and in general rates the English Renaissance quite highly.

The movement was very influential of course, and has a special interest for colonies England helped to establish, such as North America, South Africa and Australia. In North America the transplantation was direct and comprehensive, and allowing for changes brought about by the use of timber, a charming early Colonial style developed. This is exemplified by the houses of the old sea captains of Salem, Massachusetts, or the extensively restored country town of Williamsburg, Virginia. In South Africa, English influences were important at the time of the British occupation of the Cape at the close of the eighteenth century, and again later at the beginning of the nineteenth century, when Sir Herbert Baker directly, and Sir Edwin Lutyens indirectly, designed and executed city buildings, public buildings and private houses in the environs of Cape Town, Johannesburg and Pretoria. These two men and the school of thought they founded drew most of its inspiration from Renaissance England. The debt we owe to English architecture is thus a substantial one. As in North America, the initial influence has to be interpreted in terms of South African conditions.

When discussing the Elizabethan and Jacobean phase, Mr. Sitwell has some interesting views to express about John Thorpe, an obscure figure, who has been credited with the design of the most important country houses of the period. Thorpe's connection with these projects was established by Horace Walpole, who discovered an album of old drawings. The album contained plans and elevations by J. Thorpe for a number of important houses. From the evidence available there does not appear to be any doubt that Thorpe was the architect for Kirby Hall.

Mr. Sitwell is of the opinion that Thorpe cannot possibly have been responsible for all the buildings for which he made plans, and he considers that Thorpe was so delightful and painstaking a draughtsman, that his employment in that capacity can be understood. Occasionally he must have been given the opportunity to build. Mr. Sitwell is enthusiastic about Kirby Hall. Having described it, he continues, "we came away with the knowledge of having seen a building the like of which there is not in Italy, the land of architecture, for with all their genius, they could not attain to this restraint and calm." As Kirby Hall has been singled out for such high praise, the absence of a suitable illustration is, I think, a pity for readers overseas.

Jones' career is described at some length, and Mr. Sitwell then turns his attention to Sir Christopher Wren and the craftsmen who assisted him; Grinling Gibbons, Tijou and Gabriel Cibber; wood carver, blacksmith and stone carver respectively. Whilst not prepared to respond fully to the author's enthusiasm for St. Paul's, as a building; the view of the Cathedral emerging above the roof tops of London, in the noble company of the steeples of the City churches, at the time Canaletto painted the city, must have been one of the greatest urban landscapes of Europe. The steepies themselves form fascinating subjects for study. Mr. Sitwell suggests that the imagery of these belfries "is that, appropriately, of the shedding of the sound of bells; from the diminishing tiers of St. Bride's, Fleet Street, like a pagoda, that in themselves suggest a peal of bells, to the type that is like a sugar castor that should be turned upside down and shaken and would then sprinkle forth the sound;" charming interpretations. It is also possible to approach them from the architectural point of view. The problem was basically to support a peal of bells, and after sufficient elevation had been achieved by a solid supporting and obstructive shaft, to taper it to nothing. Wren showed great imagination in selecting the forms to effect the tapering, and had a genius for designing easy transitions from one to another. The perforation of the upper components of his belfries differentiate them from mediaeval steeples. The latter merely obstruct all the time; the former obstruct below, but become transparent above. Charming effects thus occur involving well shaped and proportioned members against illuminated skies. A sense of delicacy is engendered by the light which breaks through, and is contained between the achitectural members. Ragnar Östberg's Stockholm town hall tower provides a contemporary example of the same principle; the contrast between a solid shaft and a filigree termination against the sky.

Later, Sir John Vanbrugh is rated very highly. In concluding the chapter devoted to his work, Mr. Sitwell says: "Never again in architecture do we find an imagination

that is akin to his. Never again is there genius, unless it be in the person of Sir William Chambers. There is wonderful competence for more than a century to come, and a dazzling skill : but never chaos and disorder taking shape; never the sense that there is some deeper meaning which we do not understand. To some minds that is the toast of genius. So let it be. For Vanbrugh, who will never be popular, is one of our three great architects, and our master of the Baroque age. But unique, not only in England, for he has no parallel anywhere. If we will but take him as he meant, with no misgiving, Vanbrugh must be the one English genius of that eclectic age." It is difficult outside England to form an estimate of an architect on the basis of illustrations of his work, and for those of us with no direct experience of it, we can only accept Mr. Sitwell's enthusiasm provisionally. It is clear from the descriptions given that he has been privileged to experience Vanbrugh's buildings under ideal conditions as the following will show. "Not less, on such an occasion as the summer before the war, when the whole of Blenheim was floodlit for the ball, from panoramic court and scenic portico to the dark cedars on the lawn and the bust of 'Le Roi Soleil' a prisoner, upon the pediment; from the powdered hair and 'Padua' scarlet of the State liveries, through the crowded ballrooms, down to the rooms hung with 'Indian' papers that looked out upon Bernini's fountain; to the shelves of water and the deep lake that seemed to move and flow. That was a galaxy of light upon this theatrical, but heroic building, upon this private monument that is a Roman triumph and a public pantomime; and amid those lights it was possible to admire Vanbrugh's architecture as it may never be seen again." The possible relationship between Wren, Vanbrugh and Hawksmoor and its bearing on how a playwright came to create Castle Howard and Blenheim Palace with no apparent previous experience is one of the mysteries of the English Renaissance. Mr. Sitwell deals with the problem in the chapter on Hawksmoor and the Baroque.

Passing on to Gibbs and the Rococo, I share Sitwell's enthusiasm for St.-Martins-in-the-Fields, which he considers to be a splendid masterpiece in the midst of London, and aesthetically, the most successful of all City churches. The composition of this building had a widespread influence in North America, and a more restrained version terminates St. George's Street, Cape Town. Gibbs' Senate House at Cambridge is also a fine work, for it has a serenity and breadth of treatment that distinguishes it as one of the gems of the University city.

Mr. Sitwell's survey continues to Kent and the Palladians, and passes on to Robert Adam, who died at the close of the eighteenth century. His work has been the subject of much controversy, but nowadays one feels a special sympathy for it, because people can only afford to build small houses and small interiors demand elegant detailing to preserve a satisfactory sense of scale. The excellence of the craftsmanship of the period in plaster is reminiscent of the Moors at Granada and it makes one appreciate what a fine medium for decoration it is. James Wyatt shows up well in the book. Adam's rival, he lacked the latter's business acumen. According to Mr. Sitwell, he possessed a more human genius. Beckford, a dissatisfied client, said that "if Wyatt can get near a big fire and have a bottle by him he cares for nothing else." A postscript from William Windham is revealing. It reads : "P.S.—Am I to expect the metal frames which you ordered in Sheffield will come at last when they are no longer wanted: or am I to understand only that what you told me is untrue, and that no such order was ever given?" Wyatt may have been dilatory, but the illustrations of Heveningham Hall, Suffolk, give the measure of his talent. The entrance hall and dining room are clearly two of the loveliest rooms illustrated in the book.

The author concludes with a sketchy survey of the Regency and reflects sadly on the state of architecture in England to-day. He links up with early contemporary architects such as Charles Annesley, Voysey, Norman Shaw and Edwin Lutyens. He is unjustly critical of the new Waterloo Bridge and considers that "a competition for the new bridge amongst intelligent children would have produced designs more expressive of the functions and the pleasures of a bridge over a great river." He suggests that Gilbert Scott's conception means nothing, leads nowhere and has no status and no nationality. This attack cannot be taken seriously, for a perfectly sound case could be made that the bridge has a lithe, clean character which sweeps it pleasantly across the river. Simplicity of treatment and length of spans link it with the present, yet the scale is well adjusted to accommodate it to the historic London river scene.

Messrs. B. T. Batsford have adopted a pleasant typographical layout for the book which has become familiar from previous publications. Two hundred excellent illustrations are included.

JOHN FASSLER.

SOUTH AFRICAN BUREAU OF STANDARDS. Specification for Bending Dimensions of Bars for Concrete Reinforcement.

The publication by the Standards Council of a South African specification for bending dimensions of bars for concrete reinforcement marks a departure from the so-called "quality specifications" in that it confines itself purely to the dimensional requirements of a commodity.

The object of the specification is to obtain uniformity in the dimensioning and bending of reinforcing bars for which there is a very real need. Much time and expense can be saved in the early stages of any construction programme if simple and clear drawings are prepared.

This specification will therefore be of great value to

structural designers and detailers whose work devolves mainly on the drawing of plans showing the general arrangement of a structure, the size and reinforcement of the members and all the information and dimensional details necessary for the bending of the reinforcing bars and their placement in the structure.

Clarity and ease of reading "blueprints" is increased if the sizes, lengths and bending dimensions of reinforcing bars are given in tabular form, and it is with these so-called "bending schedules" that the specification is particularly concerned.

Regardless of the type of schedule used, the information given includes : number, mark and size of bars and stirrups, their cutting length and bending details.

The work of scheduling and detailing has been considerably simplified as the various hooks and bends required to form end anchorages have been standardized and a complete detail of a bent bar may be represented by a single line diagram.

Consideration of such factors as speed of production and practical limitations of equipment made it necessary to establish certain tolerances in fabrication. These tolerances have been clearly set out in the specification, although greater accuracy is not precluded if specified in the schedule by the engineer.

The use of this specification will help to simplify and reduce the amount of work required in the preparation of clear and concise working drawings and, together with the application of other improved methods and standards, will result in better reinforced concrete construction.

Copies of the specification S.A.B.S. 82-1949, which is now being published, priced at 2/- per copy post free, will be obtainable early in the new year from the South African Bureau of Standards, Private Bag 191, Pretoria.

NATIONAL BUILDING RESEARCH INSTITUTE; Bulletin No. 3.

This third Bulletin was issued in September, 1949. In the continued study and investigation of building, its methods and attendant problems, the Institute is proceeding with the valuable work of elucidation and clarification of problems of peculiar significance and importance in this country. While much information pertaining to the characteristics, methods and procedures of construction and to the character of materials and their behaviour under various stated conditions is available in oversea publications of a similar kind, yet architects and others closely concerned with building in South Africa will appreciate the scientific study of our local problems.

While the organisation is always ready to give its assistance on specific problems, which are covered by the quarterly "Questions and Answers" sheets issued through the medium of the "Record" and other technical publications, a continuing programme of research and investigation is proceeding. This is instanced by the paper by J. F. Jennings and D. J. Henkel on "The Use of Under-reamed Pile Foundations on Expansive Clay Soils in South Africa," which carries further the investigations on the behaviour of buildings on expansive clay soils discussed in previous bulletins.

"The Design and Installation of Domestic Open Hearth Fireplaces Burning Solid Fuel," by J. F. van Straaten; Efflorescence of Brickwork and its Importance in South Africa," by J. H. P. van Aardt; "Dry Rot in Building Timbers," by M. H. Scott, Chief Forest Products Officer; "The Validity of High Density Housing in South Africa," by Betty Spence; and "A Brief Review of the Properties of Vermiculite and its Uses in Building," by T. L. Webb and J. H. P. van Aardt complete this publication and in each instance present the most recent studies in the respective fields.

W.D.H.

ARCHITECTS', BUILDERS' AND CIVIL ENGINEERS' REFERENCE BOOK (1948). Publishers: George Newnes Ltd., London. 52/6.

This very comprehensive technical reference book was first published in 1946, at that time covering a remarkably wide field. The present Reference Book which is a revised and considerably amplified edition of the original Architects', Builders' and Civil Engineers' Technical Catalogue was published in its second edition in 1948. It provides a reliable and up-to-date survey of established practice, progress and development in building and constructional work.

It has been divided into five main groups, namely:

1) Constructional Materials and Processes.

2) Special Forms of Construction.

3) Constructional Plant and Equipment.

4) Engineering Services.

5) Progress and Development.

In order to cover the developments which have occurred in recent years, several hundred pages of new and revised material have been added to the original edition. These new sections deal with materials, special constructions and building equipment which have become available. The range covered will perhaps be appreciated when it is known that the Reference Book comprises some 860 pages with some thousands of illustrations.

W.D.H.

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