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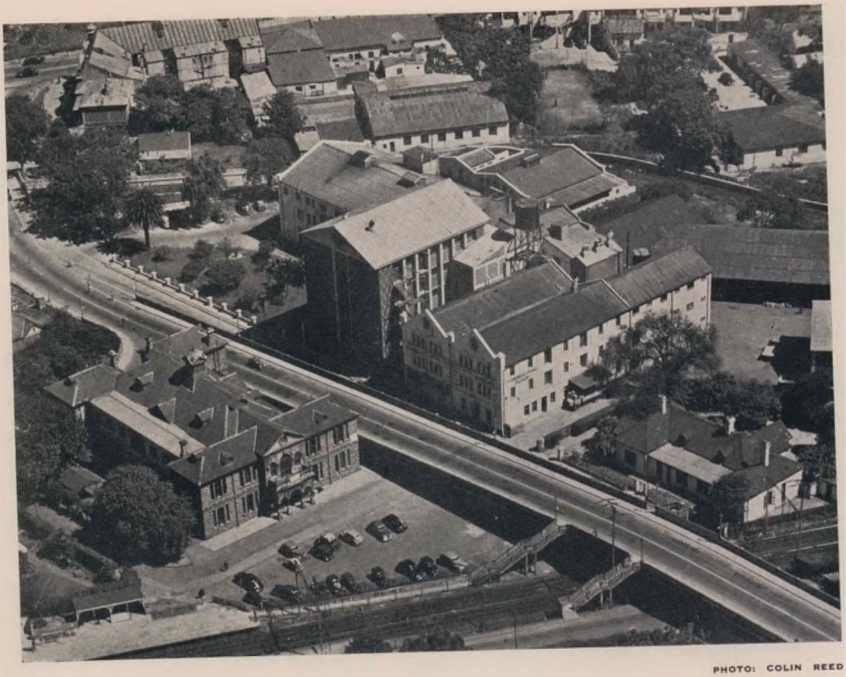
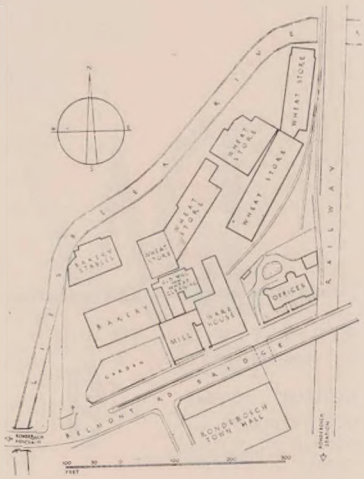


PHOTO: COLIN REED



THE NEW FLOUR MILL AT RONDEBOSCH, CAPE

The disposition of the New Mill in relation to the existing buildings on the irregular urban site is well illustrated by the air view above and the locality plan shown on the right.

NEW FLOUR MILL AT RONDEBOSCH, CAPE

Thornton White & Partners, Architects

During 1943 it became obvious to Messrs. S.A.S.K.O. that the old mill built many years before in the 19th Century and at one time operated by water from the nearby Liesbeek River could be no longer made to produce the quantities of flour which were then demanded, or be altered to comply adequately with the requirements of the newly established Factory Act. A new roller mill to meet a reasonable expansion became a minimum requirement and the decision to provide accommodation for 40 rolls, 32 of which would be installed immediately, was taken. By 1945 the Wheat Control Board had given its blessing to the proposed increase of flour production, the Building Controller had granted a permit to build and the Local Authorities had approved the plans of a building in which technical considerations, mentioned later, were often at variance with Bye-Law requirements. Building commenced in August 1945.

THE SITE AND COMPOSITION.

The new Flour Mill is the latest on the site of a number of extremely varied structures, some of which are the property of Messrs. S.A.S.K.O. and others of Sunshine Bakeries. The buildings are rather uncomfortably huddled into the scalene triangle formed by Belmont Road, the Suburban Railway and the Liesbeek River which constitute fixed boundaries beyond which factory sites are specifically prohibited by regulation.

On so scramped a site, a tight and somewhat restricted mill plan was inevitable. Although a large area of open ground lay to the S.E. of the Bakery only a portion 76' in length at the N.E. end could be used without obstructing light to the Bakery or detracting from the architectural and advertising value of the Bakery facade; the latter considerations of some concern to the Proprietors. This length proved adequate, however, and the mill has proved in practice to be well sited in relation to the production line which proceeds from the Wheat Stores, through Wheat Cleaning, the Mill itself and finally the Packing, Warehousing and Despatch.

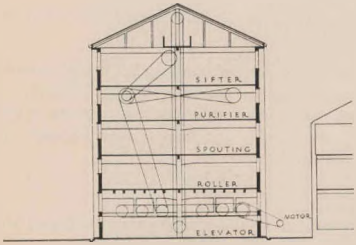
The new building cannot be seen at a distance from any great number of places but it dominates Rondebosch Station, Rondebosch Town Hall and its immediate surroundings. It is from the direction of Rondebosch Fountain, however, that it can be viewed entirely. The building rises in the angle made by the Bakery, the Old Mill and the Warehouse, all buildings of about the same height. At their base the road bridge over the Railway introduced into the composition a series of inclined lines and planes formed by balustrades, kerbs and roadways which partially obscure the base of the building. The situation seemed to demand a dominating mass in which tall vertical lines and planes would serve to unite these various elements.

THE BUILDING.

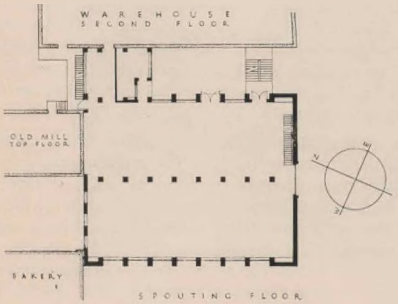
The method of grinding washed and cleaned grain has become standardised. The raw material "flows" through the building by gravity from top to bottom, over and over again until finally sifted and purified. Because the grain enters the Mill at ground level, it must be elevated mechanically to the top of the building. As the elevators in this particular Mill were placed down the centre line with rows of machines on either side, a building which was higher on the central axis than at the sides was required. At the time, the cheapest method of providing this accommodation proved to be a roof of about 25° pitch.

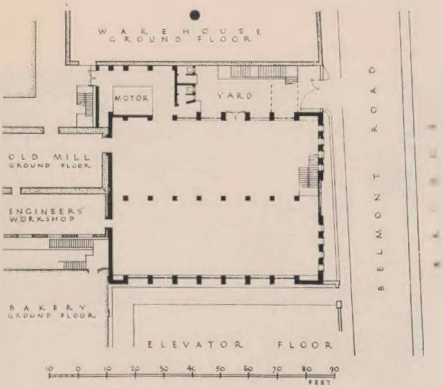
The wheat and flour "flows" down the building in timber chutes or trunks which must be set sufficiently steeply to allow the material to slide, a requirement which proved difficult in this case, because of the rather wider plan than might otherwise have been selected, resulting from the site limitations. To provide steep trunking to feed the outer lines of machines rather large floor to floor dimensions were required. The wide plan increased the beam sizes which in their turn affected the angle of trunks running parellel to the centre line of the building.

PHOTO: "CAPE TIMES"



CROSS SECTION





In an early design the Mill comprised four floors, an elevator floor at ground level with a Roller Floor above; on the second floor there were the Purifiers and above these the Sifters. Much greater flexibility could be had, however, by inserting a Spouting Floor between the Roller and the Purifier Floors; it contains no productive machines but is occupied only by trunks and conveyors feeding the Rolls below. The building has consequently five floors including the ground floor.

A 250 h.p. motor drives the Mill. V belting is used to drive the six shafts whose bearings rest on the small beams slung from the underside of the first floor beams; and the shafts drive the Rolls on the floor above. When all clearances were taken in account, a height of 17' was required from ground to first floor. A Miller's Office and Spares Store occupy the floor above the Motor Room with a Change Room for Europeans, cut off from the Mill interior by an open balcony, on the next floor. In the same wing at the Purifier Floor level, a Tank Room containing two high pressure tanks of 10,000 gallon total capacity as required for secondary supply to the Sprinkler System, together with pumping equipment to keep the tanks under pressure, completes the accommodation of the wing.

The Municipal Authorities Bye-Laws required a main staircase, 4' wide, totally enclosed with fire-doors at the landings. Apart from the interior floor space absorbed, the need for very rapid access by the millers from floor to floor at times of emergency, made such a stair inside the mill most undesirable. To meet the case, the large stair was placed in the space between the warehouse and the Mill where it was out of the way, and a purely working stair arranged along the South wall inside the building. Special permission in view of the nature of the manufacturing process was obtained in this instance. At the Northern angle of the building an escape stair to serve all three buildings was devised. In addition, a man hoist forms part of the Mill machinery equipment and travels on an endless belt from ground level to top floor.

The area between the Warehouse and the Mill in addition to its function as a light area, is a yard from which machinery may be hoisted to the upper floors. For this purpose storey-high doors on the East side of the building occur on each floor.

Good lighting, both natural and artificial, is essential in a building packed with machinery and machine controls, and the statutory relation of window to floor areas has proved satisfactory for the provision of the former. Facilities for cleaning windows were carefully considered as flour dust clings tenaciously especially when damp. All the windows can be cleaned from inside the building. When the cleaning of the brickwork faces of the building proves necessary or the windows require repainting, hoisting ropes for a bosun's cradle can be lowered from

the interior of the building through ports in the eaves soffits.

STRUCTURE.

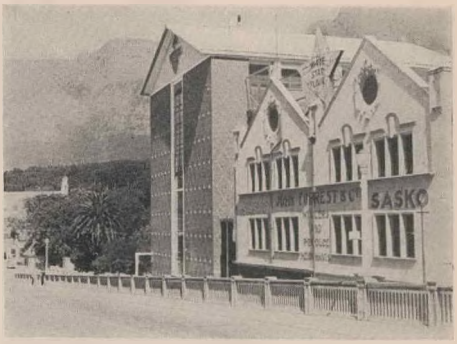
From every point of view, a steel frame gives the miller the most satisfying structural solution. Steel sections afford facilities for fixing shafts and hangers, for strength occupy less space than any other structural member. At the time of building, however, with steel in very short supply, a steel frame proved to be out of the question and with some reluctance a concrete frame was adopted. Unlike other factory buildings, a flour mill has wooden floors of equal strength at every point in order to allow the ducts, trunks and belting to pass through holes at any position. In this case $1\frac{1}{4}$" oak, tongued and grooved flooring is laid diagonally on 9" x 3" deals laid flat, butted and tongued together and spiked to plates set in the top of transverse concrete beams. This floor is capable of taking a load of 100 lbs. per super foot which is considered adequate. The adoption of this type of floor required the special dispensation of the Factory Inspector.

Flour is combustible, therefore very careful placing of sprnklers, not only for the building generally, but inside some of the machines, particularly the elevators where heat is often developed by friction between the duct sides and the belting, is essential. The most economical sprinkler system would have required an eight foot bay with one line of sprinklers in each bay but this did not prove suitable for the machine layout. An alternative arrangement with one line of sprinklers in one bay and two lines in the next was adopted, resulting in a machine layout and a sprinkler distribution which met both the requirements of the Milling Engineer and the Insurance Company.

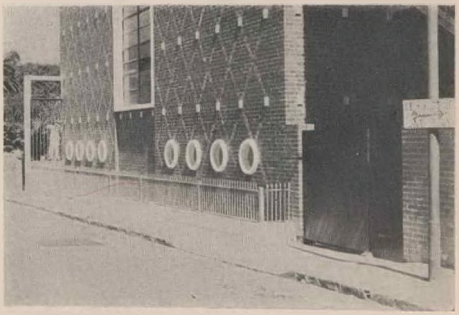
In consideration of floor span, sprinkler distribution and machine spacing a structural bay of 8'6" centre to centre was decided upon and the bays were spaced equally from Belmont Road, northwards, leaving a somewhat narrower bay against the Old Mill, a fortuitous event which was turned to advantage by placing within it all the heavy driving wheels on the various floors.

Rondebosch is very exposed both to summer and winter winds. The rainfall for the district is 50 to 60 inches per annum and the tall structure, particularly above the levels of the surrounding buildings, is subjected to drenching, almost horizontal rain. The first line of weather defence is the Canadian pattern corrugated asbestos roof discharging into large rectangular sheet iron gutters whose down pipes are contained in the ducts in the corners of the building. In practice this roof has proved efficient after initial weaknesses had been overcome.

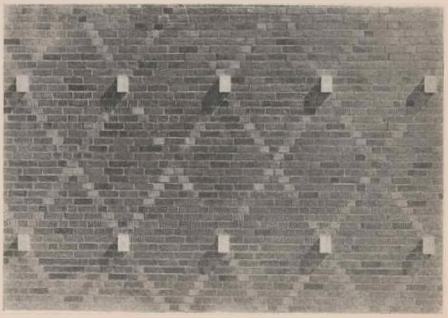
The walls below the eaves level are in facebrick with slightly weathered joints having either $4\frac{1}{2}$" or 9" outer



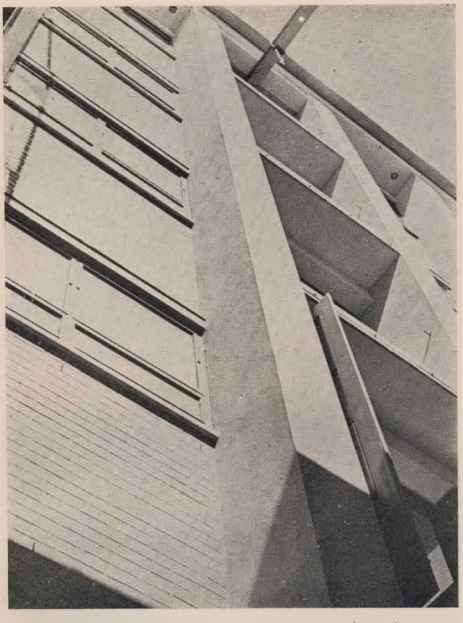
From the bridge looking towards Rondebosch Fountain with Table Mountain in the background.



The entrance gates at the right, and one of the advertising signs at the left. The railing is left over from an earlier period.



Light golden brown headers contrasted with rich dark brown brickwork form a pattern on the wall surface. Ceres stone insets at half-storey levels cast interesting shadows in the early morning.



A view looking up from the yard shows the hoist rail and the access doors on each floor. Holes in the eaves permit the use of a bosun's cradle. The picture also shows the relationship of window to panel wall, and, just discernible, the cavity ventilation slits.

leaves and 4½" inner leaves with cavities and lead damp-proof courses at every floor or lintel. The cavities are ventilated by frequent slits formed by raking out vertical joints in the outer leaf at top and bottom of each panel. Vertical sheet iron damp courses are arranged at the junction of the inner face of the outer leaf and the concrete frame so that water, if it should be forced through the leaf, would run down the metal to the bottom of the cavity.

There is surprisingly little dust or surplus flour in a modern mill. Some mills are actually carpetted! To avoid numerous corners and angles, the outer walls were placed in the plane of the internal faces of the external columns. A reasonably clean rectangular plan without dust-collecting corners for the actual milling floors was obtained. In the angles of the building, the duct and cupboard recesses are brought out to the same plane as the walls and accommodate lighting and sprinkler conduits.

Considerable difficulty was experienced with workmen during some phases of the construction. Normally as a building rises the concrete floors act as solid platforms for the construction of the following floor and workmen can walk about freely. Measurements too can be made on an unshifting plane. In the Mill, because the floors had to be inserted after the frame is complete, the absence of working space and the feeling of insecurity caused discontent and a tendency to inaccuracy. It was only the unflagging watchfulness of the foreman, a naval man used to great heights on moving platforms, which eventually produced an extremely accurate piece of building. This was of great assistance in fitting the machinery later when the lining up of beam over beam was of consequence.

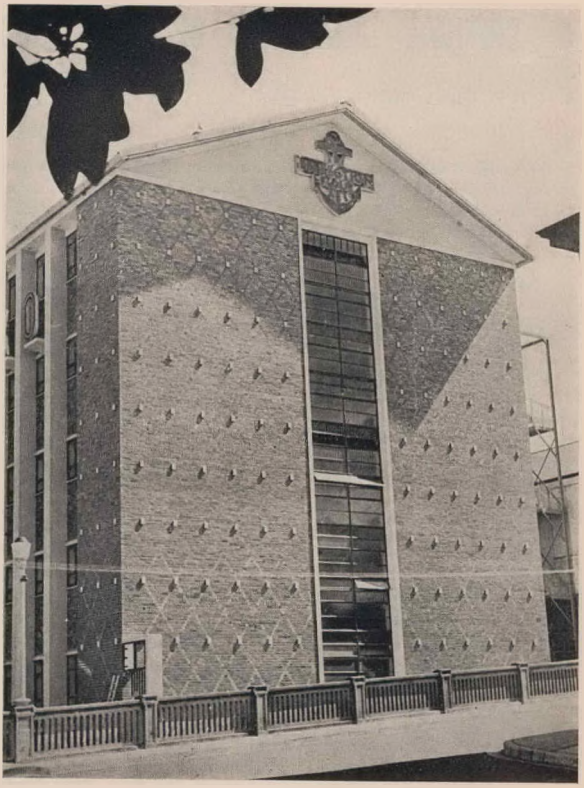
THE ELEVATIONAL TREATMENT.

A firm dominant cubical shape to unite the surrounding buildings has already been noted: all other factors are subordinated.

A pitched roof terminating in gabled ends, with considerably overhanging verges, but rather shallowly modelled eaves, and sharply separated in tone, colour and texture from the prismatic volume below, preserves the solidity of the mass. Roof and gables, however, demand acknowledgement, calling for a strong difference in treatment between the walls under the gables, and those on the flanks of the building.

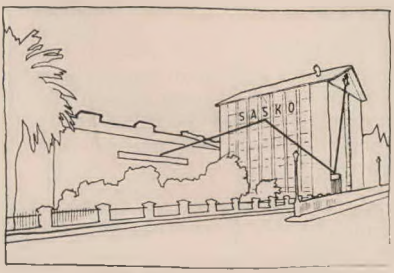
It was decided after a great deal of discussion on the site and with the aid of innumerable small-scale perspectives to stress a framed character under the eaves, and that solids should predominate under the gables.

This contrast between the two faces has been maintained in detail; the windows in the frame are horizontal in feeling; those on Belmont Road, vertical; brickwork in the panels is light in tone and smooth, while that of the unbroken facade, dark in tone and rough in texture; a light yellow-green has been used for the windows on the garden side, while a deep blue paint covers the frames on the road face. Where the frame is expressed, integrity of wall surface has been preserved by setting the windows on exactly the same vertical plane as the panel walls. Apart from the advantages in weather resistance afforded by this arrangement, a smooth sleek detail is secured. On Belmont Road, however, the wall plane was broken by a repetitive lozenge pattern, formed by golden-brown bricks set flush with the general wall-face composed of dark brown bricks. The texture of this walls imparts great importance to the Belmont Road elevation. Eight circular windows at the base of the facade provide local interest for the spectator walking in the road between the bridge and the Mill; they play little part in the general composition. This is not the case, however, with the advertising signs which have been used as basic elements in the architecture. The Bakery sign, a flat mosaic facing the garden and Belmont Road, antedated the Mill. On the Mill, facing the garden,



RIGHT: The Belmont Road front in the morning.

BELOW: A sketch which illustrates the importance of and the relationship between the various advertising signs which are incorporated in the scheme.



but lying in a plane at right angles to the Bakery, the initial letters of the Company's name stand out boldly from the facade in contrast to the flatness of the Bakery sign. At the Belmont Road angle of the building near first floor level a third sign (not completed at the time of the photographs) draws the attention diagonally down the building. The free standing character of this sign contrasts with all the other signs, emphasises the flatness of the final sign in the gable, and because of its position close to ground level, accentuates the height of the building. Its virtual detachment from the building serves to articulate the signs on the different facades.

A CRITICAL ANALYSIS OF THE COST OF SMALL HOUSES

By J. T. B. Viljoen, B.Sc.(Q.S.), M.C.Q.S.

Although houses are urgently required by many people to-day only a few of the more fortunate find it possible to build a home of their own. This state of affairs is largely due to the very high costs prevailing in the building industry to-day.

The question that is therefore uppermost in the minds of all persons concerned with the housing problem is whether it is at all possible to reduce these high building costs.

As it was hoped that a knowledge of the distribution of costs in small houses would lead to a solution of the problem, the various items in Bills of Quantities were sorted out and added together, where possible, to form the following component parts:—

PART A. CONSTRUCTION.

1. **Foundations:** Clear site; excavate over site to reduce levels and for surface trenches; concrete in footings; foundation walling up to and including damp-proof course; steps.
2. **Superstructure:** Brick walls above damp-proof course up to and including beam filling. (Nett as reduced for openings). Also concrete beams and lintols and gables.
3. **Fires:** Projections to chimney breasts above damp-proof course; chimney stack including trimming to roof and flashings; fireplace and grates but not stoves.
4. **Roofwork:** Roofing from wall plate up, including work to eaves but excluding gutters and down-pipes. Reinforced concrete roof slabs including shuttering, reinforcement and water proofing.
5. **Ceilings:** Ceiling joists, runners, hangers, brandering, ceiling boarding, cover strips and cornices.
6. **Floors:** Excavations, piers, bearers, joists, flooring, skirtings or earth filling, surface beds, wood block or granolithic etc. flooring.

PART B. DOORS AND WINDOWS.

1. **Doors:** Doors, frames, fanlights, ironmongery, glazing and thresholds. (Lintels elsewhere).
2. **Windows:** Windows complete including glazing and cills. (Lintels elsewhere).

PART C. FINISHINGS.

1. **Externally:** Wall finishings and all paintwork.
2. **Internally:** Ditto.

PART D. PLUMBING AND DRAINAGE.

1. **Soil Drains:** Soil and waste pipes in ground from gulley head down to and including connection to Municipal sewer or to and including septic tank.
2. **Sanitary Fittings and Plumbing:** Sanitary fittings and soil and waste or vent pipes serving same up to and including joints to soil drains.
3. **Water Supplies:** Hot and cold water supplies complete including connection to Municipal main.
4. **Rainwater Disposal:** Gutters, down-pipes, surface water channels and drains, sumps, etc.

PART E. FITTINGS.

Shelving, built-in cupboards or other fittings complete including ironmongery and brickwork, concrete bottoms or slabs, etc. if specially built for fittings.

PART F. ELECTRICAL.

1. **Conduit:** Conduit tubing, ceiling, switch and draw boxes, etc., switch and distribution boards.
2. **Wiring and Fittings:** Wiring, lamps and fittings.

PART G. SITE WORKS.

1. **Preparing Site:** Removal of large trees or bush. Excavation or filling in excess of what is usually expected with small houses. Pavings, etc.
2. **Fencing and Gates:** All fencing and gates and piers, etc.

In all, sixteen Bills of Quantities—as submitted by the successful Tenderers for the respective jobs—were analysed in this way and the costs of the above parts expressed as percentages of total cost for each of these houses in Table No. 1:—

TABLE 1: CONSTRUCTION UNITS.

No. Size Date	House No. 1 5 roomed 30/8 per sup. ft. 1945		House No. 2 4 roomed 21/2 per sup. ft. 1945		House No. 3 4 roomed 31/6 per sup. ft. 1945		House No. 4 3 roomed 27/9 per sup. ft. 1945		House No. 5 3 roomed 32/3 per sup. ft. 1945		House No. 6 5 roomed 28/- per sup. ft. 1945		House No. 7 4 roomed 25/8 per sup. ft. 1945		House No. 8 3 roomed 26/8 per sup. ft. 1945	
Year	%		%		%		%		%		%		%		%	
A. CONSTRUCTION.																
1. Foundations	6.3		6.5		6.5		7.0		7.1		7.1		11.4		9.2	
2. Superstructure	16.0		16.2		15.6		15.3		15.5		14.8		13.5		16.3	
3. Fires	2.3		2.5		2.5		2.5		2.7		2.1		2.1		2.5	
4. Roofwork	9.7		9.8		9.6		10.7		9.5		8.3		8.1		9.4	
5. Ceilings	4.5		4.3		4.2		4.1		4.3		3.1		4.1		4.4	
6. Floors	10.3	49.6	9.6	48.8	9.6	48.3	8.7	48.3	9.1	48.2	10.3	49.3	10.2	50.0	10.1	51.1
B. DOORS AND WINDOWS.																
1. Doors	7.6		7.3		7.3		7.1		7.1		8.5		10.3		8.5	
2. Windows	6.2	13.7	5.8	13.1	6.4	13.7	5.3	12.4	5.9	13.0	4.8	13.3	4.3	14.6	4.2	12.7
C. FINISHINGS.																
1. Externally	6.1		6.4		8.4		6.3		6.5		4.9		3.1		4.7	
2. Internally	8.5	14.6	8.6	15.0	8.4	14.8	7.5	13.8	7.8	14.4	7.4	12.3	8.9	12.0	9.1	13.8
D. PLUMBING AND DRAINAGE.																
1. Soil drains	2.9		3.2		3.2		3.6		3.1		3.6		2.0		2.2	
2. San. fittings and plumbing	8.1		6.7		6.6		5.8		7.5		6.3		7.5		7.8	
3. Water supplies	1.6		2.5		2.1		2.4		2.5		2.0		2.5		2.3	
4. Rain disposal	1.5	12.4	1.6	13.5	1.6	13.4	1.5	15.1	1.8	14.7	1.7	13.1	1.6	12.4	0.9	12.6
E. FITTINGS.	4.8	4.8	5.0	5.0	5.2	5.2	5.7	5.7	5.3	5.3	5.1	5.1	5.5	5.5	4.8	4.8
F. ELECTRICAL.																
1. Conduit and wiring, etc.	4.8	4.8	4.6	4.6	4.6	4.6	4.7	4.7	4.7	4.7	5.0	5.0	5.5	5.5	5.0	5.0
G. SITE WORKS.	—	100.0%	—	100.0%	—	100.0%	—	100.0%	—	100.0%	—	100.0%	—	100.0%	—	100.0%

No. Size Date	House No. 9 5 roomed 23/4 per sup. ft. 1945		House No. 10 4 roomed 26/5 per sup. ft. 1946		House No. 11 4 roomed 25/4 per sup. ft. 1947		House No. 12 7 roomed 25/7 per sup. ft. 1940		House No. 13 4 roomed 20/1 per sup. ft. 1941		House No. 14 5 roomed 21/9 per sup. ft. 1941		House No. 15 6 roomed 24/- per sup. ft. 1942		House No. 16 3 roomed 29/6 per sup. ft. 1942	
Year	%		%		%		%		%		%		%		%	
A. CONSTRUCTION.																
1. Foundations	11.1		10.7		8.6		10.9		14.5		12.9		5.6		9.5	
2. Superstructure	13.4		15.8		19.5		12.6		9.7		10.2		13.5		15.4	
3. Fires	2.1		2.2		1.8		1.7		1.7		2.6		1.6		0.4	
4. Roofwork	8.3		8.7		9.8		15.5		17.1		14.8		16.3		8.2	
5. Ceilings	4.0		3.7		4.6		4.2		4.6		5.3		3.3		4.0	
6. Floors	8.6	50.4	8.8	49.4	8.7	53.1	8.2	53.1	8.6	56.2	8.2	54.1	9.4	48.7	7.6	46.1
B. DOORS AND WINDOWS.																
1. Doors	8.0		8.9		9.0		3.9		8.2		5.5		6.2		3.7	
2. Windows	4.4	12.4	4.5	12.5	4.7	13.7	3.6	7.5	6.0	14.2	7.8	13.3	5.5	11.7	5.8	14.3
C. FINISHINGS.																
1. Externally	6.4		6.2		4.4		5.7		4.1		4.5		5.7		4.4	
2. Internally	8.2	14.6	8.1	14.3	6.3	10.7	9.8	15.5	6.0	10.1	6.9	11.4	7.4	13.1	9.4	13.8
D. PLUMBING AND DRAINAGE.																
1. Soil drains	1.9		2.2		1.3		4.6		0.8		1.2		3.0		2.1	
2. San. fittings and plumbing	6.6		7.4		4.4		3.2		4.9		4.9		4.0		5.4	
3. Water supplies	1.7		2.0		3.2		2.9		3.5		3.2		2.9		5.5	
4. Rain disposal	1.2	11.4	1.1	12.7	1.6	10.4	1.7	12.4	6.3	15.8	4.9	14.2	2.1	12.0	2.0	15.3
E. FITTINGS.	5.6	5.6	5.5	5.5	1.6	1.6	7.3	7.3	1.7	1.7	5.2	5.2	7.0	7.0	4.4	4.4
F. ELECTRICAL.																
1. Conduit and wiring, etc.	5.6	5.6	5.6	5.6	5.8	5.8	4.2	4.2	0.2	0.2	0.2	0.2	7.4	7.4	5.4	5.4
G. SITE WORKS.	—	100.0%	—	100.0%	4.7	4.7	—	100.0%	1.8	1.8	1.6	1.6	—	100.0%	0.4	0.4
						100.0%				100.0%		100.0%				100.0%

The above figures exclude all stoves, refrigerators, and any other loose furniture but include all Outbuildings.

Houses Nos. 1-11 are all of the usual National Housing Scheme single storey type with concrete and brick footings, brick walls and corrugated iron roofs with open eaves. They all have provisional sums for the Prefabricated Fittings, Sanitary Ware and Electrical Installation which therefore do not necessarily give a true reflection of their percentages.

Houses Nos. 1-6 were designed by the same Architect. The walls are partly faced externally and plastered, and limewashed above. The floors are of granolithic, quarry tiles and wood blocks.

Of these, Nos. 1-5 were priced by the same Contractor.

House No. 7 is different from the others in that it is built on a reinforced concrete raft in lieu of the ordinary footings. The cost of the reinforcement in the raft alone is equal to 4.5% of the cost of the job. Above the plinth the walls are built to a fair face and pointed and finished with limewash. The doors show a very high percentage in relation to the other houses but this is mainly because the steel door frames were over-priced.

House No. 8 is fair faced and limewashed externally above the plinth. This house has gabled ends in lieu of a hipped roof.

Houses Nos. 9 and 10 were designed by the same Architect and priced by the same Contractor.

House No. 11 is also fair faced and limewashed externally above the plinth. The floors are of granolithic and linoleum. This house is served by E.Cs in lieu of W.Cs and its waste water is disposed off in French drains. There is one built-in cupboard only and no prefabricated fittings.

Houses Nos. 12-15 are not of the National Housing type.

House No. 12 is a single storey building with face brick walls externally and very high class finish internally. It has a shingle roof with boxed eaves and several built-in cupboards and fittings.

Houses Nos. 13 and 14 are the work of one Architect and were priced by one Contractor. These houses were designed for a turf area and have reinforced concrete and brick footings faced to plinth height. The walls above are plastered and limewashed. They have corrugated iron pitched roofs with open batten eaves soffits. The entire buildings are encircled with 3'6" wide surface beds finished on top with a cement plaster screed and with surface water channels around the outer edges. Where solid floors occur the surface beds are reinforced and finished with granolithic. The remainder of the floors are suspended.

The percentages of cost in respect of the unusual items mentioned above for House No. 13 are as follows:—

Reinforcement in foundation and surface beds	9.2%
Open batten eaves soffits and fascias . .	2.9%
Surface water channels	3.1%
Total . . .	15.2%

Both houses are served by E.Cs and the waste water runs into French drains. House No. 13 has only one built-in cupboard and some shelving whereas No. 14 has several built-in cupboards in addition. No provision was made for electrical fittings and the percentages are for conduit tubing only.

House No. 15 is a double storey brick building with face brick walls externally and of a high class finish internally. It has a shingle roof with open eaves. There are several built-in cupboards and fittings. The electrical work is covered by a provisional amount.

House No. 16 is a single storey semi-detached building of two dwellings, each dwelling comprising three bedrooms, living room, kitchen, bathroom and W.C. It has concrete and brick footings faced to plinth height, brick walls built fair face and limewashed externally and corrugated iron hipped roof with open eaves. It has no fireplaces as heating is provided by electricity.

It will be seen from Table No. 1 that where the houses are of similar type, i.e. Nos. 1-11, the relative costs of the component parts expressed as percentages of total cost, show very little variation.

For different standards of buildings the results might be different although the percentages for houses Nos. 12 and 15 seem to indicate that the differences will not be of great consequence.

RELATIVE COST INCREASES.

As a comparison between the costs of pre-war and post-war houses would not only be interesting but also of great value the author priced a Bill of Quantities at the rates ruling in 1939 and 1947 respectively. The results of this investigation are shown in Table No. 2.

TABLE No. 2.

HOUSE No. 12. 5 Roomed.	1939 PRICES 16/10½ per sup. ft.	Percentage.		1947 PRICES 31/10 per sup. ft.	Percentage.	
	£	%		£	%	
Foundations	134	9.9		261	10.2	
Superstructure	201	14.9		418	16.3	
Fires	30	2.2		58	2.3	
Roof	116	8.6		227	8.8	
Ceilings	53	3.9		97	3.8	
Floors	111	8.3	47.8	238	9.3	50.7
Doors	104	7.7		207	8.1	
Windows	73	5.5	13.2	118	4.6	12.7
External finishings	89	6.6		178	6.9	
Internal finishings	112	8.4	15.0	217	8.4	15.3
Soil drains	63	4.7		68	2.6	
Plumbing	79	5.8		143	5.8	
Water supply	34	2.5		53	2.1	
Rainwater disposal	22	1.6	14.6	24	1.0	11.5
Fittings	63	4.7	4.7	127	5.0	5.0
Electrical	63	4.7	4.7	123	4.8	4.8
	£1,347		100.0%	£2,563		100.0%

A comparisan between Tables Nos. 1 and 2 show that the relative costs of the component parts correspond very closely. It can therefore be inferred that since 1939 costs have increased proportionately over the whole building. This seems to indicate that these relative costs remain reasonably constant for the normal small house of conventional bungalow type, irrespective of market fluctuations.

From the above results it is clear that costs can not be reduced appreciably by merely substituting different materials or different methods of construction for those at present employed in any one of the above parts only.

As an example, a saving of 50% on the superstructure will result in a nett saving of 8% only on the whole. Furthermore, if the saving of 50% on the superstructure were achieved by the substitution of cheaper but less durable materials or methods of construction such as pisé de terre it would hardly be worthwhile as one will most probably be jeopardising the life of other more lasting materials.

The above figures are not intended to discourage research into new methods of construction or new materials, they are merely an indication that in any attempt to reduce costs one must not do so at the expense of the durability of the building and also that one must consider the whole of the building and not only part of it.

* * * *

Summarising it may be stated that any attempt to reduce costs radically must be made by considering all the elements together and effecting small savings on each so that in the whole aggregate the saving will be substantial. It is probable that at the same time as consideration is being given to each individual element that careful thought be devoted to questions of organisation. It is not possible at this stage to state quantitatively the degree of economy which can be effected by this approach but the author is of the opinion that herein probably lies the most fruitful source of economies. Research work on this line is at present in progress.

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TOWN PLANNING IN WEST AFRICA

By E. Maxwell Fry, F.R.I.B.A.

At a joint meeting of the Royal Empire Society and Royal African Society on June 26th, Mr. E. Maxwell Fry, F.R.I.B.A., gave an address on "Town Planning in West Africa." The chair was taken by Mr. A. R. . Mellor, M.C.

The Chairman, introducing Mr. Maxwell Fry, said that he had practised in all parts of the world including the tropics and although the time he spent in West Africa as adviser of planning to the Minister in Residence had come to an end he was intending to return to West Africa in order to continue his work.

Mr. Maxwell Fry: What I am going to talk about took place between October, 1943, and October, 1945, when we were advising the Resident Minister to the West African colonies. Our terms of reference from Lord Swinton were extremely wide. They were to provide draft or sketch plans for a selected number of the principal towns in these Colonies, to advise the Government on the setting up of town planning legislation, and some kind of machinery for carrying it out, and for dealing with nearly everything that came our way. I had a staff which consisted, firstly, of Miss Jane Drew (my partner and my wife), and four assistants, one of whom was Mr. Clark, the first fully-qualified West African architect, and a secretary. As soon as we met together we had immediately to run away to the four corners of the Colonies, the idea being that each member of the staff would go to a place, absorb the atmosphere, piece together a plan as a basis upon which to work, collect information, and bring back the results to be prepared into a proper draft scheme for a report, and I think the most useful thing I can do is to describe very briefly what we did in each of the four Colonies.

GAMBIA

The problem in Gambia was concentrated on Bathurst and this problem was suddenly heightened by the appearance of a large airport project on the mainland. Bathurst has a very bad reputation; it lies very low; the drains run the wrong way, and it is flooded seasonally. But we found it charming; it has strong architectural affinities with the eighteenth century; it is not overcrowded to the extent that reports suggested, and is more than anything else neglected. With the appearance of a really large airport it looked possible to move out the Government and a proportion of the town of Bathurst to a new site; and to build a new African town, part of which would be built to house the necessary labour to build the airport. The report which finally went into the Government of Gambia was against moving the complete Government. We felt after examining the town of Bathurst in detail that a good drainage system could be installed and that the bill for moving out the Government complete would be a very big one. We therefore sounded a warning note. Nevertheless, we realised that there would have to be some movement out of the old centre; in fact, this had already commended and was obviously to be encouraged. Also the actual administration of the old town of Bathurst depended to some extent on the handling of its port where the quay is silted up and there are very old-fashioned methods in operation for on-loading and off-loading ships. We advised the building of a new quay, we provided them with a re-alignment of their streets, many of which are wide with trees and grass, and we suggested that probably one-sixth of the town could in course of time be re-housed. We drew up methods for doing this in stages, the first of which would be the laying of a concrete base for the houses, because most of them are built on sand. No. 1 job was the relaying of drains and streets everywhere and that, in fact, has been started. The moving of the town has been held up because the development of the airport has not taken place to the extent expected.

SIERRA LEONE

Here we were asked for a plan for Freetown, and after looking into the situation we felt that a town plan for Freetown was a complete luxury until it had a deep water quay and a proper system of water storage. Freetown has the highest rainfall on the coast, but in the dry season they run out of water and it is a common sight to see long queues of people at the relatively few water hydrants. The cost of handling goods in and out of the port is high and in peacetime, I understand, the masters of vessels gave the place a wide berth in spite of the fact that it has probably the finest anchorage in the world. Thousands of people must have seen the magnificent sight of a large proportion of the Royal Navy and a still larger proportion of the Merchant Navy anchoring in the magnificent harbour. We spent a considerable time working with the Resident Minister's Office and with the Government of Sierra Leone on these two very important questions of a deep water quay and what would happen to the road system if the present Government wharf were to be moved to the new deep water

quay; and the question of water. Both are now on the way to being solved.

We had examined the state of housing in Freetown which in parts is very bad indeed, with overcrowding of old houses everywhere and centres of slum squatters near the waterside markets where the conditions were really terrible. We re-defined a series a new housing areas, some of them within the built-up part of the town in the Kissy direction, and others which could be described as suburban centres. At the same time, we laid out an industrial area lying inland from the proposed deep-water quay so that they might avoid the mistakes which so often occur when a capital work of this sort is under-taken without sufficient thought of the new activities it generates. At Freetown there is an opportunity for an industrial centre although it is at present lightly occupied by housing. As a result of the draft plan land has been secured there so that if industrialization does take place, or there has to be room for warehousing and distribution of goods, it can be provided without overcrowding.

The other chief job in Freetown was to re-organize the road system. In the centre the roads are spacious. It was laid out in the eighteenth century when Freetown was first established and because those roads were laid out on a generous scale they work perfectly well to-day. One might say, indeed, that they are a little too wide for the town, but when flowering trees and grass verges are planted the effect is one for which anybody who has to live and work in the tropics knows how to be grateful, for they give shade and real beauty. The centre part of Freetown is a really lovely place, but because the terrain is eroded by deep gullies the road system is badly broken up. We had therefore to select certain of the major roads leading from the centre of the town, follow them out, bridge the deep gullies in some places, and make small by-passes in others so that the traffic could move to and from the outskirts to the centre freely.

Another point in Freetown was the protection of the lovely coastline. A great many service people who visited there asked why the coastline should not be developed. We did not believe there was an immediate possibility of tourist traffic along that coast, but it was a matter for consideration that it should be protected before the normal habits of Europeans and Africans had destroyed it quite wantonly and uselessly. We hoped, therefore, that the Government would protect the lovely road along the coast and make it into a parkway so that any develop-ment would be lengthy. These were the general points of the plan prepared for Freetown. We worked later in the hinterland but I know very little about that because Miss Drew went there.

THE GOLD COAST

The Gold Coast was our pilot colony, the Resident Minister's office was at Achimota, and our own office in Accra. Its three principal towns were on our priority list and we spent a good deal of time working on them. I cannot describe them in detail except to say that Takoradi was a problem of joining two parts, the old one and a new one lying some 7 miles away. They were in process of being joined by the sort of phenomenon with which we are very familiar—a straggling ribbon development, and what we did was to suggest a new parkway entrance road going straight towards Takoradi, and at the same time we found housing land which would take some 40,000 to 50,000 people, feeling that as a greater part of the population already worked at Takoradi, though they lived at Sekondi and are brought to their work by transport, they should live where they work, and adapted our plans accordingly.

Kumasi is a very beautiful town. Very much of it was laid out at one particular time. It is split by a rail-way. What used to be a marsh which ran in a curve along the principal valley was drained, chiefly so that the railway could be put there, and it was worthwhile draining, and there it is right in the centre of the town, between the chief African business side and the adminis-trative and European business side. The railway crossing is very dangerous, and neither side can develop properly; the business side being congested and the other side is poorly developed. Eventually the business town must expand. We made two proposals, one of which was to shorten the railway loop and clear it out of this valley entirely which would cost £1,000,000, and involved the building of a tunnel. The other plan was to build a fly-over bridge to join the two halves of the town and by this to open up new sections of the old business zone and to open up entirely the African end of the town where it is now proposed to have their community centre and eventually their municipal buildings.

The second thing to be done was to make a better pattern for the whole town. There is a large old-established official reservation and open space on one side of the town and on the other is the rapidly expanding African residential area, and as they are going at the moment they will jut out along the entrance roads from Accra and elsewhere in ribbon development, and the town will become most unbalanced with a large spread in one direction and a big gap in the other, so that public services of every kind have run at a loss. We have made a scheme with a ring road, wrapping the housing areas round the open spaces of the European section so that they wil eventually reach the new hospital which is sited two miles outside.

Accra is a town which, like Freetown, has suffered from the enormous concentration of forces during the war. Its water and electric services have had to do double work and it has surprised me that they have managed to go on working at all. The town is developing rapidly and the need for housing is felt everywhere. One's knowledge of rents is never very accurate, and it is difficult to obtain information because the records are few, but one knows that Africans are paying very large sums for bad accommodation in Accra. They cannot go too far outside to find new houses, and the problem was very largely a housing one. We found certain things already prepared for us. The terrain is a series of undulating hills, valleys, marshes and watercourses. We adopted the plan of using the valleys for the main communications in and out of Accra, taking in the land on either side to make them into parkways leading right up to the centre of the town. Such a plan is economic because the anti-malarial drains must be protected and it is a matter of great importance as transport develops in the future that there should be as few turnings on to the main road as possible. Already the road north is so crowded that traffic over it presents the driver with exactly the same problems as he has in U.K., and we advised that development should be set back at least 100 ft. to 200 ft. on either side of the proposed parkway. This will be a good deal better than lining the way out of town with long strings of houses. The plan, therefore, is that there should be parkways coming down to the centre, there shall be houses on the high land, an the low land used for open space and roads. The rebuilding of the Government centre forms part of the plan. We have had to advise the widening of the principal commercial street, Station Road, and in order to ease the financial burden to develop land too.

NIGERIA

The problems of Nigeria were extremely difficult. Lagos already had a town planning officer who was doing anything else but town planning. Our job was to free him for carrying on town planning. There is a heterogeneous development going on to the north of Lagos where we found a district officer with his office full of plans of all kinds, irregular pieces of land laid out according to all manner of local preferences, but without unity. We finally put up a plan based on these schemes so far as they could be made to fit. We made provision for open spaces, business and market centres, schools, etc.; a pattern to which people could adhere. This was what we had to call 'first-aid' planning, but there is no other form practical at the moment. Costs are almost prohibitive; the Government are hoping that the future will make it easier, but the future will make it worse. Costs will be really high in the future and it must be dealt with, but a great deal of industrial development is going to take place on the outskirts of Lagos and this we have tried to deal with. Plans were made for several small districts north of Lagos which we thought were on a scale which would enable the district officer to grapple with them, but which were found to be inadequate in eight or nine months because of the rush —a rush not only of Africans wanting houses, but Government departments also wanted accommodation. They were the last people who wanted to plan and we had a great deal of difficulty with people who wanted a large area of land and who had wanted it for some time and were fed up when they found that they had now to fit into planned development. In the end they all fitted in, but I underline again the fact that without plans of this sort the cost to the Government of putting a mistake right at a later stage is likely to be very high indeed.

There is now a reservation of about 300 ft. on the main road north out of Lagos which sounds a large width to put on a road, but I am satisfied that it will be barely sufficient in twenty years' time, and in the meantime we are keeping the road free from development north of the railway.

We did a series of plans by invitation for smaller places likely to develop such as Port Harcourt, Enugu, Owerri, and similar towns which the Director of Public Works particularly felt would benefit by having plans. There are no records to speak of in this vast area of development. The plans we had showed little dots over a very wide area, the little dots being houses. All we have concerned ourselves with was to provide a plan which would make a road structure likely to work and which would safeguard the remaining open spaces, of which there are very few. Somebody must carry them a stage further.

The same can be said of towns in the north such as Kano. The new parts of these towns develop piecemeal. The commercial and European development of Kano is shocking to a degree. It exhibits no sense of planning whatever beyond day to day thinking. The roads are haphazard; there is a road for the man who wants to play golf, and another for the man who wants to go to the races, and they cross each other in all directions from the scattered bungalows. The same could be said of the commercial side except that it has nothing to do with the official side, and neither of them have anything to do with planning. I defy anybody to make them into one; someday, someone has to go along and do it, but the pressure is not as yet great enough.

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THE STUDENTS' FORUM

STUDENT ATTITUDES

A cry has been raised in the Final Year Wits Students' studio that the year's design programme has been and continues to be, too impractical. The word, impractical is meant, I think, to imply the following characteristics. First, that design schemes are too frivolous and trivial in general, from which to derive the necessary practice and ability to cope with the final design examination. And second, that many of the projects bear no relationship to real conditions as they exist in what is labelled "everyday practice." The emphasis, it has been maintained, should be on a more pragmatic and utilitarian design programme, constituting as it does, an integral part of our specialised training; this specialisation, it is necessary to add, is meant to operate strictly within the confines of the existing Architectural status quo.

Now, although it is understandable that we should attach some importance to the general scope and efficacy of the design programme, in particular relation to the end of the year examination, there appear to be certain underlying attitudes which may be detached from this particular parochial aspect of a somewhat larger problem.

In stating what is considered to be the larger problem, this article intends to put forward a minority point of view; needless to say, a statement of any other individual or collective point of view, shall be welcome.

It is submitted at the outset, that the so-called larger problem is a problem of attitudes. These attitudes may be summed up as moral and architectural. In discussing the architectural field of activity Gideon says—"when we go to the bottom of questions like these, we see that contemporary architecture, takes its start in a moral problem." For present purposes it is adequate to regard this classification as an arbitrary one, that denotes on the one hand, those attitudes that relate to architectural means and on the other, to architectural ends; it is a classification too, that does not presuppose a division between the two, but is intimately bound up with a unified concept of both.

In terms then, of the classification of what has been termed "architectural" attitudes, the first criticism is, that there is in general non-integrated approach to design itself. It is a criticism of an attitude that fails to see a project as a sum of its parts; the appearance of a building comes to be associated as a secondary consideration with phrases like "elevational treatment." It is this attitude that probably leads to the irrational differentiation that is made within the framework of design itself, e.g. the problem of designing a dance arena for mine-boys is qualitatively and technically inferior to the problem of designing a town-hall.

On what has been termed the moral side of the classification, it is suggested that current student attitude implies a complete acceptance of present day conditions and the architectural solutions to the problems that are generated by these conditions. The assumption seems to be, that provided there is the external evidence in the use of the trappings of the contemporary idiom, then architecture displays, ipso facto, the signs and justification of an up-to-date morality of its own.

In addition to this sophistry, the possibility of change in the general nature of things, does not seem to find wide acceptance. Surely, to assume that society demand on architecture will remain static, is to disregard the historical changes that have been perceptable in our social and political institutions. Recent advances in science, technology and political organisation, point to new and exacting fields of architectural development and creation.

In our period of transition, the function of architecture in society, extends beyond the region of commercialism, aesthetic approbation and just building.

"Architecture," says Gideon, "has ceased to be the concern of passive and businesslike specialists who built precisely what their clients bargain for. Architecture has cast off this passivity; it has gained the courage to deal actively with life, to help mold it . . . Architects, too, have refused to wait until they could be sure of universal approbation of their work. Following an impulse which was half-ethical, half-artistic, they have sought to provide our life with its corresponding shell or framework. And where contemporary architecture has been allowed to provide a new setting for contemporary life, this new setting has acted in its turn upon the life from which it springs. The new atmosphere has led to change and development in the conceptions of the people who live in it."

If it is regeneration in our attitude and direction in our work that we students are seeking we could hardly do better than hitch our architectural wagons to a loftier star.

Stating a personal point of view and in addition to what has been suggested as a minority student point of view, one must conclude that the alternatives are architectural constipation or "ultra" modern extroversion that manifests itself in terrazzo juke-boxes.

CONTEMPORARY JOURNALS

APARTMENTS

"Architectural Record"—January, 1949, pp. 88—89.
Eastgate Apartments, Cambridge, Mass., for the Institute of Technology.

"Architectural Review"—March, 1949, pp. 129—130.
Flats at Bologna, Italy. Architects: A. Persichetti and G. Sterbini.

"Architectural Record"—February, 1949, pp. 107—128.
Apartments: Building Types Study No. 146:
(1) "Eastgate" Apartments as a fresh plan type for the New England Mutual Life Insurance Co. and the M.I.T. Preliminary studies covered outdoor living, privacy and spaciousness, though ventilation, optimum storage facilities, simple construction and sun and view.
(2) A Skip-floor Corridor Scheme, by J. Wittlesay.

ARCHITECTURE

"Architectural Record"—January, 1949, pp. 90—96.
Architectural Design and Abstract Art, the recent publication of Henry-Russel Hitchcock's book "Painting towards Architecture," points up a new interrelationship to the arts.

"Architectural Review"—February, 1949, pp. 61—74.
Victorian Monuments of Commerce. In this article Professor Hitchcock documents and illustrates the history of the commercial buildings of the high Victorian period in England.

"Architectural Forum"—February, 1949, pp. 88—94.
Design Analysis:— Cape Cod Cottage, Part I. Twentieth Century America's most popular house design is the Folk product of a handful of Colonial Settlers.

"Architectural Record"—March, 1949, pp. 100—105.
Mexico. A few candid shots of recent buildings of other points of interest of Mexico City, by S. Wasson-Tucker.

BANKS

"Progressive Architecture"—March, 1949, pp. 51—62.
Bank Buildings, a Critique:
(1) Birmingham Bank, Michigan, Swanson Associates, architects. The program was to modernization and extension of an old, temple-type bank structure.
(2) Palo Alto, California. B. Clark, W. Stromquist, architects.
(3) Bothell, Washington. Young & Richardson, architects and engineers — a bank to serve a properous agricultural area, separate space needed for related insurance business.
(4) Headquarters for the Boavista Bank, to occupy five levels of a commercial building, the other floors of which are for business rental purposes at Rio de Janeiro, Brazil, Oscar Niemeyer, architect.

COMMERCIAL

"Architectural Record"—January, 1949, pp. 97—116.
Office Buildings, Building Types Study, No. 145:
(1) Edificio Esso, Caracas, Venezuela. L. Douglass, architect.
(2) Esso Building, Baton Rouge, Louisana, for the Esso Standard Oil Company. L. Douglass, architect.
(3) Waterman Building, Mobile, Alabama, for the Waterman Steamship Corporation. Platt Roberts, architect.
(4) Small Office Building for the American Osteopathic Association. Perkins and Will, architects.

"Architectural Forum"—January, 1949, pp. 75—81.
Office Building for the North American Life and Casualty Company in Minneapolis. Lang & Raugland, architects.

"Architectural Forum"—February, 1949, pp. 81—87.
American Red Cross Headquarters in San Francisco, by G. Dailey & Associates, architects. Illustrated by means of Plans, Details and Photographs.

"Architectural Review"—March, 1949, pp. 131—134.
Offices for Messrs. Wire Industries, Johannesburg, Cowin & Ellis, architects.

"Architectural Record"—March, 1949, pp. 97—99.
Architect-Engineers Offices, Peoria, ill., by J. Ziegele and Associates, architects. This building was designed to provide accommodation for eight architects, five engineers, eighteen draughtsmen and four typists.

CONSTRUCTION

"Progressive Architecture"—March, 1949, pp. 89, 91, 93.
The following selected details are illustrated:
(1) Built-in Desks for E. Hathaway & Co., San Jose, California. Higgins & Root, architects.
(2) Door frame for Martins Shop, Brooklyn, New York. Morris Lapidus, architect.
(3) Canopy for Baldwin Hills Shopping Centre, California. R. Alexander, architect.

DOMESTIC

"Architectural Record"—January, 1949, pp. 76—83.
House near Cambridge, Mass., Carl Koch, architect. F. Day, associate. This house, planned for outdoor living is cheerful, efficient and informal.

"Architectural Forum"—January, 1949, pp. 97—115.
(1) City House in Seattle. Paul Thiry, architect. Designed for urban living, the plan of this small house centre around a semi-enclosed garden, providing good indoor-outdoor relationships.
(2) Bachelor House in Connecticut, by J. Stein, architect.
(3) A Three Level House, designed to take advantage of a sloping site. O'Neil Ford & G. Rogers, architects.
(4) Remodelled House on Long Island, by Reisnek & Urbahn, architects.
(5) Carriage House in Brooklyn is made into two apartments, by S. Glaberson, architect.
(6) A modern Patio treatment replaces gloomy porch in Pennsylvania, by A. Hajjar, designer.

"Architectural Forum"—February, 1949, pp. 95—104.
(1) Suburban House in Detroit, by A. Girard, architect.
(2) Hill-top House in Connecticut, by R. Chapin, designer.
(3) A Compact House in Springfield, N.J. K. Kassler, associates architects.

"Progressive Architecture"—March, 1949, pp. 70—73.
A two-Bedroom, two-Bath home for a Professor and wife in Hanover, Hampshire. E. & M. Hunter, architects.

"Architectural Record"—February, 1949, pp. 84—93, 104—106.
(1) A house geometrically composed to fit in with the Berkshire Hills, Mass., by Marcel Breuer, architect. The plan is based on the H-shape with living rooms to the North and East for view instead of the South. Illustrated by means of plans, photographs and details.
(2) Cape Cod Cottage, styled for Summer. D. Fried, architect.

"Architectural Record"—March, 1949, pp. 106—109.
Residence in La Canada, California, designed for living with children. G. Turner, designer.

HOSPITALS

"Architectural Forum"—February, 1949, pp. 81—
Londonderry Hospital, providing 576 patients bed, distributed as follows:— Maternity 70; Ante-Natal 30; General Surgery 175; General Medical 150; Paeditrics 40; Gynaecology 35; Opthalmology 20; Ear, Nose and Throat 30; Dermatology 10; Psychiatry 8; Staff 8; F. R. S. Yorke, Rosenberg & Mardall, architects.

"Architectural Review"—March, 1949, pp. 139—143.
Hospital at St. Lo, France, providing 400 beds for general nursing, diagnosis and treatment, laboratories and pharmacy, emergency ward, operating theatres, infectious wards, maternity, and tubercolosis. Paul Nelson, architect.

"Progressive Architecture"—March, 1949, pp. 65—69.

(1) The Kendrick Memorial Hospital provides a 13-bed General Hospital and Clinical facilities for a small town. Sherlock, Smith & Adams Inc., architects.

(2) A 20-bed General Hospital in Okarche, Oklahama. Coston & Frankfurt, architects.

HOTELS, HOSTELS

"Architectural Forum"—January, 1949, pp. 75—76.
Staff Hostel, constituted for a large departmental store in Stockholm. G. Jocobson, architect.

"Architectural Forum" February, 1949, pp. 105—109.
Beverly-Carlton Hotel in Beverly Hills, by S. Reisbord, architect. An apartment hotel of 48 rentable units, half with kitchens and half without. A Patio and Pool is designed in an endorsed court.

"Progressive Architecture"—March, 1949, pp. 45—50.
Dormitory, Pondichery, India. Antonin Raymond, architect.

LABORATORIES

"Architectural Forum"—January, 1949, pp. 82—87.
Research Laboratory for the Standard Oil Company, Indiana. Holabird, Root, Burgee and Associates, architect. This building designed to give generous flexible space has specially designed prefabricated partitions, modularly placed.

MATERIALS AND METHODS

"Architectural Forum"—January, 1949, pp. 115—123.

(1) How does light affect colour?—Experimentation by four Colourists with colour and lighting.

(2) Roof Slab poured on floor in new structural technique, then lifted into place with hydraulic jacks.

(3) Flexible Plywood Panels simplify building of curved walls.

"Architectural Record"—February, 1949, pp. 131—136.

(1) Water Repellent Preservatives Work on Wood. H. Edwards discusses effective control of shrinking, wasping, swelling, decay and termites.

(2) Attic Condensation—Causes and Preventives.

"Architectural Record"—March, 1949, pp. 133—137.

(1) Water Repellent Preservatives for Wood, by F. L. Browne.

(2) Second Thoughts on Radiant Heating. Some do's and don'ts to insure good performance. By W. Chapman & R. Fischer.

(3) Test House Heated only by Solar Heat. Eleanor Raymond, architect.

RECREATION

"Architectural Record"—March, 1949, pp. 86—96.
Hidden Talent Competition. Prize winning designs for a scheme embracing an auditorium, lounge, meeting rooms, games room, kitchen and cloak rooms. The first thirteen schemes are illustrated.

RESTAURANTS

"Architectural Forum" February, 1949, pp. 110—123.

(1) The worlds largest Service Restaurant in Rockefeller Center occupying nearly half of the ground floor space of the new 33-storey ESSO Building serving 1,283 patrons at the same time. The second floor is allocated to private dining rooms for the ESSO executives. Carson & Lundin, architects.

(2) Finnish Restaurant in New York. A. Ervi, architect.

(3) Broadway Steak House, by G. Nemeny & A. Geller, architects. There are two floors to the Restaurant, the main dining room on the first floor and the overflow and private banquet room on the second floor.

TOWN PLANNING

"Architectural Review" March, 1949, pp. 113—118.
An Alternative Plan for the South Bank, by Clive Entwistle.

SCHOOLS

"Architectural Record"—January, 1949, pp. 68—75.

Additions to Fairfax Elementary School, California. Bamberger and Reid, architects and engineers. The new ideas embrace:—

(1) Outdoor classrooms facing the Southern sunny exposure instead of the usual North exposure.

(2) The major daylight source for the bi-laterally lighted classrooms is from the South.

(3) The corridor space has been converted into use by increased width into direct enducational facility.

"Architectural Review" February, 1949, pp. 57—60.
University Hostel at Helsinki. P. Salomaa, architect.

"Progressive Architecture" March, 1949, pp. 79—86.
Unit Plan for Nursery Schools, by Cath Landreth & Howard Moise. One solution for a unit of 30 children is illustrated covering the following four major problems: The architect must create an environment which meets the needs of:

(1) A group of young children;

(2) An educational programme for young children;

(3) Effective teacher supervision;

(4) Economy in construction costs.

"Architectural Record"—March, 1949, pp. 111—130.
School Planning and School Costs. Building Types Study. No. 147.

Article:
A cost of School Plan Types, by A. Harriman.

Projects:

(1) A High School at Low Costs with Factory Construction Memorial High School and Gymnasium in Calais, Maine. A. Harriman Inc., architects.

(2) Milan School, Michigan. Better School Environment at Lower Cost. W. Anicka, architect.

(3) Shoreview School, San Mateo, California. E. Kump & M. Falk, architects.

(4) A Group of Schools in Edmonds, Wash. W. Johnson & Associates, architects.

(5) Briarcliff and Dover Schools, Seattle. G. Stoddard & Associates, architects.

(6) First Unit for Blackwell, Oklahamo. Candill, Rowlett & Scott, architects.

THEATRES

"Architectural Record" January, 1949, pp. 84—87.
Delman Theater, Dallas, Texas. L. Smith, architect. A. Swank, Jnr., Associate. The auditorium was planned to give a maximum number of central seats, and the site chosen to provide parking space for 143 cars.

"Architectural Forum"—January, 1949, pp. 94—105.
A small neighbourhood cinema in New York. Warner-Leeds, designers and architects. On a restricted site this cinema provides a 571-seat auditorium, a downstairs restaurant-lounge, and the maximum in seating comfort, visual and acoustical performance.

BOOK REVIEWS

BUILT-IN FURNITURE IN GREAT BRITAIN, by Frederick Gibberd. Alec Tiranti Ltd., London, 1948.

An unpretentious litle book this, which in its brief compass does much to establish the respectability of its subject matter, a reputation so seriously impugned by Mr. Reeves in the book reviewed below.

The text, in both English and French, serves merely as an outline and introduction. It is left to the carefully selected photographs to establish, in no hesitant fashion, the validity of the concept of built in furniture. Although the text serves what is perhaps a secondary role to that of the illustrations, nevertheless some interesting points are made. Firstly, Mr. Gibberd emphasises that built-in furniture is no new idea, for "many a lovely Georgian china cupboard graces the gap between chimney-breast and wall."

The first problem to be considered by the author is in respect of the differentiation in type or function between built-in furniture on the one hand and mobile furniture on the other. He comes to the conclusion that built-in furniture is usually of the "storage" type, while the "human" type—tables, chairs, beds—is usually mobile. This categorization, which is evidently arrived at on empirical grounds, seems reasonable enough. Mr. Gibberd then proceeds to answer the question: "Why built-in furniture?", and presents the results of his analysis in a table of five cardinal points:

"Firstly, the dwelling has shrunk in size and at the same time there is a greater demand for roominess, making it necessary to get most out of the space available.

Secondly, people move their homes much more frequently, and prefer to find bulky articles such at kitchen cupboards already in the house, rather than have to provide them and cart them about themselves.

Thirdly, through modern inventions and mass production methods the dwelling has to house a greater variety and quantity of personal belongings and gadgets, all of which require storing.

Fourthly, through the elaboration and complication of modern life there is generally a desire for a quite and restful living background. This is more easily provided with equipment designed as an integral part of the dwelling, rather than stood in it to a size and shape not directly related to the structure.

Fifthly, through the scarcity of domestic labour, people want easily cleaned objects in their houses. Built-in furniture requires less labour than mobile which has to be moved to dust behind it."

Next follows a consideration of the planning requirements of each room in the house, with some comments on detailed aspects of furniture design, explained further by useful line drawings accompanying the text. The book concludes with a comprehensive, room-by-room photogravure section covering a wide range of well-designed furniture. It is all, as I have said, modest and unpretentious; but on reviewing it, I was reminded of that record where Arthur Askey tirelessly exclaims: "It isn't the people who make the most noise who do the most work."

G.H.

FURNITURE—AN EXPLANATORY HISTORY, by David Reeves. Faber and Faber, London, 1948.

This, in my opinion, is a curate's egg book, good in parts!—which is, I suppose, another way of saying that, while I am in agreement with most of the opinions expressed by Mr. Reeves, I have grave doubts of the validity of the remainder.

This well-ilustrated and easy-to-read book opens with an intriguing chapter on the development of furniture, and the need for furniture in society. Mr. Reeves is not afraid to state fundamentals, and opens his book with the undeniable assertion: "To begin with, there was no furniture . . ." which, he explains, was actually because, to begin with, there were no people. He propounds the highly logical contention that the need for furniture arose when society became more stable; with greater security of tribe and individual, a man could acquire permanent roots with some degree of safety. This proposition is then followed by some interesting comments on the nature of public and private furniture. The first chapter is marred, however, by some doubtful reasoning when discussion turns to the role of furniture in the house. In stressing his thesis that furniture exists in order to make architecture more livable, to humanize it, Mr. Reeves indulges in some Romantic phrases, which are not clarified in any way by his unfortunate predilection for personification. To my pragmatic mind, such phrases as: "Modern furniture has no love in it for those who use it," have little meaning, and to talk of doing "great injustice to furniture" because to-day it is part of the structure of the house "instead of inhabiting it" is an example of confused thinking. Mr. Reeves' point, that furniture should be designed to fit the people and not the architecture, seems reasonable enough, but it denies the conception of both house and furniture combining to form a suitable environment for the occupants.

When the author removes his philosopher's cap, and gets down to brass tacks, his book shows its real worth. A valuable section on the materials of furniture making —wood, metals, stone and glass— shows the author speaking in authoritative and informative tones on a subject with which he is obviously well acquainted. (Incidentally, we come here across another gem of

Reevesian Fundamentalism: "The first stage in getting wood is to cut down the Trees"). This interesting chapter is followed by a fascinating study of the furniture maker's technique, tracing the development of furniture manufacture through the hands of the carver, the carpenter, the joiner, and the cabinet maker. This chapter is handled with a deft touch, and as a study of form resulting from the combination of material and technique is extremely valuable to the designer in any field.

The culmination of the study of technique is a brief study of the technique of decoration, a further chapter in the story of furniture which continues to hold the reader's avid interest, although the justification of the use of ornament as put forward by the author is not beyond contention. For instance, his choice of the prime motive of decoration as "a sense of triumph over difficulty" would lead to art blowing its own trumpet, and a glorification of technique for technique's sake. In my opinion, a performance by a great artist, in any field, is notable for the way in which difficulties are overcome in an effortless fashion. Listen to Cortot playing Chopin, and the reaction is "What beautiful music" and not "What difficult arpeggios!"

There follows a painstaking and careful cataloguing of historic furniture styles in England and France. This, a tremendous field of study in itself, is, of necessity, treated in outline only, with awareness of the casual differences of a varying social background, although I would not go as far as the dust-cover write-up in calling it a "social history."

The book ends with an assessment of "Furniture To-day." The machine, Mr. Reeves admits frankly but reluctantly, has come to stay. Art Noeveau and the Morris movement were still-born because they denied this fact and sought to turn back the clock. We must consequently make the best of a bad job, and learn to design well in terms of machine production. This is a conclusion that is correct and undeniable: but it does lose some of its force, coming, as it does, some thirty years after the inauguration of the Bauhaus. Indeed, it seems that the author has not heard of Gropius at all. He speaks bitterly, and with justification, of the poor design of factory-produced furniture, and talks of the absolute lack of good furniture in the present day. He discounts "blank" furniture, furniture for which there is to-day "no accepted convention of decorative treatment—in other words, no style," and makes the sweeping assertion: "All the furniture so far designed as 'modern' seems to say: 'Something has gone wrong, and this is the best we can do!' " Gropius, Breuer, Aalto, Antonin Raymond, all disposed of in one stroke!

This book has its obvious imperfections, but nevertheless it has its contribution to make in the field of furniture literature. In its message of the interrelationship of materials and techniques with social needs, it shows an understanding, implicit perhaps, of the mechanism of what Mumford calls the Biotechnic Age. Moreover, it is interesting reading throughout.

G.H.

HEATING AND VENTILATING, by Oscar Faber, O.B.E., D.C.L. (Hon.), D.Sc., M.Inst.C.E., M.I.Mech.E., A.M.I.E.E., P.Pres. Inst. Struct.E., P.Pres. I.H.V.E., F.C.G.I. London. Spon Ltd. 1948. 130 pages. 39 figures. 15 tables.

The author has gathered into compact form a considerable quantity of explanatory theory and information, and he has included some simple examples of the calculations encountered in Heating and Ventilation. The principal subjects covered are fuels, appliances for local and central heating, heat losses from buildings, the design of heating and ventilating systems.

The book is written in a clear and orderly manner and should serve extremely well as a primary textbook for all persons interested in the broad principles of Heating and Ventilating design for buildings. Those, who wish to proceed further, will find that a study of this book has helped a great deal, when more detailed information is sought in the advanced textbook of Dr. Faber and Mr. Kell.

It should be noted, however, that some of the standards and comparisons of costs, given in the book, refer to British conditions.

W.H.K.

NOTES AND NEWS

TRANSVAAL PROVINCIAL INSTITUTE

REGISTRATIONS

The registration of the following members in the Salaried Class has now been effected: Messrs. B. W. B. Ball, G. F. de Gruchy and R. R. Kolter.

SITUATION WANTED

Assistant Architect & Associate Surveyor Member of I.A.A.S. Aged 38. 20 years experience in the Architectural profession. Travelling to Cape Town in September next. Seeks post as Chief Assistant. Experienced in all classes of work. Employed at the moment in charge of Brewery and Factory Design Dept. as Chief Design Assistant. Salary £840 p.a.

Replies: E1, Alma Court, High Level Road, Green Point, Cape Town.

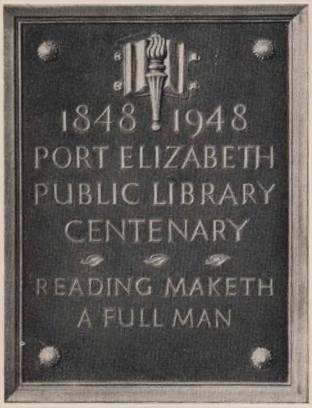
ERRATUM

The name of the Architects of the W.I.S.P.E.C.O. building, on page 141 of the July issue, should read Cowin and Ellis, not Cowan and Ellis as printed.

NAME PLATES AND COMMEMORATIVE PLAQUES

by

SAGE



In these examples, the dignity and permanence of Bronze as a medium in this field of Architectural Metalworks are notably brought out by skill, experience and craftsmanship—the work of Fredk. Sage & Co. (S.A.) (Pty.) Ltd.