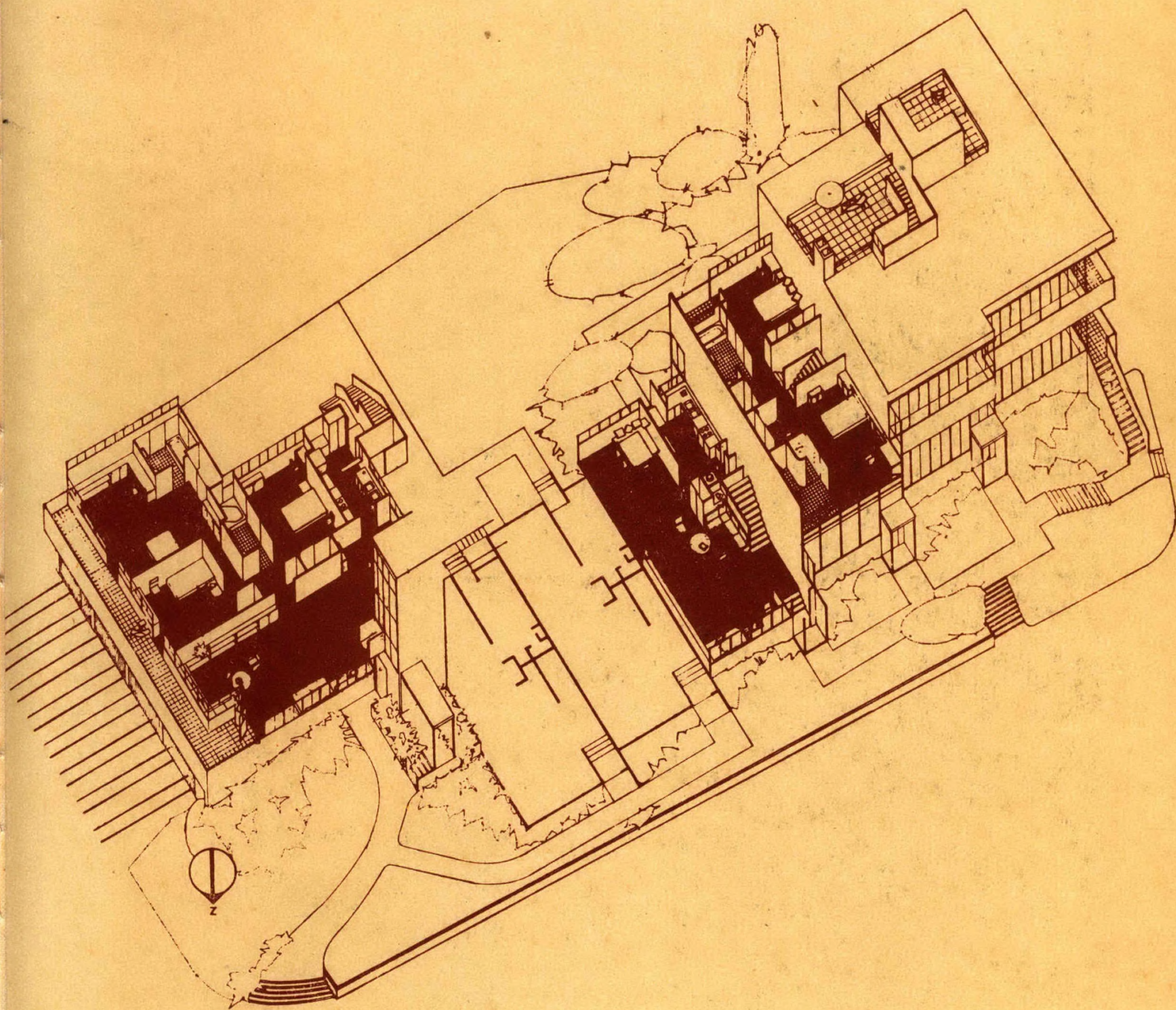


S O U T H A F R I C A N

A R C H I T E C T U R A L R E C O R D

F E B R U A R Y 1 9 4 0



J. & N. PRODUCTS ARE
AVAILABLE FROM
W. R. BOUSTRED, LTD.
HARDWARE MERCHANTS
130, FOX STREET
JOHANNESBURG

JENSON & NICHOLSON (S.A.) (PTY.) LTD.
MAKERS OF DISTINCTIVE
PAINT AND VARNISH
SPECIALITIES



JENSON WORKS: NEW DOORNFONTEIN
25, ANGLE ROAD
JOHANNESBURG

POST OFFICE BOX 1278
Telegrams: VARNISH
JOHANNESBURG
TELEPHONE 25-2467

To the Architects of South Africa.
Dear Sirs,

1939

Behind this letter we show an aerial view of part of the extensive factory of Jenson & Nicholson, Ltd., of London—a firm established as long ago as 1821, and which to-day ranks among the largest, most modern and most progressive paint and varnish manufacturers in the world.

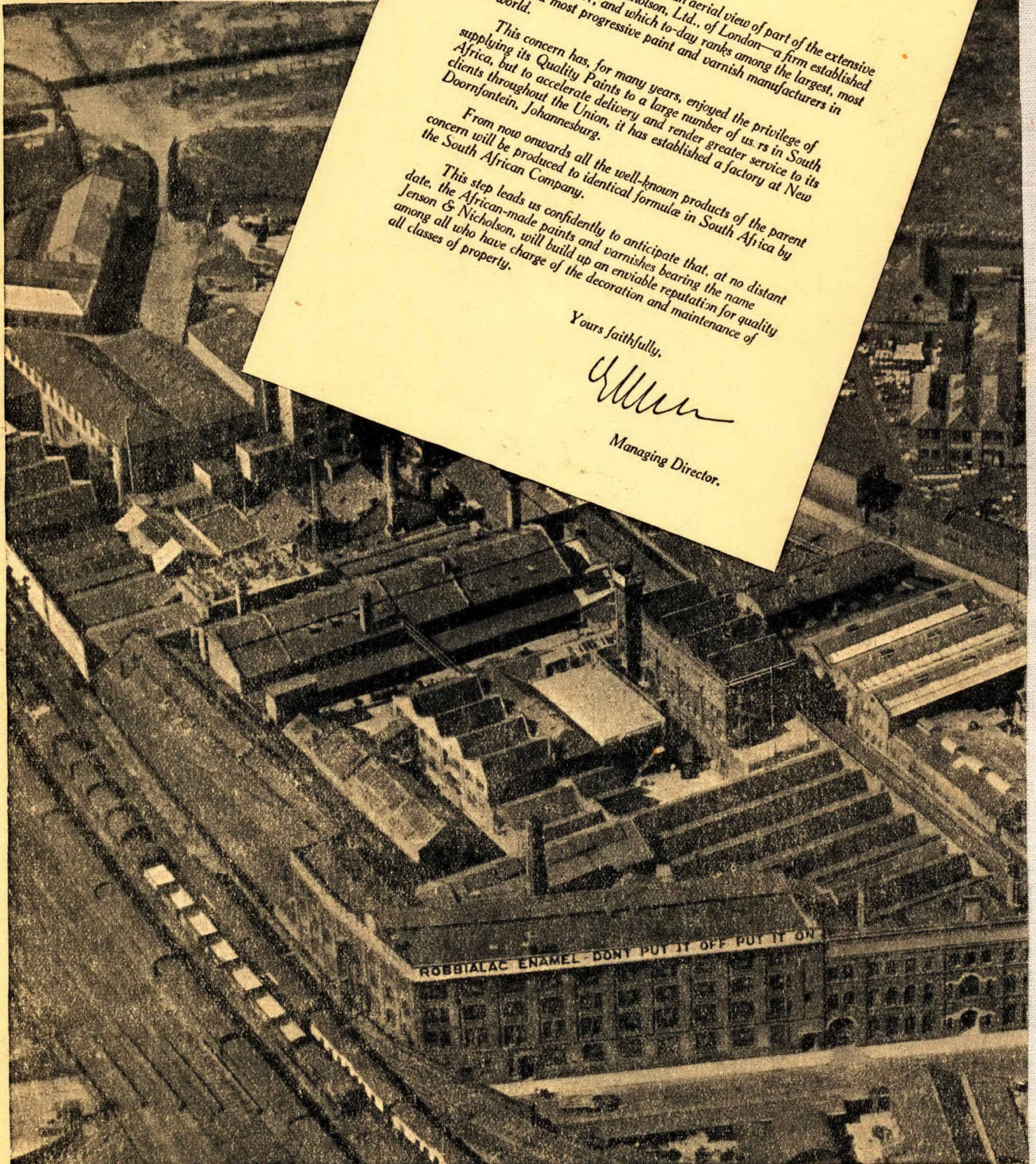
This concern has, for many years, enjoyed the privilege of supplying its Quality Paints to a large number of us in South Africa, but to accelerate delivery and render greater service to its clients throughout the Union, it has established a factory at New Doornfontein, Johannesburg.

From now onwards all the well-known products of the parent concern will be produced to identical formulae in South Africa by the South African Company.

This step leads us confidently to anticipate that, at no distant date, the African-made paints and varnishes bearing the name Jenson & Nicholson, will build up an enviable reputation for quality among all who have charge of the decoration and maintenance of all classes of property.

Yours faithfully,

Managing Director.



ROBBIALAC ENAMEL - DON'T PUT IT OFF PUT IT ON

The only Corrosion-Proof Window
on the market——

THE
UNIVERSAL
Multi-unit Teak Window

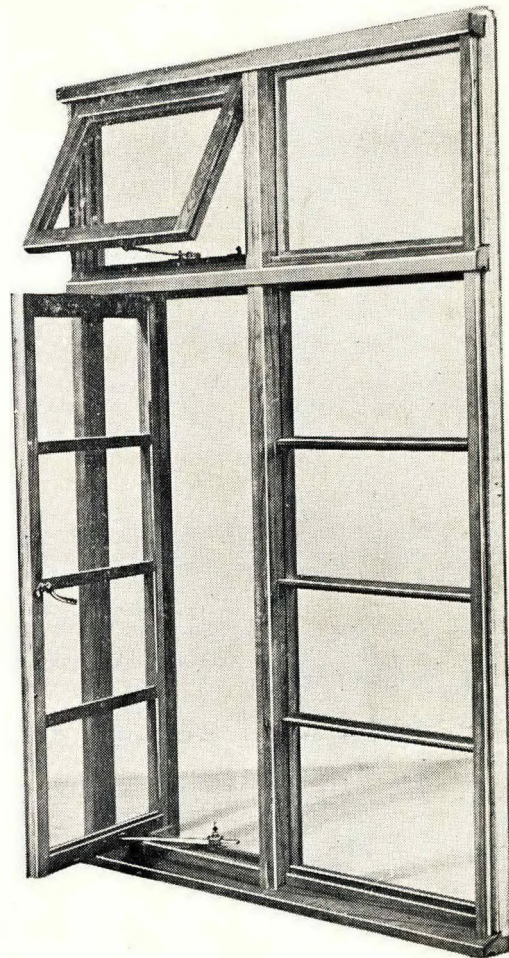
FOR ALL TYPES OF
BUILDINGS

Light and Rigid

Weather and
Dustproof

Hinged or pivoted

All fittings included



*Write for our Catalogue which contains
full details*

HUNT, LEUCHARS & HEPBURN, LTD.

BALTIC BUILDINGS, 42 ANDERSON STREET, P.O. Box 47, JOHANNESBURG



The clock Tower. Royal Johannesburg
Golf Club. Erected to the Architects
design by Greaves (Pty.) Ltd. (wholesale)
Distributors for Smiths Electric Clocks,
Johannesburg Durban Capetown

C O N T E N T S

- Cover—Landfair Multiple Dwellings. R. J. Neutra, Architect
- 33 RESEARCH ON DESIGN OF DWELLING UNITS WITH REGARD TO REGIONAL DIFFERENTIATION
- 57 INSTITUTE LECTURES
- 58 THE SOCIAL SIGNIFICANCE OF COLOUR
- 66 PROFESSIONAL NOTES AND NEWS

THE 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.

202, Kelvin House, 75, Marshall St., Johannesburg. Telephone 33-1936

Volume Twenty Five. Number Two.
February, 1940.

The Editors will be glad to consider any MSS., photographs or sketches submitted to them, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury they cannot hold themselves responsible for MSS., photographs or sketches, and publication in the Journal can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. The Institute does not hold itself responsible for the opinions expressed by contributors.

Annual subscription £1 - 1 - 0 direct from the Secretary.

HON. EDITORS: G. E. PEARSE, REX MARTIENSSEN. SECRETARY: A. S. PEARSE



Opposite: GARDEN COURT TO SOUTH — STRATHMORE
MULTIPLE DWELLINGS, WESTWOOD, CALIFORNIA
RICHARD J. NEUTRA, ARCHITECT. P. PFISTERER, ASSISTING

The report and photographs on the following pages were sent to the "Record" by Mr. Richard J. Neutra, who expressed great interest in the architecture appearing in our pages. We are glad of the opportunity to illustrate American work of such renown and to publish Mr. Neutra's views on housing. We welcome the extension of our boundaries which these afford.

RESEARCH ON DESIGN OF DWELLING UNITS WITH REGARD TO REGIONAL DIFFERENTIATION

by RICHARD J. NEUTRA, A.I.A. Consultant. Technical Division
United States Housing Authority, Washington, D.C.

CLASSICAL UNIFORMITY

Much of the admired and imitated classical architecture was kept independent of regional influences. Hellenistic and Roman formulations seemed to apply from the West European islands well into the Asiatic continent. And two thousand years later especially governmental structures were dominated by an almost identical ubiquitous classicism, in Copenhagen, Hongkong and Washington, in Bucharest and Buenos Aires.

In all these cases a norm of formal planning and treatment remained unconditioned by regional usage, prejudice and technology. This type of governmental building activity did not consider amortisation and interest bearing of the principal, and it was therefore unnecessary to claim that a local sentiment of acceptance guided the designer to his conception of layout and appearance.

PRESENT TREND IN ARCHITECTURAL DESIGN

In opposition to classical standardisation a contemporary attitude in building design has argued and very much stressed the point of adequate adjustment between the apparent form, the carefully fitted layout and the structural system chosen. Such an attitude can hardly overlook the great number of regional determinants of design. The policy of U.S.H.A. to approach its problems as far as sensible in a regional spirit is therefore in best keeping with present circumstances.

REGIONAL INEQUALITIES

As a matter of fact, the last century distinguishes itself in general by an often painful inequality of regional living standards, by prevalent wages which are threateningly variegated in different parts,

There is in different places and strata a most irksome gradation of economic capacity to absorb technological and industrial advance, especially as applied to housing.

In contrast to the technically speeded-up, globe-wide communication and transportation, political and duty boundary lines have tended to become ever more strict, and an almost militant segregation intercepts the exchange of ideas, as well as of commodities—and especially of the half-finished products, which constitute the output of the building supply industry in the various advanced countries.

Even within the North American union as the present Federal Marketing Laws survey, a W.P.A. research project, shows, the individual States tend to use every conceivable, often unconstitutional, means to barricade themselves against each other, and against what they consider upsetting imports.

Basic raw materials may by necessity permeate and cross such set-up frontiers. More processed and finished products, especially in the field of building equipment, are successfully fended off by steep import impediments or, as mentioned, in other parts by the feebleness of purchasing power which they meet.

Greatly variegated and specifically prejudiced local building legislation, traditional, now particularistically reinforced idiosyncrasies of the consumer, of the loaning institutions, the contractors, maintain, even within the same country, a variety of building routine. A majority of its components is rationally indefensible under the contemporary circumstances of technology.

However, the regional variegation in the consumers' psychological attitude to it, and in his economic opportunity to reap its benefits, gives the true colour to this transitory situation, especially in dwelling design.

The acceptable minimum in a region always relates to the common average in the same region, and the consumers' idea of a probable and desirable obsolescence rate, his peculiarly graded anticipation of durability of structure, finishes and accessories; his routine pre-estimate of maintenance—and permissible utility costs, of the amount of toil, and the level of visual and of hygienic cleanliness—all this is

quite varied even between regions of the United States.

The habits of dwelling and furnishing, the supposition of "necessary" room sizes, lot sizes, of bearable "symbiotic densitis," the requirements of acoustical and of visual privacy, may be more similar between decentralised Williamsburg, Virginia, in 1700 and Los Angeles of to-day, than between the latter city and San Francisco, both contemporary and both in California.

Costly permanence of material and construction may be cherished in certain localities and there willingly balanced by extended amortisation periods. The same permanence is, however, dreaded in a metropolitan region of quickly shifting employment markets (a moluscoid employment geography) and recurrent insecurity which prevents sane extrapolation into the future.

And after all, even the most modest rental depends on continuance of wage income and successful budgeting !

What in practice may be called modern architecture is far from international. It is much farther from it than was classical design, just because it professes consciousness of all these mentioned factors, because it proposes to use them as inspirational stimuli, as programmatic items of each project.

A modern attitude in building design may well have the rational tendency to arrive at an optimum standard for projects, which are determined by almost identical circumstances; it may be opposed to arbitrary diversification, because such arbitrariness equally lacks in good reason, economy, sincerity and convincing power. However, to-day building programmes are geographically extremely diversified, due to psychological and practical remnants in different regions, and due to the most irregular swell of the economic-technological tide in various parts.

What especially variegates building possibilities in different localities are wage scales for labour on the premises ! The lower they are, the more they render the application of shop fabricated parts, particles and elements, non-competitive. What is a reasonable design conception in one region, say in Southern California, thus

becomes in another an extravaganza.

Building design is a creative integration of the architect's detail inventiveness. In one place the local economic set up may call on his ability to devise building specialities and structural ingredients to be made up "ad hoc"; in another, his rôle will be that of arranging and co-ordinating standard articles, obtainable on the open market. The combinations and mutations of these two cases within the realm of the 18 or 20 interlocking trades employed in constructing a simple dwelling are extremely manifold.

A mosaic of most consequential cost information characterizes each geographical spot! Cost information divided as to field-labour and shop work, and concerning: Standard size and specially built metal sash; doors; screens; hardware of all description; millwork set-ups, sheet and other metal work, roofing; flooring; partition and wainscoat materials, etc.

The economy, even feasibility of a floor plan, is with stupendous variegation governed by plumbing labour in the field, or the local tradition in heating devices and comparative fuel prices. In one place the additional cost of fabricated trusted steel joists may be balanced successfully by the consequently shortened, diagonal runs of plumbing pipes. In another case this feature might prove hopelessly non-determinant.

Two or three significant material selections, two or three basic details, enforced by local economics, might change the entire make-up, appearance and layout. Each set of fundamental details and specifications will demand a genuine aesthetical digestion of its own particular combination of economic technical circumstances.

Certain optimum combinations and therefore aesthetical types will by necessity develop into regional standards, but may quickly change again at any shift of balance in matters of the intricate technical economics in that particular region. Architectural appreciation in purely handicraft periods of the past was indeed decidedly simpler than it is to-day, when building designers base their work and



STRATHMORE

RICHARD J. NEUTRA, ARCHITECT

concepts partly on industry and partly on individual skill, the proportion changing from place to place, and sometimes from year to year.

It is the mentioned changeability of regional constellations which on one hand makes the establishment of a standard amortisation period and of structural standards a very difficult task, and on the other hand makes even universal minima requirements in housing hard to apply.

GOVERNMENTALLY SUBSIDISED HOUSING

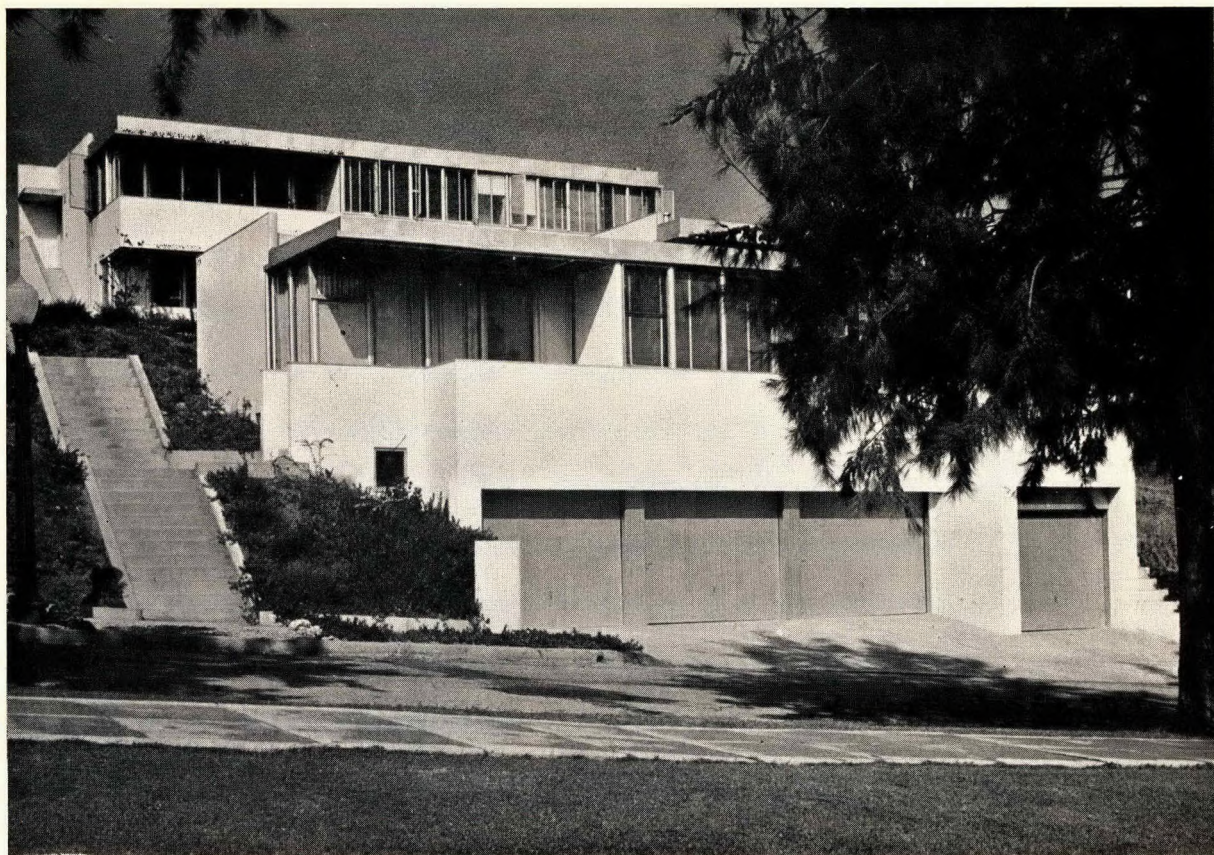
The decentralised administration of governmental support for housing projects is an expression of the tendency to cater to regional habits and circumstances. Such a tendency may create some undesirable complications, but appears justified in view of the sensitivity of the habitational problems and in view of popular reactions to such a governmentally sponsored activity.

The writer has studied governmentally subsidised housing and its popular reactions and acceptance in practically all countries, active in this field, from Holland to Japan. While it is called for to improve on regionally customary standards after due consideration, it is necessary to accompany and follow up each individual project with an individually designed educational campaign, both among the colonists and the population of the locality at large, to avoid acceptance-friction and resistance. Criticism is habitually and often unduly magnified, whenever a project develops under government sponsorship.

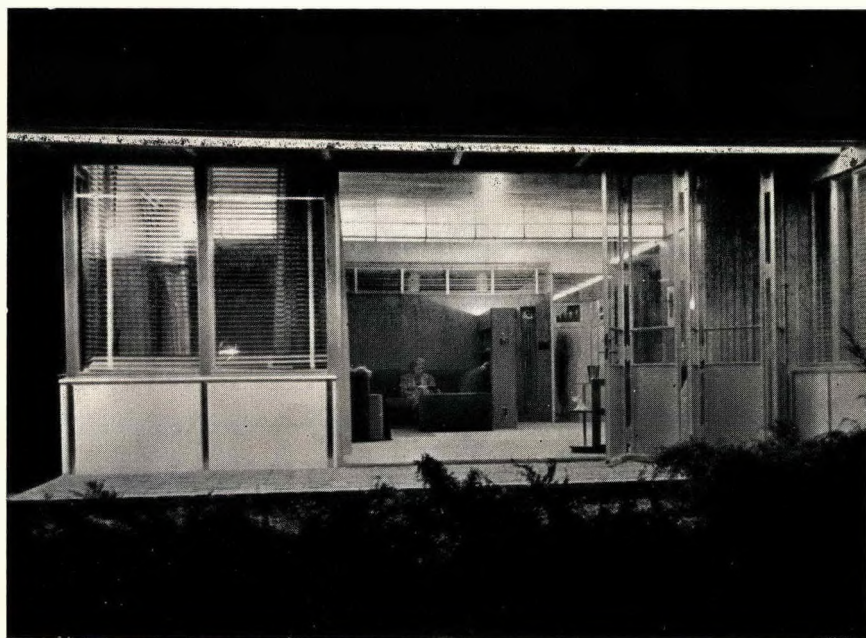
REGIONS OF OVER-FREEZING CLIMATE

The herewith submitted selective research concerns the problems of housing and dwelling unit design in such regions which distinguish themselves by a climate in which freezing temperatures are absent, or at least infrequent.

It happens that a greater part of regions with these mentioned characteristics in the United States belong to the most recently settled areas, and have been drawn into intensified technical civilisation later than the earlier and densely settled areas of the north-east and the middle west.



STRATHMORE



(See page 50)
WATERPROOF
PLYWOOD HOUSE.
R. J. NEUTRA

This circumstance of time of settlement and of historical entry into technification and especially motorisation adds to the distinct qualifications of the regions considered. Thus climate, as well as the prevalent attitude to technical conveniences and, in consequence of the motor car, to decentralised living, help to form here a specific set of conditions.

It could be expected that colonists of a mild climatic region might tend to spread out and to decrease their habitational density. They lose their northern anxiety about the open air, but rather enjoy it as a novelty, without the uneasy perpetual anticipation of winterly discomfort.

The motor car which never has to battle against ice and snow becomes a year round usable tool, and gains an unheard-of popularity. Longevity of cars increased by favourable climate, and therefore a broad offer of cheap second and third hand automobiles, has a direct bearing on the geographical widening of the real estate market and the farther flung search for building lots. It has a bearing on the inexpensiveness of building ground, the area of which increases by the square of the radial distance from a given centre. It has a bearing on the comparative independence from employment markets and shopping centres in proximity.

Daily commuting and shopping trips become elongated and are much less strictly routed than in older settlements and in more rigorous climates. Under the described circumstances not only the residential but also the employment geography is less stable and as a matter of fact appears quite shifting and fluctuating.

Finally the possession of a motor car of some sort becomes a condition of necessity to find employment and gain a livelihood.

S I T E O F H O U S I N G P R O J E C T S

With an employment geography not rigidly defined, with a densely meshed network of commuting roads and a by necessity and custom largely motorised population, a singular choice of the site for a housing project is more difficult and predictions as to the development around this site can hardly be reliable over a period as long

as half a century and more. The mentioned character of such a region has conditioned the population to think and figure in terms of much shorter building amortisation or in terms of lessened permanence.

STRUCTURAL SPECIFICATION OF HOUSING

By reasons given above the duration of dwelling buildings is generally considered by consumers as less dependent on physical depreciation than on obsolescence, especially obsolescence of site in functional relation to city growth and changing employment circumstances. To this, however, must be added obsolescence of older dwelling structures caused by ever new introductions of housekeeping conveniences in a region of very alive small home building activity and comparatively low building prices.

Especially non-existent in the considered regions are the requirements to run footings deep under freezing level, to carefully insulate exterior walls and to provide costlier heating devices for prolonged and severe winter seasons. The cost of exterior walls is therefore comparatively inexpensive, the ratio of running feet of such outside partitions per room is less, if at all, significant. In the contrary greater exterior wall areas and extensive fenestration appear desirable for increased summer ventilation, without impeding winter housekeeping.

The south, with its lumber supply of yellow pine, and the west coast, with its opulent offering of Douglas fir, finds its dominant structural note in wood construction, even for the best class and costlier residences, so that the introduction of masonry and concrete construction for low rental units becomes, so to speak, an economic anomaly. It is intended to investigate merits and demerits of various types and systems of construction in their application to the developed one-storey dwelling plans.

The present study concerns itself with the possibility of well-braced timber framing under avoidance of increased maintenance cost.

However, while maintenance cost, under the present Act, is the most influential factor to keep rentals at the desired low level, the writer considered that dwelling

units produced for the greatest or maximum number of families is the intent of the Housing Act.

If the benefits shall in the future be extended to a truly substantial portion of the low income population, low rental and low cost housing may have to become more synonymous concepts than they are at the moment in the minds of the designing architects' groups, who are merely concerned with single, individual projects specifically trusted to them.

With wood construction a matter of routine, with speedy accessibility of far outlying suburban sections by means of many hard surfaced roads, and with communal fire departments fully motorised and well equipped, fire resistance of only a short period is all that seems required, and fire losses, for example, in greater Los Angeles are comparatively moderate, if one omits from consideration hill areas which are habitually swept by autumnal brush fires and so unfit for housing projects. Production of fire-resistant paints is advancing.

In California and other States it is required to consider and insure against lateral forces and earth shocks. From the earthquake damages investigated by the writer in Tokio, Yokohama, Santa Barbara and Long Beach, it must be concluded that, especially with desirable extensive fenestration and perforation of exterior walls as desirable and common in residential structures, the damages and lack of salvage value is very severe in all but the most carefully engineered and executed masonry and concrete constructions, in which then diaphragms must be properly developed in floor plans. Even slight torsion moments produce, if not collapse, severe cracks which cannot be repaired with a safe prediction for continued occupancy.

True skeletal constructions permit more rational computation and actual earthquakes, such as, for example, in California, must be anticipated during an amortisation period of two generations, have proven the comparative safety of sound wood constructions. As a matter of fact, the earthquake insurance rate is for masonry construction more than five times the rate for frame, or 12 cents as compared with

63 cents; which seems to indicate also an equally great differential of safety for life and limb.

The following table shows that the required combined fire and earthquake insurance rate is about 40% lower for wood construction:—

	Frame.	Masonry Construction (brick or concrete).
Fire Rate	.25	.09
Extended Coverage Endorsement	.10	.09
Earthquake	.12	.63
	.47	.81

Where ground drainage is natural or can be provided without special effort, road mesh reinforced 4 in. cement slab ground floors placed on a gravel packing of 6 in. average thickness, are practical, cause less heat loss in winter, have a longer lifetime, and are immune against dry rot and termite pests, which frequently attack wooden underpinning and floor construction.

Cinder fill is liable to cause deterioration of waterpipes, for which copper tubing should be specified in projects of long amortisation. The mentioned gravel fill shall reach also under all footings and form a draining trench along exterior walls.

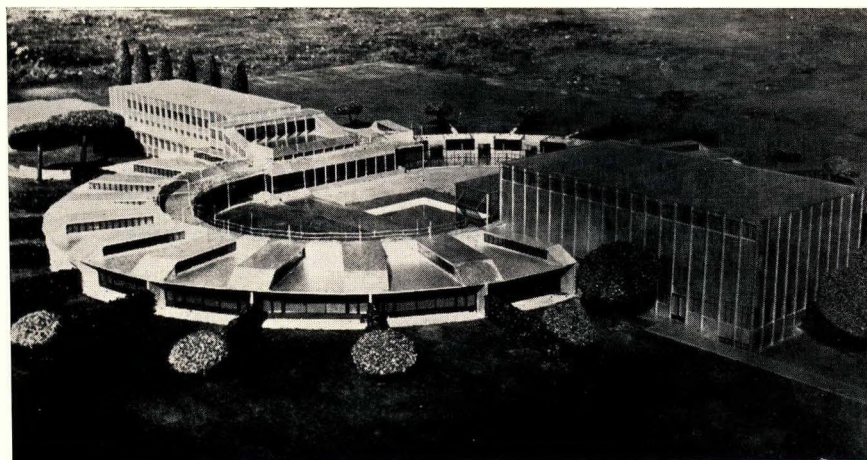
The studies show both possibilities: cement slab on ground and raised wood joist construction with well ventilated underpinning space. Pressure treated lumber and termite shields should supplement the safety of this type, often necessary on decidedly sloping ground.

The waxed cement floor area unoccupied by furniture is in bedrooms usually very restricted, and small rugs here, a larger rug in the sitting corner of living room is very customary, even with tenants of moderate means. Resinous tile flooring in kitchen and bath is a possible but not necessary installation.

Frontal walls are proposed with heavier timber supports and notched-in reliably



Indoor-Outdoor Classroom. Sliding glass front—mechanically operated awning



Prefabricated Ring Plan School. Richard J. Neutra, Architect

bracing diagonals. Dead level roofs draining into continuous milled standard red wood gutters are easiest in execution, and need a very limited amount of metal flashings. From experience it seems that roof leaks are most usually flashing leaks. The substitution of interior plaster by painted sheet panels, and of exterior plaster by oiled, not painted, red wood siding with aluminium or oil paint coats on sash, window posts and eave trim only, will reduce maintenance cost.

A type of frameless crank handle operated wood sash on the outside of structural posts was designed and included in the study in case the use of steel sash proves too expensive. Details of these sash and axonometric views of their hardware, as well as comments of three leading western mill companies, illustrate the possibilities of this window installation.

PURCHASING POWER OF TENANTS

While an extrapolation of wage scales into the future of half a century appears very conjectural, it is at present evident that the current earning and purchasing power of the economically lower strata in the south-west, and even more so in the south, demands very moderate rentals, which private enterprise, even under conditions of structural flimsiness, rarely was able to meet. On the other hand, timber, always a structural material of the first order and high quality, lends itself significantly to cost lowering prefabrication methods, favourably applicable without expensive apparatus to the series production of a larger housing project.

As mentioned earlier, the present research includes the beginning of an investigation how especially timber construction, without extreme modifications, may be used for inexpensive, low maintenance construction of long duration.

A number of plan studies take into account that fuel gas is not obtainable on many sites, that electric room heating, although very feasible otherwise in regions of over-freezing temperatures, still seems preventively costly.

It therefore was studied how room stoves with oil as fuel (or even wood as fuel in the pine belt of the south!) may be located in the layout, so as to supply living

quarters and, if possible, the hall of the private wing in each dwelling. This was especially considered inasmuch as central heating plants would, economically speaking, tend to condense the site plan more than is the goal of this particular study.

A tenant born and controlled heating device appears also indicated in a region, where many tenants do almost without heating their units and where heating is often restricted without much harm, if temporary economic pressure is being felt.

TENANTS' PREFERENCE IN MATTERS OF DETACHED AND GROUPED DWELLINGS

In regions of mild climatic conditions and with described inclination to dwelling



LANDFAIR MULTIPLE DWELLINGS, WESTWOOD.
R. J. NEUTRA, ARCHITECT (P. PFISTERER, ASSISTING)



LANDFAIR

decentralisation, the single family home is at a premium and, as a matter of fact, becomes almost the norm of consumers' aspiration. However, many commercial developments in the south-west have proven that the semi-detached and the dwelling grouped in the so-called bungalow court can easily be made acceptable, and even is chosen with preference by tenants of not only the most moderate means.

The present study, therefore, has concerned itself with the comparative merits of semi-detached dwellings and dwellings grouped together under one roof. Only slight attention was given to two-storey rowhouses, as largely developed in European countries and in the eastern part of the United States.

FORM OF PRESENTATION

The planning studies concern three, three and a half, four, four and a half and five and a half room units incorporate indications of practical joist layout, possible but not necessary extent of fenestration, statistics as to net area per counted room, ratio of this net and cross area, exterior wall length per counted room.

Further : Total cross area, total cubage, total lineal length of exterior wall.

To give still more ample basis for critically comparing the various dwelling layouts a statistical graph is attached to each of them, in which U.S.H.A. and also F.H.A., minimum permissible room sizes, closet and hall allocations, appear side by side with the actual areas of these items in the particular plan proposal. Plus and minus areas are made conspicuous in the graphic picture.

UNIT TYPES

All row house types are also usable as semi-detached, although with a certain loss of economies. Some of the studied semi-detached dwellings cannot well be grouped in rows or require clear storey lighting of baths.

The row house, especially in its narrow breasted variety, is not new. It has been extensively tested in this country and has been abandoned by the people as soon as they emigrated from the places where such dwellings were indigenous. It is evidently, however, the narrowness more than the attachment on both ends or sides

which has made row houses obsolete. Obsolescence by psychological reasons is to be dreaded, when a period of 60 years is being considered, as much as physical depreciation—especially in regions where, as mentioned, obsolescence periods are habitually speeded up.

One-storey row houses are favourable as to inner statistics of economy. More frontage proves advantageous for relation to open air health factors and allotted outside grounds. Exterior living area, which is a function of frontage, permits and makes good for minimum inside dimensions and rooms, small by economic necessity. As set forth, the disadvantage of greater land cost is less significant, as American communities in above-freezing climates tend to decentralisation and thinning out of realty values.

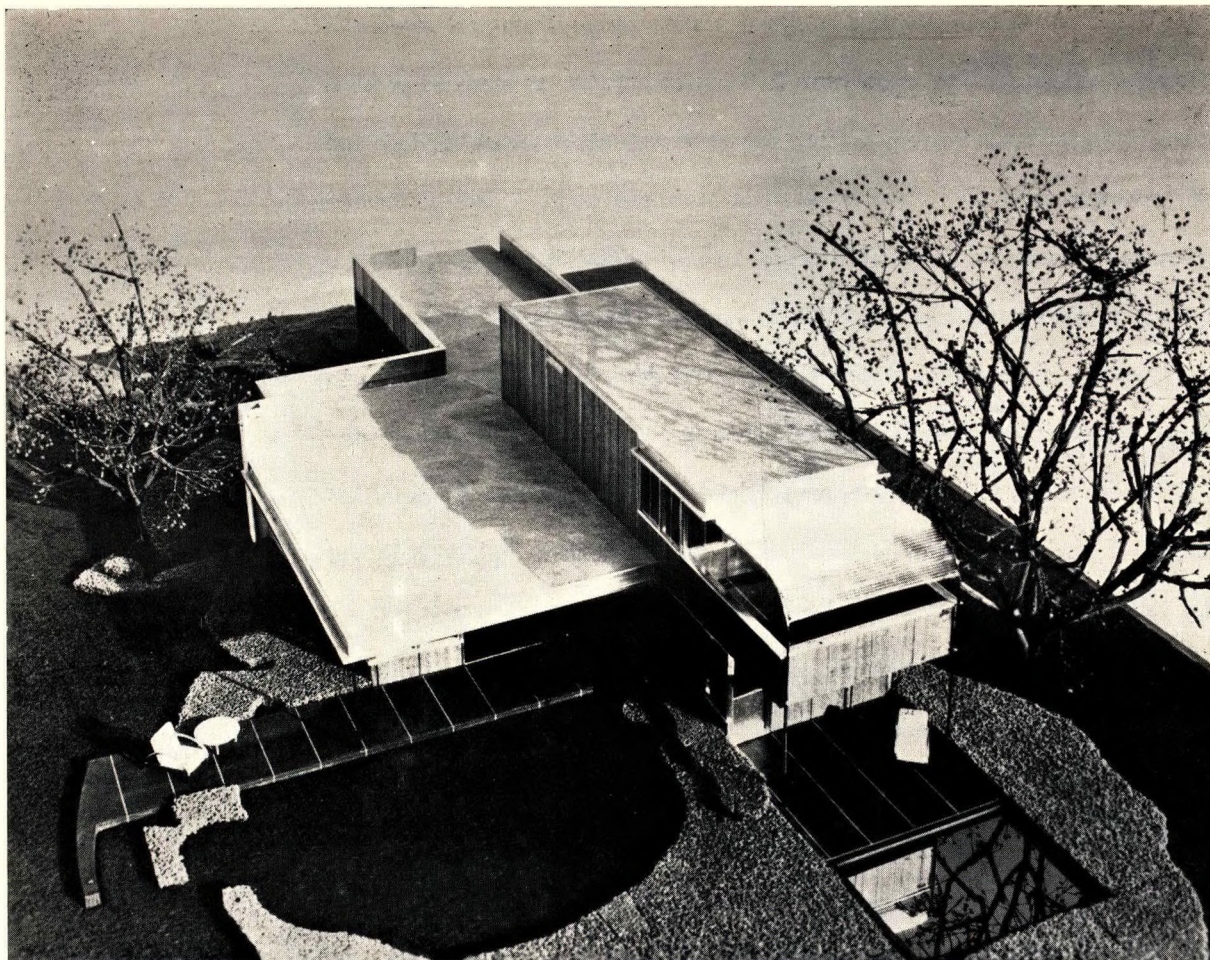
Cost of exterior walls could possibly be reduced if joists are placed longitudinally, and cross walls are made fire-resistant. Front walls not resistant are then not more dangerous than interior partitions.

FUNCTIONAL REQUIREMENTS

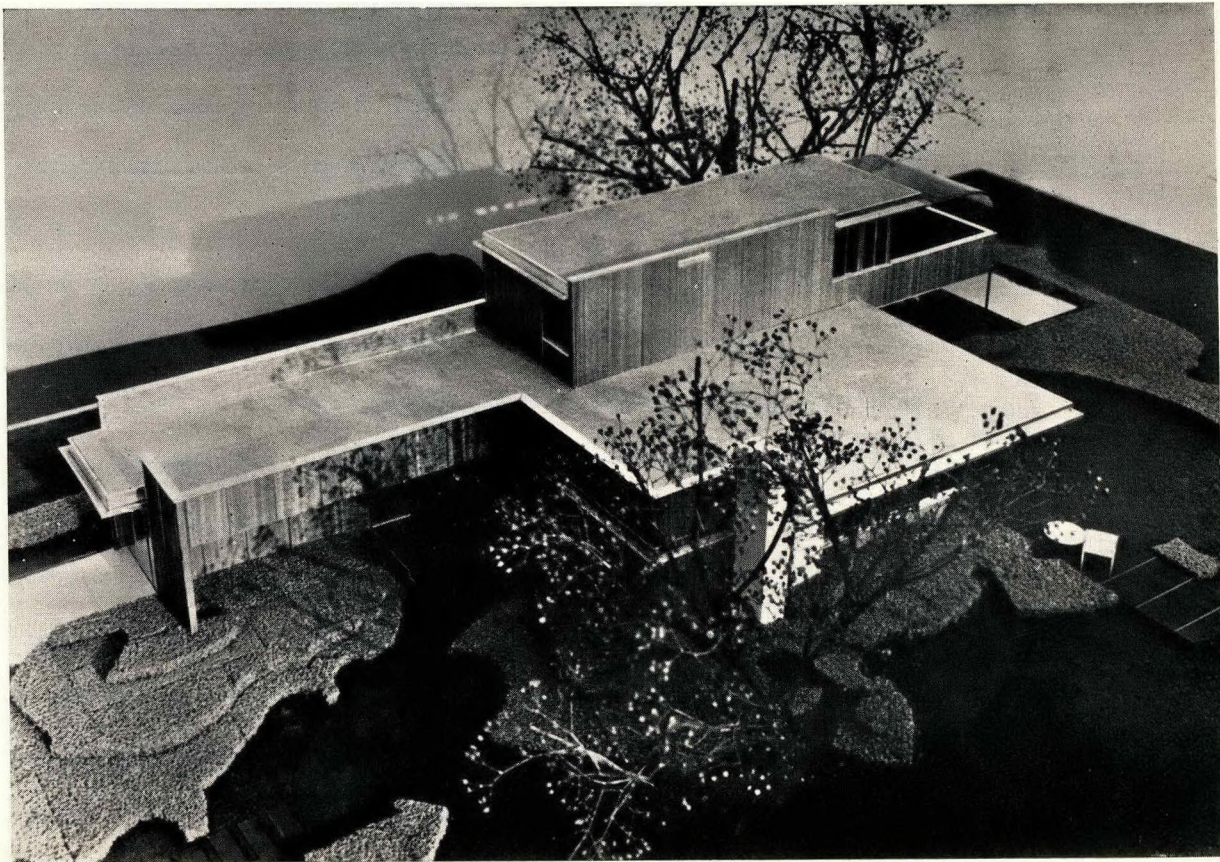
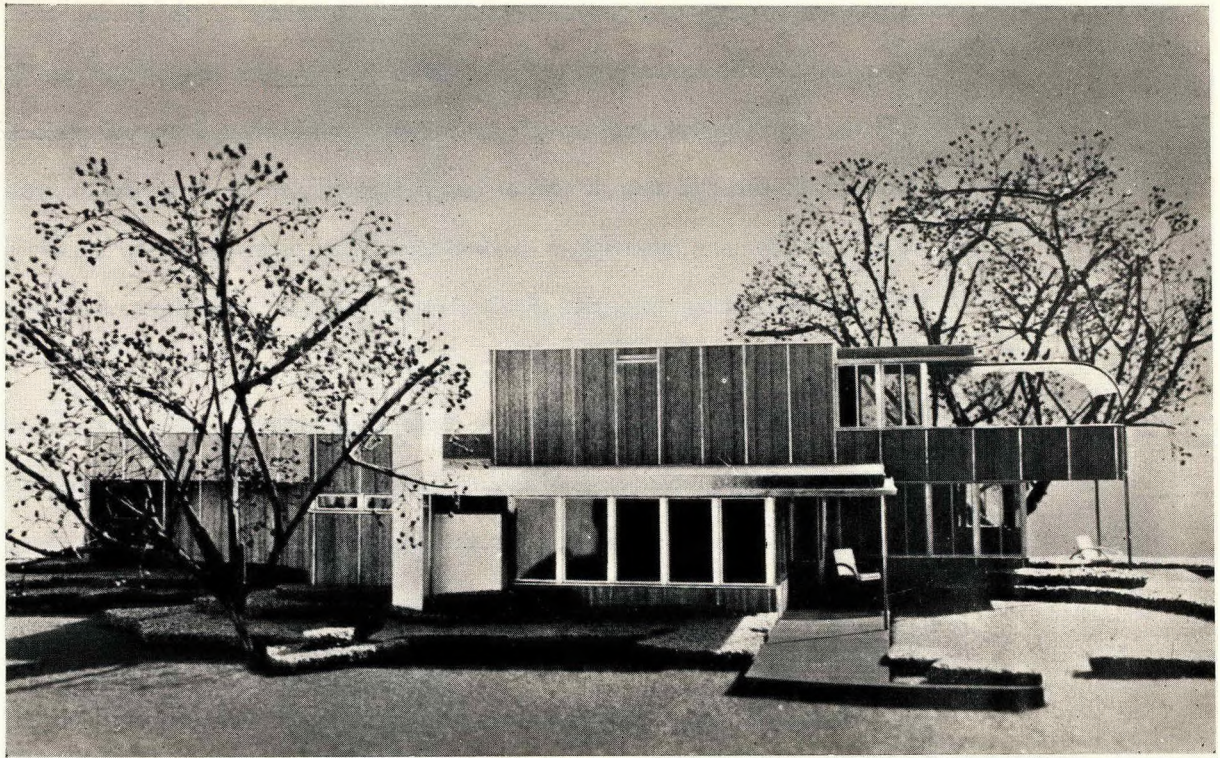
The considered regions, the south recovering from the post-Civil War lethargy and more recently drawn into the orbit of neotechnical industrialisation, and the south-west, distinguish themselves by the peculiarity that a greater part of the living and social processes can be and are being performed outdoors, and that especially the raising of a next generation, of children, is much less restricted to the dwellings' interior.

An increased ever more informal sociability does not make it advisable to reduce the minimum requirements of living rooms or consider kitchens as the only eating place.

However restricted, dimensions of private rooms are much less felt on account of the fact that children spend in this mild climate most of the time at almost all seasons outdoors. The here feasible extensive fenestration increases the space feeling of even small rooms. In this connection it becomes evident that the ratio of room and window size cannot well be considered as a constant. The smaller the room, the



THREE VIEWS OF A WATERPROOF PLYWOOD HOUSE
By RICHARD J. NEUTRA



larger the proportion of desirable window area, to counteract the feeling of being cramped or of being deprived of the proper air supply. The rôle of cross-ventilation and the psychological significance of windows, carefully shaded by roof projections, but large in size and close to the ceiling, is especially to be considered in southern climates. The most desirable is a plenty of diffuse light containing all necessary health factors and a minimum of direct or concentrated radiation, which without dilution proves indigestible.

The semi-outdoor mode of living easily tends to increase the toil of house cleaning; especially the living quarters must be protected against too much cross traffic. There should be, whenever possible, a connection from garden work and outdoor child play to the bathroom without soiling the living room floor.

When infants are sunned outdoors, toddlers play in their cages in open air or nap in their rooms, there is little necessity for the mother to keep them in the kitchen exposed to milk which boils over or dangerous bread knives in their reach. However, the condition is that the kitchen, which now in size may be restricted to a practical working place, receives in the plan a position of visual and acoustical control over certain outdoor and indoor spaces, so that small children can be observed from this vantage point.

The dining bay then serves the dual function of a practical extension of the house work space in daytime, with ironing board and layout table, and as extension of the social room in the evening when friends visit the family.

A wholesome clarification of the unit plan is effected, when the site plan is so constituted that outside guests have definitely to enter it from the garden front side only.

The widening of row house frontage will permit the establishment of hedged-in individual laundry yards for each family, and will do away with the undesirable mixing and critical comparison of the intimate belongings of the families caused by accumulative hanging of wet wash in detached yards.

An important feature of the decentralised living habits of a motorised population is the shopping by car at inexpensive central markets, which under the circumstances often seems almost unavoidable. This means an immediate access from a parking lot or car shelter to the kitchen or delivery entrance. The inconvenience of carrying groceries and shopping goods over long distance from car to dwelling is almost unknown in the considered regions even in the cheapest sections. On the days of torrential rainfall such inconvenience borders at impossibility.

Inasmuch as driving lanes for furniture moving and the approach of the fire department's rolling equipments must be provided under all circumstances, the inhabitants may not be excluded from the daily use of these drives.

Individual shelters, roof projections over the kitchen entrances may serve as housekeeping space extended into the outdoors by day, and as car port at night. This does not appreciably add to cost, more successfully approaches the given custom of the region. Storage space for trunks, perambulators, bicycles, etc., is found in connection with the open shelter, without increasing the cubage of the dwelling proper.

The studied unit plans permit in some cases the inclusion or exclusion of shelters within the dwelling row.

FAMILY AGE COMPOSITION AND DWELLING LAYOUT

For the adequate internal layout of units, and especially for the differentiation of the outdoors allotment to each dwelling, it is serviceable to consider the life of the family group in three stages!

- A The primary stage, where the mother-housekeeper must, during her entire working period, be in visual and acoustical proximity of an infant or toddler, asleep or awake.
- B The secondary stage, where the mother-housekeeper must be in mere calling distance. It is the family with children of kindergarten and grammar school age.

Playgrounds may be off the dwellings' own ground allotment, but should be observed from the working place of the mother-housekeeper. Her working centre is for 40-50 weekly hours the kitchen. Outdoor living areas and their access must be safely segregated from lanes of rolling traffic.

- C The tertiary stage of family growth with more self-reliant, adolescent children of high school age, who habitually frequent large playfields and sport areas, in walking distance but fully detached from the individual dwelling units.

It will add to the human plasticity of the architectural problem and to the usefulness of its solution, if the designer can employ some more concrete thought about the age composition of a family, for which a certain dwelling is intended.

The standard survey conducted by local housing authorities under the co-operation of the State director and co-ordinator of the Works Progress Administration lists the age of all family members.

It is recommendable that the final tabulation records from this survey material the following three types of family age composition, which the writer discussed with Mr. Howard Myers, head of Research W.P.A.

- (1) Families with children from 1 to 5 years.
- (2) Families with children from 5 to 12 years.
- (3) Families with children over 12 years, of one sex.
- (4) Families with children over 12 years, both sexes.

The submitted dwelling studies attempt a differentiation of layout to fit the family age composition, insofar as the observational position of the housewife's work space the kitchen is emphasised for families with infants and toddlers to the extent that one bedroom and an open air sunning place is controlled by view.

Children of kindergarten and lower elementary school age will play in the green areas placed on the house front opposite to delivery drives. The kitchen was therefore also located fronting these play areas. This would reduce the nervous strain of ever interrupted and renewed supervision.

SITE PLANNING

The studied differentiation of dwelling plans according to family age composition will make it possible and desirable to arrange the various types of dwellings and families in a suitable relation to project-maintained play facilities. Annoying friction between children of different age groups coming to and from their play areas, noise created by small children near dwellings occupied by adults or adolescents, etc., can thus be largely avoided.

Nurseries, kindergarten, wading pools, etc., can be spotted in the site plan with increased logic, and in closer proximity to families for whom they are specifically intended.

APPENDIX

EMPLOYMENT GEOGRAPHY AND COMMUNICATION

As mentioned in the foregoing report, housing and habitational habits are influenced by the degree of decentralisation prevailing in a region.

The maps prepared by the author illustrate as an example conditions found in the area of 400 square miles which constitute the City of Los Angeles. The cohesive metropolitan region comprises about 1,500 square miles, and its road system is travelled by $1\frac{1}{4}$ millions of resident motor cars (1938).

The two maps endeavour to show employment markets and habitation areas, densities, circulation, historical and future tendencies in a graphic and a numerical manner.

Little oil derricks, motion-picture cameras, milk bottles show such employment markets as oilfields, film studios and dairy plants. A little apple signifies fruit growing, a

sickle truck farming, and so on. Cross hatched are business zones. Black are heavy industry districts. Certain symbols indicate the type of lodgings prevalent in the different parts of the city, such as apartments, garden dwellings, luxury residences—slums are not specifically indicated. Figures 1 to 13 mark the average number of storeys found in a district, other figures give the year of settlement of each district, which makes a dramatic and historic "motion picture" of the map and permits a conclusion on the growth tendencies of the near future.

The other map supplements the first one by presenting the commuting conditions between residential areas and employment markets. It shows existent and contemplated highways, common carrier lines of all kinds, location of terminals, of air landing fields etc. Concentric circles, with radii increasing from 5 to 5 km., or 3 1/3 miles, indicate the direct city centre distances of the various parts of the region.

I N S T I T U T E L E C T U R E S

It is proposed to hold a series of lectures during the year in Kelvin House, Johannesburg. These are primarily intended for members of the profession, and it is hoped that the support necessary for their success will be forthcoming. The range of projected subjects is a wide one, and the meetings will be thrown open for discussion.

The first lecture will be given by Mr. Monte Bryer on Wednesday, 3rd April, at 8 p.m. The subject will be : A C R I T I C A L R E V I E W O F T H E
T R E N D S A N D P R O B L E M S O F C O N T E M P O R A R Y
A M E R I C A N A R C H I T E C T U R E .

THE SOCIAL SIGNIFICANCE OF COLOUR

by H. LEWIS KATZ

GENERAL CONCEPTIONS

Colour is experienced in terms of certain dimensions.

Social contact is similarly experienced and measured in the same terms of dimensions.

Inference: By means of such dimensions colour-feeling may be substituted for social contact.

Application: Architecture is a reflection of the society in which it develops. Colour, by reason of its social significance, becomes an integral part of such architecture.

The reader may be puzzled at finding an essay of this nature within the covers of an architectural periodical. There is, however, a growing tendency among architects to interest themselves in problems arising out of the phenomena herein referred to as the "social significance of colour." It is the aim of this essay to delineate these problems and to indicate—albeit in very broad outlines—the theory on which the study of such problems is based. A knowledge of biology and of social relationship is indispensable for such a study, for it is out of the combination of facts from both sources that a new and amazing aspect of colour arises—an aspect of incalculable importance.

The significance of colour in social relation is widely felt. Proof is afforded by the commonly used phrase of "the language of colour"—though it seems we have made little effort to analyse and comprehend its grammatical elements and construction. For we do no more than "feel" the influence of colour. We know from experience the affective reactions on ourselves and others to certain colours,

and our use of colours depends chiefly on such experience and our own "good taste." Now let us come to grips with the problem.

SOME GENERAL DISCRIMINATIONS

On a geological map I may see some areas coloured red. If I know the rules for the application of the different colours used, then I know the geological strata thus indicated. The red, therefore, has for me a certain meaning, which meaning was arbitrarily fixed by convention (that is to say, by a purely intellectual act), and which applies only in the particular context.

I drive on a road and am held up by a red flag, blocking the way. I grasp instantly the meaning of this flag: danger ahead. In such a case the red colour is inextricably fused with, and not intellectually reflected by, the feeling of danger. The red is more than a sheer convention. It directly touches—one might say—my instinct.

Strolling in "tense times" through the street, I come upon a procession of people marching behind the red flag. Instantly I think of a revolutionary demonstration. The red flag confers upon the crowd a significance which means again: danger.

In all three cases the red has acquired a specific meaning for me. This meaning, however, has quite different sources. In the first example the significance of the red corresponds to a conventional arrangement whose special and limited significance I must learn. Types of this kind may be excluded from our inquiry. In the two other examples the meaning of the red is fundamentally different. Here is something with which I have direct contact. No learning is required for me to grasp its meaning. The fact that one may try to connect habitually—by experience or by reflection—red colour with a momentum of danger is secondary only; but unfortunately sometimes apt to obliterate the real facts. These are (as stated above): there exists an immediate given connection between me and the particular colour, which enables me to identify myself with it. The origin of the sentence "I see red" is not due to the abundance of blood in the veins of my eyes—this is only the result of my condition. My condition is red, that is to say, my aims and my strivings are "red," my whole personality glows red, aggressive and dangerous.

SOME SPECIAL DISCRIMINATIONS

On studying the second and third examples more closely we observe a further and important difference. The meaning of the red flag on the road site is in some way impersonal. It gives a general warning

and no more. We are not roused affectively : pro or contra. Henceforth specimens of this group of examples shall not concern us further.

The interpretation of the third example, however, presents more difficulty. It is the situation as a whole which we must examine to gain a deeper understanding. And—in broad outlines—appears as follows : The red flag and the crowd seems to be a simple unity. The red flag symbolises the striving of the crowd and the aggressive energy, which it emanates, sensed by the observer and styled as "spirit." It is evident that this energy is the product (or power) of the individual energy of each person in the crowd, condensed and directed towards the common goal. This common feeling and collective energy, exuded by each individual, grows and multiplies of itself the feeling of concrescive will power. The observer, mentally and psychically prepared by the circumstances, reacts instantly to the manifestation before him. He is forced in contact with the "red complex." He cannot remain neutral or half-hearted. His personality must be directed pro or contra to this red complex—we are not interested in the partisanship of the observer—we state only the necessity of his response. And this response is a social one. This is the type of example which is relevant to a discussion. Such combinations of striving, feeling and colour set in one indicate the specific social significance of colour.

APPLICATION IN EVERYDAY LIFE

In all three cases the red stands as a symbol, but how different is the meaning of these symbols. The first group—with certain modifications—is well known to the architect, that is to say, one may apply colour in order to underline some function of units as well as to accentuate the difference of materials. The second group also has its parallel in architecture. Certain colours are normed and applied in order to distinguish technical equipment such as pipes. In such a case the colour has specific reference to the purpose of the pipe. Thus gas pipes are painted yellow, and this colour is therefore directly connected with the danger the contents of such pipes may exercise. The last group—with a few exceptions in certain countries—has not, thus far, its parallel in architecture, and for a very good reason. Our particular social organism, composed as it is, affords few opportunities for genuine collective feeling and striving. Its architecture, naturally a reflection of this social organism, and thus an expression of its aims and tendencies, has found no use for colour as an expression of collective manifestations.

Nevertheless, even to-day these collective tendencies are not entirely dormant. The process of atomising

social life could not totally destroy the fundamental and biologically determined impulse. To quote only one example—perhaps not the best of its kind, but comparatively simple—I may refer to mourning and its symbolising colour.

The structure and the "idea" of a social organism has its specific colour to express mourning.

In our social organism black has become the symbolic colour of mourning. No other colour could have expressed the particular social significance of mourning imposed upon us by the particular social organism. In a structure in which the value of the individual is strongly emphasised and social rapport between individuals is more accidental than fundamental, death breaks off entirely such feeble ties. For society the deceased is—in the deepest sense—effaced. Black embodies a feeling of definite failure (in a social sense) and the comprehension of death as something absolutely final. Only black is able to express this completely negative view of death.

If this thesis of social significance of colour is correct, then societies differing in structure from ours should exhibit accordingly different mourning colours.

The mourning colour of natives of West Africa, South China and Friesland is blue. The Indians and the Saxons reflect their collective mourning feeling in red. The natives of various parts of Africa, of Australia, Borneo and North China express the same feeling by white.

GLIMPSES INTO THE MECHANISM OF THE SIGNIFICANCE ITSELF

An enigma which confronts the critical reader is the following: How does it happen that one identifies certain emotions and feelings with particular colours, or, to put it another way: why does one "see" red as red and not, say, as green; that is, why does a certain wave-length of light radiation give the sensation of red and not of green? Both these questions find their answer in what one may style: the biological aspect of colour, and here are some facts.

BIOLOGICAL ASPECT

Red is the colour of blood and is easily identifiable with it. Red thus indicates the successful hunt and therefore food. The red of blood means birth, violent death, battle wounds. Dying fire is red and so is the sun at dawn and at sunset. Hunt, battle, death, birth—all presuming blood—are near-distant items in the spatial as well as in the psychological sense.

Thus red "is" near, offensive, warm. Red presages danger the element of man.

The qualities we attribute to red in everyday language confirms these results. Red is described as bright, warm, near, exciting, passionate, active. The student of languages can analyse the meaning of such attributes and compare his conclusions with our dimensions for social feeling stated later on. Blue is the colour of distance. In nature blue is the colour of background. It is the colour of the sky, i.e., the colour limiting the upward dimension as well as the colour of distant bodies on the horizon. Blue sky indicates fine weather, quiet, a lack of aggression, happiness. Water appears blue. Blue is cold, the colour of ice. Blue is more "thine than mine." Thus blue betokens: distance, longing, the unattainable goal: the sphere of woman.

Violet-purple is the blend of blue and red, but the qualities of blue prevail. The most distant bodies, where no details can be discerned, are violet-purple. It is the colour heralding the coming of the sun and its setting, the period when all nature is motionless, quiet; yes, the period of mysticism. Where day and night meet, where life passes into death: there is violet-purple (note violet-purple in ecclesiastical use). Purple-violet is the most far-away of all colours, passive, negative and faint. It spells the domain of unreality.

Black: Black denotes the absence of light, the sheer deficiency of seeing. Where you expect to see and fail, you "see" black. Black is the colour of the night, of helplessness and of the impossibility to re-orientate oneself. Black is the colour of burned-out things, of things without movement, lifeless and rigid, neither near nor far. Black is the bourn of resignation and failure. One must not, however, imagine that these qualities are given as an addition to our affective reaction. The process is much more complicated. The human organism is built in such a way that the long-wave light radiation, for instance, induces us to "see" warmth (which is a physical consequence of the sensation of this radiation) with the colour red. The facts illustrated by these examples need careful considerations. We characterise certain colours by quantitative and qualitative adjectives such as near or far, active or passive, positive or negative, etc. It could appear, therefore, that these qualities or quantities were mere additions to a given sensation. I suggest, however, that the study of human evolution (from the biological viewpoint) shows actually the reverse. We see the colour red as red because of its warmth. Anything, the qualities of which are active and near and warm, we feel and "see" as red. Proceeding from this viewpoint, it

becomes easier to comprehend the fact that just every person's reaction to colour is similar, so that collective reaction to colour is in truth possible.

THE COLOUR DIMENSIONS

By analysing and comparing the qualifying adjectives—and the list given above is by no means exhaustive—we find that the adjectives fall into pairs, the qualities and its opposite as : Near/far, intense/faint, cold/warm, active/passive, negative/positive.

These terms represent the extreme values of a simple dimension for each pair.

THE SOCIAL DIMENSIONS

Before we start on some considerations regarding the dimensions of social feeling, we must clarify the meaning of the word "social" in this context. It is not at all conceived in the sense of "social and personal." It has nothing whatsoever to do with our usual idea of society or with class conceptions. Our meaning here is far wider; by "social" is meant every form of contact which a personality may experience with the "other." "Personality" may be conceived as an integrated whole of an intra-psychological and physiological "present and feeling," whereas the "other" represents extra-psychological and extra-bodily things, facts, ideas or persons, in contact with which the personality undergoes experiences. The reaction to these experiences is here labelled : "social feeling." This somewhat broad definition must satisfy our special purpose.

The feeling of social experience varies accordingly to dimension and degree. Between the extreme values of pure personality-feeling and sheer "otherness" lie the degrees of more or less contact. Coupled with these degrees one may discern polar pairs of near/far, active/passive, intense/faint, positive/negative, coupled with the qualities of pleasant/unpleasant in a greater or less degree. It is extremely difficult to reduce this whole complex of social feeling into its elements but, fortunately for us, there is no need to do so. A few examples from common usage may suffice to clarify the more academic statement.

"I cannot come into close contact with this person."

Analysis : My feeling is far and faint.

"This idea appeals to me."

Analysis : My feeling is near, intense, active and positive.

"The beauty of this mountain range subdues me."

Analysis : My feeling is intense, positive, pleasant, yet passive (subdues me !).

" This red overwhelms me."

Analysis : My feeling is intense, negative, unpleasant, near.

" The pain is intense."

Analysis : My feeling is near, active, negative, unpleasant.

Where opposite values are experienced simultaneously, we speak of conflicting feelings.

THE PERSONALITY

Now taking these fundamental dimensions for granted, we then postulate that the tendency of each personality is to increase the intensity of feeling at both poles : personality and other without loss or annulment of either. To render such a postulate actual and to restore the equilibrium, the structure of personality must be such that the feeling is able to run through all intermediary values between the two extremes of the dimension. Personality must be capable of contraction and expansion in its contact with the " other." Consider from this viewpoint the common sentence : " I withdraw myself from this person." One here infers the spacious advancing and retiring—the movement and the direction of this movement—of colour energy. The most important fact one may gather from this line of enquiry is the statement that, in extending one's sphere of personality, an " other " may be absorbed : things, facts, ideas or other personalities. And evidently this process is mutual.

COLLECTIVE PERSONALITY

A typical aspect of a collective personality is given when the strivings of several personalities are directed toward some common goal. The collective social feeling emanating from such a whole is commonly called " esprit de corps," or " the spirit of the old school tie," and the collective itself a brotherhood fraternity, etc. The collective personality feels and reacts along the linear dimensions as does a single personality with the one but crucial difference : that feelings and reactions are by no means mere additions of the single personalities which compose the whole. There is no determining word to express such accumulation.

TO RESUME

The connection between man and colour is dimensionally founded. The relation which any personality may undergo with the " other " is equally dimensionally established.

Though any personality is included into the "other," the relation between the personalities forming a collective in the sense, above mentioned, is established also on the same dimensions, and in the same way demonstrates the relations of any collective personalities to the "other" dimensionally.

From these rules we may proceed to infer the rules of displacement and replacement by which the identification of the "other"—in our case the colour—with the (single or collective) personality may occur. Such a process is dependent on the particular circumstances in which personality and the "other" make contact. In this potential of identification with colour, the social significance of colour lies embodied.

One may wonder why such a train of thought should be of special interest to the architect. Now space is simply a form of "otherness" in the sense of dimensional social feeling, and architecture shapes this "otherness" according to the social scope. Architecture and colour follow the same rules of dimensions. Hence the importance of colour in architecture.

PROFESSIONAL NOTES AND NEWS

ANNUAL GENERAL MEETING

The Thirteenth Annual General Meeting of Members of the Transvaal Provincial Institute will be held in the Council Chamber, Kelvin House, Marshall Street, Johannesburg, on Tuesday, the 12th March, 1940, at 1.30 p.m.

It is intended to open the meeting at 1.30 p.m., appoint scrutineers to conduct the ballot for election of the Committee, and then adjourn the meeting until 8 p.m. for the continuance of the general business.



The Central Council, at its Executive Meeting held on the 15th January, agreed to publish in this journal, for the information of South African architects, the following notice which appeared in the R.I.B.A. Journal on the 11th December, 1939:—

"The attention of the Practice Committee has been drawn to the fact that the publishers of certain journals are approaching architects for details of their professional activities, which the publishers propose to embody in the editorial columns of their journals. In the case of one particular firm of publishers, several members forwarded to the Institute the proposed article as drafted by the editor and sent to the architects for any additions or amendments the architects desire. In each case the wording of the articles is identical, with the exception of the names and addresses of the firms of architects to whom they were sent.

"The Committee desire to warn members generally against this undesirable form of publicity. The acceptance of members of invitations of this nature from firms of publishers is, in the opinion of the Committee, directly contrary to the Code of Professional Practice and tantamount to advertising."



Mr. Clement R. Fridjhon, M.I.A., wishes to announce that he will commence practice at United Buildings, Smith Street, Durban, on his own account as from the 26th February, 1940, his partnership agreement with Messrs. Kallenbach, Kennedy & Furner having expired on the 23rd February, 1940.

Journal of the SA Architectural Institute

PUBLISHER:

University of the Witwatersrand, Johannesburg

LEGAL NOTICE:

Disclaimer and Terms of Use: Provided that you maintain all copyright and other notices contained therein, you may download material (one machine readable copy and one print copy per page) for your personal and/or educational non-commercial use only.

The University of the Witwatersrand, Johannesburg, is not responsible for any errors or omissions and excludes any and all liability for any errors in or omissions from the information on the Library website.