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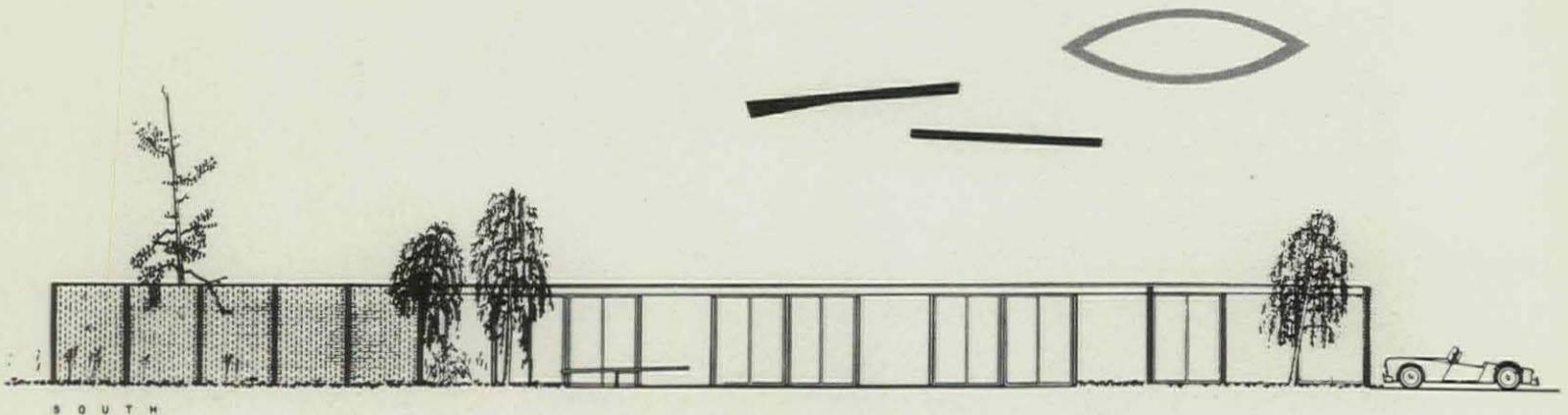
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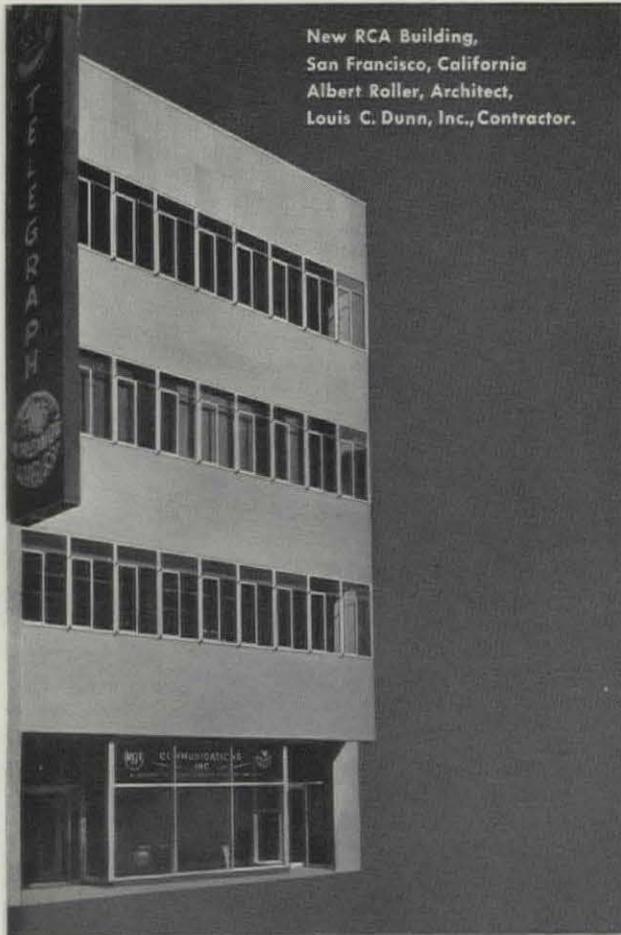
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ART

BELLE KRASNE

Almost without exception, the season's most provocative one-man shows have been distinguished by expressionist features—sumptuous use of materials and color, immediacy and boldness of effect, freedom of attack. Not only among the Americans that we have seen but also among the Europeans there has been a persistent emphasis on these characteristics. But, of course, we see what we want to see, and apparently at the moment what we want to see is expressionist art. Nor is this astonishing in view of recent history.

During December, in his Columbia Bicentennial lecture, J. Robert Oppenheimer incisively described the predicament of the contemporary scientist and artist. "One thing that is new," he said, "is the prevalence of newness, the changing scale and scope of change itself, so that the world alters as we walk in it, so that the years of a man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval." I presume that no times ever seem right to the men who live in them, yet surely our own times are inordinately agitated and jolting. Our vision cannot be adjusted to an art of stasis, of monumental calm, of objectivity, for we are so giddy with change and so inured to shock that only the most powerful impacts can move us.

In France the ancient classic tradition lingers on while newer and more violent modes develop in art. But the art of France has deep roots in the past. Here tradition does not baffle experiment. We were born with the rich taste of expressionism in our mouths. We are bred on novelty—and violence. We are, by nature, prodigal and free. More than the French, we are disposed toward the expressive in art. Perhaps this explains why Dubuffet is more of a success in this country than he is in France; it may also explain why our museums and galleries have virtually ignored a significant and calmer aspect of French abstract art—the pure form style—which has more than 2,000 adherents in Paris alone. Too, it may explain the type of exhibition in which this season has already abounded—exhibitions of early Vlaminck and of Modigliani; of Van Gogh's precursor, Adolphe Monticelli; of the Blue Rider group; of such young Europeans as Fritz Winter and Karel Appel, and such Americans as Hans Hofmann, George McNeil, Ralph Rosenborg, Ibram Lassaw and Seymour Lipton. If they have nothing else in common, all of these shows have contributed substantially to the prevailing expressionist climate in New York. But to be more specific, it is the abstract expressionist climate that prevails.

Like every vital movement, abstract expressionism has its due complement of bad painters, for it has produced some very good works of art and every good work of art has as its corollary a great prodigy of bad ones. It is not regrettable that this should be so; what is regrettable is that so much of this bad art claims our attention here in galleries and museums.

The abstract expressionists in New York today are legion; they are so active and so ubiquitous that they occupy most of our attention and imagination. But, of course, the movement is compelling—so compelling that scarcely anyone has been able to resist it: artists who might pursue other directions more profitably have succumbed to it; dealers have adopted its members indiscriminately, and critics have championed it as if it were a cause. Indeed, it is increasingly difficult for an artist here to work in a personal and unassimilable vein: he finds the minds of dealers and critics closed to his work; and he finds it difficult to maintain his independence if he wants to remain in close touch with his fellow artists, since the circle is tightly drawn around the in-group.

In such a curious situation, opportunism flourishes, for a would-be exhibitor cannot help but feel that it is almost more advantageous to be a bad abstract expressionist than a good independent. The former at least has a sense of solidarity, an audience, a place in the big group shows which are organized by artists or by their champions. The latter is likely to pass unnoticed, a lonely figure on the scene. And the pity of it is that so many of the lonely figures in our midst are older men, mature artists, whose recognition is being pre-empted by their own pupils. Recently, when I visited the

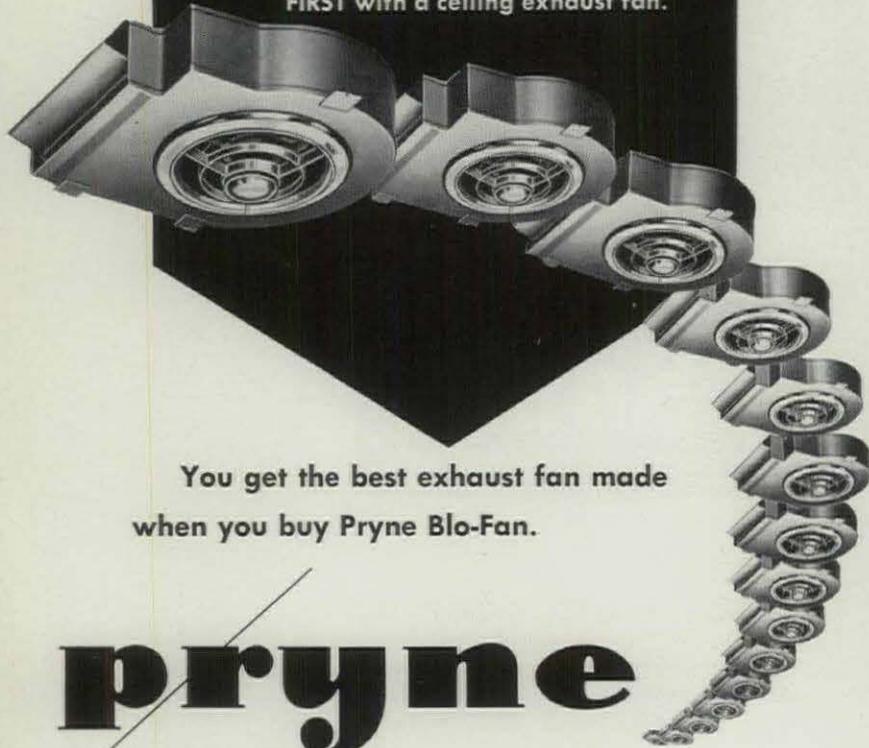
(Continued on Page 6)

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ART

Continued from Page 4

third exhibition of a very young painter and asked with whom he had studied, the gallery attendant confirmed my guess but hastened to assure me: "That was long ago—four years ago." But painters are no longer made: today they spring full-blown from the heads of their famous artist-teachers.

The other day I heard a New York critic complain that our younger painters are no match for their contemporaries of ten years ago. I would agree that this is a fact and not just nostalgic sentiment and I suspect that it is a fact because of the rise and gradual domination of one movement over all the others. For the time being, this has put a stop to play or antiphony in the realm of ideas and to the stimulation that such play invariably brings. Nothing challenges our imagination today and nothing provokes excitement among artists, not because there is nothing new under the sun, but because there is so little room in the scheme of things for something new to appear.

Now I am not advocating a resistance movement, but I do believe that the climate for art today would be vastly improved if a more critical attitude toward abstract expressionism were adopted and if artists and dealers could be persuaded to take a more independent stand on matters of art. We should then at least be spared the pain of seeing at Egan's a talent such as Keith Martin's—that of a rococo draftsman—sacrificed at the altar of expressionism. We would not be exposed to paintings as unrealized as those which Zogbaum showed this fall at the Stable. Nor would we see so much paint slung solely for expression's sake as we did in exhibitions by Pasilis at Urban, by Franks at Peridot and by Appel at Martha Jackson.

I do not want to give the impression that all of the expressionist shows of the season have been disappointing for several have had much merit. To get down to cases, in the remaining space this



Ralph M. Rosenberg: "Approach of Spring," watercolor; Davis Galleries.

month I shall discuss four of this season's shows which, for one reason or another, have interested me. In subsequent columns I hope to get around to other current shows.

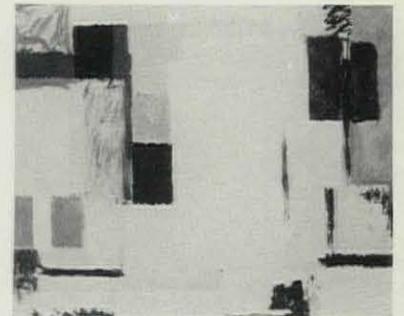
Few artists today paint pictures that involve the spectator in an intimate relationship, so that Ralph Rosenberg, whose thirty-ninth one-man show was recently held at the Davis Gallery, is something of an anomaly. The canvas is neither a stage nor an arena for Rosenberg: his pictures are scarcely ever larger than twelve by eight inches. But within a tiny compass he achieves some monumental effects.

As much in love with pigment as he is with nature, Rosenberg paints landscapes and flowers by juxtaposing daubs of brilliant color as a jeweler arranges precious stones in a setting. In his oils, the paint is lush and buttery. Often forms are scratched into the thick pigment with the tip of the brush handle or of the palette knife. Often, too, the paint is so built and modeled as to make the picture resemble a relief. In watercolors, splotches of paint spread over the paper staining the picture, as it were, with brilliant colors or gray veils through which a sinuous, descriptive line filters.

The effect of these summary little landscapes and bouquets depends, to a large extent, on their scale. They would suffer from being enlarged. Like the works of Klee—of which, in fact, they remind us—they are dense, compact, intimate. But unlike Klee's works they are neither intellectual nor witty. For Rosenberg is first of all a romantic; he is, besides, a colorist, a sensualist, an expressionist. He is given to moods, and it is often just a transient mood of nature that he captures in his work. There is, among his

watercolors, a dark and misty scene, an envelope of murky atmosphere, which he calls *Peaceful Winter's Night*. In burgeoning, seeping colors, he described the *Approach of Spring*. With a bouquet of colors he conveys the *Fragrance of Flowers*.

Moodiness or romanticism is perhaps most apparent in Rosenberg's remarkable charcoal drawings, of which there was only one example in the recent show. But I have had the pleasure of seeing a great many of them recently in Rosenberg's studio. The closest parallel that I can find for these drawings is the work of the English romantic Samuel Palmer, whose charged and dramatic moonlit landscapes, filled with scraggy boles and thorny shapes, served as inspirations for the early landscapes of Sutherland and Piper. I doubt that Rosenberg is familiar with the work of Palmer—the nineteenth-century landscapist has not enjoyed a real revival—and yet the correspondences between these two romantics is astonishing. In the work of both there are dramatic and almost supernatural effects of light and dark, spikey black forms, a highly charged atmosphere; their sense of poetic reverie is quite similar. Palmer is perhaps one of the most personal artists in the British school; like

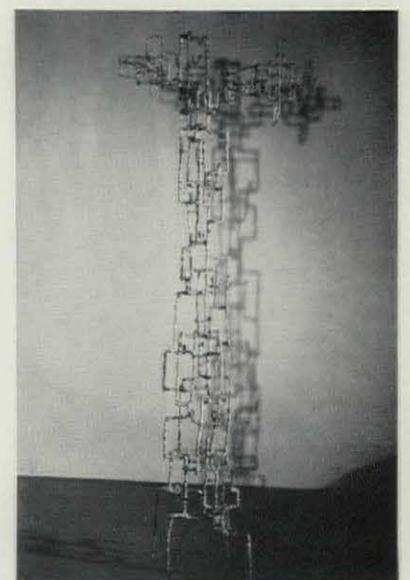


Georgio Cavallon; Egan Gallery.

Blake, he is one of those curiously unassimilable artists whose art stems from an intense, private vision. Rosenberg, I think, occupies a similar position in the American tradition.

Of all the attempts that have been made to metamorphose Mondrian, Georgio Cavallon's has been the most persistent. I have always had the feeling that Cavallon's work represented the submission of a fairly lyric nature to a rigorous, intellectual discipline. Mondrian supplied the geometric structure which Cavallon modified and gentled, as it were, by breaking the large rectangles into small, patches and sobering the primaries with grays. Cavallon's earlier pictures look like blurred views of a city—a very dingy city.

Now, apparently, Cavallon has decided to throw off the Dutchman's yoke. His show at Egan's this season seemed to be his dec-



Ibram Lassaw: "Myrrha," bronze; Kootz Gallery.

laration of independence; it was optimistic, radiant and sensuous; it was his best show to date, and certainly one of the brightest and freshest in New York during the past two months.

On first visiting the show I was struck by the clear and sunny colors which gave the whole gallery a cheerful and warm look. White is dominant in the new work and against it a whole range of brilliant colors play: gleaming yellow, orange and red, dainty

blues and pinks. The darker grays and blacks merely accent the brightness.

This delight in color is matched by a sense of material, for Cavallon seems to have discovered the body in his paint. He uses pigment abundantly in the smallest—and, I think, the best—of his pictures, juxtaposing oily stripes and rectangular areas of color with an audacity that has been lacking in his work up to now. Perhaps it is not so much an audacity as an assurance; at any rate, one has the impression that in his best pictures he is beginning to push the paint rather than just tickle it.

Cavallon lives and works in New York and frequents the New York School circle, and during the past year or so he has obviously been affected by the pressures which I discussed earlier in this article, for the really dramatic changes in his work have been a change in brushwork, from tight to loose, and a corresponding change in structure. Whole areas of his larger pictures are painted with a free, feathery stroke which capriciously shifts its direction; where they were formerly small and flat, the patches are now larger and they billow as if the feathery strokes had actually piled up in places. To accommodate these breezily painted areas, the whole geometric framework has been relaxed.

Up to now, Cavallon has been able to rely on the logic of geometry; the structure of his work has been, so to speak, ready-made. But it will be interesting to see what happens if he continues to move in the direction of abstract expressionism for, as I have said, the pressures of the moment are very hard to resist. Mondrian is the antithesis of DeKooning, yet Cavallon is trying to make a merger. There is, in his newest work, a curious equilibrium between logos and eros, pure form and pure feeling, calculated composition and random brushwork. It is as if one side of the equation supported the other in a precarious balance, and like most things that are precarious, these pictures have a certain fascination.

In some respects, Ibram Lassaw's recent development parallels that of Cavallon. Like Cavallon, he has been working toward a greater sumptuousness or sensuousness. And he too has started to relax the schematic structure of his work.

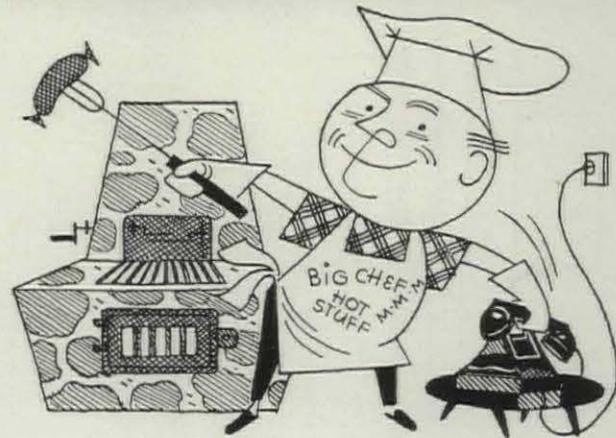
Lassaw's show this season was a dazzling one in the literal sense of the word. The chroma of his mazelike welded metal sculptures stood out against the gleaming white walls of the Kootz Gallery. Several of the pieces were free-standing; two grid-like structure clung to the wall in a direct architectural relationship, and one piece was suspended in the air like a censer.

A spiritual descendant of the alchemists, Lassaw uses Mendeleev's periodic chart of elements as his palette. Recently he has begun to experiment with a wider range of metals and combinations of metals—with silver, chromium bronze, silicon bronze and manganese bronze. Welded into proliferating forms, these rich materials have an almost molten appearance in the work itself. One slender branch seems to slither into the next, while little lumps and irregularities lend an organic look to the sculptures, suggesting that they have sprouted of biological rather than esthetic necessity. Excrescences and nodules enrich the surfaces, and so do chemical baths which encrust them with jewel-like compounds, with eruptions of green, turquoise and red-gold.

Lassaw aims to express spirit through material and he wants to unite the two concepts in art as he feels they are united in life. But unfortunately he is not always able to transcend his material. The opulence, the gorgeousness, of this new work strike one immediately, but too often the attractiveness of the work is merely that of the material out of which the work has been made. The transcendent quality that we seek in a work of art—the quality that transforms material into art—is present in only two of the recent pieces. The others leave us with nothing so much as an impression of cleverly manipulated metal.

The structure of Lassaw's best work, like the structure of an expanding universe to which it corresponds, is orderly but surprising. His is a proximate geometry rather than the precise Euclidian geometry of, let us say, Mondrian, Richard Lippold or Sidney Gordin. But as long as he retains a quasi-formal structure, he succeeds in conveying a sense of outer space, a sense of energetic relationships within space.

It is when he abandons the logic of geometry that he runs into problems of a formal nature, and these, I think, are clearly demonstrated in the recent piece called Erinns. Erinns is a twisting baroque labyrinth, rather like a three-dimensional Pollock, suggest-

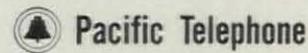


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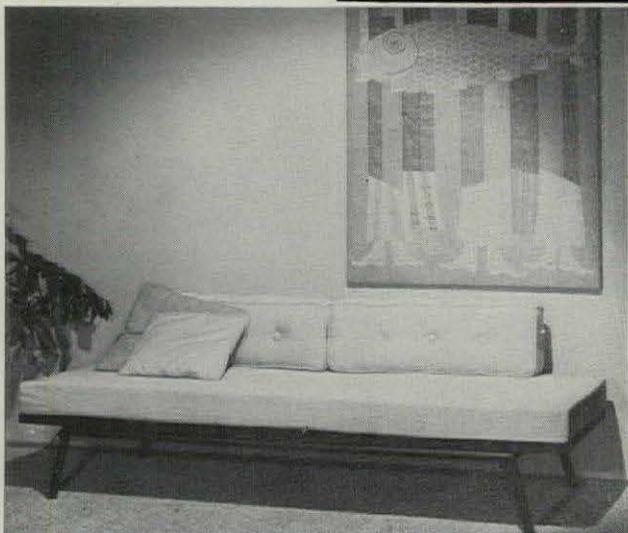
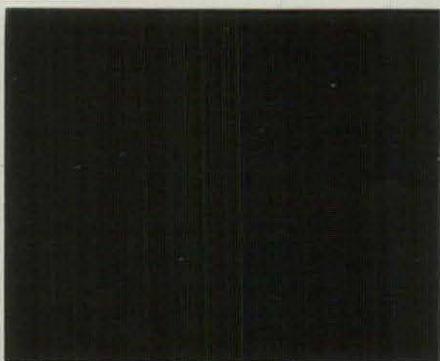
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ing two figures locked in combat. It is a restless piece, a tangle of metal, and one has the feeling that it conveys the sculptor's struggle to find a form for his material. But essentially it is a sculptural problem, not a solution.

This is not the case in works where Lassaw has made a given geometric order his point of departure. *Ahasa*, the suspended sculpture I mentioned a moment ago, is nearly crystalline in shape. Lodged in its heart is a purple crystal cluster, a core of color trapped between the metal prongs. Light catches the piece; it glitters as it pricks at the air around it; it drifts like a pendant in the sky or like a twinkling star. *Ahasa* is a mesmerizing object and I think that it is a religious object, a new kind of ikon for modern man to contemplate. *Myrrha*, too, is a devotional piece. The goddess *Myrrha* is *The Patroness*, and appropriately the sculpture, *Myrrha*, has a hieratic quality; it stands erect, six feet tall, stately and balanced. Its two roughly rectangular parts intersect, suggesting two constellations crossing each other's path in the vast sky and fusing to form a new galaxy. These are the best of Lassaw's recent sculptures and they are among the most beautiful and successful of the sculptures that I have seen this season.

Leaving behind expressionism, I should like to mention a rather anachronistic show, of such a reticent charm that it might almost escape unnoticed in any reckoning of the more insistently up-to-date attractions at the galleries. The show, Leon Hartl's at Peridot, comprised a series of paintings—fragile, lyrical flower pieces and still-lives, all in an impressionist mode.

Hartl's affinity for impressionism is no doubt explained by the fact that he is French by birth and extremely gentle by nature. One might find correspondences between his park scenes and Prendergast's or between his and Arnold Friedman's flower pieces. But he carries impressionism to a more lyric pitch than either of these Americans. And his tender pictures are affecting because he himself is so deeply affected by what he paints.

Hartl's world is circumscribed and he stays within its bounds. He loves flowers and food. What Frenchman does not? He also loves women and children. And it is these things that he loves best that he paints almost obsessively, rendering them, as it were, as so many dim memories or dreams of reality, as pale or faded fantasies. Each of his pictures is composed of little spots of color and each spot is loaded with white, so that the picture emerges as if from a haze or a fine veil of gauze. Perhaps the veiled effect is Hartl's device for unifying his paintings; at any rate, it serves a lyric purpose for in blurring the images it heightens the nostalgic mood that he creates.

It is the special merit of some Frenchmen to deal in sentiment without entering the realm of sentimentality. Boucher, at his best, knew where to draw the line and so did Renoir. Cabanel and Bouguereau never did. If Hartl manages to avoid sentimentality or cloying sweetness, it is because he paints what he sees, and what he sees does not titillate him, it moves him. He is, above all, faithful to his personal vision.

It is his fidelity to the image, in fact, that distinguishes him from such an artist as Bonnard, to whom he might otherwise be compared. Bonnard was interested in translating visual reality into flat areas of color; he painted flowers and fruit, not for the sake of themselves, nor for the sake of poetry, but for the sake of the picture—that is, for the sake of the relationships of colors and patterns. Hartl, however, is more interested in the hedge rose and lilac *per se* than he is in the formal aspects of picture-making.

Though he has none of Redon's mysticism, Hartl does resemble Redon in his attitude to flowers. Like Redon, he is entranced by the delicacy, the color, the ephemeral beauty of blossoms. Indeed, in his show, it was the flower pieces that delighted me most—particularly the little canvas titled *A Bottle, a Vase and a Basket of Flowers*, a rendering of roses and bluettes, their pale colors answered by passages of yellow and blue-gray. Hartl himself, I understand, has a flair for arranging cut flowers into exquisite, old-fashioned nosegays; he is, besides, a chef of the first order. It is no wonder, then, that he paints with such affection not just the sweetest of bouquets but also fish, fruit and bottles of what we can only assume to be good vintage French wines. It is true that he is only a minor lyricist and that he sings the same refrain in painting after painting, year after year, but his song is undeniably a dulcet one.

MUSIC

PETER YATES

"For there are only two possibilities of convincing someone of an artist's greatness: the first and better way is to perform his work; the second, which I am forced to use, is to transmit my belief in this work to others."—Schoenberg writing about Mahler.

The Fables of La Fontaine translated by Marianne Moore; New York; The Viking Press; 1954.

The *Collected Poems* by Marianne Moore is a small book. As if this had been her lifework, she received for it prizes and, what counts more, much praise. *The Fables of La Fontaine*, translated by Marianne Moore, is a large book, even larger than the complete volume of *The Cantos* by Ezra Pound. La Fontaine's lifework, though not his only writing, Miss Moore devoted to it some six years of her own life; as a result of which she has received, so far as I have read among the reviewers, only limited praise, qualified by the sort of dispraise that must make any praise so qualified seem scarcely worth while.

I had thought to review the *Fables* in verse, as they deserve; my head hummed with syllabic cadences in her own sort of contriving; but when I set these down on paper I saw that, if what had been ringing in my head may have been her firm vowels and hard, shapely consonants, I had caught less and my own. Writers of a unique style tempt us to this sort of parodic eulogy. So I withdrew, murmuring her sentence, at the beginning of the Foreword, "Acknowledgments other than performance are artless, besides running the risk of incriminating rather than honoring."

What I wanted to say, what I wished to say in verse, because verse is itself a manner of yea-saying, was something other than criticism. Like the criticism I prefer to write it would be an apology for my own enjoyment. Marianne Moore admittedly knows more English than French; in translating, with the advice of Harry Levin, she is accused of not getting all La Fontaine's French into her English. Such criticism loses the enjoyment of her workmanship while pointing out what might fail to be flaw.

A beetle, who was creeping on the Owl's tree,
Overheard Miss Horned Owl quote old Armadillo
And remarked: "Not very good.

She had better keep to the language of her wood."
The small, brittle fellow,

Wearing a sort of shell and believing by that degree
Armor-clad Armadillos must speak Beetle,

May have thought himself sharper than Miss Owl.
He wasn't—didn't catch what Miss Owl said,

Only beetle-browsing in his own head—

Knew the language of insects, not of larger fowl.

To each critic the error he deserves.

Miss Marianne Moore, under a tricorne hat one observes
As a horned owl, and her tree our cultural estate,

Where with a sharp-beaked, taloned, quiet concentrate
She sits blinking the sun she did not invite.

Owls hunt in darkness where their eyes discover

Furred small-legs slipping under grasses, pitilessly hover
To catch what a critic cannot see in the daylight.

Our cultural estate: it may be a park, but to be an estate and not a forest, that one may be lost in, it must be walled by a style. Wherever there is a style some part of our estate has been preserved by election from natural selection. We like to think that a style tells about us what we like to believe about ourselves, a redundant way of returning to whatever we began with. A style tells the best of what we might have to say for ourselves, if we knew how.

Elegant, urbane election
Sets the cards out every day,
Whereas natural selection
Hazards in the run of play.
Science surely, solely science
Cannot scold such art for warning,
When the haphazard of denyings
Flashes bare bone at the scorning.

Style is an art of refusals, some will tell us; it is also everything that gets inside. In the Pompadour's gardens new plants were set

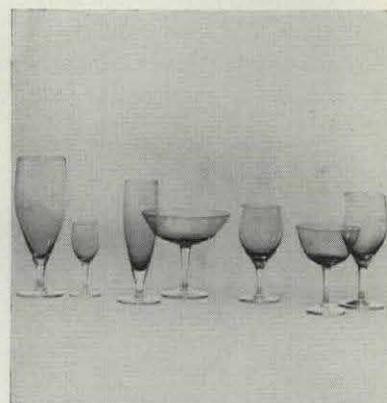
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out every day from the immense, industrious royal greenhouses. One thinks of such artifice when reading our contemporary, clever magazines. The style of Marianne Moore, elegant and rustic and sophisticated with craft, stands up and holds together like a good stone wall. Eye and touch can feel over it with pleasure. Her arrangement of our language serves very well to recapture the elegance of a court, than which none was more elegant, and the fabulist's plain speech and common sense with which La Fontaine entertained and pleased, while he reproached, his sun-court of brutes, furred, feathered, and still human behind the beasts' masks. She is less angry, less bitter, but she does not hide his bitterness.

La Fontaine was a moralist; his reproaches hit us as well. The



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art is to make the beasts speak, the words strike; to curb the moralist's violence to an epigrammatic formality, out of which small voices powerfully banter. So now I quote her, and you may observe how she moves:

"Fearing that his wife's tongue might cause him discomfiture,
A husband dug a pitfall; woke her with, 'Heavens! Torture!
Oh, what shall I do? Pained and more!
Ye gods! I've laid an egg!'—'An egg?'—'See here,
to be sure,

It is still warm. Protect me. Could I ever endure
To hear myself called hen! Remember, honor bound!
His wife's uncertain ground
Matrimonially made her swear
That she would guard his secret, and with the utmost care;
But her word was untrustworthy—
Like darkness but temporary!"

. . . and so it flies on, in this case with more exclamation points than she, or La Fontaine, generally uses. Or take the Dedication, the principal dedication, there are several, to His Royal Highness, the Dauphin:

"I sing when Aesop's wand animates my lyre.
Make-believe is here in its antique attire—
Insight confirmed by direct observation;
Even fish speak. As each finds expression,
Animals enact my universal theme,
Educating man, fantasist though I seem."

La Fontaine may have written better, but not better English.

* * *

Composition With Twelve Tones related only to one another by Joseph Macmillan; 1954.

A natural history approach to the musical evolution of Arnold Schoenberg may begin by dividing his career into five periods, as I have done formerly; or into four periods, as proposed by Richard S. Hill in mentioning my notes for the Kolisch recordings of the four quartets; or in some other way that may seem pertinent to the consequence. The most obvious, for a naive onlooker, would be a division into two periods, the first a voyage out from late nineteenth century chromaticism beginning with the early songs and String Sextet (1899) and ending with the non-tonality—I prefer in spite of misconceptions the accepted word, atonality—of the Six Little Piano Pieces, opus 19 (1911), *Pierrot Lunaire* (1912), and the tiny *Herzgewaechse* (1915).

Die glueckliche Hand (1913) may be regarded as the last step in a wrong direction, the overt expressionism of *Erwartung* (1909) and the First Chamber Symphony (1906), vivid new music, though composed forty years ago, which fascinates and repels us—already as distant and foreign to our experience as Kandinsky's painting.

The central fact of Schoenberg's evolution is a gradual elimination of the unnecessary, a discovery of the basic motif out of which music may be constructed. Such basic shapes, continuously varied, combine in audible structures which, however, small, are as sufficient in size or content as larger structures. Like Wagner, Schoenberg taught himself by analyzing music, disregarding any previously established, arbitrary directives for the guidance of composers.

The first period closed with the start of the first World War and may have been ended by it when the composer was called to military service. The second period began in 1923 with the Five Piano Pieces, opus 23, and the Serenade for seven instruments with baritone voice, opus 24. Between the two periods the composer had endured eight years of creative silence. Considering that he had been composing uninterruptedly, if by some standards slowly, since the mid-1890's and was to continue regular composition at the same pace from 1923 until his death in 1951, these eight years stand for something more than the effect of war upon the composer's sensibilities. These years were a laboratory period, a time of withdrawal and reconsideration, out of which emerged in 1923 the somewhat improvisational first works of a new art, a voyage back from post-romanticism to classicism, a rethinking of the essentials of musical composition, consolidated by the theoretically revolutionary statement of what Schoenberg called the *Method of Composing with Twelve Tones related only to one another*.

The title, so widely misrepresented and misunderstood, so often falsely quoted, in wrong terminology, as a theory of composition, was chosen by Schoenberg with his unflinching care for words as

(Continued on Page 30)

It is something of a paradox that the world has long pointed to the United States as a classic example of both political democracy and social inequality. Indeed, as political freedom has diminished in large areas of the globe and color discrimination arouses even more bitter resentment with the decline of colonialism, the United States has become the object of much critical examination.

While observers most concerned with political freedom and economic and technological advances have been favorable in their comments on United States institutions, observers more concerned with group relations and the problems of social equality have often been highly critical. What both groups have tended to overlook is that in recent years the United States has applied the identical machinery that operates its political democracy to effect considerable improvement in its traditional pattern of social discrimination.

Indeed, it already seems safe to say that in the "contest" between the implications of political democracy in the United States and the implications of its system of unequal social status based in part on custom and in part on law, the former are prevailing over the latter. The issue is certainly not fully settled. Yet, unless there is a sudden and sharp reversal, all present trends show the "contest" resulting in a clear-cut, if not uniform, victory for the principles of democracy over those of inequality. Such a victory will serve also to demonstrate that legislative and legal techniques can effectively reduce and even eradicate deeply rooted prejudices and habits.

While discrimination in any form is itself undemocratic (although there are theorists and groups who have held that the milder forms of it are wholly compatible with democracy where everyone has the right to express his tastes) its most injurious aspect is economic. Before equality of status and other minority rights can be assured, it is above all essential to remove the barriers to earning a living and other impediments which block anyone from attaining the more desirable professions and vocations.

In developing relations with other people, all of us are constantly making choices on the basis of more or less conscious deliberation. We select this person over that one as a friend; we adopt attitudes towards others ranging from love to hostility; we choose to be intimate with this acquaintance and prefer to remain more formal with that one. In one sense this process might be called discrimination, since by it we select

one among several courses of action and exclude others. But so long as this selection is based upon consideration of the individual qualities of other persons, we do not call it "discrimination" in the sense in which this word is used in the analysis of group relations.

Consider now another sort of selection. Suppose a man to select his friends, or the neighborhood in which he will live, or the school his children will attend, in such a way as to bring him and his family into as little contact as possible with individuals of a certain religion, nationality, social class, or skin color.

Suppose further that he arrives at these decisions not by evaluating the merits or demerits of members of these groups but simply on the basis of his dislike or fear of those groups as such; or, as is often the case, on the basis of his belief that *all* the members of a particular group are inferior to him or unworthy of his association. Such a person can be called prejudiced.

This person groups and evaluates people on the basis of traits which have no validity, according to the scientific data we now have, as an index to individual intelligence, taste, capacity to learn, or to such qualities as honesty, trustworthiness, ambition, and so on. Nevertheless, the actions of a person who makes such prejudiced judgments is not discrimination in the sense in which the word is used here, although it usually leads to it.

Discrimination, in this sense, is not simply an attitude or an opinion, although it may be (and usually is) based upon either or both. Discrimination, rather, is a specific act, a deliberate attempt to exclude some individuals from something desirable because they are presumed (correctly or incorrectly) to belong to a certain group. The groups that are most often the objects of discrimination are identified by religion, national origin, color, language, and social class.

Discrimination on such grounds means the denial of a right or privilege to a person on the ground of his presumptive membership in some group, regardless of his individual qualities. We may accept the following brief definition given by the United Nations Sub-Commission on Prevention of Discrimination and Protection of Minorities: ". . . discrimination includes any conduct based on a distinction made on grounds of natural or social categories, which have no relation either to individual capacities or merits, or concrete behavior of the individual person."

Discrimination, then, is an overt act usually, although not necessarily, derived from an attitude of prejudice. We say "not necessarily"

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THE SHELL AS A SPACE ENCLOSER

by FELIX CANDELA

The most provocative structure in Mexico today is not another government building, which Mexico has learned to do admirably, or part of the University City group, which as a project has astonished the world, but a church—one so soaring and worshipful that it brings to new life the country's history of temple and church builders.

At a time when Mexico is throwing off its awkward yoke of concrete, and the steel network is no longer a rarity upon a landscape heavy with grid concrete frames, there appears paradoxically a work using a minimum of steel and bringing concrete to new glory.

The Church of the Milagrosa was designed by Spanish-born architect Felix Candela, remembered for his covered wagon-shaped Cosmic Ray Pavilion at University City, and other concrete shell structures. All surfaces of the church are hyperbolic paraboloids, with stresses so low that steel reinforcement is used principally to maintain the wet concrete and prevent cracks.

The church was designed in a week and calculated later. Candela believes the myth that the concrete shell is an abstruse problem requiring endless calculations arises from the fact that today's architects do not build, they only draw. "I have not invented anything. I have applied only ordinary knowledge. I have used one form in several combinations."

The exuberance of these combinations is enough to make for Candela a memorable place in Mexico's architecture.

The essential function of architecture is to limit a certain volume from the non-architectural extent of open space, so that within it man may develop his living activities undisturbed by weather inclemencies. The unique feature which distinguishes architecture from other plastic arts is precisely this dealing with internal hollow space. From the shape of this inner space and the constructive methods used to enclose it, a classification of architectural styles more rational than those based on mere bidimensional formalism of facades and decoration could be established.

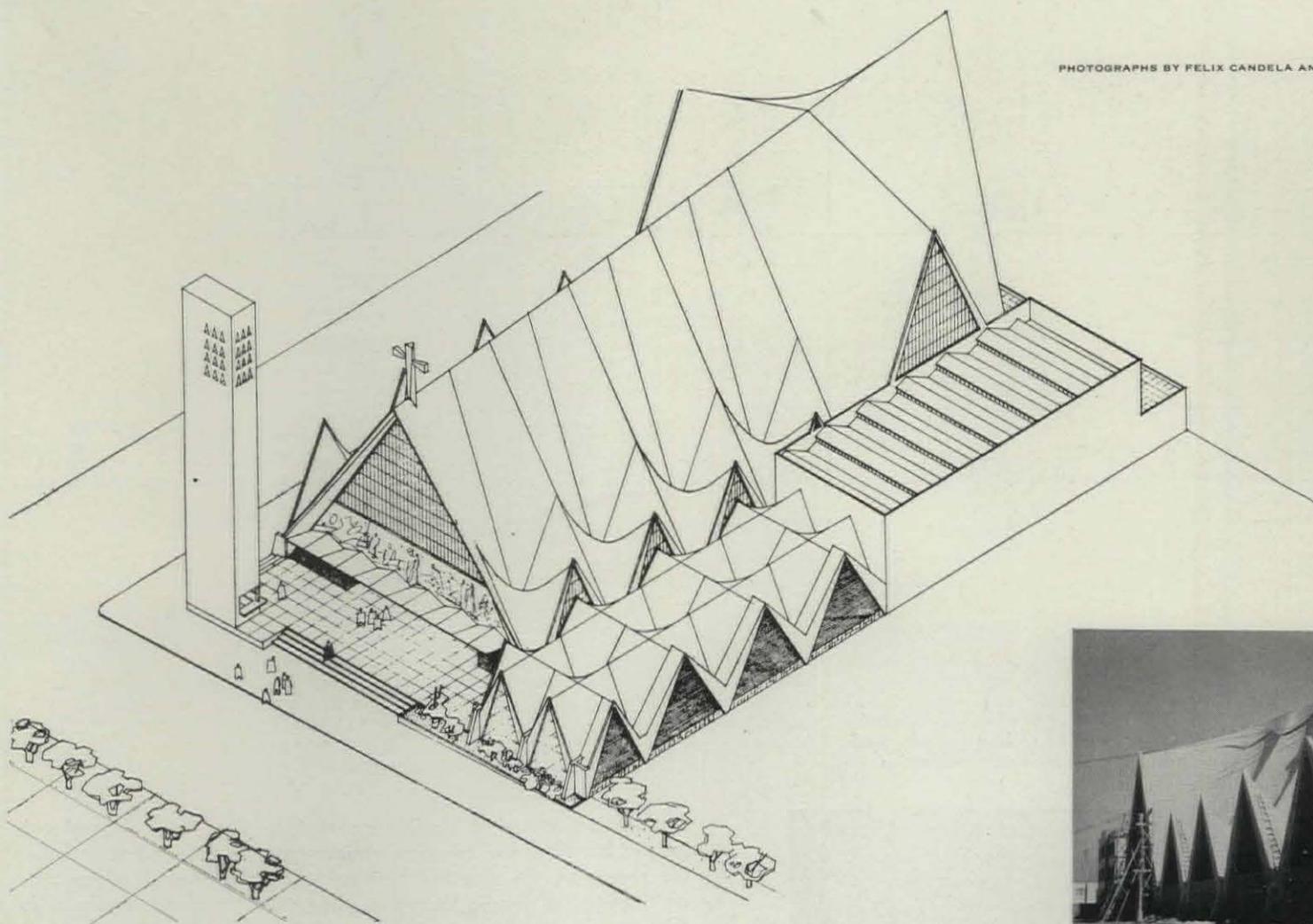
When man has been confronted with the vaulting problem, he has developed the most impressive and noble examples of architecture in each epoch, and has generally succeeded in finding forms and methods which could overcome the limitations and fully profit by the properties of the available permanent materials.

It has been always desirable to observe natural examples in search of inspiration to solve a certain vaulting problem, but this inquiry has never been more pertinent than now when a monolithic material which can be cast in any desired form has become of common use in building. Reinforced concrete is not only very akin to the stuff of natural shells, but it has even the advantage of being able to withstand substantial tensile stresses. These properties of continuity and tensile strength of reinforced concrete place before us a unique opportunity to emulate the distinctive economy of material of natural methods of enclosing space.

Nature's most usual way of performing this function is by means of either rigid shells or elastic membranes. Since this second form can hardly be considered as architectonic, "shell" remains a synonym of space encloser and the title of this essay appears to be somewhat redundant.

But proper shells cannot have any form. The first lesson we may learn from Nature is that its stone shells are always doubly curved. The reason for this fact becomes obvious considering the advantage

PHOTOGRAPHS BY FELIX CANDELA AND ESTHER MCGOY

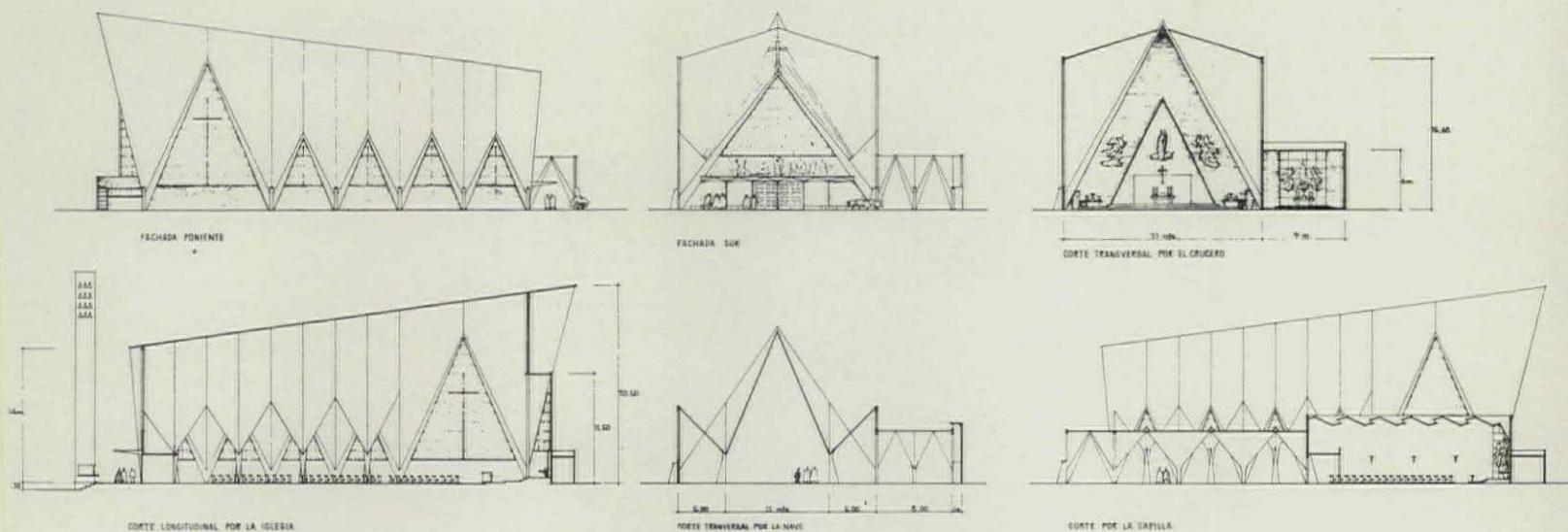


of avoiding bending moments in petrous materials. The triangular distribution of stresses on the cross-section brought about by this form of solicitation—which is always wasteful in any kind of material—is most inconvenient in bi-resistant materials where the tensile strength is but a small fraction of the compressive resistance, and the loading capacity of the cross-section is exhausted as soon as that lower value is reached at the extreme fiber in tension. This avoidance of bending and, on the whole, the resistant function depend mainly on the form.

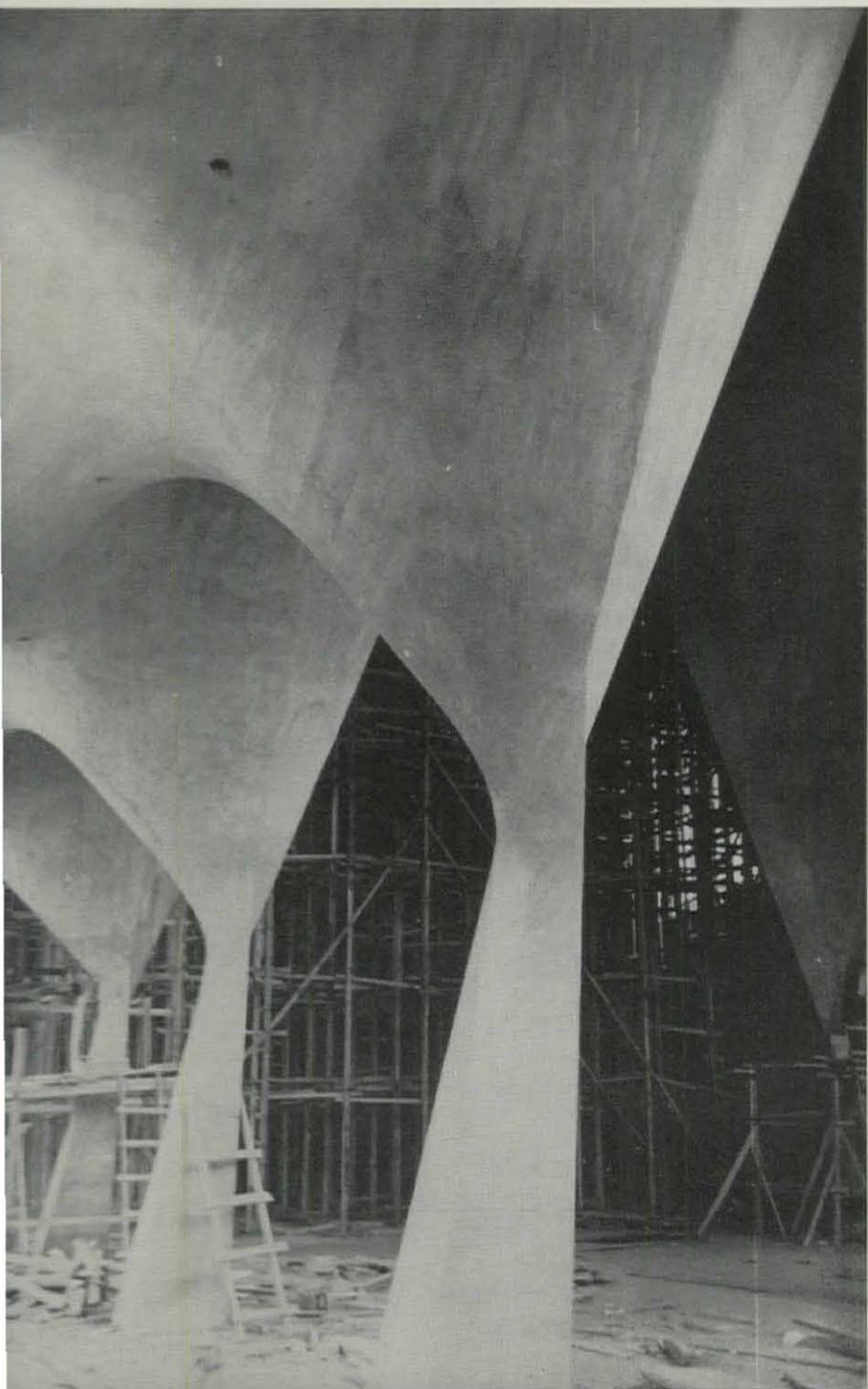
As Professor Belluzzi intuitively explains in his book "Scienza delle Costruzioni," doubly curved surfaces of unextensible material always assume a membrane state of stresses. Bending can only appear in them after extensional strains very much in excess of the elastic limit. For instance, a concentrated load acting at any given point of a spherical shell can only produce a dent if the circles immediately around the considered point elongate materially; a condition easily attainable in a rubber ball built of very extensible material, but virtually impossible in a concrete dome as long as the direct stresses along the circles adjoining the point may remain low.

Consequently, it is senseless to extend the funicular concept to surfaces, developing the kind of shapes known in Spanish as "velarias" (which means the form of sails). The behavior of a membrane is substantially different from that of a chain or thread. The latter will bend under the load, looking for the curve of equilibrium; but a membrane, as long as it may be a doubly curved surface built of unextensible material, has an immutable form and will always be in equilibrium without bending whatever its form and load condition. On account of these factors, doubly curved shells can be built as thin as it is practically possible and they don't generally require stiffening ribs.

This is not the case with cylindrical shells or, in general, developable surfaces. They are exposed to important bending moments



Previous attempts at Gothic revivalism have stopped at the external and decorative aspects of the problem, without seeking to understand the deep significance of Gothic building, its intimate combination of structure and expression.



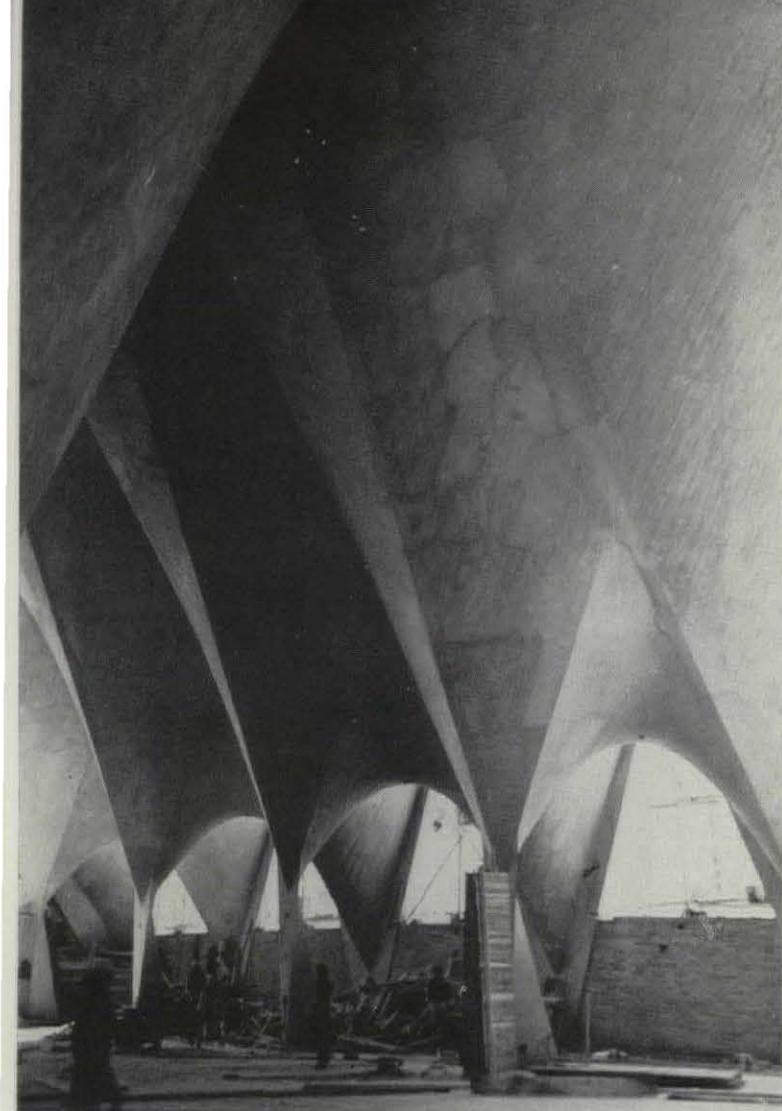
in direction normal to straight generators, since they depend only on the bending and torsional resistance of the lamina to maintain the shape of the directrix between stiffeners against all possible distributions of load. Therefore, they must be given a substantial thickness, losing thus the right to be considered as proper shells whose essential characteristic is the inexistence of bending moments.

It is interesting to investigate the cause whereof these intuitive principles which are a matter of fact in other technical fields, as in the fabrication of car bodies, have been but reluctantly recognized and put to use in the building industry. Though planes rarely appear in natural structures and even less right dihedral angles, we are stubbornly persisting in building cubic shells. And this is especially striking when such wasteful and extravagant structures are applied to cover huge spaces, as in the 700 foot square Convention Hall proposed for Chicago by Mies van der Rohe. The sole mention of this name brings us at once to the first of such causes, which is the more or less conscious classical convictions of most designers and builders.

It is worthy to note, because of the implications which may be found between this fact and the actual state of the problem, that Greek architecture which is considered classical par excellence, was not interested in vaulting or, in general, in confined space. It can be even said that it was not architecture at all, but only a particular kind of sculpture. Its forms were developed to be seen from outside and, besides, they were not the consequence of a constructive logic, but imposed by ritual and for symbolic reasons on the only permanent material the Greek builders had at their disposal. Lintel structures, copied from the traditional forms of early wooden temples, happen to be a most absurd and illogical way of building with stone. They can only be explained as sophisticated interpretations of wooden buildings in stone; that is, as sculpture.

Yet, this very particular and artificial manner of conceiving architecture pervaded throughout western architectural styles (in alliance with Greek thought) hindering every attempt to establish a true building art. Indeed, Gothic architecture, which—being one of the few successful essays to escape these asphyxiating concepts—remains as an isolated example of lucidity in the history of western building, was nevertheless considered an incult and barbaric art for many generations. To be witnessed, the several attempts of Gothic revivalism have stopped at the external and decorative aspect of the problem, without seeking to understand the deep significance of Gothic building, its intimate combination of structure and expression.

It is no wonder that the twentieth century architectural revolution was also unable to free itself from the same classical vices of



The imposing stone vaults of Gothic cathedrals and daring domes of the Renaissance were built without help of differential calculus, but instead with a great sense of equilibrium and sound judgment of the play of forces, qualities more necessary indeed to a real builder than full knowledge of mathematical intricacies.

Sail forms can be thinner than cylindrical shells and require no stiffening ribs. Slab is 1½ inches thick. The thinnest slab Candela ever used was in the Cosmic Ray Pavilion at University City, which was ¾ inch thick.



origin and, blinded by them, to reach the bottom of the question. It won an easy victory against decorative mediums that long years of misuse had turned obsolete, but the classical skeleton remained untouched. It was a classical revolution against classic art. Perret, whose great influence on the pioneers of the so-called International Style cannot be underestimated, was a classicist. His unconcealed aim was to build classic structures in concrete.

It suffices to read Giedion's chapter on Le Corbusier (*Space, Time and Architecture*) to see clearly the misunderstanding of the role of structure in architectural composition prevailing among the early innovators. Demonstrating a basic ignorance of the characteristics and proper behavior of the new material, it was claimed that "ferroconcrete is the instrument for the expression in architecture of the new ideas," and that "open planning" was made possible or was almost a consequence of "those properties of the supporting framework or reinforced concrete which make the disposition of inner walls a matter of choice." But reinforced concrete skeleton frame, to which these quotations refer, is a structural composition almost as inconsistent as the stone lintel, being also an unimaginative copy of wood or steel structures in concrete. This material is not appropriate to work in bending, cast in prismatic members in which all the material under the neutral axis is but dead load. Mistaking the mere possibilities of the material for its real properties, there was laid the basis for the non-architectural formalism commanding modern composition, despite the literary claims of functionalism of early times.

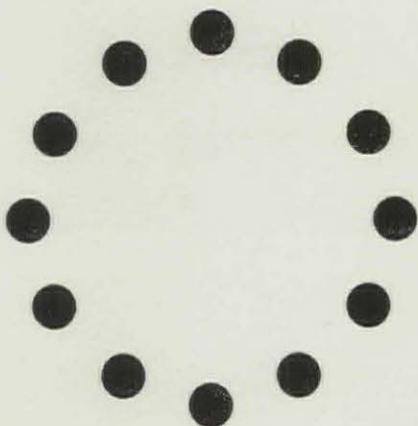
The monstrous and unjustified growth of the window, with its artificial subdivisions following patterns dictated by pictorial art, and the fashion of muralism are but manifestations of the desperate struggle to substitute the abolished mediums of expression; to create a new symbolism, a new language able to enliven the aridness of the remaining naked cubic masses. All this is related to the much discussed need of expression of contemporary architecture. But, is there anything worthy to be expressed in our times? Perhaps our only task could be reduced to developing structural forms suited to the new materials, just on the chance that future generations may have something to tell with them.

Quoting the older aphorism "Function creates the organ" (which curiously enough links the words that name both outstanding trends of the modern movement) a well-known postulate of functionalism states that "Form follows function." But architecture is not made with words, and in the practical application of both sentences it is often forgotten that the creation of new forms can only take place by means of structure.

Unfortunately, as a consequence of the artificial subdivision of

(Continued on Page 32)

This is the second of two articles on a new approach to the art education of laymen. The author planned, developed, and supervised the project he describes for The Fund for Adult Education of the Ford Foundation. Arrangements have been concluded with the capable staff of the Art Institute of Chicago for further testing and eventual national distribution.



THE LAYMAN DISCUSSES MODERN ART (2)

Jules Langsner

The layman who wanders into a museum, or who happens to glance through the pages of an art magazine, is likely to confront a bewildering diversity of pictures and sculptures, all of which fall under the heading "modern art" but few, if any, of which he may be able to read. This state of affairs is not due to perversity on the part of the artist (as some laymen are inclined to suspect), nor is the failure of the layman to respond perceptively a result of native incapacity (as some advocates of modern art are prone to proclaim). And while it may simplify matters to divide the species visually into lugheads and eggheads, the analysis is singularly unhelpful when dealing with individuals frustrated in their efforts to share the rewards of modern art.

The notion that an impermeable canvas curtain separates the creative modern artist and the audience-at-large is not supported by evidence recently uncovered in an experimental discussion project sponsored by the Fund for Adult Education of the Ford Foundation. It was the goal of this project to make modern art accessible to the layman by changing the conditions of the learning experience. Instead of reverting the layman to the dependent position of a pupil seated at the foot of authority, he was precipitated into assuming the responsibility of engaging in a joint inquiry, through discussion, with a group of his peers. As a result of testing some 280 laymen of varying ages, income levels, and educational and occupational backgrounds in 12 test groups in Southern California, additional light has been cast onto the obscure processes leading to the attainment of visual insight.

Why is the discussion situation helpful in springing loose the capacity to attain visual insight? The psychology of visual insight is a complex affair, but it might be profitable to sort out some of

the clues gained in this experiment in the art education of laymen. Art experience for the contemporary observer is complicated on the one hand by the intrusion of a variegated accumulation of art since the time of the cave dweller, and on the other by congeries of memories, wishes, ideas, attitudes, beliefs, any of which, or all of which, might be involved in the response to art. Discussion can be instrumental in making the experience of art meaningful because it touches, now directly, now indirectly, on the full gamut of the percipient's potential for response.

Discussion enables the layman to escape from the grip of "persistent error." That is to say the spectator tends to channel his response to a given work of art, or school of art, unconsciously repeating a response pattern already established. If perception of an artwork is misdirected, some way must be found to block the channelled response, directing it more appropriately. Insight, as often as not, follows the discovery that one's perception does not in fact accord with the qualities of the object under inspection. By verbalizing what he believes he sees the discussant may recognize the extent to which his own weighting is brought to bear. It is not at all uncommon for a participant to stop short in the middle of an observation, suddenly discovering how his view of the object appears to the eyes of others. In other words, by using the group as a sounding board, the layman is provided with margin for error, without which insight cannot be expected to emerge to the surface.

Permissiveness of discussion among similar kinds of people, similarly motivated, essentially starting with the same equipment, eliminates the need for defense barriers erected by many laymen when confronted by cultural phenomena for which they have not been prepared. The value of permissive discussion for the attainment of insight is succinctly stated by one participant—"Discussion allows free play for the expression of doubts, perplexity, differences of opinion. From this give and take one gets not only greater understanding but it has a greater and more lasting impact because of the personal participation."

The grip of persistent error is further weakened by the Socratic procedures inherent in good discussion. Directing a question toward a participant holding a different point of view may clarify one's own position. Answering questions aimed at oneself may require a new assessment of the object being discussed. Because discussions are not controlled tightly by a proselytizing authority, questions germane to the needs of the group tend to be raised. This convergence on the layman's needs, rather than the experts, is expressed by one participant, who reports—

"Questions are raised in this method which would not otherwise arise, and I am then curious for, and much more receptive to, such answers as may be provided. Without the discussion method, if these answers were given "cold," I would not understand their significance. Knowing the solution to a problem is no good if you don't know what the problem is and the discussion method helps in making us aware of the problem or question."

This experiment in the art education of laymen disclosed the presence of an imperative need to ask questions about modern art. Many participants had attended lectures on art, attached themselves regularly to gallery tours, tried their hand at introductory books on modern art, or enrolled in academic art appreciation courses without getting the message. They felt they were not in a position to ask the kinds of questions they would have liked to ask. More frequently than not it was a matter of "exposing" oneself, a reluctance to appear visually illiterate. In the permissive atmosphere of a discussion group there is no threat of implicit censure. Participants, as they get the "feel" of the discussion situation, are released from inhibitory restraints. Thus, by being free to question, the viewer sheds those defensive reactions that barred his realizing fully his experience of a work of art. Equally important for his attaining visual insight, the layman develops a questioning attitude as part of his response pattern.

Another facet of the discussion of art that must be taken into account is the stimulus to fringe associations. Meaningful response to art may come from unsuspected sources, does not emerge in all its richness by adhering rigidly to overt logic. Discussions, sometimes to the dismay of participants, may wander off the main

track, ideas and impressions seeming to float in a sea of non sequiturs. Fringe associations may stream across the consciousness of a listener to a lecture, or the viewer of a painting, but chances are against their being made explicit and pursued to see what may turn up. They are transient phenomena, and usually are quickly forgotten. Persons unaccustomed to tapping the aggregate riches of the unconscious seldom are prepared to take advantage of the suggestions that may simmer to the surface of consciousness. Or if creatively gifted in some field other than that of art, they are unprepared to use their creative resources as spectators. Ideas and impressions bouncing back and forth in a discussion sometimes act as the equivalent of the associative process within a single individual. Out of seemingly confused and irrelevant discussion the moment of insight may "pop" for one member of the group. What ostensibly had not been the liveliest or most coherent session may thus end by being highly productive. The fluidity of the discussion situation, possibly offensive to rules of logic, is psychologically relevant. Associations fringing the response to art open the hatch to the unconscious, thereby serving to crystallize visual insights. In this regard, group discussion of art differs significantly from discussion of issues. It has been transformed into a tool helping the attainment of personal discovery as well as being a method for investigating an area of knowledge.

It is a sign of the acute viewer that he is alert to the unexpected, and discussion provides increased chance for the unexpected to make its appearance. The individual's power of observation is sharpened by exposure to a group bringing to the examination of an art object many kinds of sensibility, training, life situation. The unexpected crops up in the discussion of art by laymen because, contrary to common belief, laymen do not respond uniformly, or for that matter within restricted limits. The fact that modern art is diverse, presents different modes of vision, multiplies the likelihood of a diversity of responses. A serene, meticulous geometric painting by Ben Nicholson, for example, may arouse the enthusiasm of only one or two members of the group. However, the fact that someone articulates a meaningful response in direct reference to the work has the effect of opening the eyes, at least partially, of those persons who may have found Nicholson cold or baffling. Similarly, the kind of person who responds warmly to Soutine, and perhaps found Nicholson deprived, reveals a facet of modern art to the group as much by emotional identification with Soutine as by the perceptiveness of his response.

The value of the unexpected resulting from contributions by persons of differing sensibilities was recognized in almost all cases by group members. In the words of one participant—"In a discussion group a person has the opportunity to hear many different points of view. Paintings that originally had meant nothing to me came to life after hearing the comments of others and seeing how they respond to them. Through the discussion method we looked at art through many eyes—and therefore gained a broader understanding of art." A carry-over of this intrusion of the unexpected observation is that individuals are more likely to hunt out the unexpected for themselves, if only to gain the approbation of fellow discussants. Group approval is a prime force in motivating the participant to discover those unique qualities distinguishing a particular work or the qualities common to a school. Consequently there has been an increase of receptivity to the shadings of art experience.

Receptivity to new experience, of course, is a key to attaining visual insight. Our society, characterized by extraordinarily rapid change, places the audience for art in an anomalous position. New ideas and technical developments confront people constantly while the need for continuity of values remains a powerful psychic force. The announcement of a new development in physics, or a major discovery in medicine, may not be fully comprehended, but the implication that society somehow will be better off in some obscure way allows the individual to accommodate himself to these additions. Change in science and technology now is accepted as the norm. A comparable receptivity to innovation in art is less common, though cultural patterns are changing rapidly, more people being predisposed to developments in modern art than perhaps is

generally suspected. To cope with new kinds of art experience, the individual necessarily falls back upon attitudes and responses that have enabled him to deal with comparable situations in the past. Discussion helps to recast the mental set towards change in art, and as a consequence participants are more receptive to unfamiliar visual expressions.

If the viewer does not know how to respond, if he lacks the cues for ordering his experience, he necessarily behaves in the only ways possible to him: what he cannot cope with he avoids, resists, or accepts as a challenge. The viewer who avoids coming to terms with modern art is screened out of the discussion simply because he is not motivated to participate. The problem, then, is one of transforming resistance to a posture of accepting modern art as a challenge to be mastered. The mechanism of resistance may vary, depending on personality, its equilibrium, its flexibility, its resources. This experiment in the discussion of art, however, has established the fact that, granted a willingness to participate in discussion, resistance to modern art is readily accessible to modification. In large measure it's a matter of replacing insecurity with confidence in one's capacity to function effectively as an art observer. One participant stated it this way—"I learned what is perhaps most important, confidence to undertake the analysis and to achieve a judgement, exactly from the group experience since I could see these other people daring to commit themselves."

Resistance frequently retreats into hostile passivity, a defiant attitude that says, in effect, "Well, here I am, now let's see the picture do something to me." Some kind of excitation is necessary to shift the observer from this negative passivity, in which he does little more than allow the work to register on the retina, to directing his potential capacity for engaging the work actively. The presence of other laymen adding their personal mite to the discussion helps to expunge the passive resistance of the person who had looked upon modern art as some kind of a witches brew. The change from resistance to personal discovery can be startlingly dramatic, as in this reaction—"My dear anonymous questioner: Five weeks ago I thought that modern art, especially abstractions, was intended for an elite in-group composed mostly of frail young men with tapering fingers, and spectacled women who had only lately given up Dianetics, Yoga, or Harry Emerson Fosdick. I wish I could describe the way I feel now. Is it something like the experience I had as a child when I was given my first pair of glasses and discovered that the blobs of green on trees were leaves, that people had eyelashes, and that the rim of the horizon was not sixty yards down the street."

There is a difference between the quality, or kind, of discovery that is handed over neatly tied in an attractive package by an expert and the participant's frequently clumsy efforts to uncover insights for himself. Thrashing about in a fluid discussion with others who may be equally at sea may create feelings of insecurity and uncertainty. Yet the struggle to arrive at meaningful understanding possesses the vital element of personal discovery, and therefore is more likely to remain a possession, to stick to one's ribs, than observations predigested by someone else. By effort expended, emotional, intellectual, perceptual effort, the participant makes the discovery his own. It falls into a place that accords with his capacities and needs, which may be distant indeed from the needs and capacities of the expert.

By finding his way—through the stimulus of discussion—the participant gains a sense of adventure, of exploring a fascinating and challenging world as if for the first time. Thus ideas and experience of art are surrounded with a quality of zest, of delight, of gratification, instead of being encircled by anxiety, apprehension and distrust. In order to respond fully to the art object, the viewer must be "at home" in the context of art experience. As the discussions gain momentum, participants acquire the skills necessary for meeting new art experience on favorable terms.

It may seem paradoxical that group activity provides the impetus to the emergence of personal awareness. Yet instead of participants seeking to conform to an orthodox pattern of response, as might be expected, the permissiveness of the situation encourages finding one's own way. This psychological climate depends,

(Continued on Page 31)

METAL SCULPTURE—HARRY BERTOIA

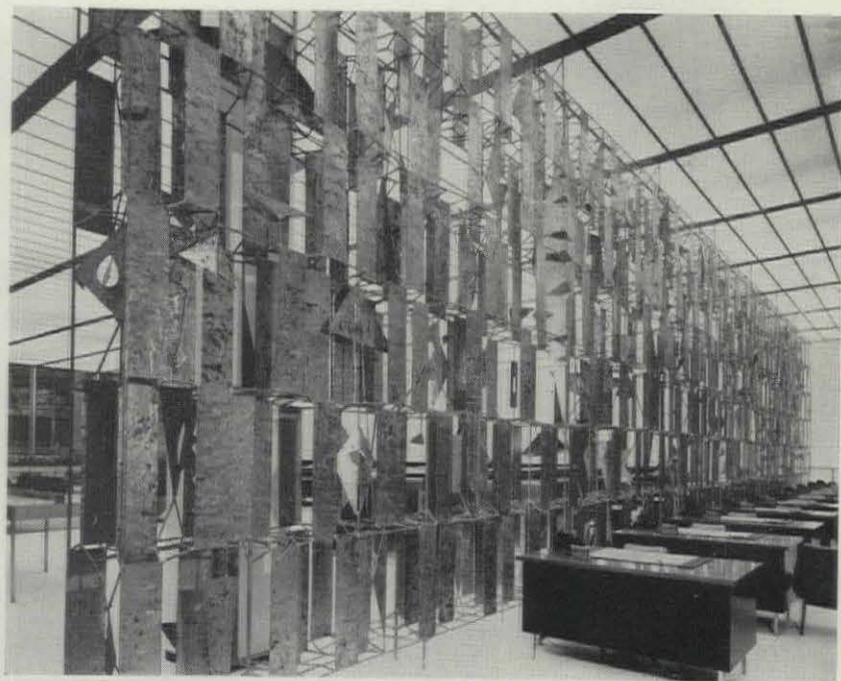
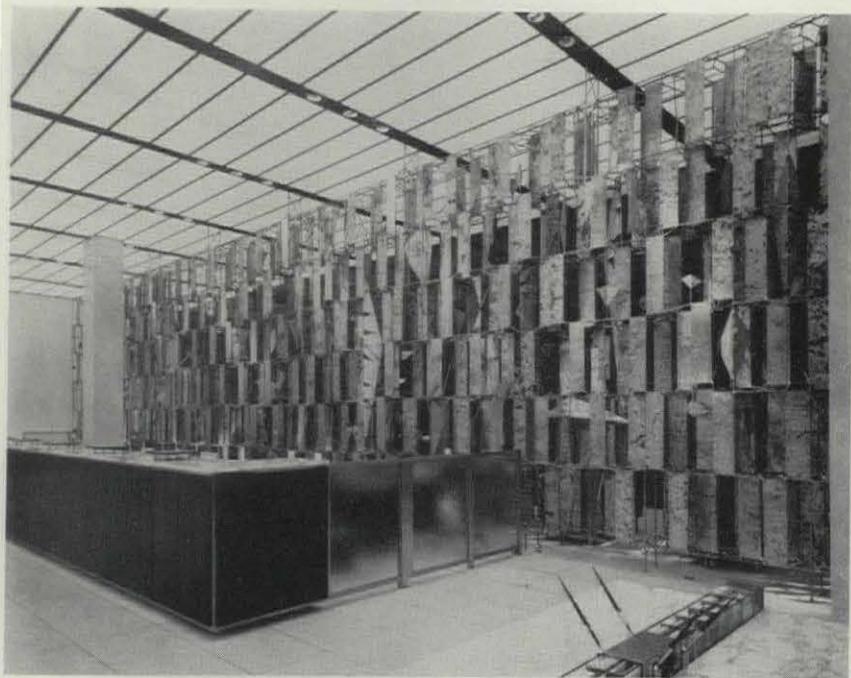
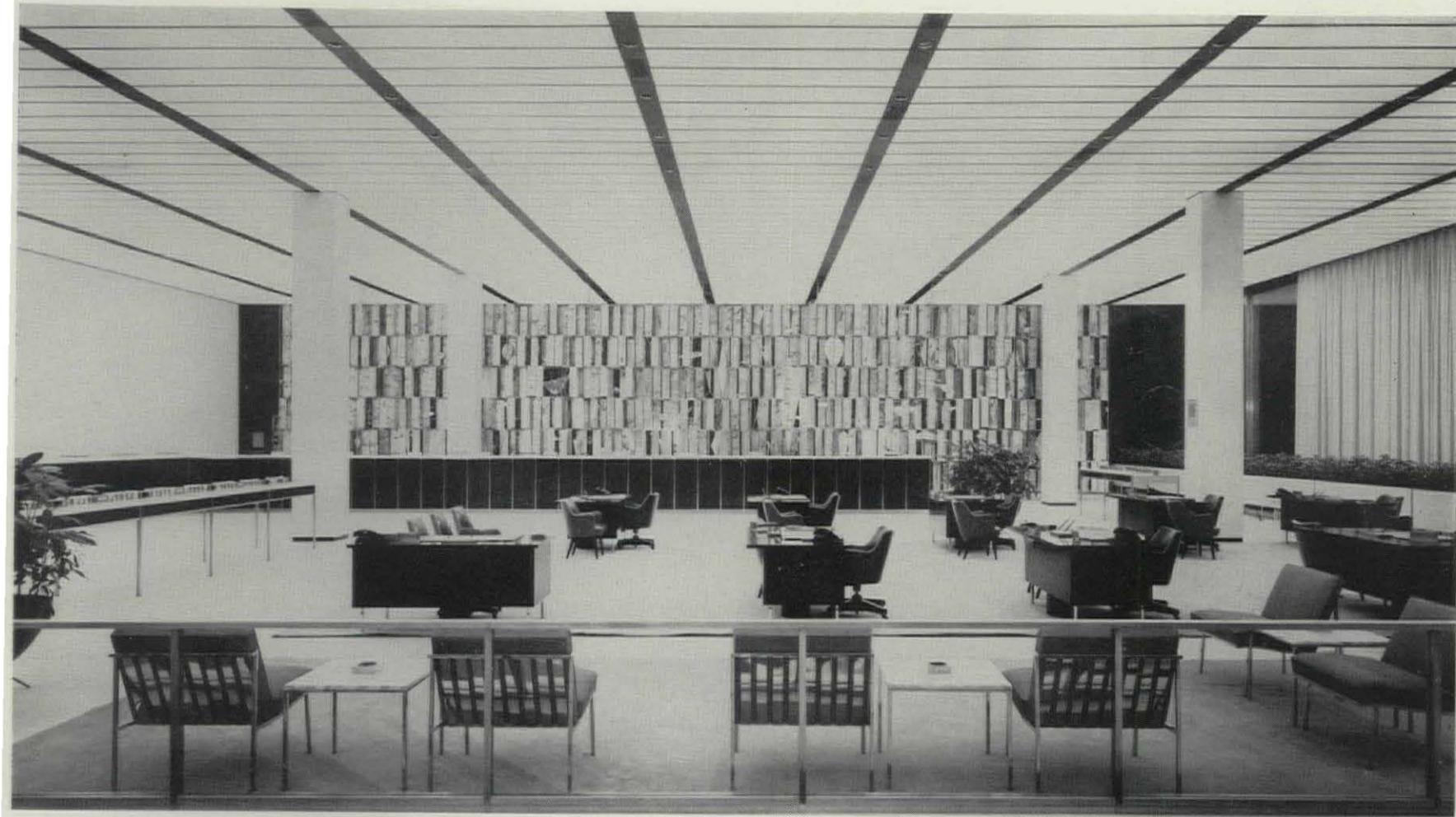
This relatively small building by Skidmore, Owings and Merrill, for the Manufacturers Trust Company in New York, represents not only a fresh point of view in banking architecture but is an excellent example of what happens when the architect works intelligently and cooperatively with the artist. The exterior of the structure is entirely of glass set in polished aluminum frames, but the focal point of the main banking floor is the great 70-foot long, 16-foot high, metal sculpture by Harry Bertoia. It is particularly significant that in this case, at least, the architect was responsible for the general conception and the selection of the artist. Bertoia worked in close collaboration with the designers of the building, and while in no way compromising his own creative directions succeeded beautifully in integrating his contribution within the whole so that one could not exist successfully without the other.

The screen was assembled from seven major sections with panels arranged in six vertical tiers and held in place by steel connecting bars. The texture and the gold and bronze tones of the panels were achieved by fusing brass, copper and nickel to the smooth surface of $\frac{1}{8}$ inch enameling steel. This brazing process was accomplished with an acetylene torch and welding rods of various compositions. Illumination of the wonderfully intricate construction is by adjustable brackets concealed behind aluminum plates in the translucent vinyl plastic ceiling developed by the Marlux Corporation.



"The sculptor of today is living in an age of industry and should take advantage of it. In my work this starts with the steel mill. I take this raw material, heat treat it with bronze and other alloys and provide a texture and a lasting surface. These metal parts are then so placed in relation to each other as to make the most of any given space."—Bertoia





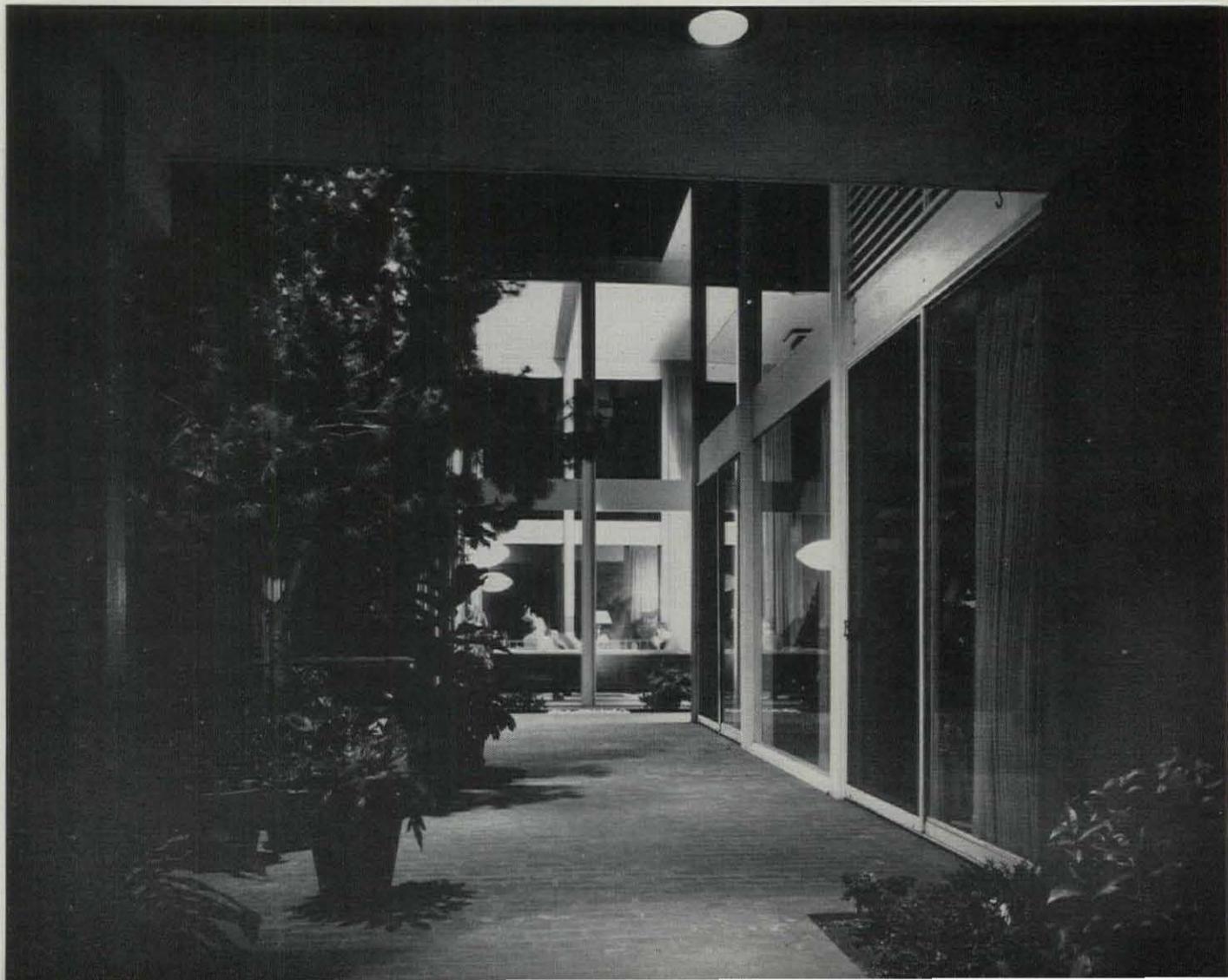
Lower left: A delicate sculptured metal decoration is suspended over the escalator in the main banking room. "It is light in weight and feeling and linear in composition and offers the greatest possible contrast to the massive screen."
—Bertoia

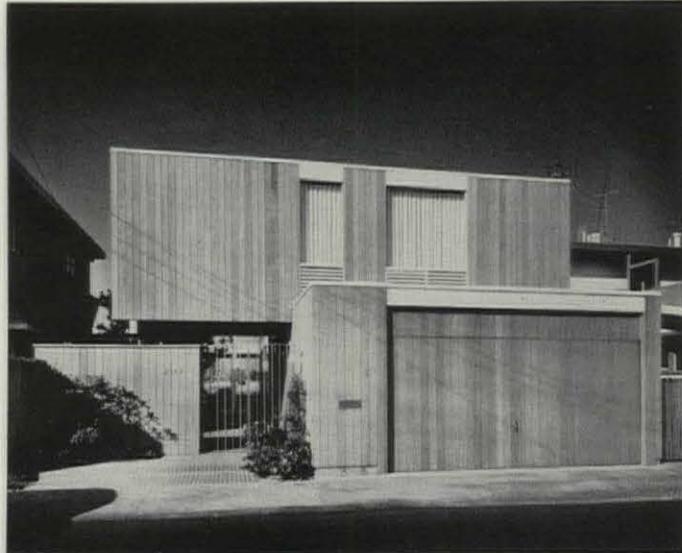


PHOTOGRAPHS BY JULIUS SHULMAN

House by Kenneth S. Wing, Architect

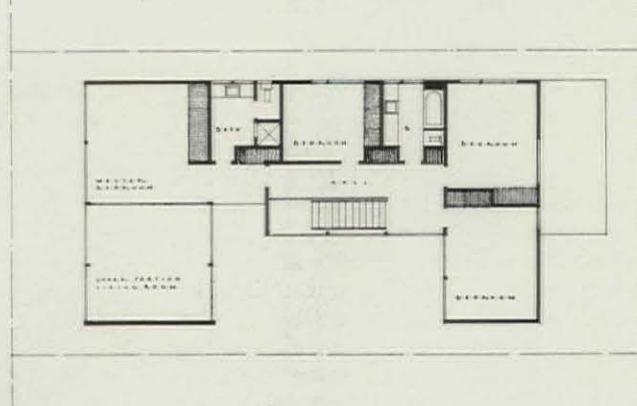
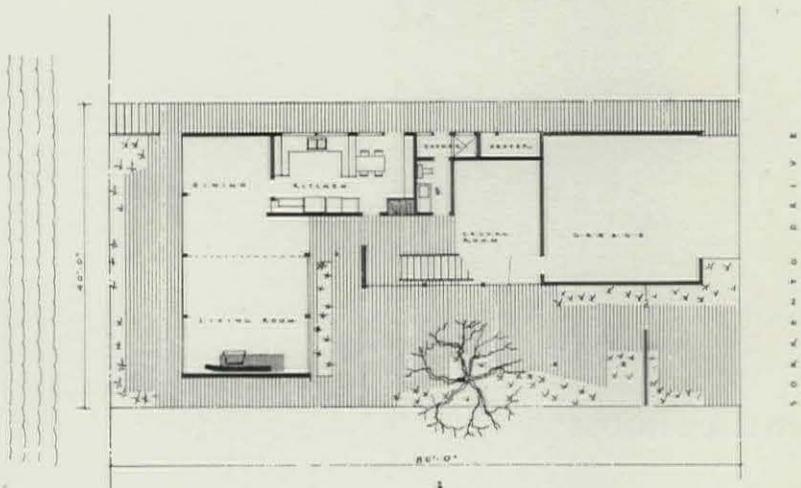
Edward A. Killingsworth, Associate





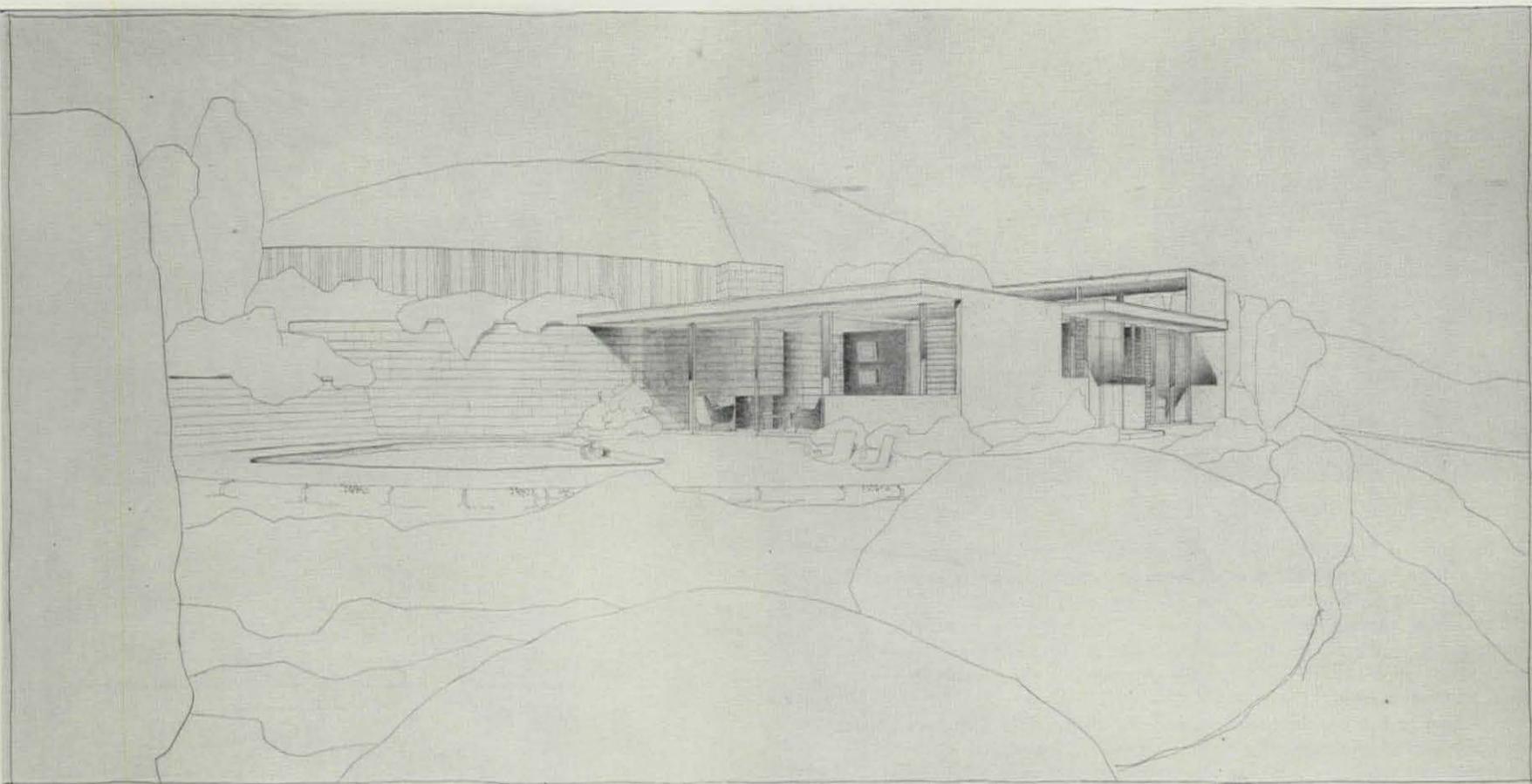
The intimacy of family life with three small children in combination with the frequent entertainment of groups, was a major consideration in the planning of this project. The building, on a small lot in an area of concentrated development, is of necessity compact. Overlooking Alamitos Bay, the lot is 40x80. All lots in the area are small, valuable and greatly in demand. The approach is from a narrow street.

The solution to the problem was made with all possible directness, with emphasis on the minimum of circulation area. All parts of the house are related visually to the Bay, and the terrace has been built out as an actual part of the waterfront. A garden patio offering protection from the prevailing breeze and privacy from the street also provides additional living and dining space. Employing clear lighthearted color throughout, and a predominance of smooth, easily-managed textures in cabinet work and fixtures, an atmosphere of relaxed, unhurried living was achieved. The exterior is of bleached redwood and plaster, with a composition and gravel roof. Radiant heating is provided, and the interior includes a brick fireplace and hearth with a sheet metal, freestanding hood, random-width oak paneling in the living area, acoustical ceilings in the corridor and casual room, and upstairs the ceilings are of painted wood sheathing.



THE FLOOR PLAN





HILLSIDE HOUSE

By Thornton M. Abell, Architect

William E. Stimmel, Associate

This house was designed for a small shelf that lies on the curve of a street in the hills. Its view is of western Los Angeles and Santa Monica Bay. To accommodate a pool at the property's widest side a concrete block wall was designed to follow the curve of the street. This retaining wall also becomes one side of the living room and fireplace; its continuous sweep also gives greater visual dimension to the small house.

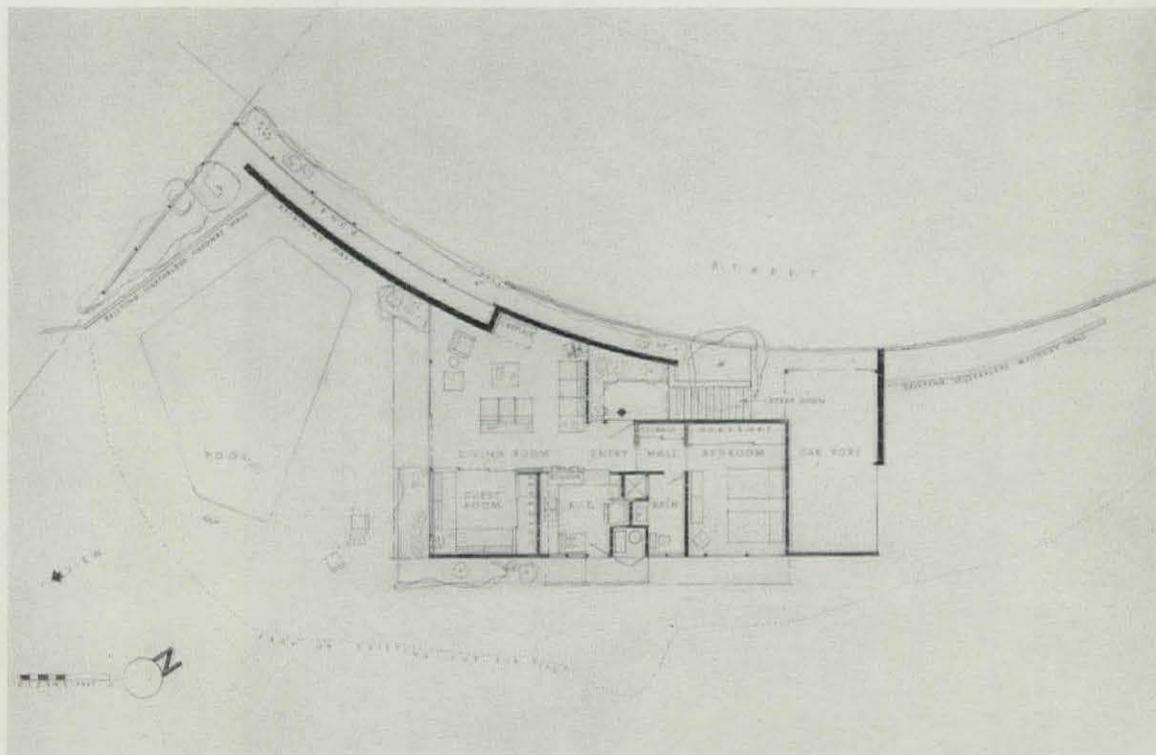
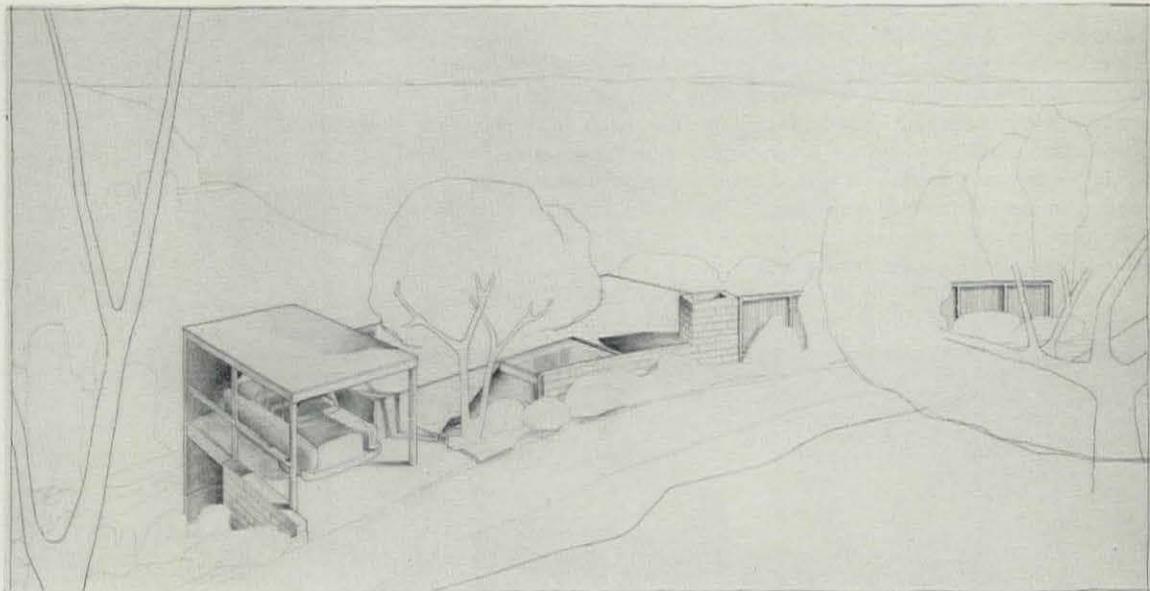
The house was designed for minimum dining requirements—a small kitchen with dining counter. The second bedroom was required only for guests so it was included as part of the living room with ceiling-height sliding panels to close it. The same sliding panels can close the kitchen from the living room.

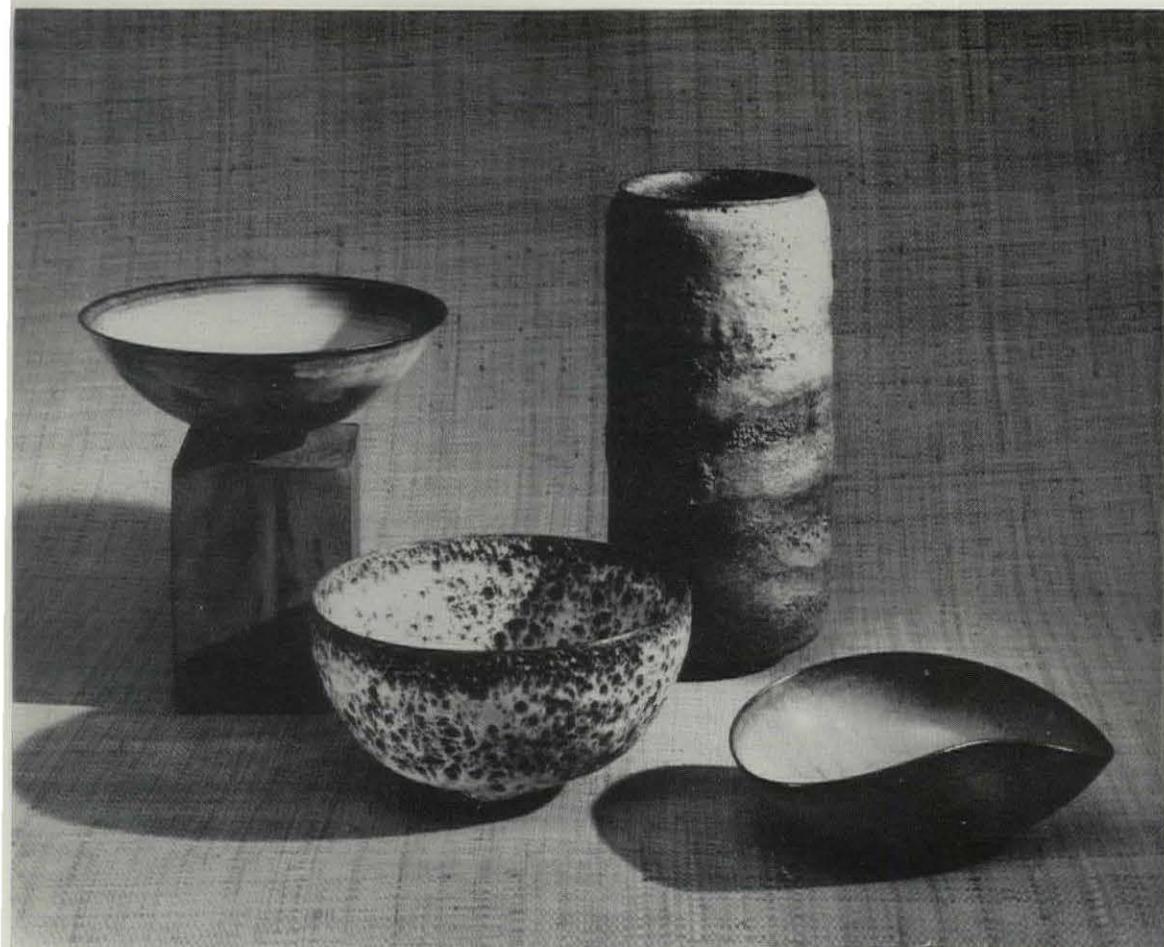
The floor of the car port is 5½ feet above the floor of the house: half of the area below the car port is to be used for storage—the ground level under the s.-e. half of the car port has been lowered to allow headroom for a garden supply and work area.

Materials to be used in the house are: concrete block retaining wall, stained concrete floor, plaster inside and out on walls and ceilings, acoustic treatment on sliding panels, wood roof fascia, composition roofing, and a corrugated plastic roof to shelter the entrance.

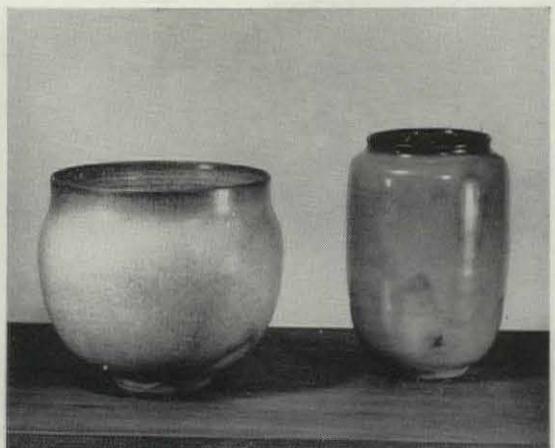
Steel sliding glass doors provide access to the pool terrace; aside from this sliding unit, all ventilation is provided by glass louvers.

The enclosed area of the house, excluding the car port, is 820 square feet.

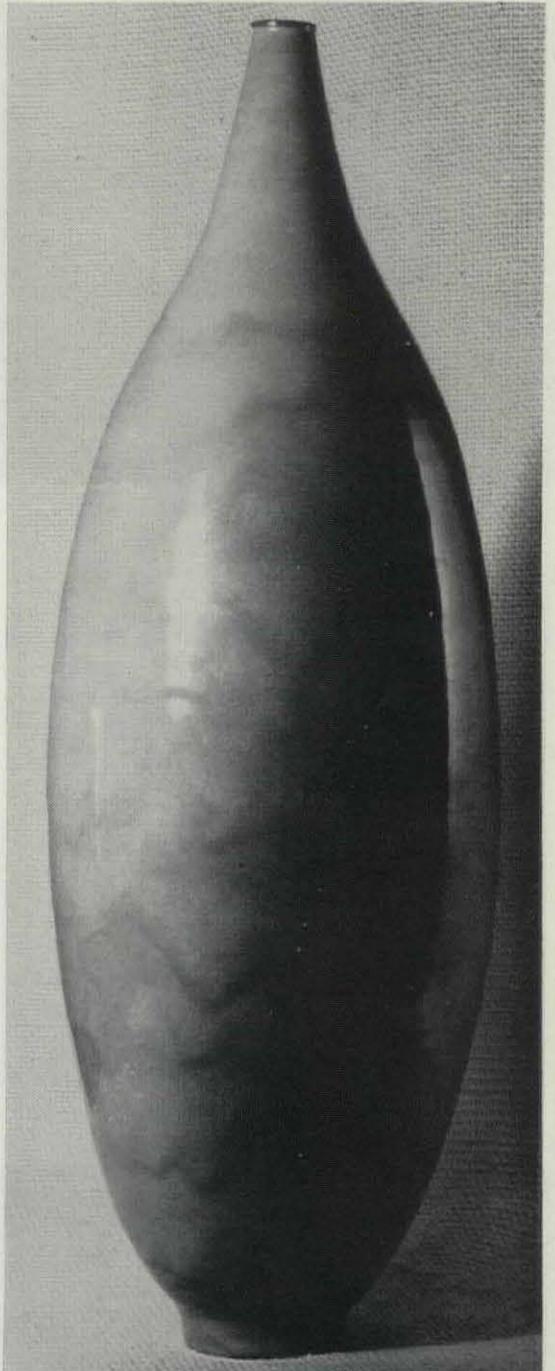




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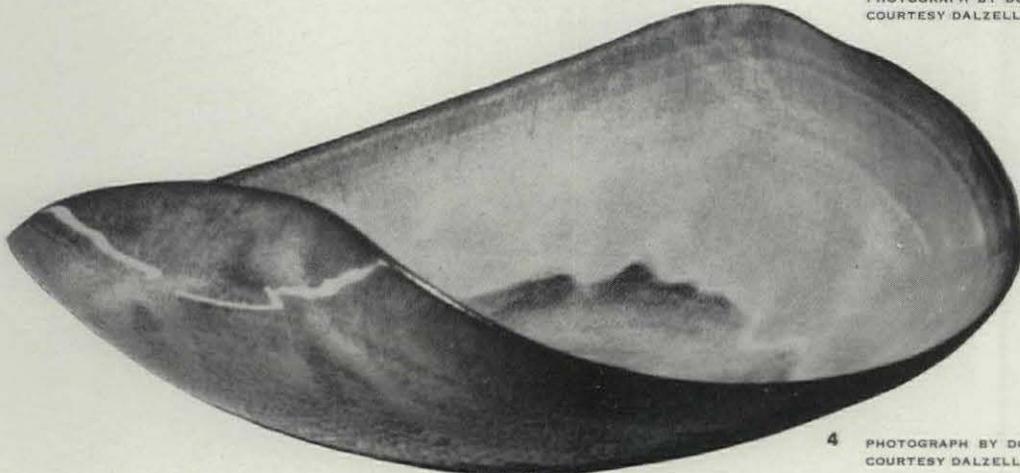
2 PHOTOGRAPH BY FRANZ F. ROEHN



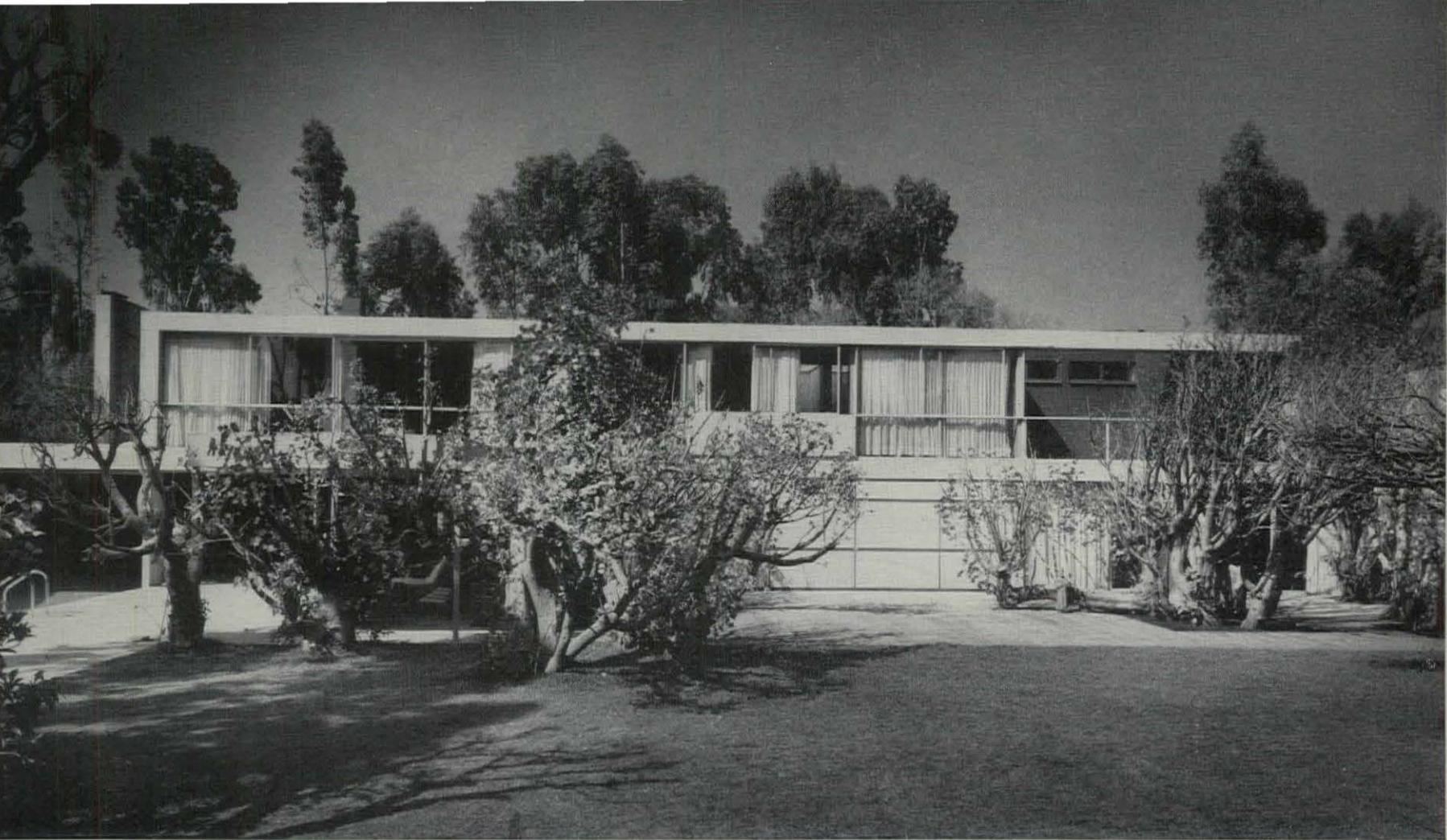
3 PHOTOGRAPH BY DOROTHY GAFFNEY COURTESY DALZELL HATFIELD GALLERIES

HANDTHROWN CERAMICS Gertrud and Otto Natzler

- 1 Bowl, amber reduction glaze
Bowl, earth crater glaze
Vase, orange crater glaze
Abstract shape, gray pearl glaze
- 2 Bowl, verdigris mat glaze
Vase, gray sea glaze
- 3 Bottle, Height 21", celadon glaze
- 4 Free form bowl, gray sea glaze
Vase, blue tinge celadon glaze



4 PHOTOGRAPH BY DOROTHY GAFFNEY COURTESY DALZELL HATFIELD GALLERIES



House in Mexico by Juan Sordo Madaleno, Architect

The exuberance, which appears to be present in most Mexican architecture, regardless of the structural simplicities, is seen here in the plan. Interpenetration of house and garden is reiterated in various transitional areas: the unwalled living room extending out from the main living room, and the unroofed living area, where privacy of walls is desired in a sunny space for relaxation. The large swimming pool, which is the key to the design, continues into the house. Roofed and unroofed parts are separated by sliding glass.

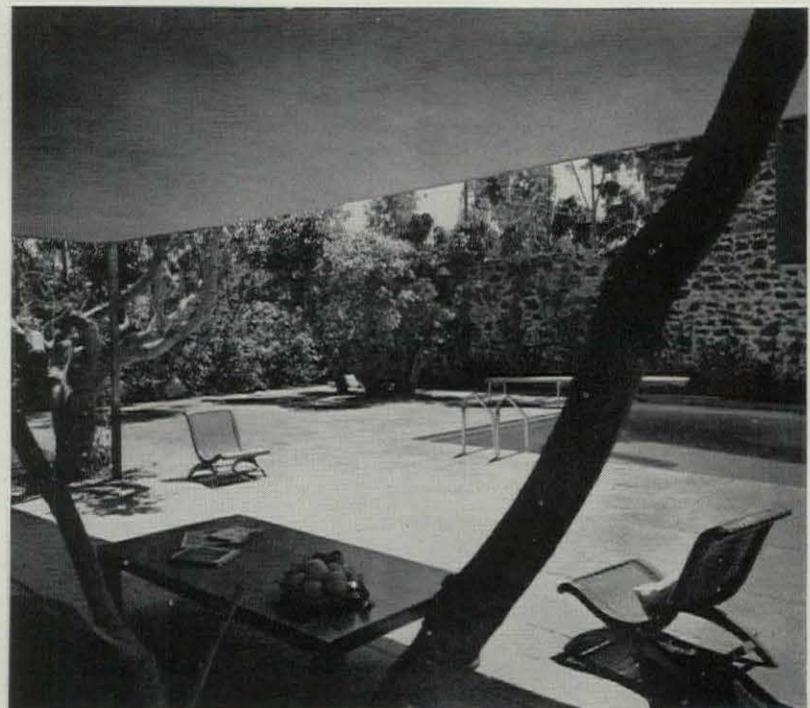
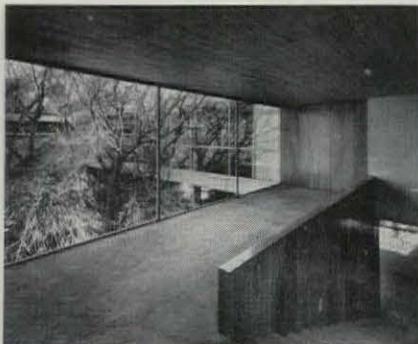
Steel is used for supporting columns, cased in concrete, and ceilings are reinforced concrete. Some of the walls are of Tabasco mahogany in 10" width.

Furniture throughout was designed by Clara Porset, and is based on typical Mexican village furniture in use for centuries.

The curved Mexican *butaque* and also the throne chair have seats of hemp, cane or typical Mexican materials.

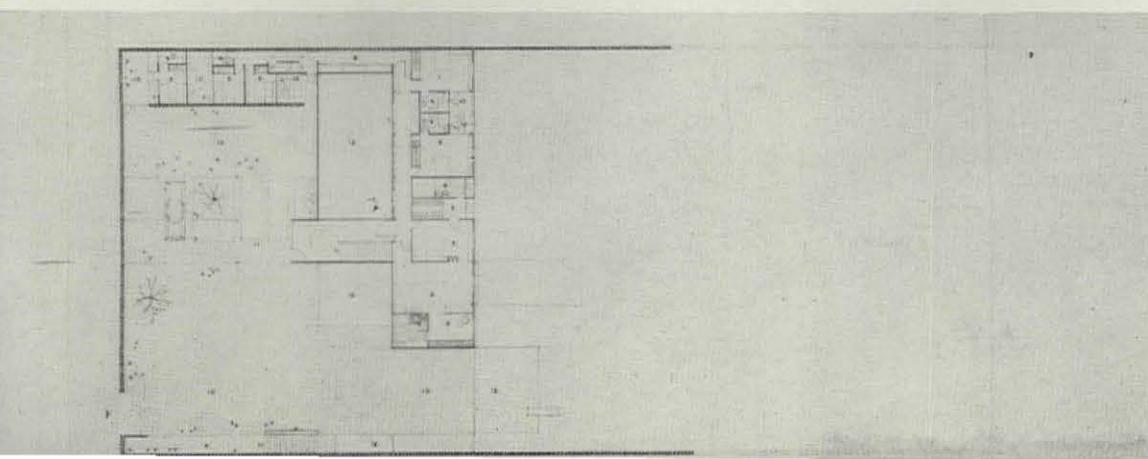
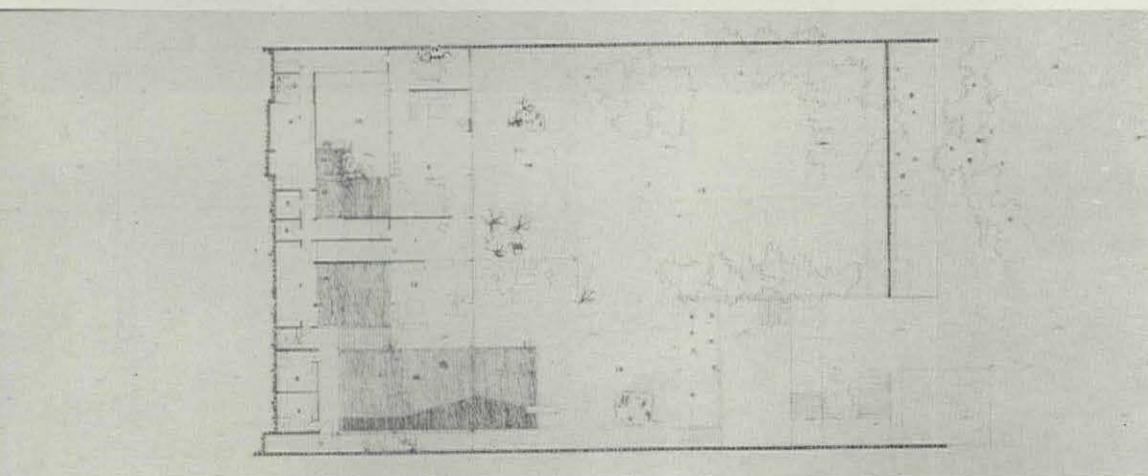
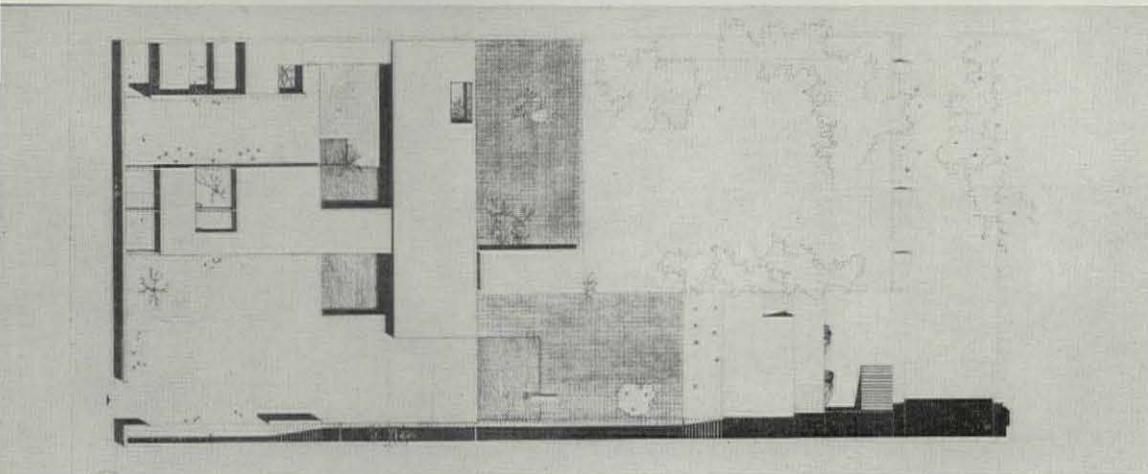
The plan utilizes with great skill the sloping terrain.

Furniture designed by Clara Porset



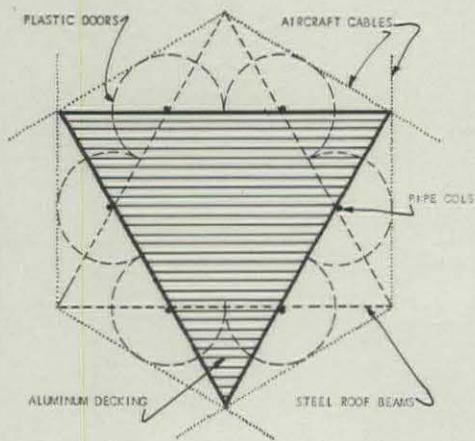


PHOTOGRAPHS BY GUILLERMO ZAMORA



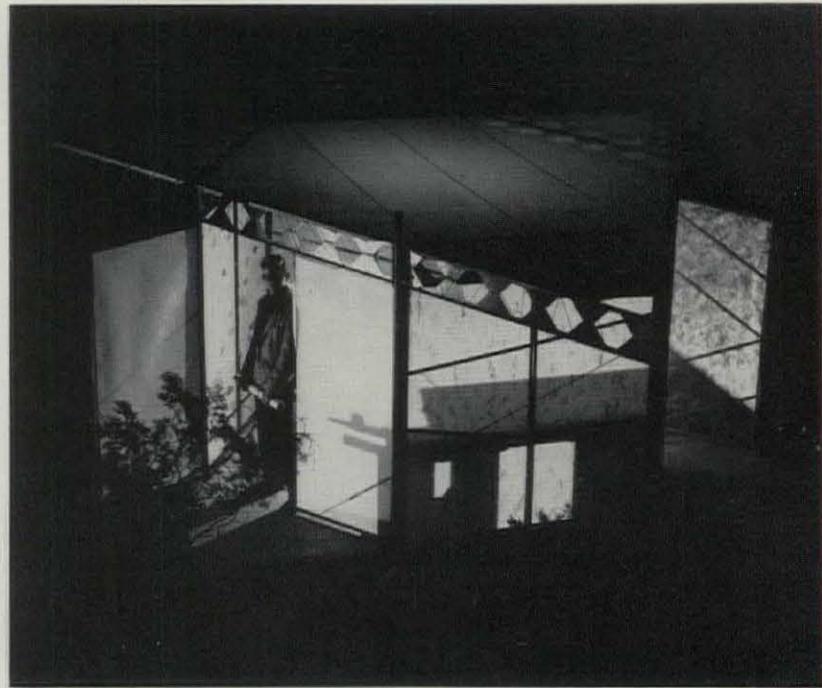
1. ENTRANCE HALL
2. LIVING ROOM
3. DINING ROOM
4. KITCHEN
5. STORAGE
6. BATHROOM
7. POWDER ROOM
8. DRESSING ROOM
9. DRESSING ROOM
10. PATIO
11. TANK
12. POOL DRESSING ROOM
13. SWIMMING POOL
14. TERRACE
15. GARDEN

1. ENTRANCE
2. BEDROOM
3. DRESSING ROOM
4. BATHROOM
5. MASTER BEDROOM
6. CHILDREN'S BEDROOM
7. CHILD'S BEDROOM
8. CLOSETS
9. MAID'S ROOM
10. PATIO
11. GARAGE
12. YARD

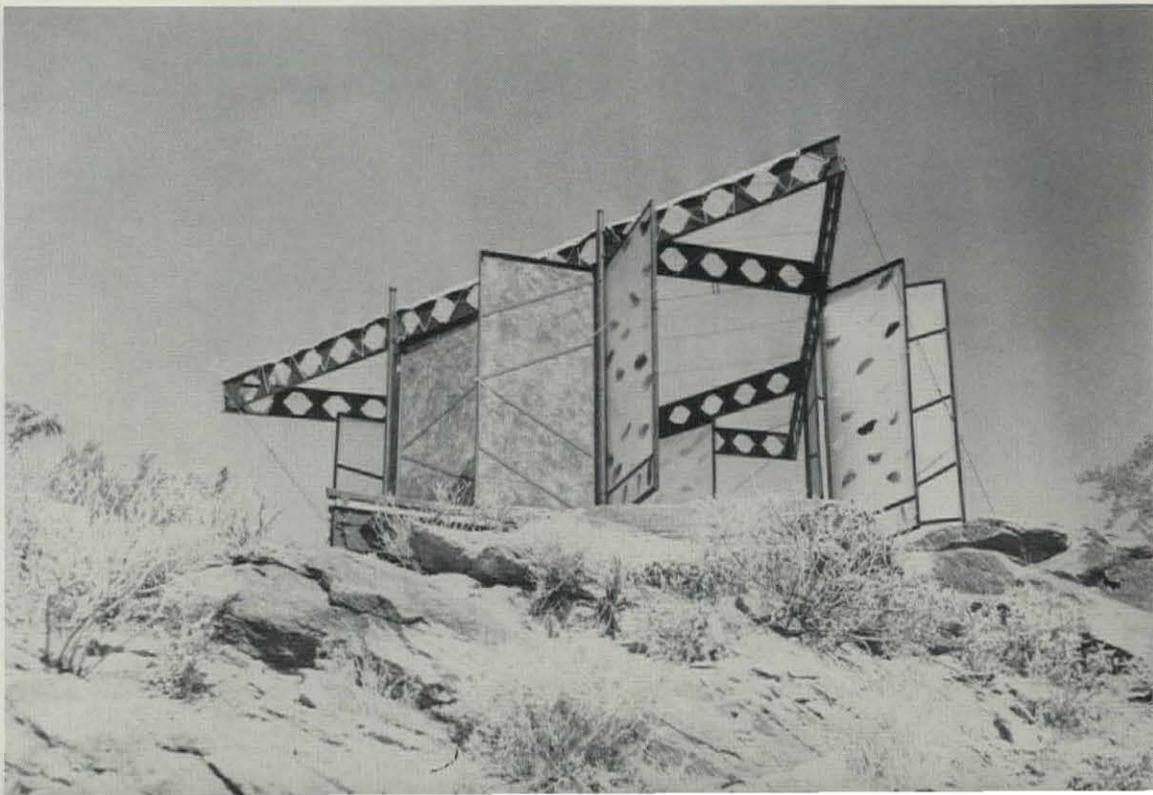


Design Studio by Terry Waters

The project was designed as a completely demountable and portable structure to be used as a designer's studio. It was necessary that it be very light and strong with a maximum control of ventilation, sunlight and view when desired.

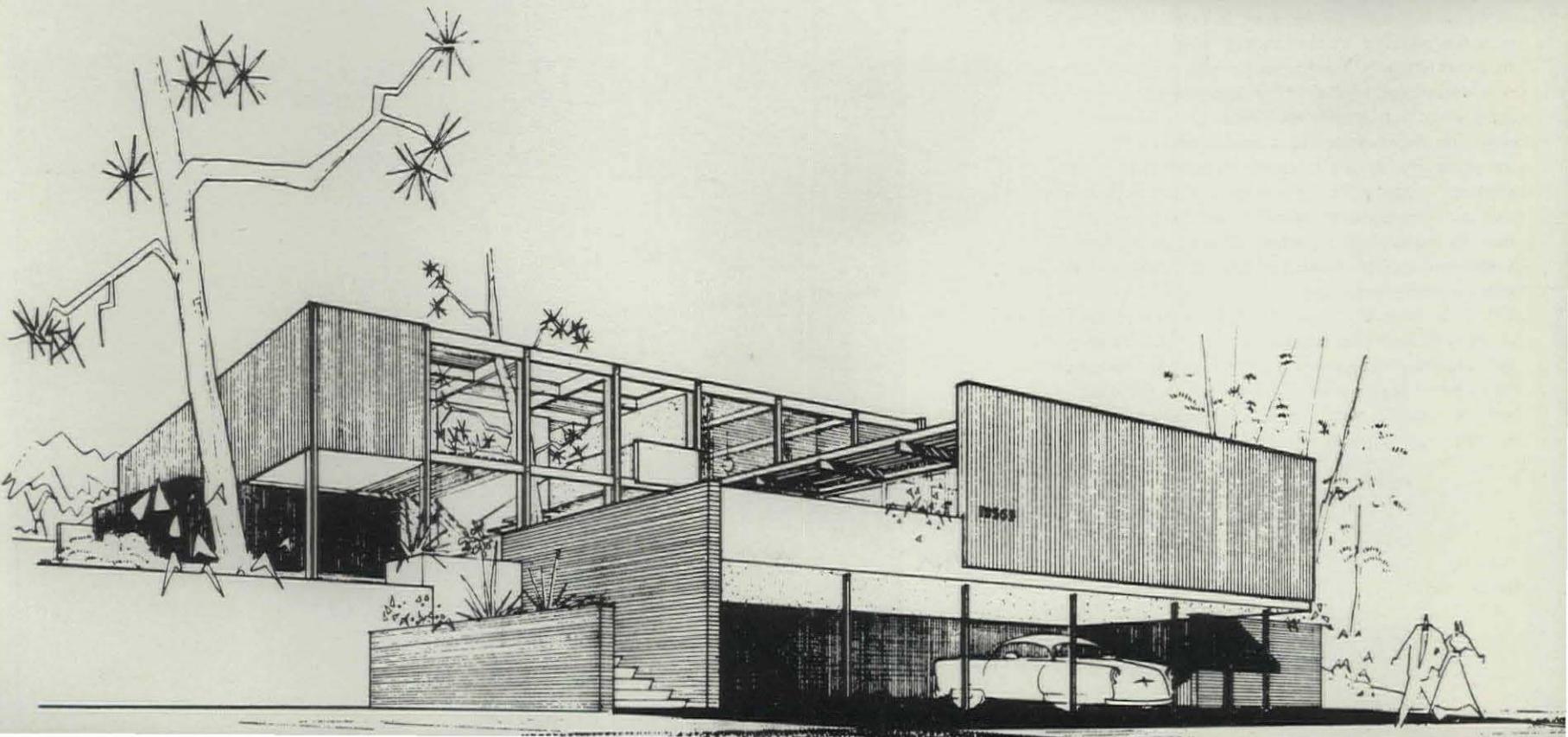
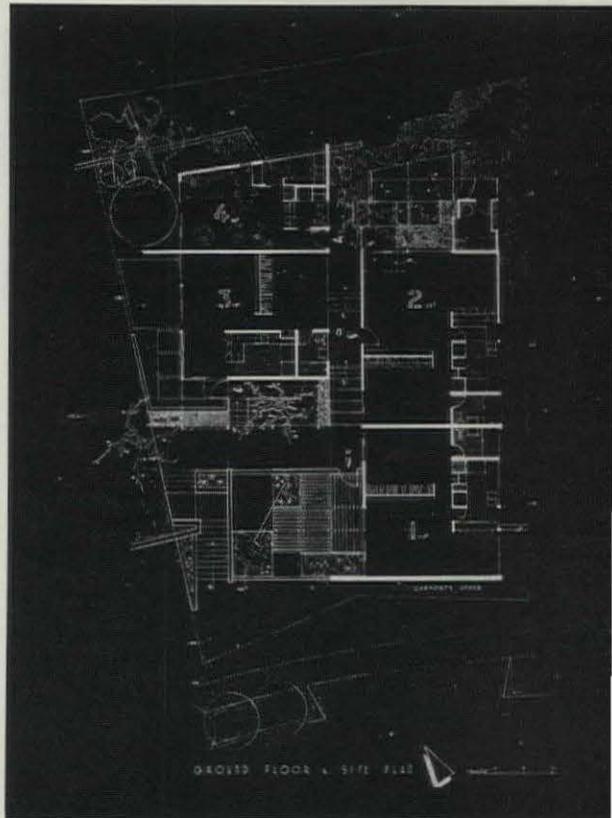
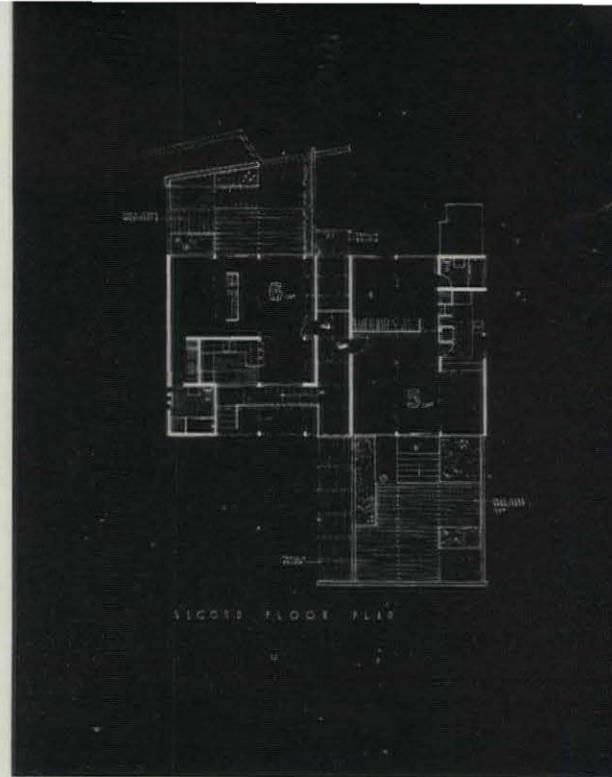


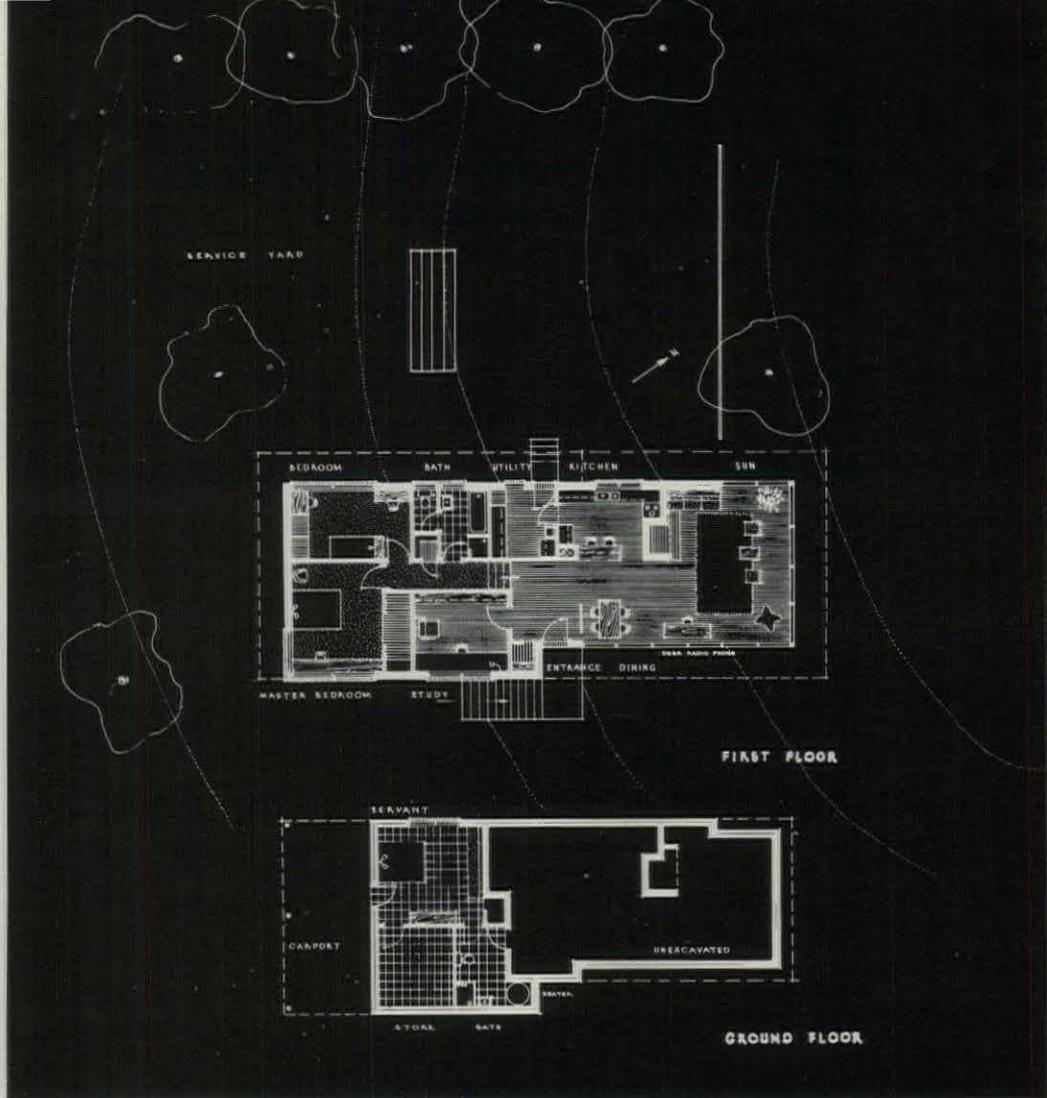
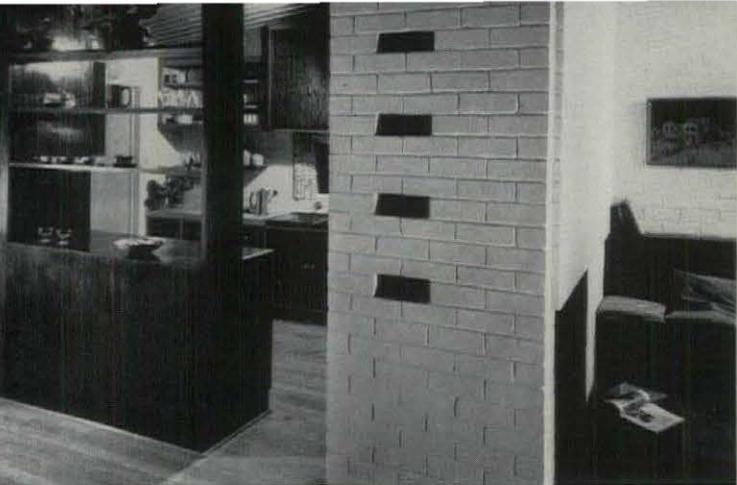
Six pipe columns have one inch jack screws on the bottom end which give eighteen inches of vertical adjustment. The site, as pictured, is rocky. The bracing has been accomplished by means of six airplane control cables with adjustable turnbuckles; the floor is of aluminum channel decking over steel beams. The roof of yellow canvas is laced on; all walls are translucent and are of laminated plastic clamped between a one inch angle and a one inch flat bar. The plastic can be changed to suit both the mood and the environment. The fascia beams and spandrel beams are 18'6" long; the rear doors 5'9" high, and the highest wall is 6'8". Each of the 12 doors is 3' wide. The structure has already withstood 75 m.p.h. winds which tore the roofs off the conventional buildings; and it has been found to be a very pleasant place in which to work. Roof and walls can be removed for storage or shipment in one hour by two men. The steel frame can be completely dismantled by two men in two hours.



Small Apartment by Raymond Kappe, Architect

This six-unit apartment is located on a hillside lot where several existing trees provide each apartment with shaded outdoor living areas. In order to have the maximum number of trees and enable the second floor apartments to use the roofs of the first floor apartment for decks a massing of a two-story element with two jutting out lower apartments was developed. The carport roof is used as a deck for the first apartment with all other first floor apartments having outdoor terraces. The rotating orientation, the trees, and some fences provide screening and privacy for each of the outdoor areas. In such a plan it was necessary for economy to have a typical apartment design that could be rotated. In all units, the wardrobe between the living room and bedroom is movable enabling the tenant to use the space as he desires. The framing system employs both post and beams and conventional framing methods. The upper floor has exposed beams and 2" sheathing, the lower floor drywall ceilings with batts at 4' o.c. The exposed structural members are redwood used in combination with redwood siding, concrete blocks and plaster. All exterior materials are left natural except for a few small areas where the plaster is painted. Emphasis has been given to horizontal pattern with trellises and colored panels providing direction and height variation. Roof decks are made of duck boards laid on the gravel roofing in pattern with the planting boxes and gravel.





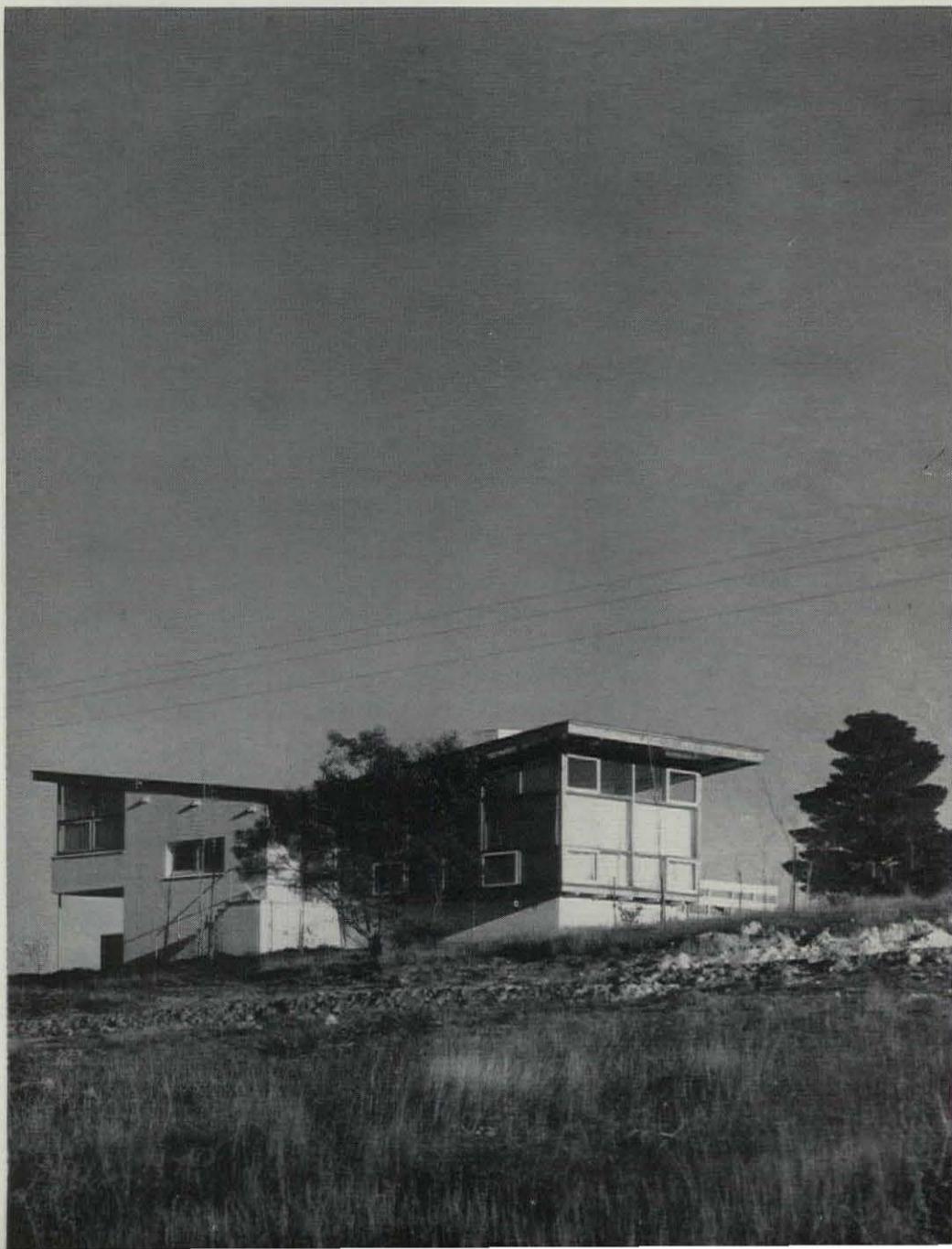
House in Australia

by **Kenneth McDonald, Architect**

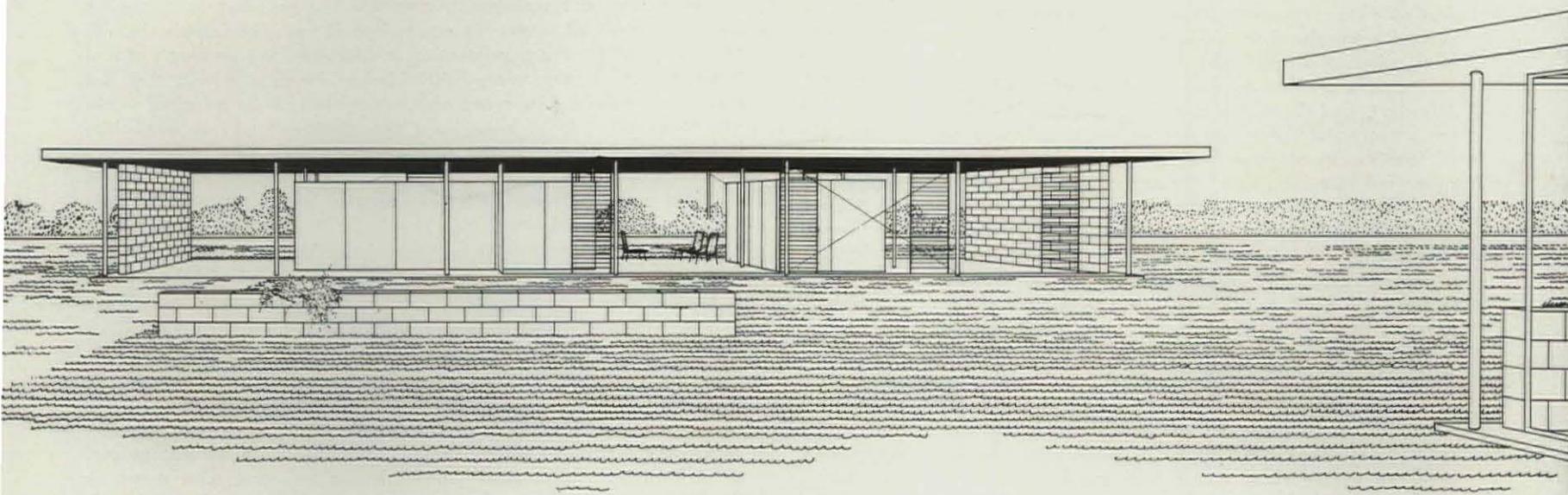
The form of this house results from a requirement to raise the main living area in order to secure a view and the placing of the carport and servants' quarters under the bedroom wing. The outcome is a split-level house fitting into the contours of the land and a butterfly-roof providing low ceilings over the living room and bedrooms.

In winter the entire house is flooded with sunshine coming in under the eaves and through the internal skylight where the penetration of the sun rays may be controlled by adjustable solid louvers. In summer all glass walls, except for about 1 1/2 hours, are in total shade.

The roof is lined internally with sheets of corrugated aluminum to reflect the sun's rays. The ceiling has sheets of fiberwood supported on long straps to prevent the usual warping of this material with 4" of rockwool insulation between them.



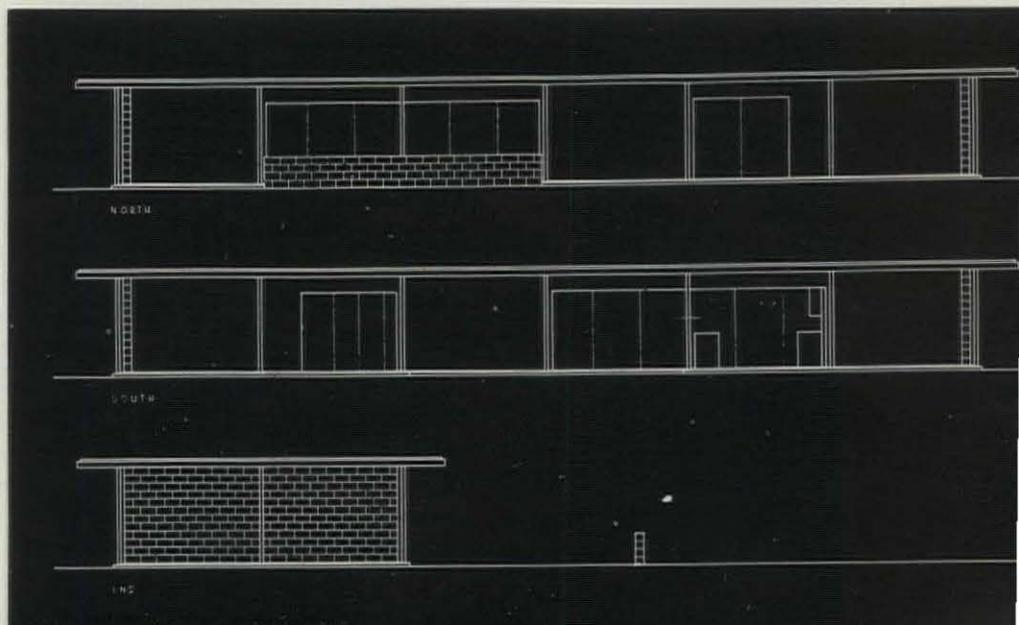
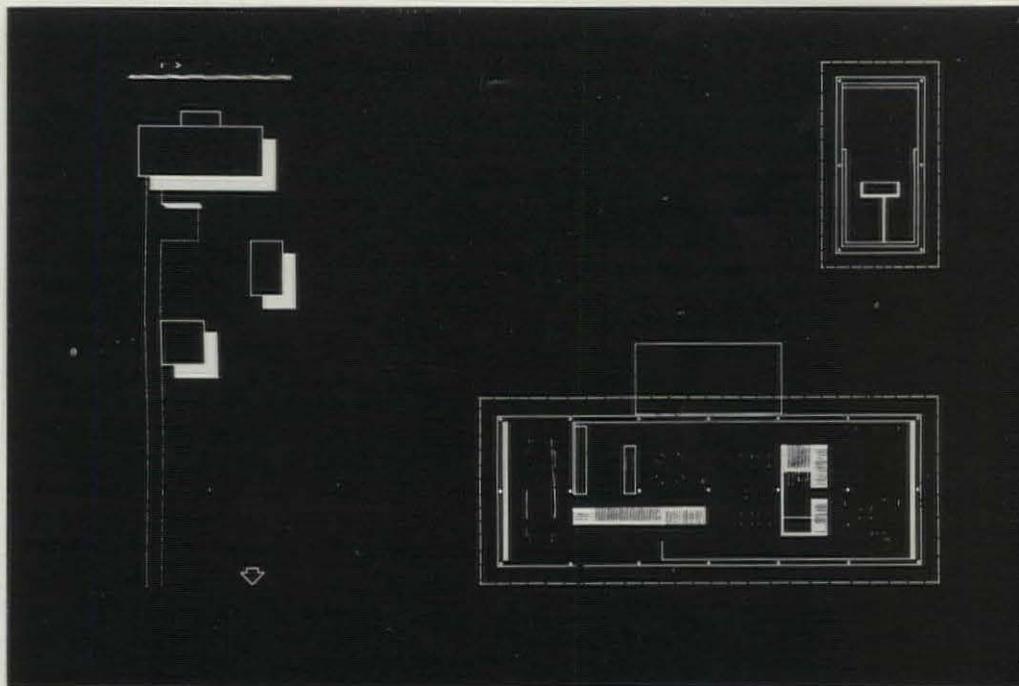
Small House in Florida by J. West, Architect



This small house now under construction has been designed for a couple who plan to retire and will later build a guest house to be used by their grown children and friends. Situated on a small inlet of the Withlacoochee River, the house faces the river to the south and at the same time opens up to the protected view of large live oaks and pines to the north.

The structure consists of regularly spaced steel pipe columns welded to wide flange steel beams. The floor is terrazzo; interior partitions are mahogany plywood; exterior walls, a buff colored concrete block and the ceiling, painted plywood.

The space is essentially one with two utility cores dividing it into various functional areas. One core which demarcates the sleeping-study area is made up of the bathroom, heater room, closets and electrical built-ins for the living area. The other separates the entrance from the kitchen-dining area and incorporates interior and exterior storage, refrigerator and kitchen electrical built-ins.



MUSIC

Continued from Page 10

terms and tokens of thought. Its very form is a representation of the method, an Antecedent or Basic Shape (Method of Composing with Twelve Tones and a Consequent, completing the theme by extension or development of its basic shape (related only to one another).

The principle rediscovers a root-form of Western music-making; you will find it at the start of Aston's *Hornpype* and Byrd's *Walsingham* in elementary presentation. To this idea of continuous variation, that reaches its apex in Bach's *Art of Fugue*, Schoenberg added a second principle: The tones are bound not to a key but only to each other; a tonality may appear or it may not. Or the harmony may prefer another method; the vagrant spirits of Jacob Handel, John Bull, and Gesualdo must have leapt to hear it. If, recognizing the present state of music, one wishes to compose beyond the limits of tonality, to preserve the full chromatic palette and a structural order not less than that of classical tonality, here is a method by which music without a key may be composed. He called this process the *Emancipation of the Dissonance*. He did not create the twelve-tone method, he told us November 1949, during his last lecture, at the University of California, Los Angeles; the method was there to be discovered, and he only wondered that some of his contemporaries had not, of necessity, come to it before him.

Often, insistently and sadly, he explained that the Method of Composing with Twelve Tones is not a formula by which anyone can make music. Like that perennial revolutionary, Johann Sebastian Bach, he was a profound conservative. He did not enjoy novelty for its own sake; in art as in words he analyzed as he composed, explored to the roots and rested every utterance upon authority. He made his art a spiritual message, demanding of it both formal accuracy and inward truth.

In a letter to Nicholas Slonimsky he wrote: "The Method of Composing with Twelve Tones had many first steps. The first step was taken about December, 1914, or at the beginning of 1915, when I sketched a symphony, the last part of which became the *Jakobsleiter*, but which has never been continued. The Scherzo of this symphony was based on a theme consisting of the twelve tones. But this was only one of the themes. I was still far away from the idea of using such a basic theme as a unifying means for a whole work. After that I was always occupied with the aim of basing the structure of my music consciously on a unifying idea, which produced not only all the other ideas but also regulated their accompaniment and the chords, the harmonies. There were many attempts to accomplish this, but very little of it was finished or published. Suddenly I became conscious of the real purpose of my efforts: it was unity and order which led me this way unconsciously. It was neither a straight way, nor did it arise through mannerism, as often happens with revolutions in art. Personally I hate being called a revolutionary, which I am not . . ." That, in a few words, is the composer's story of his eight years of silence.

In too simple language the first-period Schoenberg may be described as a Wagnerian who avoided Mahler's prolixity by studying, as Mahler would not, the "tiny-work" of Brahms; as a Lisztian who was tempted by the successes of Richard Strauss but saved himself by preferring the small, translucent spaciousness of Debussy. In the classical German tradition he would not exploit tone-color at the cost of structure, but going outside the late-romantic pseudo-classicism of his German contemporaries he recovered through impressionism an awareness of the silences of Beethoven. Silence would become a principal architectonic component of his later music, as it was to be, first, a critical element of its economy. By a stroke of truth Schoenberg gave up the apologetic struggle to preserve tonality at the same time that he returned to essential structure as not only the origin but the meaning of musical form.

The critic like the common listener seldom takes into account the effect of time-lags in musical evolution. The musicologist sees them only in a distant past. Sebastian Bach was not revolutionary in his own lifetime; his radical influence began when Haydn, Mozart, and Beethoven became aware of his music, tempered by the more normal influence of Handel. By the beginning of the present century Bach's complete works were in print. Two hundred years after his death a small part of this music, generously adapted to a different manner of hearing and performing, has become reasonably

well known. The *Art of Fugue* and *Musical Offering* were first performed in 1927. Most of us can remember when everybody first began hearing with enthusiasm the *Goldberg Variations*, the *Brandenburg Concertos*. Bach's Suites and Partitas, though everywhere well spoken of, have been acclimatized to no audience. I have been roundly abused for inflicting upon an audience the entire 48 Preludes and Fugues, three to an evening, through a series of sixteen concerts. The art of Bach has remained unaccepted, intransigent and revolutionary, in every generation since his death. The time-lag has not ended that cuts us off from his full influence.

Before such a Himalayan perspective the time-lag in accepting Schoenberg is still small. To appreciate it more accurately, let me point out that, for the general critic and listener, Schoenberg's atonal music written in the years 1909-12 has become during the last decade only marginally acceptable. A number of the principal works composed after 1912 have been recorded, not all yet available, including two issues of the four quartets, but they are not yet well known.

Or to mark the time-lag by still another comparative dimension: the date of Stravinsky's *Petrouchka* is 1911 and of *Rite of Spring* 1913. The entire career of Igor Stravinsky has occurred during the time-lag in our present acceptance of the mature art of Schoenberg.

My experience in presenting publicly the major works by Bartok and by Schoenberg before either was accepted leads me to believe that this time-lag may be crossed rather quickly, within no more than the next decade. What will be the effect on the music of other twentieth century composers when this forty-year time-lag has been overcome? For thirty of these forty years experts have been directing attention to music that is in their opinion more acceptable, or at least less unacceptable, have thrown up name after name as the "greatest living composer" or the master by whom Schoenberg's erratic and reprehensible influence on music may be judged. Despite abuse and misleading arguments, and a general refusal to allow performance of his works, Schoenberg's music has been published, musicians and amateurs have forced it on the public—in my own case, with very gratifying audience response—his name has been honored and his writings read. Against every argument he has prevailed, and this in spite of the fact that most of his slightly more than 50 compositions still remain generally unknown and unheard.

Fifty compositions! A small output for a lifetime. Unlike more popular composers, who are continually stimulated to production by demand, Schoenberg made each work a deliberate step forward. Deliberate, but not deliberated, this must be understood; the evolution emerged from the work as it was written. Schoenberg differs from composers of greater productivity in that he seemingly never wished to surround his major compositions by occasional or marketable productions. Perhaps it would have been better for him and for his admirers, if the sets of piano pieces had been produced by sixes instead of by units; if there had been eight or twelve quartets, a hundred songs, two or three times as many orchestral pieces.

In a program note, February 1911, for the performance of his *Three Piano Pieces*, opus 11—the third of these his first atonal composition—, Schoenberg wrote: "I am striving towards a goal that seems to be certain, and I already feel the opposition that I shall have to overcome. . . . It is not lack of invention nor of technical skill, nor the knowledge of the other requirements of contemporary esthetics that has urged me to this. . . . I am following an inner compulsion that is stronger than education, stronger than my artistic training."

Integrity alone, a power of will to measure and of courage to accept the necessity of what is willed, has held Schoenberg's reputation at the forefront, unflinching potentiality, while other reputations rose and fell. Such careers seem obvious enough afterwards. They are not easy to live. The genius of Bach and Beethoven was accepted while their greatest compositions lay in the library unheard; the whole Mozart is a discovery of the last decade; optimists are now unveiling jubilantly the unknown Berlioz. Schoenberg has prevailed before he has been heard. It is a tribute to character, the thoroughness of art. Schoenberg's art must be climbed, no matter how difficult the ascent, "Because it's there," as Mallory said of Everest.

"The real composer writes with the ease with which one writes a letter . . . I composed three-fourths of both the second and the

fourth movements of my String Quartet No. 2 in one-and-a-half days each. I completed the half-hour music of my opera *Erwartung* in fourteen days. Several times I wrote two or three pieces of *Pierrot Lunaire* and the song-cycle *Haengende Gaerten* in a day." Such a career involved many long, painful, doubting waits between the short periods of creative fruition. We make jokes about composing for posterity. The supreme composers, by necessity, have had to do this. But there is always a small cluster of admiration, musicians and amateurs with vision, who serve as ambassadors of posterity. Unlike Charles Ives, a genius in an unawakened culture, Schoenberg was never without such admirers and such friends.

Joseph Rufer, at present lecturer on contemporary music and theory at the Free University of Berlin, is a pupil of Schoenberg and a trusted friend. His book, *Composition with Twelve Notes related only to one another*, was begun in collaboration by correspondence with the composer. It deals with the second great period of Schoenberg's composition, and with the theory and practice of what is commonly called 12-tone music. It is the best book, the plainest, the least arbitrary, the most inclusive, that has been written about the art of Schoenberg. For the general reader it is perhaps clearer, if less concentrated, than Schoenberg's own principal writing on the same subject, the article on 12-tone music in the collection of his articles published under the title *Style and Idea*. Rufer has well salted his book with Schoenberg quotations, in italics. The English composer Humphrey Searle made the workmanlike translation.

Event after the 12-tone method had been worked out, Schoenberg did not return easily to composition. The strain is most evident in his *Wind Quintet* (1924). With the *Suite* (or *Septet*), opus 29 (1927), the *Variations for Orchestra* (1928), and the *Third String Quartet* (1930), he found his direction and began the uninterrupted composing that ended with his death in 1951.

THE LAYMAN DISCUSSES MODERN ART

Continued from Page 17

of course, upon the group's recognition that it is precisely the presence of differences that makes discussion of art valuable, in contrast to the pupil-teacher relation which is premised on the pupil's implicit acceptance of the teacher's vested authority. Ideas presented by an expert come with the built-in assurance that the receiver is privy to conceptions stamped, sealed, and approved with impressive credentials. Unhappily, that assurance may be illusory. The layman may be unable to transform the specialist's observations into insights that enable him to respond without leaning on the crutch of authority.

Sharing personal discoveries is important to the lay viewer. It helps him scent the range of possibilities available to exploration by novices like himself. It bolsters the layman's groping efforts to make accessible art he finds baffling. The communicative potential of modern art for him is demonstrated in spite of the fact that a meaningful response to an unfamiliar work of art may not take place at the first encounter. He accepts the possibility that he may have to have another go at it. Rapport, without which the viewer cannot attain visual insight, now is more likely to enter the response to modern art.

In the last analysis, response to art is personal, a tapping of private resources. How does this sequestered inner core jibe with the pooling of experience that occurs in group discussion of art? Talking about art, it is frequently observed, entails the risk of mistaking shadow for substance, if it doesn't, indeed, abet the escape of the fugitive quality of art experience. However, it is now apparent that the assumption of a self-contained language of vision which somehow is antithetical to the language of words fails to provide a complete account of the processes whereby the spectator may achieve visual insight. Vision is intertwined with the whole psychological apparatus. How could it be otherwise? Giving voice to visual experience is one way of bringing the response into clearer focus. The results of this experiment in the discussion of art runs contrary to a prevalent notion that verbalization per se blunts direct visual response to a work of art.

This belief in intuitive silence is premised on the idea that art is an instinctual activity, one that comes "naturally" to children and to peoples in pre-literate cultures. It is asserted that the reason many persons in our civilization are cut-off from the art of their own time is because their in-born capacity to respond is inhibited



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J.O.B.

JOB OPPORTUNITY BULLETIN

FOR ARTISTS, ARCHITECTS, DESIGNERS AND MANUFACTURERS

Prepared and distributed monthly by the Institute of Contemporary Art as a service to manufacturers and to individuals desiring employment with industry either as company or outside designers. *No service or placement fee is charged to artists, architects, designers, or companies.*

If you would like to be placed on the mailing list for J.O.B. or know of any others who would like this service, please let us know. Distribution for this issue totals about 2000, as follows:

Educational institutions, 300; Selected artists, architects & designers, 1070; Organizations, publications, 100; Manufacturers & other business concerns, 505.

J.O.B. is in two parts:

I. Openings with manufacturers and other concerns or institutions interested in securing the services of artists, architects or designers. We invite manufacturers to send us descriptions of the types of work they offer and the kinds of candidates they seek. Ordinarily the companies request that their names and addresses not be given.

II. Individual artists and designers desiring employment. We invite such to send us information about themselves and the type of employment they seek.

Please address all communications to: Editor, J.O.B., Institute of Contemporary Art, 138 Newbury Street, Boston 16, Mass., unless otherwise indicated. *On all communications please indicate issue, letter and title.*

I. OPENINGS WITH COMPANIES

A. ARCHITECTURE FOR INDUSTRY: Full-time position for graduate of recognized architectural school, in small architectural department of large aluminum manufacturer in Kentucky producing materials with which architects build. To design, render, make architectural working drawings. Unusual opportunity. Salary \$6,000 to start.

B. ARTISTS: Fashion Illustration, Home Furnishings, Illustration, Layout. Some of the country's largest department stores are interested in knowing about your qualifications if: 1) You are well trained in illustration and/or layout. 2) Like to work at a fast pace. 3) Have originality and fashion flair. Retail store experience is helpful, but not essential. When preparing your resumé, please include academic background, positions held, area preference and salary requirements.

C. COLORIST: Well-established fabric manufacturer in Westchester County area, N. Y., wants designers with good coloring ability to color woven fabrics and possibly prints too. No creative weaving; but applicant must understand principles of weaving.

D. DECORATOR—DRAFTSMAN (FEMALE): For full-time position in its Grand Rapids design department, a famous furniture manufacturer seeks young woman to make floor plans and elevations in showrooms and for displays for store clients. Decorating experience, color knowledge, tracing, typing also desirable. Highest education and personality requirements.

E. DESIGNER—ADVERTISING DISPLAYS AND EXHIBITS: Builder of custom convention exhibits in Chicago area offers full-time employment to aggressive young man with industrial design background preferred. Able to do detailed working drawings, color sketches and sketch lettering.

F. DESIGNER—TWO-DIMENSIONAL: Large china manufacturer in the Pittsburgh-Cleveland area seeks an experienced full-time staff designer for two-dimensional decoration of vitrified china. Two-dimensional experience essential, but previous ceramic design background unnecessary. Excellent working conditions. Progressive company attitude. Salary commensurate with experience. Male or female.

G. FLOOR COVERING DESIGNER: New England manufacturer of soft-surface floor coverings wishes to develop free-lance design sources. Two-dimensional designers of New England, experienced in fabrics, wall-coverings, or floor coverings and willing to visit factory periodically with design material, should apply.

by cultural overlays. The assumption that repressions prevent the viewers from attaining spontaneous visual insight has been solidified by an esthetic reading of Psychoanalysis, which by establishing clinically the mechanisms relating conscious to unconscious life, seemed to support the "let the spectator respond directly and intuitively" approach. Consequently, an elaborate superstructure has been erected separating the healthy values ascribed to man's primeval instincts and the contaminated values said to be a by-product of civilization. This superstructure sustains the idea that responding to art intuitively and understanding art conceptually are incompatible activities. Just how extensive the "enjoy art without knocking yourself out" notion is today can be seen in the invariable recurrence in group discussions of the exhortation to fellow participants to respond with the directness of the child. Though the layman may accept this notion, he is unable to transform it into rewarding action for the simple reason that he is not a child. Rather providing him with a conceptual framework, understanding art if you will, enables the layman to see not only conceptually, but intuitively as well.

People in our culture tend to be verbalizers more than visualizers. Not so much poetically verbal, perhaps, but at least tuned to the overtones of language. Thus experience in our culture is given focus by discussion. Whether such discussion is always productive of insight is beside the point. We are accustomed to sorting out the cascade of life experiences verbally. This aptitude for verbalization, for discussion, provides the leverage needed to release the layman's capacity to attain visual insight of modern art.

THE SHELL AS A SPACE ENCLOSER

Continued from Page 15

builder's craft, architectural innovators were unable to properly handle structure, which was considered by them as a necessary nuisance. Their main concern seems to have been to make structure interfere as little as possible in a composition governed by formalistic and pseudo-functional considerations. But engineers were not interested in the question either, their main task being reduced in most cases to making possible innocuous and insignificant structures by means of a mechanical process which has nothing to do with design; that is, to calculate them. Structural design was thus left out of both professions which should have been concerned with the problem.

I want to discuss the second cause of the little use of shells. The mania for specialization, based on the assumed impossibility of a single person acquiring the ever-growing bulk of written knowledge in every technical field, has led to a minute subdivision of functions and responsibilities in the building industry. (Let us avoid for the moment discussing the usefulness of so many writings. Perhaps a special kind of punishment should be devised for those of us who publish unnecessary papers and books.)

It is very difficult at present to say who the real author is of a building. Whether it be the architect who proudly put his signature on the drawings; or the draftsman who effectively does them; or anyone of the many engineers who take care of the technical details; or the supervisors, contractors and sub-contractors; or even the mason or carpenter who at least works physically on the building with his hands. Anyway, with so many participating in a single work, it becomes necessary to draw detailed plans of every feature of the building. But doubly-curved surfaces are almost impossible to represent on paper, except of course the simplest types, as revolution domes. Anyone who has been involved with this type of construction knows too well the tiresome explanations and corrections which must be made at the site, no matter how many drawings may have been provided. But this is a task which the designer himself must perform, for perhaps modifications of the design must be necessary at the last moment. And what then of the countless intermediaries? It is definitively easier and more satisfactory for everybody concerned, although perhaps more expensive, to build cubic masses with reticulated frames. Paradoxically, the more numerous the learned collaborators in the design and erection of a building, the less imaginative that construction will be.

The third cause has to do with the abundance and quality of the available materials. In the hard times of Middle Ages, when little

more than the rubble of ancient works was at hand, builders had to use all their resourcefulness to carry out the marvelous Gothic structures. On the other hand, in times of plenty there is a tendency toward mental slothfulness. We have already every conceivable kind of material, and their properties are continually improving. Why should we trouble to look for new forms or worry about design when it is so much easier to demand just a little more resistance of a certain material? No wonder then the enthusiastic acceptance of pre-stressing, which is but an ingenious device to avoid careful design and painful thinking, while benefitting from the dangerous increased strength of new materials and depending too much on unpredictable and often unavoidable defects in them.

But appropriate shells usually develop stresses so low that they can be built with any kind of ordinary concrete, without special or careful workmanship, and in many cases even without steel reinforcement. If these facts were more generally known it is almost certain that this form of construction would be looked upon with some disdain by the highly technical minds of the structural profession. Fortunately, the design of shells is conveniently protected by a respectable curtain of mystery and higher mathematical abstruseness.

This leads us to the last and principal point which must be considered in this analysis. We are confronted by another paradox, one that is related to the scientific approach.

Structural design was empirical or experimental knowledge until the advent of the Mathematical Theory of Elasticity, which made possible the employment of mathematical procedure in structural analysis. This was very important, for since the invention of modern mathematics it has become commonplace to use it on any problem at hand, without considering generally if that problem could have other obvious ways of being solved. It is therefore an essential requisite of our times to calculate everything.

Regardless of the illusory pretense of accuracy of such mathematical analyses, which I have no time to discuss now and which is especially notorious when unpredictable deformations are taken into account, this condition automatically restrains the forms of shells to those surfaces whose mathematical expression is a relatively simple formula, such as cylinders or revolution domes.

I don't mean to convey the idea that all mathematical investigations are worthless. They have been very useful to give a more or less accurate picture of the distribution of stresses, but their role must end at that point. As most inventions of man, they are at first useful tools which help us to understand natural phenomena and make possible the progress of techniques, but their forceful intervention in every problem is bound to become obtrusive for the same progress. Thus, the Theory of Elasticity is now one of the main obstacles for the normal development of structural knowledge. The pretension of accuracy and uniqueness of elastic solutions has hindered the exploration of other paths of thought, making it difficult to get a full panorama of the problem.

I sometimes allow myself to fancy that progress of the structural technique could have taken place by means of the natural evolution of intuitive and experimental methods employed with such amazing success in the Middle Ages and the Renaissance. Perhaps such a development, stimulating the ingenuity of builders (they were called "Engineers") could have led to a better use of the properties of the materials, for the problem might have been approached more openly, without the blind faith that it may be solved by mathematical procedures. The most fitting forms are not, as a general rule, easy to investigate from a mathematical point of view; hence their use has been neglected in favor of less appropriate solutions that are easier to analyze.

These are the prejudices that the designer must overcome in order to feel himself free to attack in an imaginative fashion the problem of selecting the proper form of shell to enclose given space requirements. After all, design is only a compromise between limitations, and I have tried to point out those general conditions common to all problems of shell design.

I might add to them the competition on a cost basis with conventional types of construction, and the reluctance of owners to accept building methods which have not been previously proved. Obviously, it is impossible to overcome the numerous conditions and prejudices.

Perhaps if I may be allowed to explain some of my hesitant steps

H. FURNITURE DESIGNER: Outstanding manufacturer of fine furniture wishes to add experienced young furniture designer full-time to its design staff in Grand Rapids. An unusual opportunity for a person with knowledge of traditional furniture as well as contemporary, plus high education and personality qualifications.

I. GRAPHIC DESIGNER: A well-established manufacturer of bound books, visible records and machine bookkeeping equipment, in western Massachusetts, seeks full-time staff designer, male, age 25-40, trained and experienced in graphic design to redesign existing products and assist in developing new products. Excellent working conditions. Progressive company attitude. Salary commensurate with experience and ability.

J. GREETING CARD ARTIST: New England manufacturer of greeting cards wishes to develop free-lance design sources. Two-dimensional designers wishing to qualify should apply to Editor, J. O. B.

K. INDUSTRIAL DESIGNERS: Well-known New York industrial design consulting firm has several openings at \$8,000-\$11,000 salary level for experienced product and packaging designers, age 30-40.

L. INDUSTRIAL OR TEXTILE DESIGNER: Male, age 25-35, to do two-dimensional pattern work in color. Excellent working conditions with established company in small midwestern city. Opportunity for growth and promotion.

M. PACKAGE DESIGNERS: Immediate openings available for experienced staff designers with national folding carton manufacturer in Philadelphia area. Must be extremely creative with a good background of lettering and design. Knowledge of merchandising desirable. State experience and salary expected. Company's staff knows of this ad.

N. RADIO-TV: Openings are anticipated with a large, well-established manufacturer, for designers with experience in graphic, packaging, furniture, radio and TV design.

O. SILVER DESIGNER: Established quantity manufacturer of silver-plated infants' ware, dresser ware, novelty ware, etc., wants full-time staff designer. Will consider experienced person or recent art school graduate. Opportunity to grow with company located in southeastern Massachusetts.

P. TEXTILE DESIGNERS: Design workshop in New York City specializing in advanced modern designs for textile printing, offers opportunity to ambitious person with executive ability and/or recent design graduate with exceptional creative flair and interest in sales promotional work. Must be capable of assuming some administrative duties while present director and sole owner takes charge of European branch.

Q. WALLPAPER DESIGNERS: New England manufacturer of wallpaper wishes to develop free-lance design sources. Two-dimensional designers in England or New York area wishing to qualify should apply to Editor, J. O. B.

II. ARTISTS AND DESIGNERS SEEKING EMPLOYMENT

The Institute does not necessarily endorse the following individuals, who are listed because they have asked the Institute to help them find employment.

A. ARTIST-DESIGNER: Univ. of Illinois (1948). Seven years broad design experience. To direct, or assist direction of, manufacturer's industrial design studio. Age 31, married. Will relocate anywhere in U. S. A.

B. ARTIST-TEACHER: 5 years administrating, teaching and lecturing large museum educational program. Exhibited widely in all media. Experienced in design and graphic arts. Private classes for all ages. Promoted many group exhibitions. Desires administration, teaching or promotion job in art field.

C. ARTIST-TEACHER: M. F. A., Art Institute of Chicago, seeks teaching position, art school, college or university. Can teach drawing, painting, lithography. Some teaching experience. European travel and study on fellowship. National exhibition. Age 25, single.

D. ARTIST-TEACHER: Student of the Art Students League, Paris, has had one-man shows, both in New York City and Paris, has designed ceramics, Christmas cards, and household appliances. Desires position teaching. Prefers New York City. Female.

E. ART SCHOOL OR COLLEGE TEACHER: Graduate of Art Students League, frequently honored with one-man shows, prizes and fellowships, seeks position as art school or college teacher. 10 years teaching experience, age 29, excellent references.

F. CHIEF INDUSTRIAL DESIGNER—MECHANICAL ENGINEER: Creative ability and versatility demonstrated by design of small appliances, automotive instruments and parts, home furnishings and packaging. Able to lead industrial design department and coordinate with engineering design and manufacturing methods. Proven success in cost and material savings. B.S. degrees in both Industrial Design and Mechanical Engineering. Age 33.

G. CONSULTING DESIGNERS: Ivan Bruce, Rudolph M. Babel and Philip F. Huy have established a consumer product design organization to be known as Bruce, Babel and Huy Associates, 3 Grove Street, Framingham Center, Massachusetts. All three designers were formerly associated with the Telechron Dept. of the General Electric Co., in charge of product design of electric clocks and timers. Bruce, Babel and Huy now offer complete product design service.

H. DECORATOR—DESIGNER: Syracuse University honor graduate, 1952, in Interior Design. Adept at renderings and blue prints. Two years experience as assistant decorator in large store. Desires position with architect, decorator or designer in Boston or Connecticut area. Female, age 23, single.

I. INDUSTRIAL DESIGNER: B. S. in Industrial Design. 10 years experience in product development and design, engineering, architecture and plant lay-out. Capable of making renderings in all mediums. Experience in client relations and sales. Prefer West Coast.

J. INDUSTRIAL DESIGNER: R. I. S. D. graduate B. F. A. Experienced design offices and plastics field, including product, packaging, sculpturing and model making. Strong engineering background. Desire position with manufacturer not necessarily plastics. Age 27, veteran, married with one child. Will relocate.

K. INDUSTRIAL DESIGNER—CHIEF DESIGNER: 11 years experience as product designer working mostly with plastics and metals. Chief designer for past 7 years. 4 years as part-time teacher of industrial design, materials and manufacturing methods and technical illustration classes. Full knowledge of vacuum forming techniques. Thoroughly experienced in rendering, quick sketches and mechanical drawing. Desires position in New York area.

L. INDUSTRIAL DESIGNER: B. I. D., Pratt Institute, post-graduate studies in London and Paris. Twice a prize winner. Experienced as product designer and art director. Fluent in French and English. Age 29. Willing to relocate.

M. INDUSTRIAL DESIGNER: 3 years experience in interior, lighting, furniture design, including full-scale working drawings of furniture. Desires permanent position with product design firm in New York City area. Age 29, married.

N. INDUSTRIAL DESIGNER: Graduate industrial designer with experience in plastics, home furnishings and architectural fields desires permanent position in the metropolitan New Jersey or New York areas. Can work equally well independently or under supervision. Age 33, married.

O. INDUSTRIAL DESIGNER: Qualified to head design department. 5 years experience with Midwest major appliance manufacturer of air conditioners, refrigerators, freezers and ranges. Age 31, married with one child. Willing to relocate.

P. INDUSTRIAL DESIGNER: College graduate and Industrial Design Graduate from Minneapolis School of Art seeks free-lance work specializing in trade-mark design. Technical background in radio repair, steel fabrication, machine shop, kitchen interior design. Age 30.

Q. INDUSTRIAL DESIGNER: B. I. D. honor graduate of Syracuse University with several years experience, desires position where he can work creatively to improve products and packaging. Age 28, veteran, willing to relocate.

R. INTERIOR DESIGNER: High-honor graduate at Syracuse University, 1952. Two years experience selling custom home furnishings. Adept quick-sketching and full color rendering. Good knowledge of blue prints and fabric designing and processes. Desires position with architect, designer or decorator in Boston area. Age 28, veteran.

S. PACKAGE DESIGNER—ADVERTISING ARTIST: Would like to contact manufacturers and retailers interested in services on a free-lance basis. Wide experience with well-known firms.

T. STORE PLANNER: Desires position with department store or architect as store planning director. Present position with West Coast architect as store planning director with eleven store accounts. Experience in planning, merchandising, planning self-service, detail supervision and client contact. Available on 60 days notice. Salary \$12,000 a year.

in the course which I am still pursuing in the exciting field of shell construction it might help some other beginners to find the way to offset the first usual obstacles.

Although I have been interested in shells since I was a student, the mathematical barrier, so cunningly laid by the German scientists who developed the method, restrained me for many years from seriously considering the possibility of building shells myself. Four years ago I decided to throw away my scruples and make a start building some short cylindrical vaults, catenary-shaped. A picture of the reinforcement of Maillart's shell at the Zurich Exposition of 1939 gave me a hint of the real behavior of such vaults.

One of my last examples of short shells is a 720-foot long warehouse for the Custom House of Mexico City, with a central span of 66 feet and two overhangs of 20 feet covering the loading platforms. Uniform thickness is of 1½ inches in the main part of the shell, increasing to 4 inches at the springing parts, which work as slender beams bridging the vault thrust between supports, and were poured in advance of the shell. Stiffening ribs are in coincidence with columns 16 feet 6 inches apart. Expansion joints occur each 33 feet in coincidence with openings for roof lights in the central aisle. Tie-rods are placed above the roof to expedite the movement of the traveling form-work.

Another form which I tried at the beginning and proved to be very satisfactory for small spans up to 30 feet is the folded slab. It was employed for floor and roof of a school with 24-foot span and cantilevered aisles of 7 feet on both sides. Thickness is 2 inches, and light-weight concrete fill was used to level the first floor. This structural form resulted in a more economical and perhaps more pleasant solution than the ordinary beam and slab method. Corrugations are 10 feet wide and 16 inches deep. A folded slab forming saw-tooth roof is being built to cover a small chapel of 30-foot span in a church under construction in Mexico City.

My first and only dome is an ellipsoidal shell covering a rectangular ballroom 50x66 feet wide, and a rise of 8 feet. It was built on top of the flat roof of an old house, and afterwards the old roof and intermediate walls were removed. The dome is suspended from an annular beam which runs on top of its perimeter by means of 5/8" ϕ rods at 7 feet on center, leaving all around a joint 1 inch wide to allow for the free deformation of the shell.

To my knowledge, the only previous example of elliptical domes was in a church in Zurich and was designed by the classical method of affinity, which is rather complex. It was pre-stressed around its perimeter, and was not built until after three tests on small models were performed in Madrid, Spain. I don't see how any such complexity can be justified on the design procedure, when my shell—designed by the simplified Chambaud's method—behaves perfectly, without a single crack, although it has a thickness of only 1½ inches, nominally reinforced with a mesh of ¼-inch round steel and 6 bars of ¾-inch diameter at the tension ring. What is more, it has a one-ton chandelier hanging from its summit.

When I was most excited with my discoveries and early efforts, the first important commission came, the Cosmic Ray Pavilion for the University City of Mexico. It was in fact my fourth shell to be built. The preliminary drawings submitted by the architect in charge, Jorge Gonzalez Reyna, showed a cylindrical shell of about the same size which was finally built, but it was a functional requirement that the top part of the shell should have no more mass than 8 psf., which means that thickness had to be reduced to 5/8 inch in the upper part of the vault. Under this condition, it seemed advisable to give more stiffness to the shell, employing a warped surface. The form of two hyperbolic paraboloidal vaults coupled along a principal parabola and spanning 33 feet was finally adopted. The vaults were further stiffened by three concrete arches, concealed by a corrugated concrete screen. The pouring operation was executed by hand with no excessive difficulties in spite of the thinness and slope of the shell. But the stiffening arches of this structure left me unsatisfied. I wanted to try these vaults without any stiffener, which I did in a small carport whose general dimensions are 23x41 feet with a rise of 8 feet. One springer of the vault rests in rock ground; the other is supported at only one point by a concrete wall, cantilevering from this 11 feet 6 inches at both sides.

The shell works almost like a funicular vault for the permanent loads, since for small rises the parabola does not differ very much from the catenary, but the upward curvature of the cross-section

results in considerable inertia, allowing the prescinding of any stiffening rib. In unusual form-work of this shell two layers of expanded metal-lath have been employed instead of the usual wood sheathing and the shell was made by coating with cement mortar both sides of the metal mesh. The straight disposition of the wooden joist was laid along a system of generatrix.

The apparent success of these efforts prompted me to experiment further with hyperbolic paraboloidal shells, which among their many constructive advantages over other types of doubly-curved surfaces is that of being generated by two systems of straight generatrix, allowing the centering to be made with straight timber. Some recent constructive applications of these shells are displayed on the following:

An umbrella slab 26 feet square, composed by four warped parallelograms of portions of hyperbolic paraboloid. Uniform thickness is 3 inches, without any rib or beam, the same umbrella structures, but with smaller thickness of only 1½ inches, cover the living-rooms of two small houses at "El Pedregal."

Perhaps the most spectacular of my umbrella structures is an asymmetrical shell balanced by employing 1½ inches of perlite concrete in the long arm of the slab, which cantilevers 36 feet, and ordinary concrete 8 inches thick on the short side. General dimensions are 50x15 feet, with a total rise of 5 feet. The same combination of hyperbolic paraboloids, but supported on a different manner, produces rectangular domes. Lighting aisles, separating the domes, hang from the shell edge ribs.

Another factory covered with these shapes has lighting aisles around each dome. One of these domes, which are 43 feet square, with a rise of 6 feet 8 inches and a thickness of 1½ inches, is supported at the four corners only, and is provided with mild steel tie-rods at the perimeter, which were pre-stressed by hydraulic jack. It was only natural that a further step may lead me to attempt to exploit the plastic possibilities of these shapes, using them in a more architectural manner. A church is now under construction at Mexico City, which is perhaps my first opportunity to produce a full design, integrating structural and architectural composition. I am most enthusiastic and hopeful about the results of this effort, but, unfortunately, I can only show now these partial aspects of the work in progress.

NOTES IN PASSING

Continued from Page 11

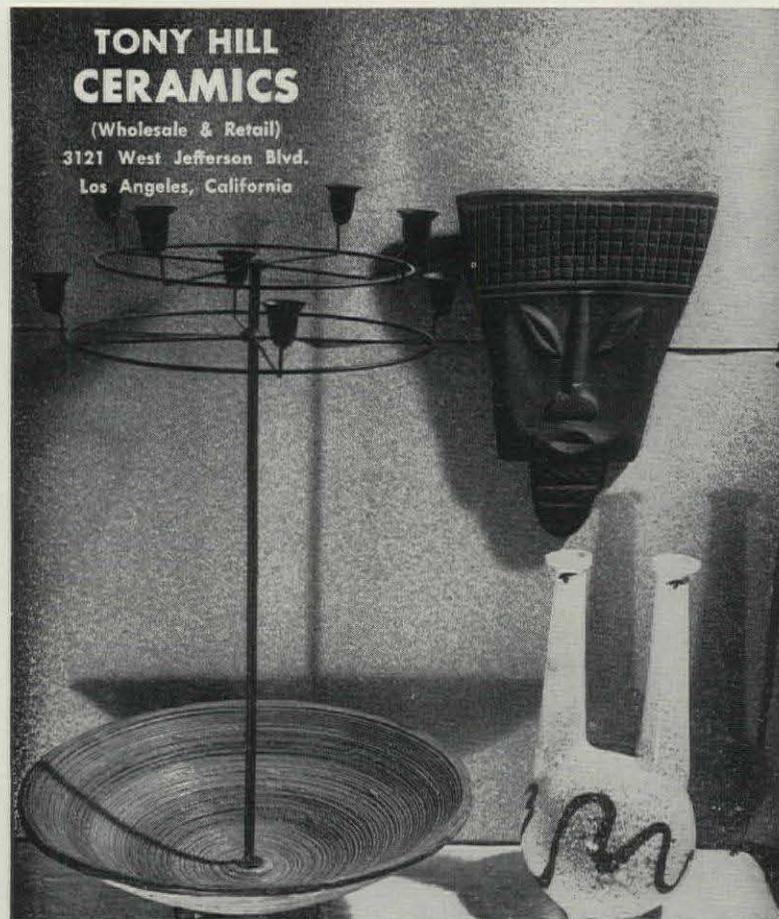
because we know that many persons who discriminate do so not out of their own prejudice but out of a tendency to conform to a discriminatory pattern they find in their communities or at their place of work. Since it is an act rather than a feeling, discrimination is more easily combatted than prejudice, is more amenable to control by law, and is more easily measured by the student of social relations. Likewise, its growth or decline is more easily studied and measured than is the decrease or increase of prejudice.

The assumption that education is the chief determinant of employment qualification also points to another significant form of discrimination, inequality of educational opportunity. In a society where training is so important, practices of this type are simply an early form of occupational discrimination. The groups that suffer most in this respect are the Negroes, who find that their access to higher education is severely limited, and the Jews who are not freely admitted to some privately supported colleges and professional, especially medical, schools.

It would be futile to deny that these conditions in education and employment do exist in the United States. But it would be equally futile, after considering the changes that have recently occurred and comparing past and present conditions, to deny that noteworthy advances have been made in eliminating these evils.

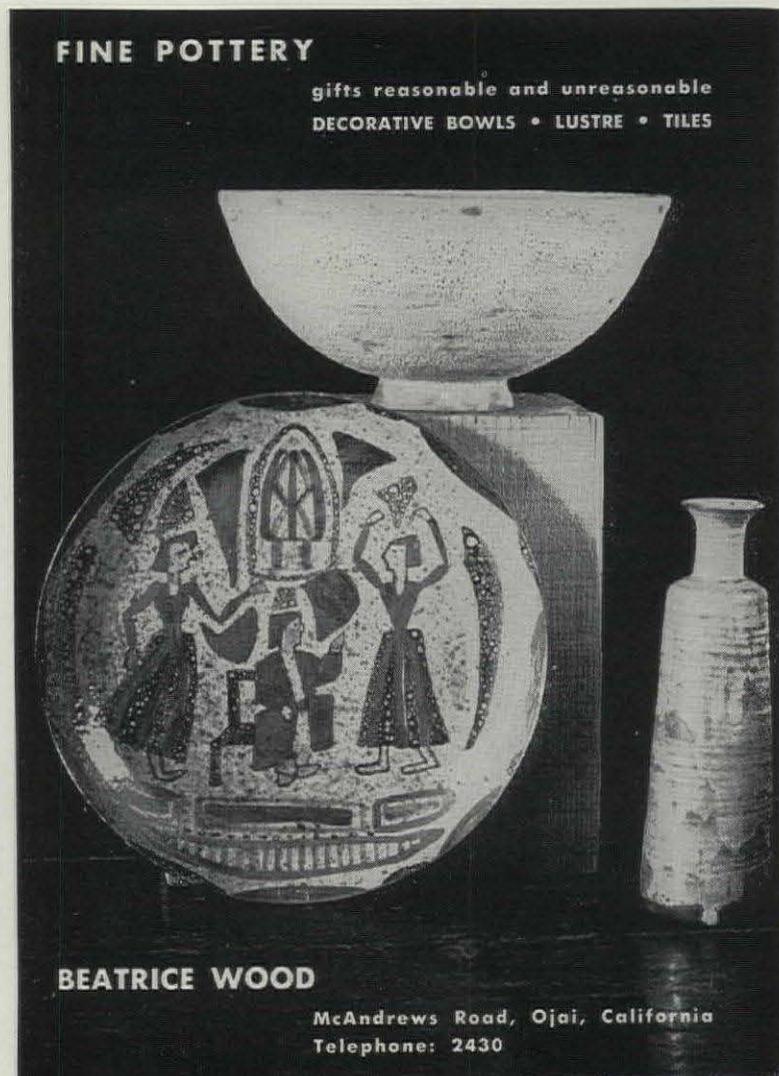
Although these changes, during a relatively short period, are evidence of significant progress, no one would deny that much remains to be done to improve group relations in the United States and to ensure the rights and privileges of all the inhabitants. The advances have taken place under favorable economic conditions, they have not been uniform and, in scattered urban areas both in the North and South, they have been accompanied by some illegal violence.

Nevertheless, the progress is perceptible and so is the will and



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determination of the majority of the American people to move forward towards the realization of full equality of rights and opportunity for all. And as the United States has become increasingly subjected to world scrutiny, the government and American citizens have realized that the United States minority problem is one which, for good or ill, can seriously affect American status abroad.

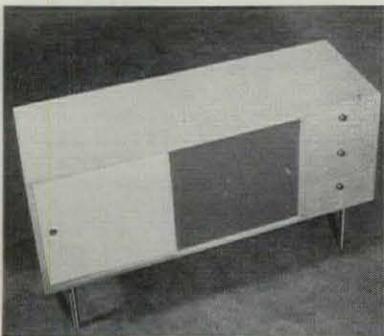
—Morroe Berger

CURRENTLY AVAILABLE PRODUCT LITERATURE AND INFORMATION

Editor's Note: This is a classified review of currently available manufacturers' literature and product information. To obtain a copy of any piece of literature or information regarding any product, list the number which precedes it on the coupon which appears below, giving your name, address, and occupation. Return the coupon to Arts & Architecture and your requests will be filled as rapidly as possible. Items preceded by a check (✓) indicate products which have been merit specified for the new Case Study House 17.

NEW THIS MONTH

(230a) Contemporary Office Furniture: Newly published illustrated brochure describing contemporary high-style office furniture in C.M.F. quality line. Many examples shown, including such features as solid brass hardware, full-



size file drawers fitted for Pendaflex File Folders; wide range of beautiful cabinet woods combined with cigarette-proof micarta tops. Perfect workmanship, finish of this handsome line, combined with moderate price, make it ideal for retail stores, offices, reception room. C M F has recently affiliated with Vista Furniture Company of Anaheim. For full information and complete price list, write to Costa Mesa Furniture Mfg. Co., Dept. AA, 2037 Placentia St., Costa Mesa, California.

(231a) Aluminum Honeycomb Lighting: Complete information now available on this new approach to full ceiling



ing lighting—HONEYLITE. Made from high purity aluminum foil by special "Hexcel" process, Honeylite is now available in various cell sizes. Informa-

tion describes exceptional acoustical value, excellent light transmission efficiency. Its adaptability to any lighting fixture now using glass, plastic or louvers is noted and its fireproof and concealing qualities listed. For complete, illustrated information, write to John P. Schafer, Hexcel Products Co., Dept. AA, 951 61st Street, Oakland 8, California.

(232a) Unique 16-split-page full-color booklet: Features new fir panel doors recently introduced, including louvre doors, Dutch doors, entrance doors. Also presented are 45 decorating ideas concerning every door in the house. These 1955 fir doors are characterized by design advances comparable to shifting styles in residential and commercial architecture. Their classic proportions and dramatic shadow accents are designed to complement the modern home design. The booklet may be obtained by writing Fir Door Institute, Dept. AA, Tacoma 2, Washington.

✓ (233a) Pryne Blo-Fan: Ceiling "Spot" ventilator. Newly available information describes in detail the principles and mechanics of Blo-Fan, an effective combination of the breeze fan and the power of a blower in which best features of both are utilized. Includes many two-color illustrations, helpful, clearly drawn diagrams, specifications and examples of fans of various types and uses. Blo-Fan comes in three sizes for use in various parts of the house and can also be combined with a recessed light unit, amply illuminating range below. For this full and attractive brochure, write to Pryne & Co., Dept. AA, 140 N. Towne Ave., Pomona, California.

APPLIANCES

(55) Water Heaters, Electric: Brochure data electric water heaters; good design.—Bauer Manufacturing Company, 3121 W. El Segundo Boulevard, Hawthorne, California.

(226a) Built-in Refrigerator Freezer: Information now available on revolutionary new REVCO BILT-IN refrigerator-freezer combination—two separate, matching units, 8.3 cu. ft. refrigerator plus 6.3 cu. ft. freezer, totaling 14.6 cu. ft. of storage space. Compact, con-

venient, economical, these units complement the modern kitchen with built-in cooking units. Outside dimensions without hardware: Height 33", width 33", depth 24 1/4" (to match base cabinets). Variety of finishes: stainless-steel, antique copper, buttercup yellow, or may be ordered to match or contrast with kitchen colors. For free brochure, write to: R. N. Lehman, Dept. AA, California Kitchens, Inc., 2305 W. Alameda Ave., Burbank, Calif.

(123a) Gas Ranges, Colored Tops Illustrated color folder describing new 1951 Western-Holly gas ranges with pastel colored tops; tops available in pastel green, blue, yellow, lifetime porcelain enamel to harmonize with kitchen colors; body of range in white enamel to avoid over-emphasis on color; other features include top-burner Tempa-Plates, disappearing shelf, vanishing grille, oversize expandable baking oven; well-designed, engineered fabricated; merit specified CSHouse 1952.—Western Holly Appliance Company, Inc., Culver City, California.

FABRICS

(171a) Contemporary Fabrics: Information one of best lines contemporary fabrics by pioneer designer Angelo Testa. Includes hand prints on cottons and sheers, woven design and correlated woven solids. Custom printing offers special colors and individual fabrics. Large and small scaled patterns plus a large variety of desirable textures furnish the answer to all your fabric needs; reasonably priced. Angelo Testa & Company, 49 East Ontario Street, Chicago 11, Illinois.

FLOOR COVERINGS

(989) Custom Rugs: Illustrated brochure custom-made one-of-a-kind rugs and carpets; hand-made to special order to match wallpaper, draperies, upholstery, accessories; seamless carpets in any width, length, texture, pattern color; inexpensive, fast service; good service, well worth investigation.—Rug crofters, Inc., 143 Madison Avenue, New York 16, N.Y.

FURNITURE

(221a) Italian Marble Table Tops: Rene Brancusi's extraordinary collection of regal marble table tops, imported directly from Italy, is presented in newly published brochure now available. The table tops come in every size, shape and color, elegantly combined with solid brass, wood and wrought iron bases, custom designed or constructed to individual specifications. For further information, write to Rene Brancusi, 996 First Avenue at 55th Street, New York City, or 928 North La Cienega, Los Angeles, California.

(138A) Contemporary Furniture: Information. Open showroom to the trade, featuring such lines as Herman Miller, Knoll, Dux, Feltmore, House of Italian Handicrafts and John Stuart. Representatives for Howard Miller, Glenn of California, Kasparian, Pacific Furniture String Design Shelves and Tables, Swedish Modern, Woolf, Lam Workshops and Vista. Also, complete line of excellent contemporary fabrics, including Angelo Testa, Schiffer Prints, Elenhank Designers, California Woven Fabrics, Robert Sailors Fabrics, Theodore Merowitz, Florida Workshops and other lines of decorative and upholstery fabrics.

These lines will be of particular interest to Architects, Decorators and Designers. Inquiries welcomed. Carroll Sagar & Associates, 8833 Beverly Boulevard, Los Angeles 48, California.

HEATING & AIR CONDITIONING

(224a) Thermador Wall Heat Fan—Information now available on this sturdy, compact, safe unit—quickly installed, economical to use. Separate switches for fan and heat, neon working indicator light. Lower grille forces warm air downward creating less heat waste. Fan action induces constant air flow over resistance coils, preventing oxidation and deterioration through red glow. Choice of handsome finishes in bronze, white enamel or stainless steel. Write to Thermador Electrical Mfg. Company, Los Angeles 22, Calif.

(143a) Combination Ceiling Heater, Light: Comprehensively illustrated information, data on specifications new NuTone Heat-a-lite combination heater, light; remarkably good design, engineering; prismatic lens over standard 100-watt bulb casts diffused lighting over entire room; heater forces warmed air gently downward from Chromalox heating element; utilizes all heat from bulb, fan motor, heating element; uses line voltage; no transformer or relays required; automatic thermostatic controls optional; ideal for bathrooms, children's rooms, bedrooms, recreation rooms; UL-listed; this product definitely worth close appraisal; merit specified CSHouse 1952—NuTone, Inc., Madison and Red Bank Roads, Cincinnati 27, Ohio.

LIGHTING EQUIPMENT

(119a) Recessed and Accent Lighting Fixtures: Specification data and engineering drawings Prescolite Fixtures; complete range contemporary designs for residential, commercial applications; exclusive Re-lamp-a-lite hinge; 30 seconds to fasten trim, install glass or re-lamp; exceptional builder and owner acceptance, well worth considering.—Prescolite Mfg. Corp., 2229 4th Street, Berkeley 10, California.

(965) Contemporary Fixtures: Catalog, data good line contemporary fixtures, including complete selection recessed surface mounted lense, down lights incorporating Corning wide angle Pyrex lenses; recessed, semi-recessed surface-mounted units utilizing reflector lamps; modern chandeliers for widely diffused, even illumination; selected units merit specified for CSHouse 1950 Stamford Lighting, 431 W. Broadway, New York 12, N. Y.

(782) Sunbeam fluorescent and incandescent "Visionaire" lighting fixtures for all types of commercial areas such as offices, stores, markets, schools, public buildings and various industrial and specialized installations. A guide to better lighting, Sunbeam's catalog shows a complete line of engineered fixtures with comprehensive technical data and specifications. The catalog is divided into basic sections for easy reference.—Sunbeam Lighting Company, 777 East 14th Place, Los Angeles 21, California.

(170a) Architectural Lighting: Full information new Lightolier Calcultite fixtures; provide maximum light output evenly diffused; simple, clean functional form: square, round, or recessed with lens, louvres, pinhole, albatite or formed glass; exclusive "torsionite" spring fastener with no exposed screws, bolts, or hinges; built-in fibreglass gasket eliminates light leaks, snug self-leveling frame can be pulled down from any side with fingertip pressure, completely removable for cleaning; definitely worth investigating.—Lightolier, 11 East Thirty-sixth Street, New York, New York.

(34a) Accent and Display Lighting Brochure excellently designed contemporary Amplex "Adapt-a-Unit" Swivelite fixtures; clean shapes, smart appearance, remarkable flexibility, ease of handling; complete interchangeability of all units, models for every type of dramatic lighting effects; includes recessed units, color equipment; information on this equipment belongs in all files.—Amplex Corporation, 111 Water Street, Brooklyn 1, New York.

PAINTS, SURFACE TREATMENTS

(208a) Texture One-Eleven Exterior Fir Plywood: This new grooved panel material of industry quality, is in perfect harmony with trend toward using natural wood textures. Packaged in two lengths and widths; has shiplap edges; applied quickly, easily; immune to water, weather, heat, cold. Uses include: vertical siding for homes; screening walls for garden areas; spandrels on small apt., commercial buildings; inexpensive store front remodeling; interior walls, ceilings, counters. For detailed information write Dept. AA, Douglas Fir Plywood Association, Tacoma 2, Washington.

(228a) Mosaic Western Color Catalog—In colors created especially for Western building needs, all of the clay tile manufactured by The Mosaic Tile Company is conveniently presented in this new 8-page catalog. Included in their various colors are glazed wall tile, ceramic, Velvetex and Granitex mosaics, Everglaze tile and Carlyle quarry tile. Completing the catalog is data on shapes, sizes and trim, and illustrations of a popular group of Mosaic All-Tile Accessories for kitchens and baths. For your copy of this helpful catalog, write The Mosaic Tile Company, Dept. AA, 829 North Highland Avenue, Hollywood 38, California.

(227a) Mikro-Sized Tile—Newly perfected, precision ground tile described as most important development in 20 years of tile making. Reduces setting time, insures perfect alignment of joints, even on adjacent walls with integral corners. Spacing lugs on two edges only—twice the size of regular lugs—providing standard 3/64 inch joints. Time saved by elimination of shimming, sanding, juggling as tiles are uniform in size. For detailed information, write to Mr. Allan Paul, Adv. Mgr., Gladding, McBean Company, Dept. AA, 2901 Los Feliz Blvd., Los Angeles, Calif.

(175a) Etchwood and Etchwall; textured wood paneling for homes, furniture, offices, doors, etc. Etchwood is plywood; Etchwall is redwood lumber T & G preassembled for fast, easy installation; difficult to describe, easy to

appreciate.—Davidson Plywood & Lumber Company, 3136 East Washington Boulevard, Los Angeles, California.

(213a) Gelvatex Coatings: "First of the vinyl emulsion paints"—These paints have proved their outstanding durability in England, Africa, Canada, France, Australia, New Zealand. Available for all surfaces in wide range of colors. Advantages: lasts up to 7 years or longer; may be applied on either damp or dry surface; dries in 30 minutes; flows on in 25% less time; not affected by gasoline, kerosene, lubricating oil or greases; highly resistant to acids, gases, sun, salt air, smog. Gelvatex film lets surface breathe, will not trap moisture vapor, rain cannot penetrate. For informative literature write to Peter R. Jessness, Dept. AA, Gelvatex Coatings Corp., 1250 Wilshire Blvd., Los Angeles 17, California.

(924) Sash and Trim Colors: Folder strong, durable sash and trim colors ground in treated oils; pure, light-fast pigments combined with specially formulated synthetics; won't check, crack, withstands discoloration, retains gloss, flows easily but won't run, sag; good hiding capacity; worth investigation.—General Paint Corporation, 2627 Army Street, San Francisco, Calif.

(162a) Zolatone Process: Information on new revolutionary painting system; true multi-color paint permits application to a surface of multi-color pattern in single spray coat; no special spray equipment required nor special techniques; multiple colors exist separately within Zolatone finish, do not merge nor blend; intermixing of varying ratios of colors and sizes of aggregates produces infinite number of possible multi-color blends; washable, exceptionally abrasion resistant; provides excellent finish for most materials used in building construction: wood, metal, plaster, cement, stone, glass, tile, wall boards, Masonite, paper; tends to conceal flaw and surface imperfections; used to paint exterior surface of new J. W. Robinson Building in Beverly Hills; information belongs in all files.—Manufactured by Paramount Paint and Lacquer Company, 3431 E. 15th St., Los Angeles 23.

(193a) Simpson Fissured Tile: New incombustible addition to complete line acoustical products. From special type rock re-formed into highly absorbent rock wool. Results in natural fissures, different on each tile unit. White finish for high light reflection, may be repainted without loss of high acoustical efficiency. Simpson Logging Company, 1065 Stuart Bldg., Seattle 1, Wash.

(103h) Genuine Clay Tile, K-400: Compiled by Don Graf, this publication sum-

marizes present status of thin setting bed technique of installing clay tile. Specifications for 3 basic types thin setting installations; important savings in time, weight, materials. Shows opportunities for wider, more flexible use of clay tile on more varied surfaces and areas. Survey published by Tile Council of America, 10 East 40th St., N.Y. 16, N.Y.

(218a) Permalite-Alexite Plaster Aggregate: Latest information on this highly efficient fireproofing plaster presented in detail in completely illustrated brochure. As Permalite-Alexite has unique physical property of expanding to maximum size with superior strength, it is tougher, stronger and endures abuse of handling and shipment without usual resultant breakdown and loss of volume. Brochure contains enough data and authority on authentic fire resistance to warrant complete, immediate acceptance of Permalite-Alexite for perlite plaster fireproofing. Many charts and detailed drawings give fire ratings, descriptions and authorities and describe plaster as lightweight, economical and crack-resistant, withstanding up to 42% greater strain than comparable sanded plasters. Write to Permalite, Perlite Div., Dept. AA, Great Lakes Carbon Corp., 612 So. Flower St., Los Angeles 17, California.

ROOFING

➤(223a) Built-up Roofs—Newest brochure of Owens-Corning Fiberglas Corp. outlining and illustrating advantages of a Fiberglas-reinforced built-up roof. A built-up roof of Fiberglas is a monolithic layer of water-proofing asphalt, reinforced in all directions with strong fibers of glass. The porous sheet of glass fibers allows asphalt to flow freely, assures long life, low maintenance and resists cracking and "alligatoring." The easy application is explained and illustrated in detail with other roofing products illustrated. Owens-Corning Fiberglas Corp., Pacific Coast Division, Dept. AA, Santa Clara, Calif.

SASH, DOORS AND WINDOWS

➤(212a) Glide Aluminum Sliding Windows: Complete Glide brochure available on aluminum sliding windows, engineered with precision, made of finest extruded aluminum, stainless steel weatherstripping and rollers for better performance, endurance. Advantages: eliminates need for costly cleaning apparatus, scaffolding; easier, less expensive installation; never requires painting; lowers insurance rates; guaranteed for life of building. Write to L. Pinson, Dept. AA, Glide Windows, Inc., 7463 Varna Ave., No. Hollywood, Calif.

(106a) Accordion-Folding Doors: Brochure, full information, specification data Modernfold accordion-folding doors for space-saving closures and room division; permit flexibility in decorative schemes; use no floor or wall space; provide more space; permit better use of space; vinyl, durable, washable, flame-resistant coverings in wide range colors; sturdy, rigid, quiet steel working frame; sold, serviced nationally; deserves closest consideration; merit specified CSHouse 1952.—New Castle Products, Post Office Box 823, New Castle, Ind.

(210a) Soulé Aluminum Windows; Series 900: From West's most modern alumilting plant, Soulé's new aluminum windows offer these advantages: alumilite finish for longer wear, low maintenance; tubular ventilator sections for maximum strength, larger glass area; snap-on glazing beads for fast, permanent glazing; Soulé putty lock for neat, weather-tight seal; bind-free vents, 90% openings; 3/4" masonry anchorage; installed by Soulé-trained local crews. For information write to George Cobb, Dept. BB, Soulé Steel Company, 1750 Army Street, San Francisco, Calif.

(202A) Profusely illustrated with contemporary installation photos, the new 12 page catalog-brochure issued by Steelbilt, Inc., pioneer producer of steel frames for sliding glass doorwalls and windows, is now available. The Brochure includes isometric renderings of construction details on both Top Roller-Hung and Bottom Roller types; 3" scale installation details; details of various exclusive Steelbilt engineering features; basic models; stock models and sizes for both sliding glass doorwalls and horizontal sliding windows. This brochure, handsomely designed, is available by writing to Steelbilt, Inc., Gardena, Cal.

(229a) Multi-Width Stock Doors: Innovation in sliding glass door industry is development of limitless number of door widths and types from only nine Basic Units. 3-color folder now available illustrates with cutouts nearly every width opening that can be specified without necessity of custom sizes. Maximum flexibility in planning is allowed by simple on-the-job joining of stock units forming water-tight joint with snap-on cover-plate. Folder lists standard height of stock doors combined with several examples of width. Combination of Basic Units makes possible home and commercial installations in nearly every price category. For more information, write to Arcadia Metal Products, Dept. AA, 324 North Second Avenue, Arcadia, California.

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15

(217a) New aluminum sliding glass doors: Complete literature and information now available on Ador's new model all aluminum doors at competitive prices. Data on unusual design flexibility, rigidly secured corners with heavy gauge fittings for slim lines, extreme strength. Description of complete four-way weather sealing, corrosion resistant finish, centering rollers for continuous alignment, elimination of rattles. Charles Munson, Dept. AA, Ador Sales, Inc., 1631 Beverly Boulevard, Los Angeles 26, California.

(712) Sliding Glass Doors, steel framed: Weather-sealed box section head of bonderized steel; handsome solid bronze hardware and tamper-proof, up-action cam night latch. Brass sheaves, adjustable to assure weathertight fit, roll on stainless steel track. Complete catalogue illustrating standard types and sizes with details of installation.—Arcadia Metal Products, 324 North Second Ave., Arcadia, California.

(818) Louvered Ceilings: Folders-Alumigrid louvered ceilings for contemporary interiors; non-glare illumination, contemporary styling; aluminum, easy to install, maintain; can be used over entire ceiling; full installation, lighting data; well worth investigation.—The Kawneer Company, 730 North Front Street, Niles, Michigan.

(356) Doors, Combination Screen-Sash: Brochure Hollywood Junior combination screen metal sash doors: provides ventilating screen door, sash door; permanent outside door all in one.—West Coast Screen Company, 1127 East Sixty third Street, Los Angeles, California (in 11 western states only.)

(211a) New Soulé Steel Stud: Major improvement in metal lath studs, Soulé's new steel studs were developed to give architects, builders stronger, lighter, more compact stud than previously available. Advantages: compact open-web design, notched for fast field-cutting; continuous flanges; five widths; simplifies installation of plumbing, wiring, channel. For steel stud data write George Cobb, Dept. AA, Soulé Steel Company, 1750 Army Street, San Francisco, California.

STRUCTURAL BUILDING MATERIALS

(198A) SILINITE, a revolutionary new chemical for use on porous masonry construction. Clear waterproofing compound offers long-life protection for

any unpainted above grade masonry structure. Full information from Armor Laboratories, Inc., 538 Commercial Street, Glendale, California.

207A—Unusual Masonry Products: complete brochure with illustrations and specifications on distinctive line of concrete masonry products. These include: Flagcrete—a solid concrete veneer stone with an irregular lip and small projections on one face—reverse face smooth; Romancrete—solid concrete veneer resembling Roman brick but more pebbled surface on the exposed face; Slumpstone Veneer—four-inch wide concrete veneer stone, softly irregular surface of uneven, rounded projections;—all well suited for interior or exterior architectural veneer on buildings, houses, fire places, effectively used in contemporary design. Many other products and variations now offered. These products may be ordered in many interesting new colors. Brochure available by writing to Department AA, General Concrete Products, 15025 Oxnard Street, Van Nuys, California.

(205) Gladding, McBean & Company have just released a new brochure in color with handsome photographs and technical information, this booklet is a must. FACEBRICK is available in four basic ranges of kiln-run shades: variegated red, variegated rose, coral blend and gloden tan. These beautiful bricks can be inter-mixed to extend the color range and create harmonious blends. Versatile, adaptable, economical, distinctive, dramatic and colorful. Write for this brochure. Gladding, McBean & Co., 2901 Los Feliz Boulevard, Los Angeles, Calif.

(146a) Fiberglas (T.M.Reg. U.S. Pat. Off.) Building insulations—Application data, specifications for insulating walls, top floor ceilings, floors over unheated space. Compression-packed, long continuous rolls, self-contained vapor barrier. Goes up quickly, less cutting and fitting. High thermal efficiency. Non-setting, durable, made of ageless glass fibers. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

(189a) Nevamar Laminate: High-pressure decorative laminate used as surfacing material for lasting beauty, resistance to hard usage. Complies with all NEMA specifications, available in wide range patterns, colors. National Plastic Products Company, 5025 Hampton Terrace, Los Angeles, Calif.

(219a) Permalite-Alexite Concrete Ag-

gregate: Information on extremely lightweight insulating concrete for floor slabs and floor fills. Makes unexcelled insulating base for radiant heating units due to cellular structure sealed by microscopic volcanic glass walls. Weighs as little as 20 to 40 lbs./cu. ft. and has adequate compression strength for this type concrete. Requires less handling and cleaning up and provides higher yield than all other perlite aggregates. Can be applied to cellular steel or pan floors. Extremely efficient as it is impervious to moisture; unaffected by extremes of temperature and accommodates considerable amount of earth movement without cracking. For your copy, write to Permalite, Perlite Div., Dept. AA Great Lakes Carbon Corporation, 612 So. Flower Street, Los Angeles 17, California.

(225a) Kaiser Aluminum, for Product Design & Manufacture—A new 24-page booklet containing up-to-date information on Kaiser Aluminum mill products and services is now available. Includes data on aluminum alloys, forms, properties, applications and availability. An abundance of tables and charts throughout provides convenient reference material. Booklet may be obtained from Kaiser Aluminum & Chemical Sales, Inc., Industrial Service Div., Dept. AA, 1924 Broadway, Oakland 12, California.

(205A) Modular Brick and Block: The Modular and Rug Face Modular Brick, the Modular Angle Brick for bond beams and lintels, the Nominal 6" Modular Block and the Nominal 8" Modular Block, have all been produced by the Davidson Brick Company as a result of requests from the building trade and realization that all building materials can be worked together with simplicity and economy only with Modular Design.

The materials now in stock are available from the Davidson Brick Company in California only, 4701 Floral Drive, Los Angeles 22, California.

SPECIALTIES

(152) Door Chimes: Color folder Nu-Tone door chimes; wide range styles, including clock chimes; merit specified CSHouse 1952.—NuTone, Inc., Madison and Red Bank Roads, Cincinnati 27, Ohio.

(195a) Corrulux: One of oldest of translucent plastics, now greatly improved. Reinforced with inorganic, non-combustible flame barrier core. Variety of colors, light weight, shatterproof. Ideal for patios, carports, skylights, monitors and sawtooth, fenestration for factories. Can be sawed, drilled, nailed. Corrulux Division of Libbey, Owens, Ford Glass Company, Room 1101, 3440 Wilshire Blvd., Los Angeles 5, Calif.

(360) Telephones: Information for architects, builders on telephone installations, including built-in data.—A. F. DuFault, Pacific Telephone & Telegraph Company, 740 So. Olive St., Los Angeles, California.

(63a) Plants, Landscaping, Nursery Products: Full color brochure most complete line of plants, including rare, trees, nursery products in Southern California: fully qualified landscaping service, consultation both in field and in nursery; firm chosen to landscape six CSHouses; best source of information.—Evans & Reeves Nurseries, 255 South Barrington Avenue, Los Angeles, California.

(222a) Architectural Window Decor—LouverDrape Vertical Blind's colorful new catalog describes LouverDrape as the most flexible, up-to-date architectural window covering on today's market. Designed on a 2½ inch module, these vertical blinds fit any window or skylight—any size, any shape—and feature washable, flame-resistant, colorfast fabric by DuPont. Specification details are clearly presented and organized and the catalog is profusely illustrated. Write to Vertical Blinds Corp. of America, Dept. AA, 1936 Pontius Avenue, Los Angeles 25, California.

(204a) Contemporary Locksets: Illustrated catalog on Kwikset "600" Locksets, 6 pin tumbler locksets for every door throughout the home; suitable for contemporary offices, commercial buildings. Features: 5-precision-matched parts for easy installation; dual locking exterior locksets—simplified cylinder reversing—may be reversed for left or right-handed doors. Stamped from heavy gauge steel, brass. Available in variety of finishes. For free catalog, write to Wm. T. Thomas, Dept. AA, Kwikset Sales and Service Company, Anaheim, California.

(426) Contemporary Clocks and Accessories: Attractive folder Chronopak contemporary clocks, crisp, simple, unusual models; modern fireplace accessories; lastex wire lamps, and bubble lamps. George Nelson, designer. One of the finest sources of information, worth study and file space.—Howard Miller Clock Company, Zeeland, Mich.

(220a) Office Furniture: A free catalog describing the "Achievement Group," office furniture designed by Feldman-Selje, is now available to architects, designers, decorators and members of the office furniture trade. "Achievement Group" is in a distinctive modular style with coordinated units in many combinations of desks, tables and case units designed for complete office installations. The handsome finishes, colors are described in the catalog which is furnished by Office Interiors, 8751 Beverly Boulevard, Los Angeles or Feldman-Selje, Design Associates, Dept. AA, 910 East Fourth Street, Los Angeles, California.

(190a) Revolvodor Wardrobes: Unique answer to storage problem. 3 to 5 times more space than average closet; entire wardrobe may be examined on eight spacious trays. Door revolves open or shut at finger touch; may also be used as buffet bar between kitchen and entertainment area. Marketed by Revolvodor Corp., 1520 E. Slauson Blvd., Los Angeles 43, Calif.

(102H) Acusti-Luminous Ceilings: Completely new treatment illuminates room with diffused light over entire ceiling area, eliminating shadows, glare, while the acoustical baffles give high degree acoustical correction. Loses rigidity at 140°, enabling installation below sprinkler heads for attractive decorative effects. Write for complete information on advantages of price and ease of handling. Luminous Ceilings, Inc., 2500 West North Avenue, Chicago, Illinois.

(19a) Decorative Glass: "Modernize Your Home With Decorative Glass" is the title of new Mississippi Glass Company booklet featuring actual photographs that show how figured glass adds charm to the home; enlivens and brightens every room in the house; makes each radiant with interest; free copy on request.—Mississippi Glass Company, 88 Angelica Street, St. Louis 7, Missouri.

