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VOLUME XVII
NUMBER TWO

IN THIS ISSUE:

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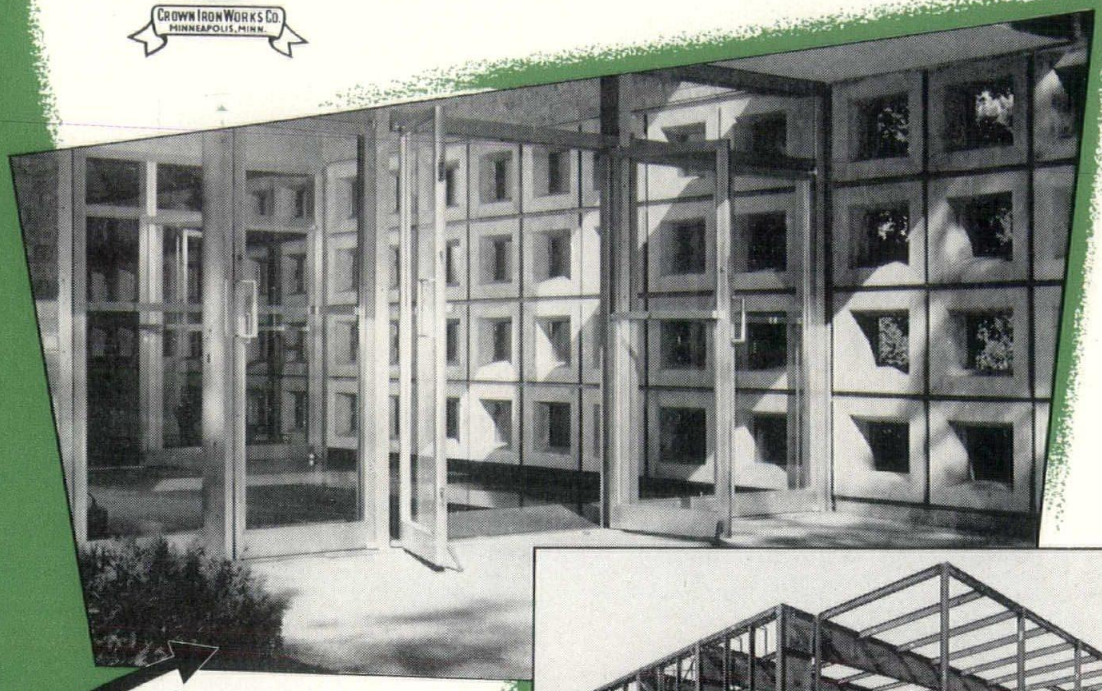

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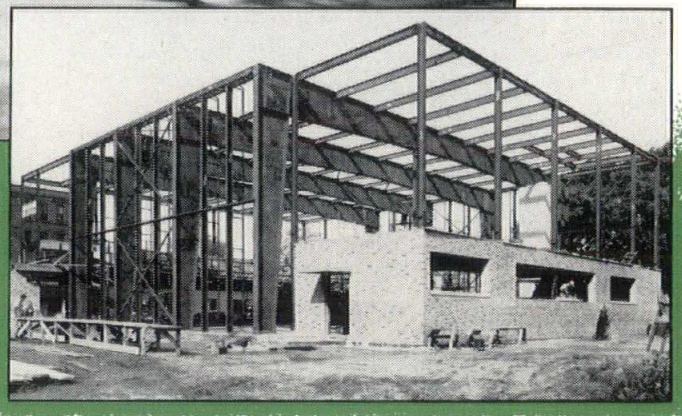

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NORTHWEST ARCHITECT

Official Publication
Minnesota Society of Architects
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an architect is a

BUILDER

It would seem so obvious—that an architect is a builder. But all its possibilities are sometimes overlooked even within our profession itself. His role in planning the placement of lumber and stone, glass and tile, fabric and synthetic material is immediately in mind when the name of his calling is mentioned.

These are only part of the basic building an architect, particularly the architect of today, must do. His building resulting from the lumber and stone, glass and tile, fabric and synthetic material is not an isolated thing, standing alone in a waste or void. That building, be it a rambling home in the suburbs or a towering giant in the midst of a metropolitan area, has neighbors and it must fit. It must fit into the site, economy and thinking of the city and time for which it is designed.

Thus today's architect must build on a broad base. He must know his facts of basic design and materials. He must know how to make the most of a site. He must make his creation a member of its community. And he must help build that community! He must help build that community's participation in the affairs of the world. He is never finished building.

In the broadest sense of building as applied to today's architects, we are fortunate that so many are real builders. They take part in their cities' economic activities, they contribute to allied and other arts, they build their profession in its organizational fields, they give of themselves to build on the broadest planes of today's living.

We are proud of what architects have done, are doing and, we know, will continue to do in making their building of solid wood and stone and of the equally important intangibles contribute to the ever forward movement of the world we live in. Have you done your share recently?

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VOLUME XVII
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1953

HARVARD GRADUATE CENTER

The Problems and Inspirations of the Project Were a Challenge Happily Met by the Planners in The Architects Collaborative

Address by
Norman C. Fletcher
to Minnesota Chapter, AIA

When my good friend Brooks Cavin asked me to speak to you about the Harvard Graduate Center, I pondered what there was about it that might interest you the most and that might add to our common store of experience and knowledge. Since your roster includes many men of great experience, I was not at all sure I could offer anything new or of interest to you, but sometimes just seeing and hearing about work away from one's own bailiwick is invigorating and I have some slides to give you an idea of what the Graduate Center looks like.

If I seem too positive about the ideas involved, I hope you will understand that in this way I can give you our ideas on the project more clearly. Naturally, to do this, I am certain to oversimplify the process and to make what was in many ways a difficult job, and one where we faltered on the way several times, appear to be very conclusive and certain in its approach.

Just a word about cost. The total cost of the project was approximately $3,000,000, including site improvements. Of this, the Commons Building cost $703,000 and the dormitories $1,785,000. The Commons Building cost $1.67 per cubic foot and the dormitories $1.19 per cubic foot. The total cost per student, including furniture, fees, proportionate share in the Commons Building and art work, was $4,365.

Located north of Harvard's "old yard" on Jarvis Field, the new graduate center is on the site of the first football game in America in 1874. The center is a group of eight buildings meant to provide housing and living accommodations for 600 students of the graduate schools. Of these eight buildings, five are for law school tenants, two are for arts and sciences, and one is a Commons Building with a large cafeteria. The dormitories provide compact single and double rooms, in three- and four-story buildings, with fifteen recreation rooms scattered throughout the buildings. Included in the Commons Building and the dormitories are special meeting rooms and lounges holding up to 250 persons. And it is with these accommodations a new "Graduate Yard" provides for the first time a social center for graduate students in law, arts and sciences, divinity, design, public administration and education.

President Conant described the center as "a major step forward in humanizing professional education at Harvard University, a place where lawyers, architects, future secondary school teachers, scientists, engineers, historians, philosophers and poets will be mixed together in an atmosphere where interchange of thought may lead to an ever widening view."

In accepting the buildings at the dedication, Provost Buck declared the center to "open a new world to our students and adds perspective to our teaching." . . . And Dean Erwin N. Griswold of the Law School said, "The rubbing together of men's minds is an essential part of our sort of work. Making it easy for minds to rub together is thus an important educational tool."

It is with this background of idealism, the breaking down of barriers in thinking between scholars of many

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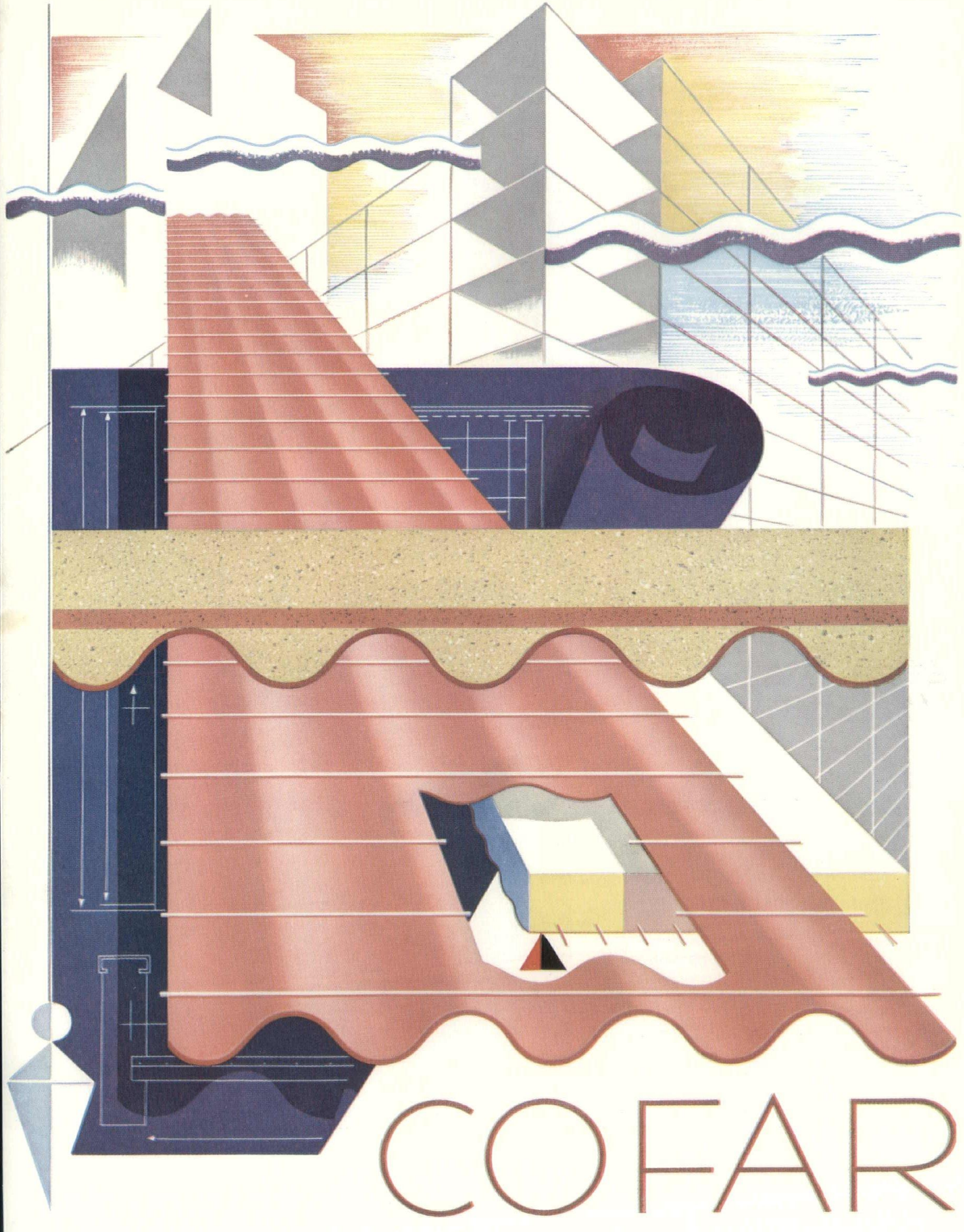
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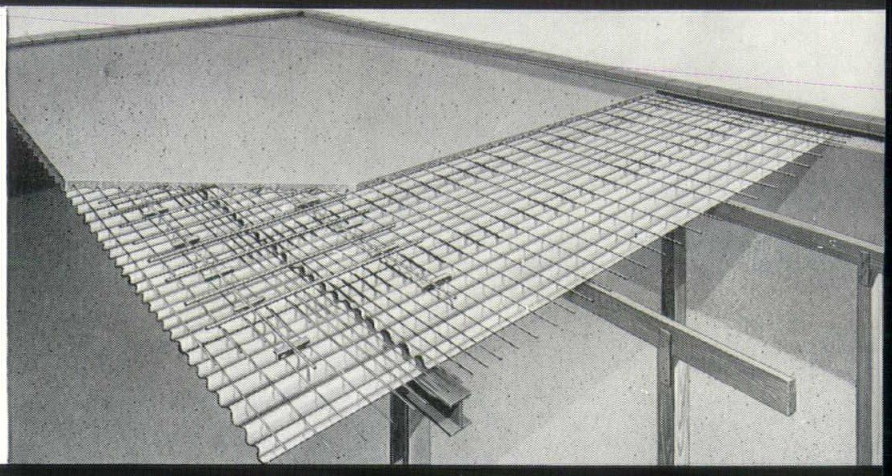

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different fields, that we embarked on a project whose program had so much in it that paralleled our own thinking. I believe you might be interested to hear something of our office, The Architects Collaborative, where the success of our work depends on our *co-operation* and the constant *intercommunication* of ideas, just as the graduate center sponsors an interchange of discussion among students. We have eight partners, two of them women, and each is mutually responsible for the work of the firm. Our co-operation is based on the idea that is stated by Walter Gropius, one of the members: *"Synchronizing all individual efforts by a continuous give-and-take of its members, a team can raise its integrated work to higher potentials than the sum of the work of just so many individuals."* I think the one reason why co-operation is tried so little is because it is so difficult. Mutual co-operation means for me that each man is willing to carry something more than his own load if necessary. I would even carry it a step further: In times of stress and crisis each man may have to be willing to carry the whole load. I should like to say that none in our group is more co-operative, more anxious to keep the channels of thought open than Walter Gropius himself.

Duties Were Apportioned - - -

For the purposes of carrying forward the work in our office, Robert McMillan was in charge of the dormitories, while I was responsible for the Commons Building. Benjamin Thompson was carrying on the design of furnishings and interiors, Louis McMillen, the site improvements and landscaping and Walter Gropius was the job captain for the whole project. We had the able assistance of Edward Forbes of Brown, Lawford and Forbes, architects of New York, as technical associates for the specifications and working drawings.

In approaching the form problems of our dormitory group we were in somewhat of a dilemma. We knew, as architects, that architecture was a true mirror of the times but we also suspected that this simple statement was no answer for us since our own age is so lacking in visual integrity. If we look hard enough, we can find the best of all possible worlds here; we are building 17th century department stores side by side with swish Kawneer aluminum fronts and gothic classrooms beside Hollywood-style cheeseburger drive-ins. Our architecture is not a mirror of our age, it is a mirror of all ages. Realizing the visual superficiality of the times, we had little trouble getting over this mental hurdle. We were convinced that it was our job to express the social and technological potentials of our age in as progressive terms as possible. Our major dilemma, then, was in the juxtaposition of the buildings to the Harvard Yard itself, which is old, venerable and possessed of great dignity. There are Massachusetts Hall with brick and white trim—1718, University Hall in whitish granite—1813, and H. H. Richardson's Sever Hall—1878 in dark red brick, and many other venerable buildings. The old Harvard Yard with its stately spacing of elms is one of the most beautiful spaces I know, and the spaces related to it, such as the Memorial Quadrangle in front of Widener Library, are buildings of widely separated periods. The pleasant greensward with its diagonal paths provides a unifying carpet for a living room furnished with objects of different periods and designers. Other examples from history seem to tell the same story.

If we were to look at the great marble platform of St. Mark's in Venice, and to examine the objects on it, we would find its Cathedral Byzantine, built in 1042; its Campanile of Gothic design, built in 1350; the Doge's Palace in Renaissance; and the Library in late Renaissance, 1500. The vigor of the main space concept seems to be enough to unify these buildings, spanning over 500 years and making one of the great city planning achievements of history. Variation in style can be noted even in the same building, in the twin towers of some of the great west façades of the cathedrals of Europe, such as the Cathedral of Chartres. The English cathedrals, such as Lincoln and Canterbury, present in the development of their chapter houses, closes and cathedral buildings a span of hundreds of years in varying Gothic styles.

These examples provided us with the major idea for the site planning of the Graduate Center. Further investigation led us to other early examples of interrelated squares. There are some wonderful prototypes like the spaces at Nancy built by Hèré de Corny between 1752 and 1755, where the Place Stanislaus is connected through a triumphal arch to the oblong Place Carriere, and thence through avenues of trees to the third square, the Place Royale. Or take, for instance, the Circus and the Crescent at Bath by John Wood the Younger, where the circular space is connected with a long arm to the open crescent.

It was our aim then to provide a system of interrelated squares which would make a strong framework for buildings admittedly of a different age and culture than the older yard. We also hoped to show on a small scale what a modern city-scape could be like if architects were given the chance, or rather made the chances for themselves, to recondition our environment which has so fallen by the wayside. When I say, make our own chances, I mean exactly that, for it is up to us to show what can be done to make our civic spaces whole again: *fit forms for a democratic people.*

Experience Was in China - - -

Three years ago we had been given a problem on a similar level. This was a project for a university comprising three Christian colleges forming a union in the outskirts of Shanghai, China. Again was posed the problem of ancient and honorable building tradition to be solved in contemporary terms. In spatial values, we strove to recreate that wonderful system of interrelated spaces that one finds in the magnificant plan for the summer palace at Peking. When we were working on the project, we had a huge map of the summer palace which we pored over for many long hours. Characteristic of the systems of spaces in our scheme is the connection between courtyards of one open end. One courtyard leads into another, with no attempt to terminate the flow of space, and a larger and grander space is finally formed by marshalling a whole series of courts around a central area of water. By introducing water as a plastic element in the design, we hoped

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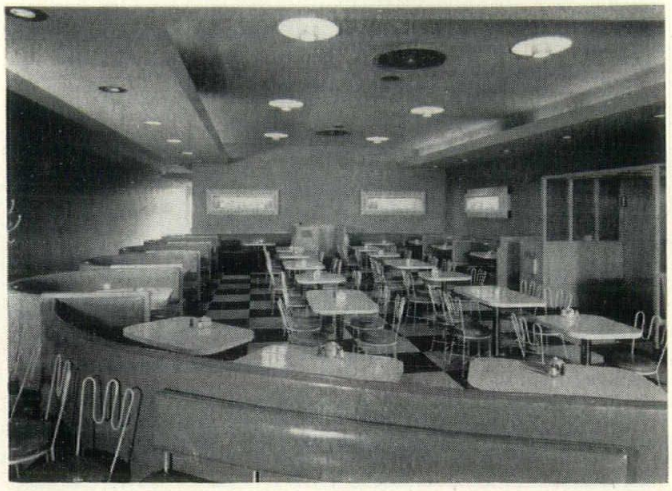
Fire Presents Architectural Problems



Fires in buildings "modernized" or acoustically treated with combustible interior finishes have taken a heavy toll of human life and property. It is not only that such materials are a fuel source, once a fire starts; what is worse is that as the heat in a room builds up, the temperature reaches the flashpoint at which all combustible surfaces suddenly burst into flame, even though they may have had no direct contact with the fire up to that point.

A flash-over greatly accelerates the spread and severity of a fire that may have been burning relatively slowly. In the Winecoff Hotel holocaust, for example, the spread of the fire from the third to the twelfth story involved successive flash-overs in the corridors on each floor, the fire becoming more intense as it progressed upward.

One cost cutting solution of this problem is to integrate an incombustible acoustical treatment with lightweight plaster fireproofing. Not long ago, a combination base coat of vermiculite plaster 5/8 inches thick on metal lath, with a finish coat of vermiculite acoustical plastic 1/2 inch thick, was given an official four-hour fire rating. The construction savings possible with this lightweight combination have since been demonstrated in a three-story office building in Oakland, Cal.

This 70- by 150-foot structure was one of the first to take advantage of the new rating. Although only 25,000 feet of sound control was required, the total saving for the acoustical treatment alone was 50 cents per foot, or $12,500. Additional savings were made in the fireproofing cost, structural steel tonnage required and the cost of foundations since they could be reduced in size because they carry less weight.

St. Brigid Church, Detroit, Mich., (above) designed by George F. Diehl and Gerald Diehl, AIA, of Detroit, shows the finely detailed mural painting possible on vermiculite acoustical plastic. Three of the four textures of the new machine-applied vermiculite acoustical plastic are shown in Blum's Restaurant, Pasadena, (left) designed by H. Roy Kelley, AIA of Los Angeles. Heavy texture on the high ceiling, light on the dropped portion, smooth troweled band. Medium texture (not shown) was used in the office.

This was the first Class A building in Oakland in which each beam was not wrapped individually as heretofore required under the city code. When the attention of city officials was called to the fire rating for the vermiculite combination, permission was given to hang the metal lath to the edge of the bottom flange of the beams and fireproof with the vermiculite combination. Exact figures on the reduction in fireproofing cost are not available but, with beams 15 feet o.c., it is obvious that the cost was considerably less than individual wrapping and fireproofing would have been.

Vermiculite acoustical has a texture that takes finely detailed ornamental painting and is easily troweled over curved surfaces. In the new $800,000 St. Brigid Church in Detroit, Mich., designed by George Frederick Diehl and Gerald Diehl, AIA's of Detroit, clever brush stippling of the leafy scroll design on the sides and wall gives the painting a mosaic appearance, exceptionally appropriate for the Byzantine architectural style of the edifice. The texture of the acoustical finish enhances the character of this work.

The ceiling consists of two barreled vaults intersecting at the center and surmounted by a huge dome. Springing from the intersection of these arches are four large pendentives. Vermiculite acoustical on a vermiculite plaster base coat and metal lath was used throughout the ceiling and was carried down the sidewalls to the marble wainscoating eight feet above the floor. The cost was less than any other acoustical material that could have been applied and in this case was even less than putty coat plaster because of the difficulty,

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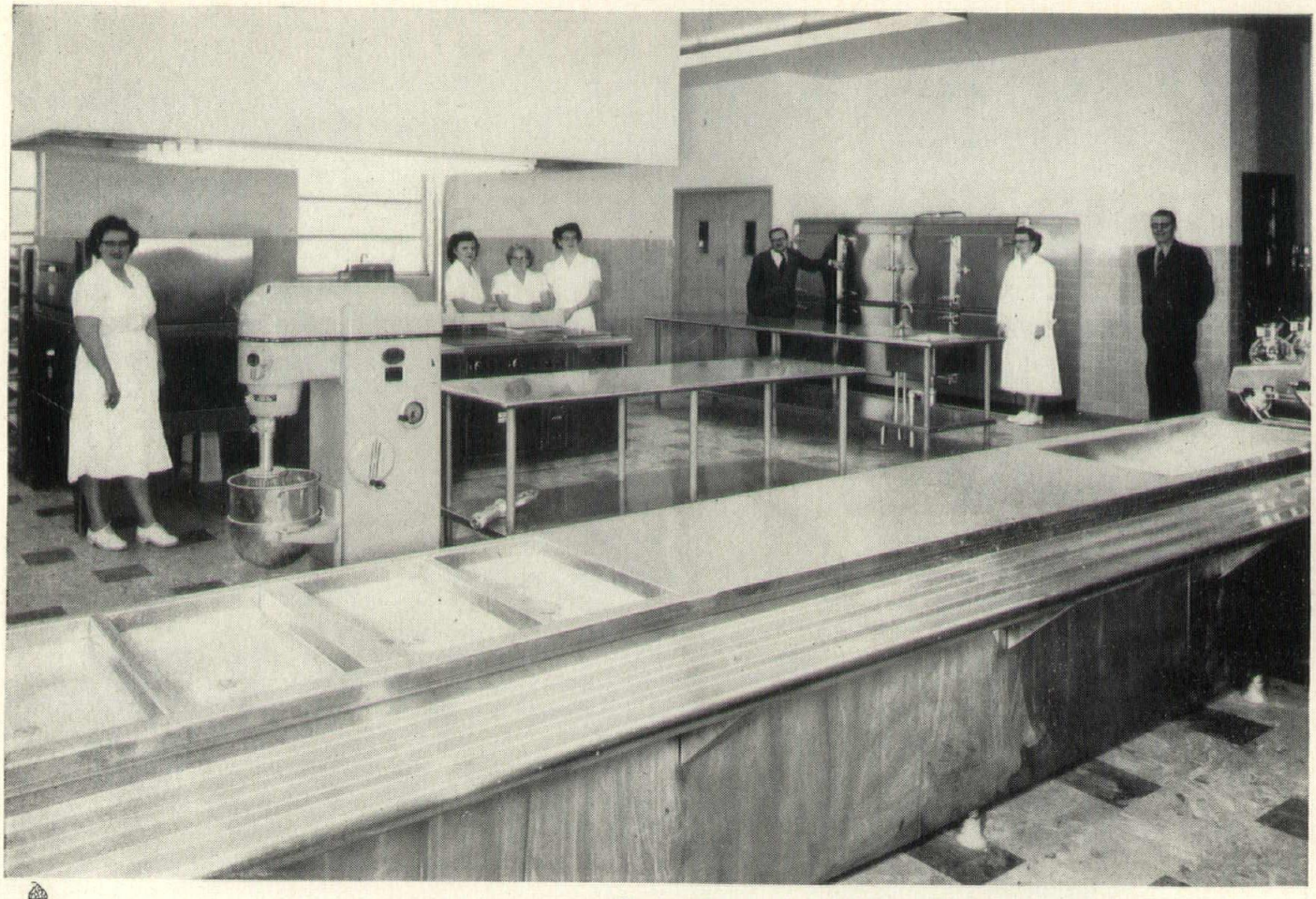

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WILLISTON OIL

The Basin . . .

Never in the experience of oil men has a new area enjoyed the success or rapidity of development as experienced in the Williston Basin. Up to January, 1951, there wasn't an oil well in the basin but within six months three widely scattered and significant oil discoveries had caught everybody's attention.

It wasn't long after the initial discoveries that leasing campaigns by oil companies had signed up more than two-thirds of the basin's acreage. Exploration and drilling increased very rapidly. Nearly 100 seismic crews were exploring the U. S. portion in 1952. . . . By the end of July, 1952, oil discoveries had suggested the existence of 11 separate fields. The Beaver Lodge field in North Dakota had 23 producing wells and more than a dozen drilling rigs active on its 25,000 acres. Most of the new fields, however, had been found in Montana, where oil companies have seemed to concentrate on "wildcatting" (drilling in localities not proved).

How good were these discoveries? To the refiner interested in physical quality, the new wells generally flowed a high quality crude oil, low in sulfur and high in gasoline content. . . . But to the producer and the investor interested in many additional factors that would bear on profitability (such as depth, drilling costs, yield and production difficulties) it had become clear from experience that much variation would be found from field to field.

Production in the basin was both shallow and deep; in Manitoba oil flowed from less than 2,400 feet, while in North Dakota oil had been found more than 13,000 feet below the surface. Some wells flowed naturally under tremendous pressure, while others had to be pumped as soon as they were completed. Consequently, potential flow rates were also highly variable—from a few barrels a day to as high as 6,700 barrels. In a few wells gas was a problem and in some water made production difficult.

Events of the past year have left some definite impressions about the future of the new oil area. . . . Despite the phenomenal rate of successes in drilling so far, future discoveries in this basin can be expected to be tempered by a good share of failures. Not all the structures geologists are seeking to pinpoint will contain oil. In fact, when drilling into an unproved structure, the chances of hitting commercial amounts of oil or gas are only about one in nine.

This is one consideration highly important to the land owner and the local community. Though the basin's huge size may considerably increase its over-all potential, not every locality will be blessed with nearby oil deposits. . . .

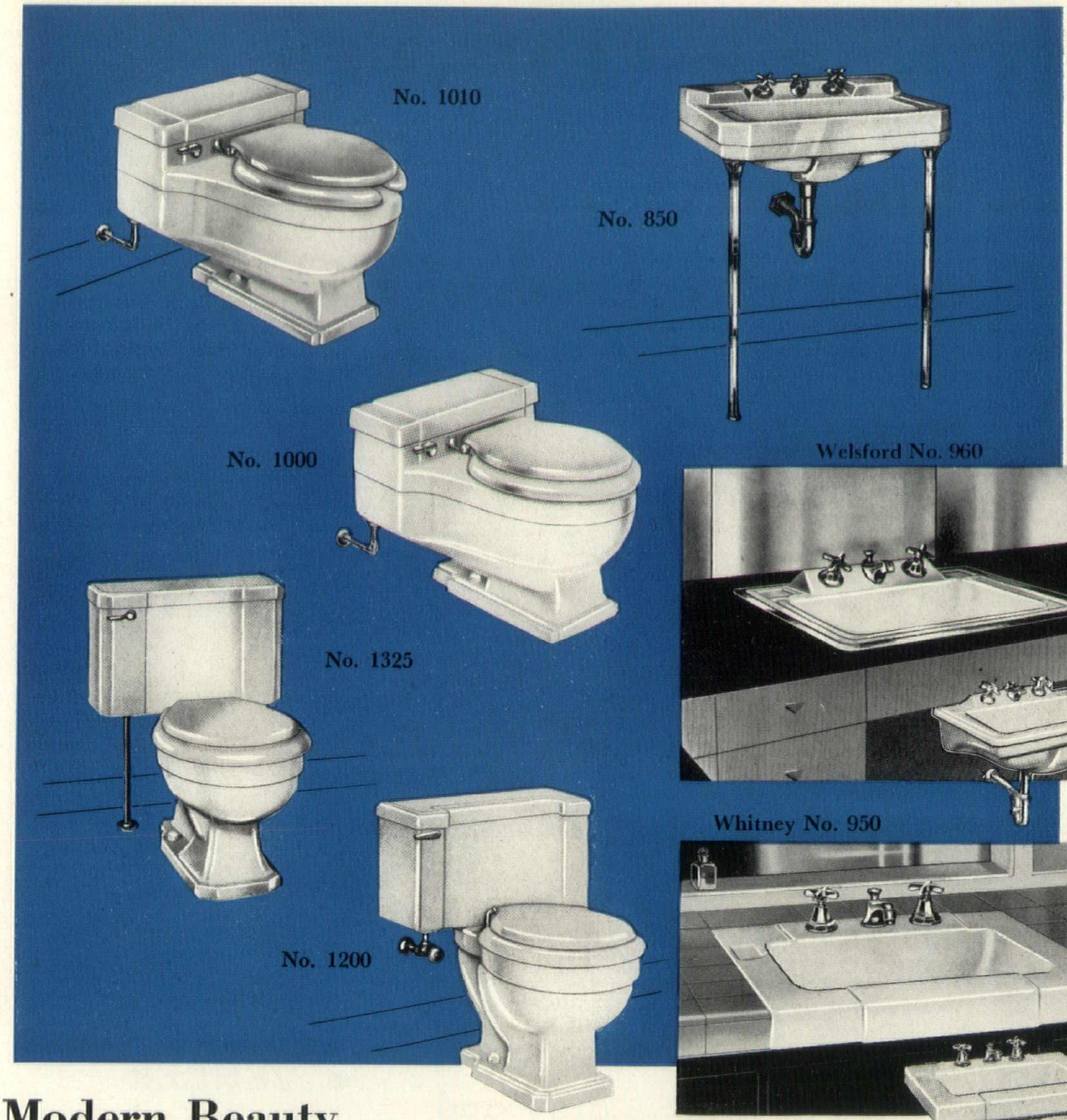
Estimates of the potential output of the Williston Basin in barrels per day shows:

1952—10,000 B/D
1953—25,000 B/D
1954—75,000 B/D
1960—200,000 B/D

These provisional estimates are of potential output. Actual production in new oil areas usually lags well behind as a result of marketing problems. . . . For the moment the few thousand barrels of oil being produced daily in the basin are carried by truck and rail to such widly separated points as Los Angeles and St. Paul. This transportation is a temporary arrangement that will be supplanted—when enough oil is proved—by the more economical method of pipeline shipment.

Each new major step will have to wait on the proving of sufficient productive capacity in the basin and will also require assurance that an adequate market for the crude oil exists. In other words, the "economics" of oil

Completing the economic picture of the Northwest's natural resources and their potential effects on the area's architectural future, which we started in the first issue of this year, is the following material on the area's oil and taconite industries. This material's presentation grew out of a talk by Clarence W. Nelson, assistant economist for the Ninth Federal Reserve District, before a group of architects at the Institute of Technology. While shortened in certain passages, it presents a picture of these two new factors in the economy of our area and it is hoped will give sufficient background so architects can better evaluate their future work in the light of these developments . . . the editors.



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development point to the growth of Williston basin production as both long-term and gradual.

Economic Impact . . .

It would take a tremendous oil development to give any serious competition to agriculture as the leading income source in this area. In the three states sharing parts of the Williston Basin net agricultural income currently runs just under $1,000,000,000 annually. If the 200,000 barrel a day estimated potential were achieved, the value of oil production would amount to better than $190,000,000 a year. Perhaps $60,000,000 a year in income to persons living in the basin would result directly from this production. Though certainly substantial, this added income would run only 6 to 7 per cent of net agricultural income in the three states.

The significance of this income, however, is not completely reflected in its dollar amount. A good part of the "new" money would be credited to the district's earnings several times over during the year as it passes through the hands of the local retailer, wholesalers and service enterprise.

The fact that oil is a good inducement for new industry has broadened the significance of the development beyond the stage of oil production. Perhaps the most important thing about the new income is that it will not feel the same ups and downs that weather and the crop market inflict on agriculture. In other words, it will act as a stabilizer in the district's economy.

Even at this early stage of development, many people know at first hand that oil means:

More money—Bonuses and rental payments for oil leases have already moved deposits in some district banks to all-time highs. As a result of oil, two new banks have been formed. The rapidly increasing number of accounts and the accelerated flow of money that oil activity brings with it is exerting pressure on many bankers to expand their existing facilities.

More People—Population in district towns is growing through the influx of oil company employes, service and supply personnel, brokers and speculators. Though no accurate counts are available, it is estimated that Williston has already added more than 2,000 persons to its 1950 population of 7,500. That much again is expected before the end of 1953. Watford City reported an added 300, Tioga 200, and Glendive 1,400.

More Business—Many towns have exploration or drilling crews operating out of them and major oil companies are headquartered in several of the larger ones from Bismarck to Billings. . . . Almost any way it is measured—by bank debits, retail sales, telephone calls, freight handled or post office receipts—activity in key towns has materially increased.

More Problems—Some towns are feeling the strain of rapid expansion more than others but each community is making efforts to meet problems that have turned out to be quite universal. *Both living quarters and commercial space are scarce—rents and land prices have more than doubled in a year. Trailer additions to towns are common. Almost every large town in the basin has a newly organized planning commission and a few have consulted with city planning experts. Some*

different fields, that we embarked on a project whose program had so much in it that paralleled our own thinking. I believe you might be interested to hear something of our office, The Architects Collaborative, where the success of our work depends on our *co-operation* and the constant *intercommunication* of ideas, just as the graduate center sponsors an interchange of discussion among students. We have eight partners, two of them women, and each is mutually responsible for the work of the firm. Our co-operation is based on the idea that is stated by Walter Gropius, one of the members: *"Synchronizing all individual efforts by a continuous give-and-take of its members, a team can raise its integrated work to higher potentials than the sum of the work of just so many individuals."* I think the one reason why co-operation is tried so little is because it is so difficult. Mutual co-operation means for me that each man is willing to carry something more than his own load if necessary. I would even carry it a step further: In times of stress and crisis each man may have to be willing to carry the whole load. I should like to say that none in our group is more co-operative, more anxious to keep the channels of thought open than Walter Gropius himself.

Duties Were Apportioned - - -

For the purposes of carrying forward the work in our office, Robert McMillan was in charge of the dormitories, while I was responsible for the Commons Building. Benjamin Thompson was carrying on the design of furnishings and interiors, Louis McMillen, the site improvements and landscaping and Walter Gropius was the job captain for the whole project. We had the able assistance of Edward Forbes of Brown, Lawford and Forbes, architects of New York, as technical associates for the specifications and working drawings.

In approaching the form problems of our dormitory group we were in somewhat of a dilemma. We knew, as architects, that architecture was a true mirror of the times but we also suspected that this simple statement was no answer for us since our own age is so lacking in visual integrity. If we look hard enough, we can find the best of all possible worlds here; we are building 17th century department stores side by side with swish Kawneer aluminum fronts and gothic classrooms beside Hollywood-style cheeseburger drive-ins. Our architecture is not a mirror of our age, it is a mirror of all ages. Realizing the visual superficiality of the times, we had little trouble getting over this mental hurdle. We were convinced that it was our job to express the social and technological potentials of our age in as progressive terms as possible. Our major dilemma, then, was in the juxtaposition of the buildings to the Harvard Yard itself, which is old, venerable and possessed of great dignity. There are Massachusetts Hall with brick and white trim—1718, University Hall in whitish granite—1813, and H. H. Richardson's Sever Hall—1878 in dark red brick, and many other venerable buildings. The old Harvard Yard with its stately spacing of elms is one of the most beautiful spaces I know, and the spaces related to it, such as the Memorial Quadrangle in front of Widener Library, are buildings of widely separated periods. The pleasant greensward with its diagonal paths provides a unifying carpet for a living room furnished with objects of different periods and designers. Other examples from history seem to tell the same story.

If we were to look at the great marble platform of St. Mark's in Venice, and to examine the objects on it, we would find its Cathedral Byzantine, built in 1042; its Campanile of Gothic design, built in 1350; the Doge's Palace in Renaissance; and the Library in late Renaissance, 1500. The vigor of the main space concept seems to be enough to unify these buildings, spanning over 500 years and making one of the great city planning achievements of history. Variation in style can be noted even in the same building, in the twin towers of some of the great west façades of the cathedrals of Europe, such as the Cathedral of Chartres. The English cathedrals, such as Lincoln and Canterbury, present in the development of their chapter houses, closes and cathedral buildings a span of hundreds of years in varying Gothic styles.

These examples provided us with the major idea for the site planning of the Graduate Center. Further investigation led us to other early examples of interrelated squares. There are some wonderful prototypes like the spaces at Nancy built by Hèré de Corny between 1752 and 1755, where the Place Stanislaus is connected through a triumphal arch to the oblong Place Carriere, and thence through avenues of trees to the third square, the Place Royale. Or take, for instance, the Circus and the Crescent at Bath by John Wood the Younger, where the circular space is connected with a long arm to the open crescent.

It was our aim then to provide a system of interrelated squares which would make a strong framework for buildings admittedly of a different age and culture than the older yard. We also hoped to show on a small scale what a modern city-scape could be like if architects were given the chance, or rather made the chances for themselves, to recondition our environment which has so fallen by the wayside. When I say, make our own chances, I mean exactly that, for it is up to us to show what can be done to make our civic spaces whole again: *fit forms for a democratic people.*

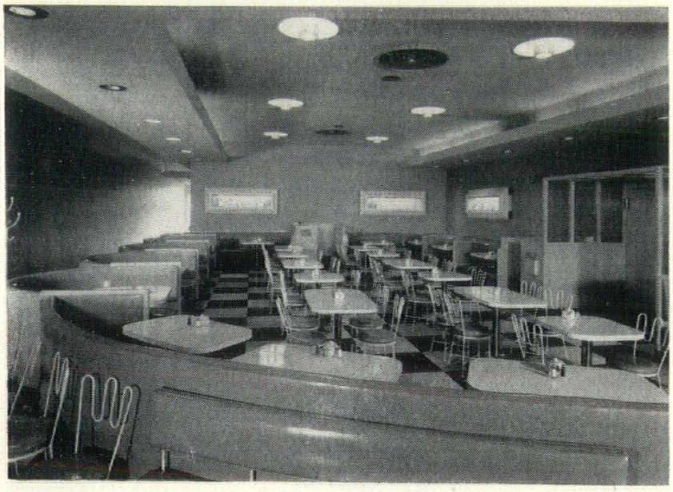
Experience Was in China - - -

Three years ago we had been given a problem on a similar level. This was a project for a university comprising three Christian colleges forming a union in the outskirts of Shanghai, China. Again was posed the problem of ancient and honorable building tradition to be solved in contemporary terms. In spatial values, we strove to recreate that wonderful system of interrelated spaces that one finds in the magnificant plan for the summer palace at Peking. When we were working on the project, we had a huge map of the summer palace which we pored over for many long hours. Characteristic of the systems of spaces in our scheme is the connection between courtyards of one open end. One courtyard leads into another, with no attempt to terminate the flow of space, and a larger and grander space is finally formed by marshalling a whole series of courts around a central area of water. By introducing water as a plastic element in the design, we hoped

(Continued on Page 34)

Fire

Presents Architectural Problems



St. Brigid Church, Detroit, Mich., (above) designed by George F. Diehl and Gerald Diehl, AIA, of Detroit, shows the finely detailed mural painting possible on vermiculite acoustical plastic. Three of the four textures of the new machine-applied vermiculite acoustical plastic are shown in Blum's Restaurant, Pasadena, (left) designed by H. Roy Kelley, AIA of Los Angeles. Heavy texture on the high ceiling, light on the dropped portion, smooth troweled band. Medium texture (not shown) was used in the office.

Fires in buildings "modernized" or acoustically treated with combustible interior finishes have taken a heavy toll of human life and property. It is not only that such materials are a fuel source, once a fire starts; what is worse is that as the heat in a room builds up, the temperature reaches the flashpoint at which all combustible surfaces suddenly burst into flame, even though they may have had no direct contact with the fire up to that point.

A flash-over greatly accelerates the spread and severity of a fire that may have been burning relatively slowly. In the Winecoff Hotel holocaust, for example, the spread of the fire from the third to the twelfth story involved successive flash-overs in the corridors on each floor, the fire becoming more intense as it progressed upward.

One cost cutting solution of this problem is to integrate an incombustible acoustical treatment with lightweight plaster fireproofing. Not long ago, a combination base coat of vermiculite plaster 5/8 inches thick on metal lath, with a finish coat of vermiculite acoustical plastic 1/2 inch thick, was given an official four-hour fire rating. The construction savings possible with this lightweight combination have since been demonstrated in a three-story office building in Oakland, Cal.

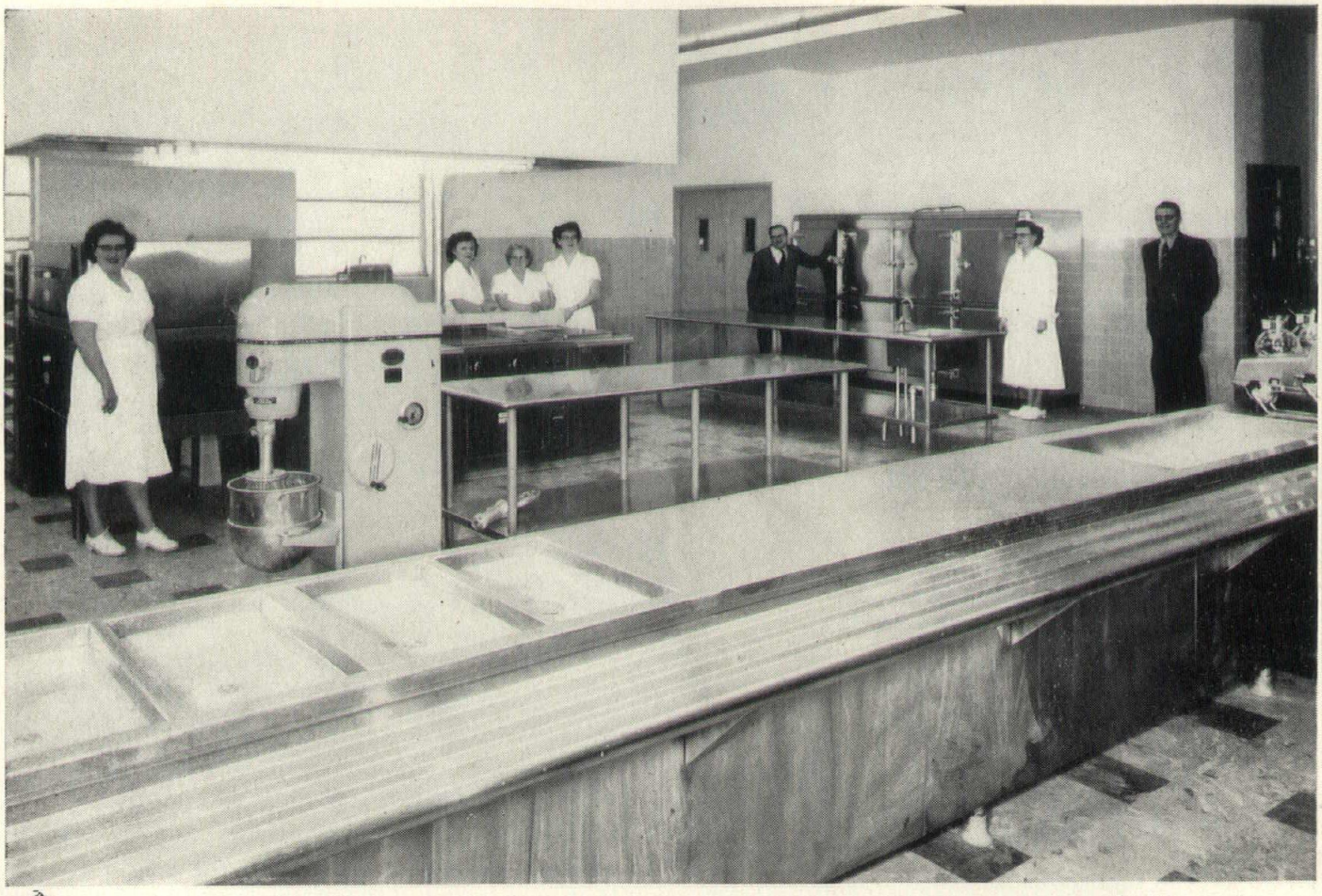
This 70- by 150-foot structure was one of the first to take advantage of the new rating. Although only 25,000 feet of sound control was required, the total saving for the acoustical treatment alone was 50 cents per foot, or $12,500. Additional savings were made in the fireproofing cost, structural steel tonnage required and the cost of foundations since they could be reduced in size because they carry less weight.

This was the first Class A building in Oakland in which each beam was not wrapped individually as heretofore required under the city code. When the attention of city officials was called to the fire rating for the vermiculite combination, permission was given to hang the metal lath to the edge of the bottom flange of the beams and fireproof with the vermiculite combination. Exact figures on the reduction in fireproofing cost are not available but, with beams 15 feet o.c., it is obvious that the cost was considerably less than individual wrapping and fireproofing would have been.

Vermiculite acoustical has a texture that takes finely detailed ornamental painting and is easly troweled over curved surfaces. In the new $800,000 St. Brigid Church in Detroit, Mich., designed by George Frederick Diehl and Gerald Diehl, AIA's of Detroit, clever brush stippling of the leafy scroll design on the sides and wall gives the painting a mosaic appearance, exceptionally appropriate for the Byzantine architectural style of the edifice. The texture of the acoustical finish enhances the character of this work.

The ceiling consists of two barreled vaults intersecting at the center and surmounted by a huge dome. Springing from the intersection of these arches are four large pendentives. Vermiculite acoustical on a vermiculite plaster base coat and metal lath was used throughout the ceiling and was carried down the sidewalls to the marble wainscoating eight feet above the floor. The cost was less than any other acoustical material that could have been applied and in this case was even less than putty coat plaster because of the difficulty,

(Continued on Page 40)



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OIL and TACONITE

Play Vital Roles in Northwest's Structural Future

WILLISTON OIL

The Basin . . .

Never in the experience of oil men has a new area enjoyed the success or rapidity of development as experienced in the Williston Basin. Up to January, 1951, there wasn't an oil well in the basin but within six months three widely scattered and significant oil discoveries had caught everybody's attention.

It wasn't long after the initial discoveries that leasing campaigns by oil companies had signed up more than two-thirds of the basin's acreage. Exploration and drilling increased very rapidly. Nearly 100 seismic crews were exploring the U. S. portion in 1952. . . . By the end of July, 1952, oil discoveries had suggested the existence of 11 separate fields. The Beaver Lodge field in North Dakota had 23 producing wells and more than a dozen drilling rigs active on its 25,000 acres. Most of the new fields, however, had been found in Montana, where oil companies have seemed to concentrate on "wildcatting" (drilling in localities not proved).

How good were these discoveries? To the refiner interested in physical quality, the new wells generally flowed a high quality crude oil, low in sulfur and high in gasoline content. . . . But to the producer and the investor interested in many additional factors that would bear on profitability (such as depth, drilling costs, yield and production difficulties) it had become clear from experience that much variation would be found from field to field.

Production in the basin was both shallow and deep; in Manitoba oil flowed from less than 2,400 feet, while in North Dakota oil had been found more than 13,000 feet below the surface. Some wells flowed naturally under tremendous pressure, while others had to be pumped as soon as they were completed. Consequently, potential flow rates were also highly variable—from a few barrels a day to as high as 6,700 barrels. In a few wells gas was a problem and in some water made production difficult.

Events of the past year have left some definite impressions about the future of the new oil area. . . . Despite the phenomenal rate of successes in drilling so far, future discoveries in this basin can be expected to be tempered by a good share of failures. Not all the structures geologists are seeking to pinpoint will contain oil. In fact, when drilling into an unproved structure, the chances of hitting commercial amounts of oil or gas are only about one in nine.

This is one consideration highly important to the land owner and the local community. Though the basin's huge size may considerably increase its over-all potential, not every locality will be blessed with nearby oil deposits. . . .

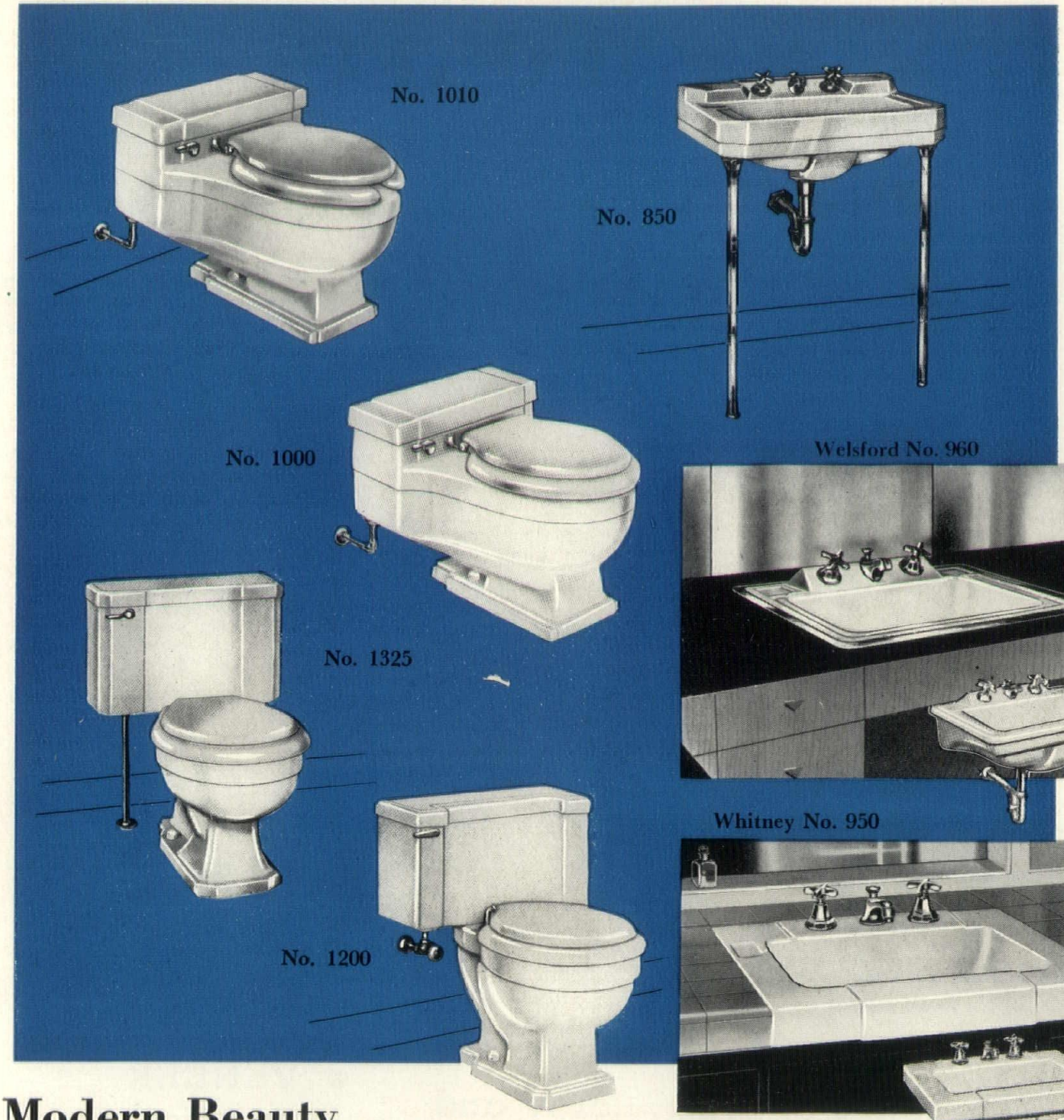
Estimates of the potential output of the Williston Basin in barrels per day shows:

1952—10,000 B/D
1953—25,000 B/D
1954—75,000 B/D
1960—200,000 B/D

These provisional estimates are of potential output. Actual production in new oil areas usually lags well behind as a result of marketing problems. . . . For the moment the few thousand barrels of oil being produced daily in the basin are carried by truck and rail to such widly separated points as Los Angeles and St. Paul. This transportation is a temporary arrangement that will be supplanted—when enough oil is proved—by the more economical method of pipeline shipment.

Each new major step will have to wait on the proving of sufficient productive capacity in the basin and will also require assurance that an adequate market for the crude oil exists. In other words, the "economics" of oil

Completing the economic picture of the Northwest's natural resources and their potential effects on the area's architectural future, which we started in the first issue of this year, is the following material on the area's oil and taconite industries. This material's presentation grew out of a talk by Clarence W. Nelson, assistant economist for the Ninth Federal Reserve District, before a group of architects at the Institute of Technology. While shortened in certain passages, it presents a picture of these two new factors in the economy of our area and it is hoped will give sufficient background so architects can better evaluate their future work in the light of these developments . . . the editors.



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development point to the growth of Williston basin production as both long-term and gradual.

Economic Impact . . .

It would take a tremendous oil development to give any serious competition to agriculture as the leading income source in this area. In the three states sharing parts of the Williston Basin net agricultural income currently runs just under $1,000,000,000 annually. If the 200,000 barrel a day estimated potential were achieved, the value of oil production would amount to better than $190,000,000 a year. Perhaps $60,000,000 a year in income to persons living in the basin would result directly from this production. Though certainly substantial, this added income would run only 6 to 7 per cent of net agricultural income in the three states.

The significance of this income, however, is not completely reflected in its dollar amount. A good part of the "new" money would be credited to the district's earnings several times over during the year as it passes through the hands of the local retailer, wholesalers and service enterprise.

The fact that oil is a good inducement for new industry has broadened the significance of the development beyond the stage of oil production. Perhaps the most important thing about the new income is that it will not feel the same ups and downs that weather and the crop market inflict on agriculture. In other words, it will act as a stabilizer in the district's economy.

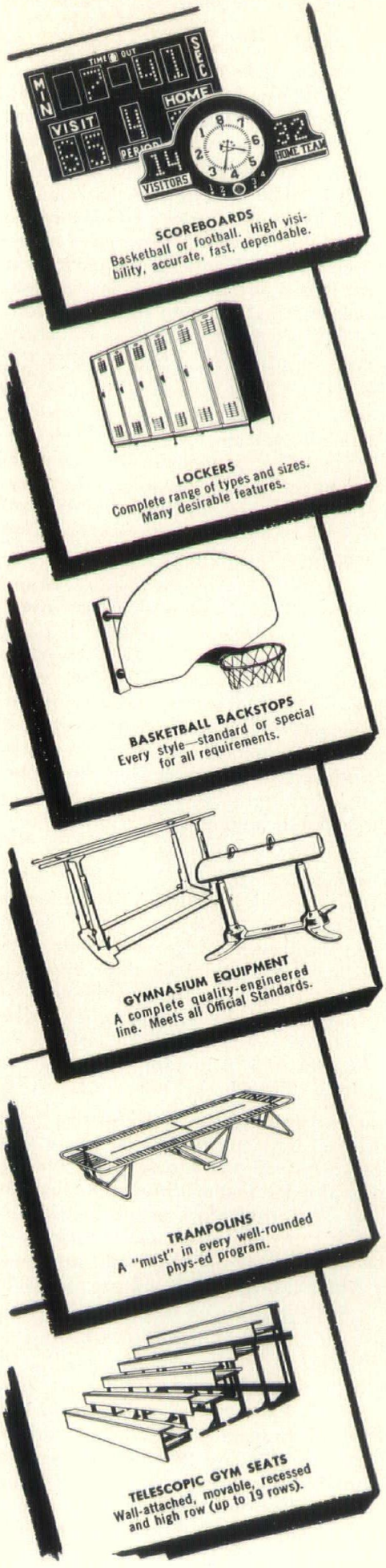
Even at this early stage of development, many people know at first hand that oil means:

More money—Bonuses and rental payments for oil leases have already moved deposits in some district banks to all-time highs. As a result of oil, two new banks have been formed. The rapidly increasing number of accounts and the accelerated flow of money that oil activity brings with it is exerting pressure on many bankers to expand their existing facilities.

More People—Population in district towns is growing through the influx of oil company employes, service and supply personnel, brokers and speculators. Though no accurate counts are available, it is estimated that Williston has already added more than 2,000 persons to its 1950 population of 7,500. That much again is expected before the end of 1953. Watford City reported an added 300, Tioga 200, and Glendive 1,400.

More Business—Many towns have exploration or drilling crews operating out of them and major oil companies are headquartered in several of the larger ones from Bismarck to Billings. . . . Almost any way it is measured—by bank debits, retail sales, telephone calls, freight handled or post office receipts—activity in key towns has materially increased.

More Problems—Some towns are feeling the strain of rapid expansion more than others but each community is making efforts to meet problems that have turned out to be quite universal. *Both living quarters and commercial space are scarce—rents and land prices have more than doubled in a year. Trailer additions to towns are common. Almost every large town in the basin has a newly organized planning commission and a few have consulted with city planning experts. Some*



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have annexed new areas and made plans to expand water and sewage facilities, extend paved streets and construct housing. Everything from trailers to hotels has been moved to active points to help meet the number one current problem—housing.

These are the things that oil has done in just a year and a half. Though it could be expected that some of the first flurry of activity would subside and some of the people that it brought with it would move on, a major oil development is generally a long-term proposition. It has become evident that many individuals in the basin have begun to think of it as such and to plan accordingly.

Many district towns both in and out of the Williston Basin are looking forward to and actively inviting the growth of industry. Refineries were one of the first considerations. Refineries and the other more intriguing possibilities which can follow peteroleum processing are only one industrial effect of oil discoveries, however. The industry that grows up to supply and service oil operations and the business that caters to the needs of a growing population form an important part of the economic gains.

Wholesaling and retailing of supplies to an active area are in themselves tremendous operations that will be felt all along the normal supply routes of this region. More goods of all descriptions will flow through trade centers like Billings and Fargo and probably be felt as far away as Minneapolis. Oil equipment, specialized as it is, will largely be imported to the area from manufacturers in the southwest or west coast. But repair and servicing is a local job and groups that handle this will form a part of the business community in Williston Basin towns.

Local contractors can participate in some activity, although much of the work in oil field operation is highly technical. During installation of the crude oil gathering system in the Beaver Lodge pool, contractors from the surrounding area were invited to view the operation to see what equipment they would need to take part in future work. Of the hundreds of materials used in drilling an oil well, some can be supplied locally. An example of one of these is Bentonite . . . deposits of which are found in all three basin states. . . .

These are some examples of the activities that form an integral part of oil development. It is certain that actual production of oil will touch only a few persons directly but the wealth it creates, diffused throughout the area's economy by many businesses and individuals, will be universally felt. All in all, the oil, the increased business and the prospects of new industry are good news to an area whose economy is based so completely on agriculture.

Refinery Growth . . .

Based on the Williston Basin's outstanding early performance, two refineries were propesed for North Dakota. Standard Oil of Indiana plans to start work in 1953 on a 15,000 barrel-a-day, 200-man refinery at Mandan. Producers Refining Company was considering a 10,000 barrel-a-day unit near Williston. There is one big question in the minds of local business groups—just how much refining capacity can be expected for

200,000

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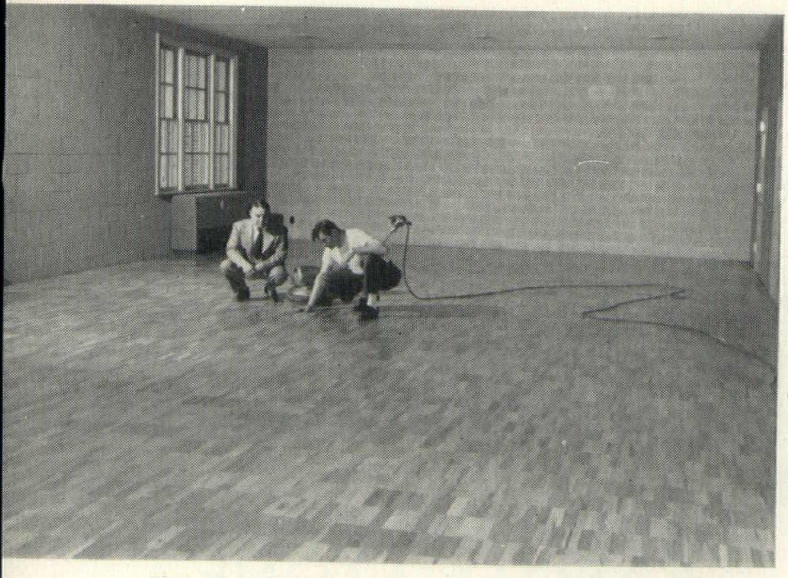

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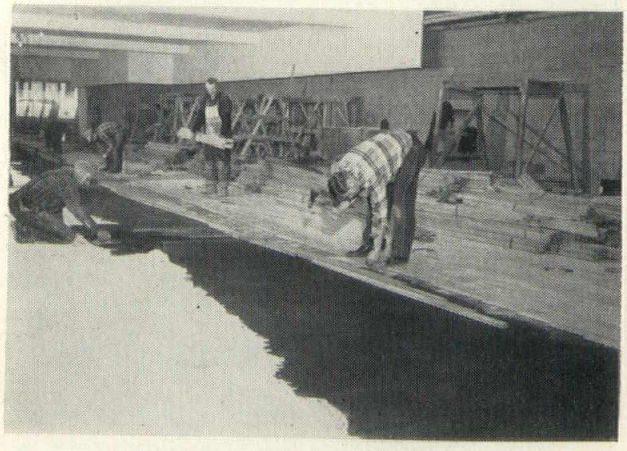

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basin towns, assuming there is continued large growth in crude oil output? Although some factors are necessarily in the "wait and see" category, two conditions in the district's economy, demand and competition, give a key to the answer.

Refineries tend to be constructed in or near market centers because it is more economical to ship crude oil than to ship its many derivatives separately. For this reason it is not likely that the capacity of the Williston Basin will much exceed local market consumption. . . .

The Twin Cities are feeling the expansion too. Construction is already under way by the Northwestern Refining Company in St. Paul Park to bring its 8,000 barrel-a-day capacity to a total of 30,000 barrels by the fall of this year. . . . This general outlook for refinery development in the district could, of course, be affected variously by such contingencies as national emergency, availability of materials and sudden changes in demand. But the two existing economic forces of demand and competition give the best clue to the limits of refinery construction in the district.

TACONITE AND JASPERY

The Ranges and Their Development

Now under way on the iron ranges of Lake Superior is one of the most important ventures in the history of iron mining and a major economic development for the district. Two large, heavily equipped industrial plants will soon begin manufacture of high grade iron ore out of a hard, iron bearing rock called taconite. . . .

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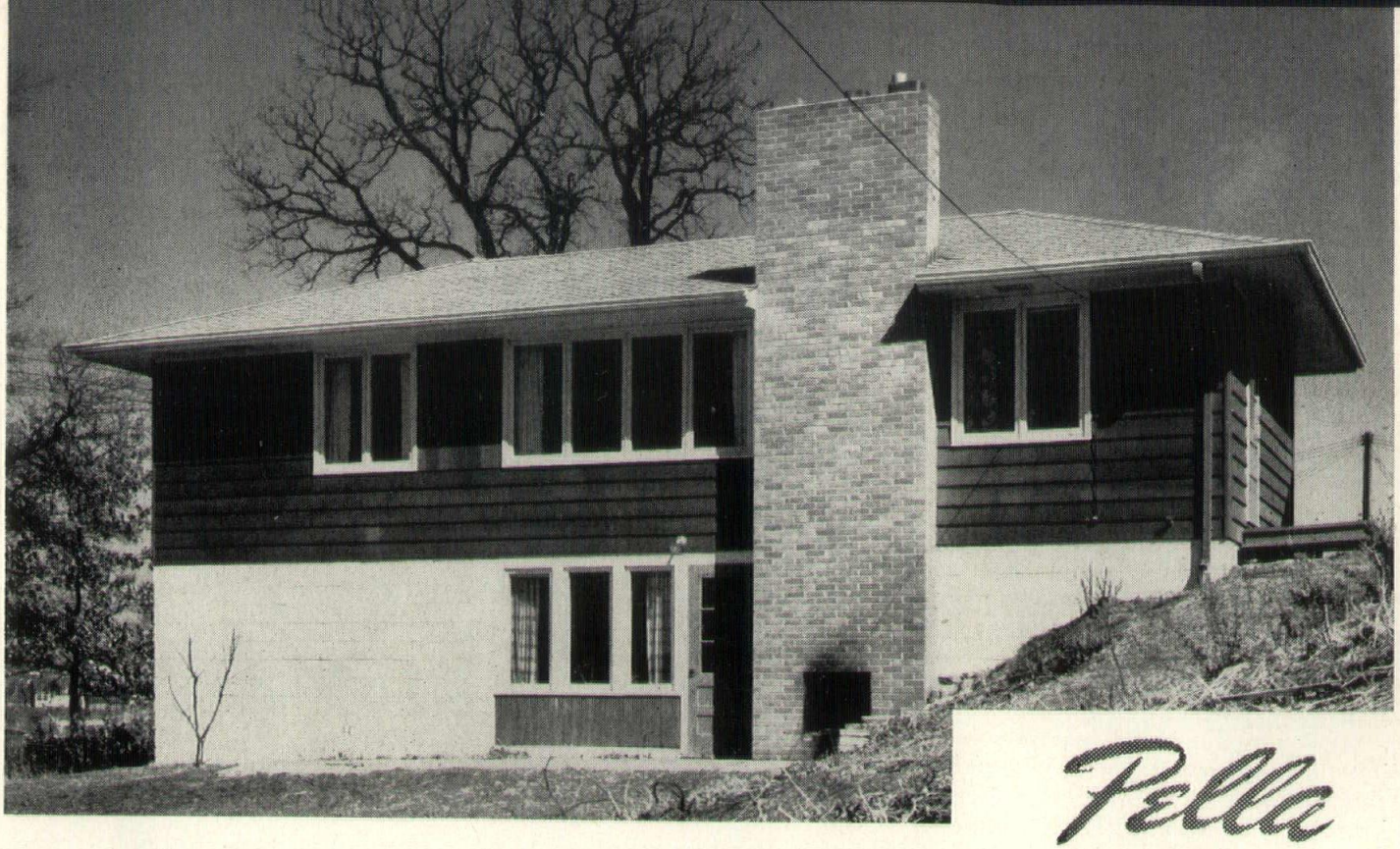
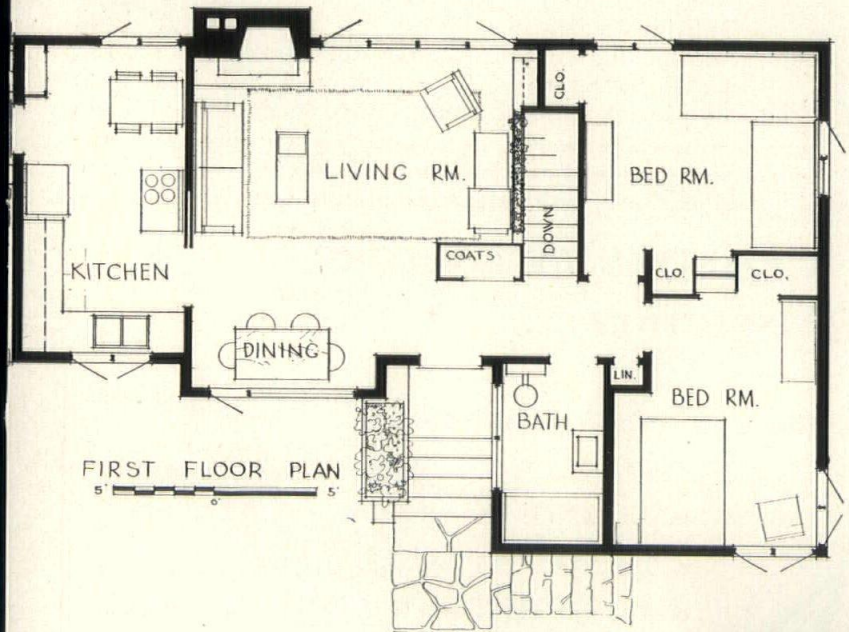


Pella

Casements . . .



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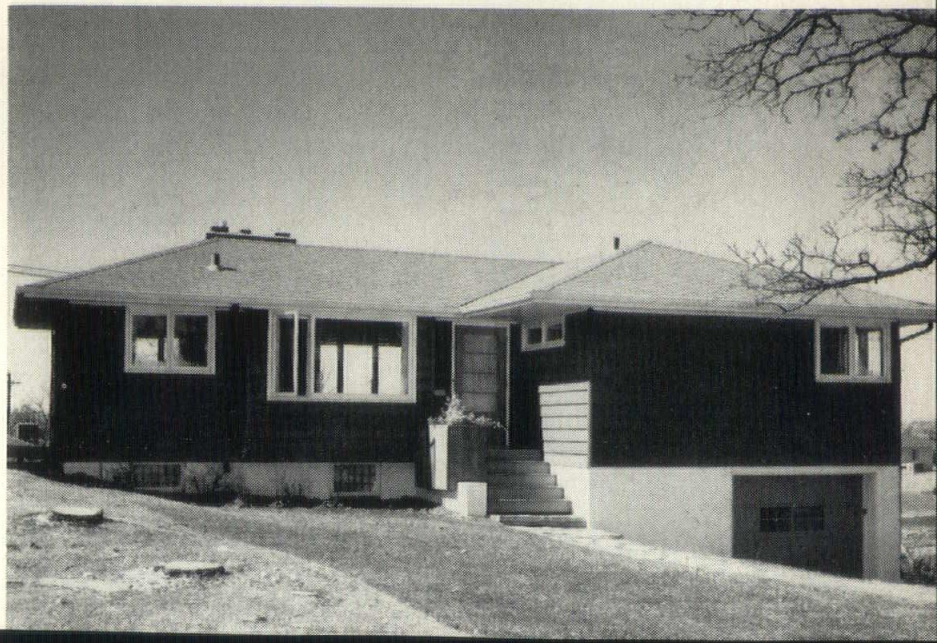

HAARSTICK-LUNDGREN EXPANDS

The Saint Paul architectural and engineering firm of Haarstick Lundgren and Associates has been expanded to include eight associates, it was announced at a recent meeting of the firm. The associates of Haarstick and Lundgren now include Robert E. Howe and James D. Voigt, both of Saint Paul, Robert T. Jackels, West Saint Paul, Gregory P. Molitor, White Bear Lake, William B. Berget, John T. Baker, George F. Klein, Jr., and Sidney C. Little, all of Minneapolis.

New associates are (left to right)—top row, Messrs. Baker, Berget, Howe and Jackels; bottom row, Messrs. Klein, Little, Molitor and Voigt.

Haarstick and Lundgren organized their partnership in 1949 with a staff that numbered four persons. The firm's present personnel totals thirty. Most of the firm's projects have been in Minnesota but a number of their jobs have been in Wisconsin, Illinois, Indiana, and North Dakota. Members of the firm are active in A.I.A. chapter and other association work.

The National Bureau of Standards, in Washington, D. C., maintains a unique brick "graveyard." Here, on a large plot, small sections of brick wall have been built over the past 15 years and subjected to freezing and thawing and all the conditions of the elements. In its research into the durability of various types of individual brick, the Bureau has also "planted" brick with only a few inches of the top exposed and the rest buried in the earth. Twenty samples each of forty to fifty brands of brick manufactured in the United States now repose in this "graveyard." These bricks are subjected to natural conditions of severe weathering, to supplement the results of laboratory experiments.

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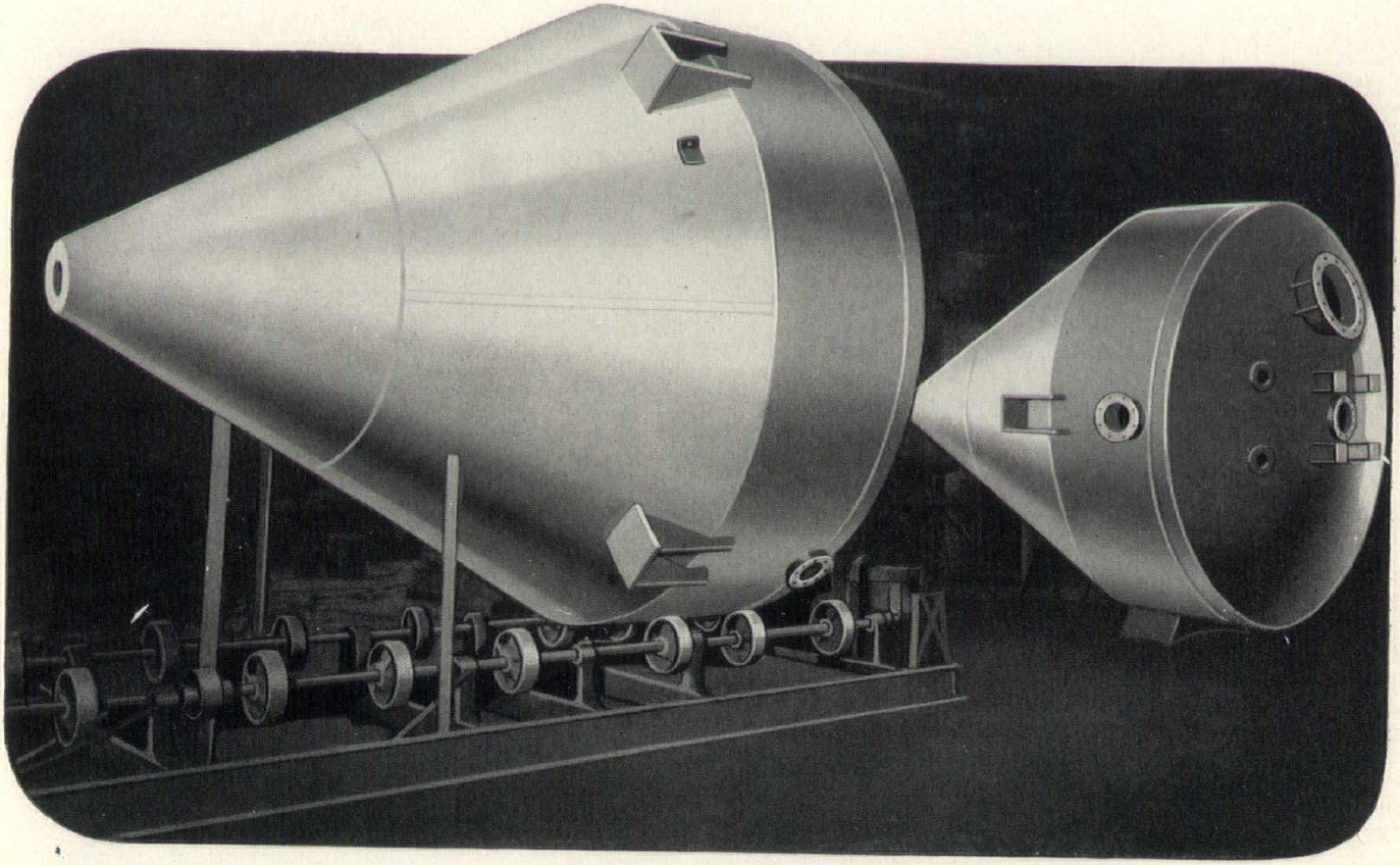

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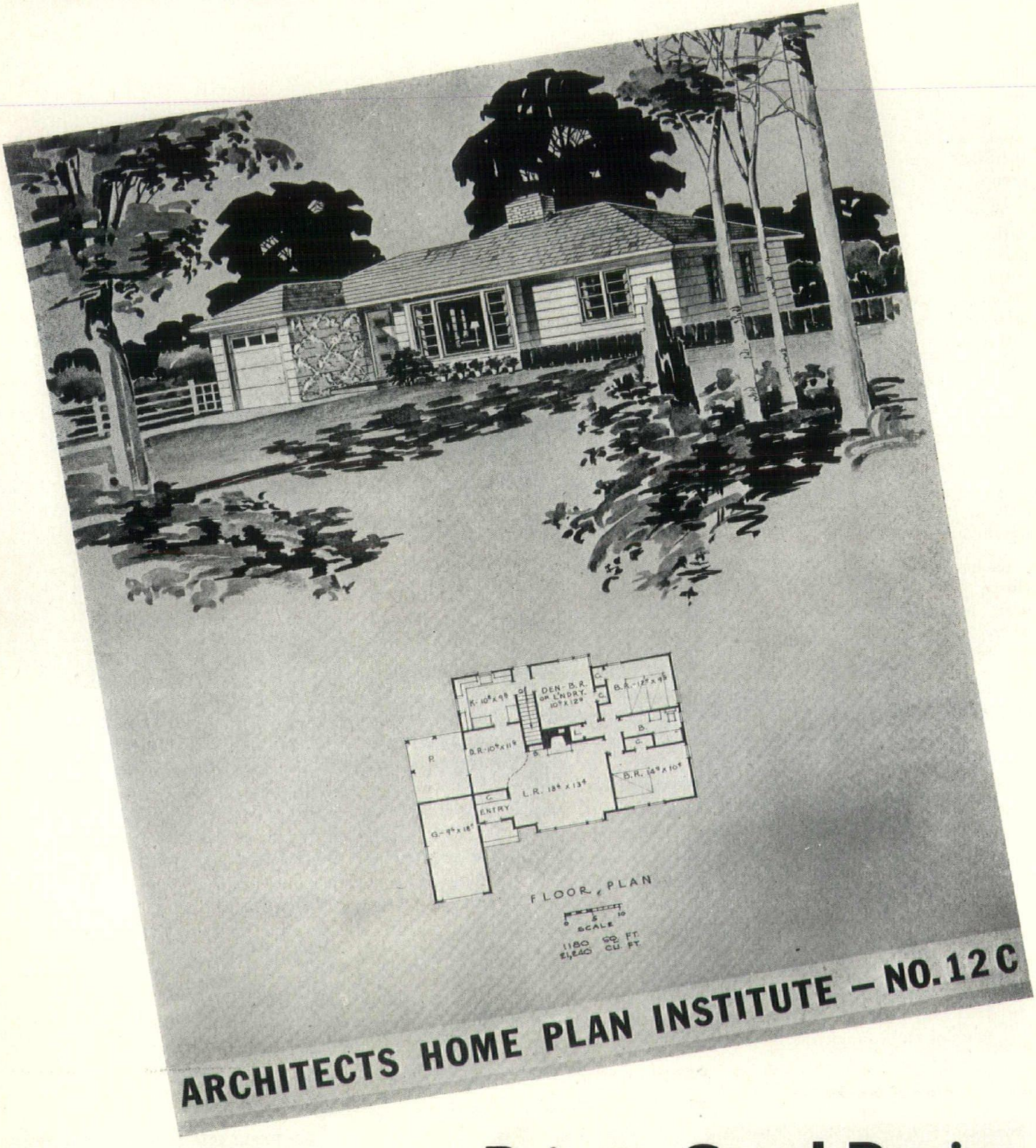
Architects Home Plan Institute...



...Brings Good Design to All Northwest

Good design in stock plans for homes is made available to home owners of the Northwest through activities of the Architect's Home Plan Institute, which begins its eighth year of service to the profession as the first robins chirp this spring. Although well known among the architects who have been practicing in the Northwest, some of the younger architects may not be familiar with the institute's history and work and NORTHWEST ARCHITECT therefore takes pleasure in backgrounding the group.

The organization was founded with the approval of the Minneapolis Chapter of the American Institute of Architects in March, 1945. Its membership now consists of 20 architectural firms and individual architects in the Twin Cities. Each member designs three houses per year and these are assembled in stock plan books. The book published in 1952 was the fourth volume. The Architect's Home Plan Institute now has approximately 225 house designs in its files, available to architects and home owners desiring to use them.

Each Sunday, an Architect's Home Plan Institute design appears in the *Minneapolis Tribune* where interest is aroused among home owner readers. The orders for books and plans come from all sections of the United States and Canada and many similar organizations have been formed in other cities, patterned after the Twin Cities organization.

The primary purpose of the architects in forming the organization was to promote better designed homes. Founders felt that most stock plans lacked architectural interest in their exterior designs and were poorly planned for room arrangement. This organization now offers the public, houses designed by architects at a modest cost. The plans and specifications provided customers are complete, meeting FHA and building code requirements and thus protecting the owner from poor construction and enabling him to obtain a favorable mortgage.

The Directors of the institute are elected by membership and for 1953 they are Armstrong and Schlichting, Merle V. Abbott, McEnary and Krafft, Larson and McLaren, Donald J. C. Parsons, Loren B. Abbett, Mearl Peterson, Louis B. Bersback and Shifflet, Backstrom & Carter.

The officers for 1953 are President Glynne W. Shifflet, Vice President Louis B. Bersback, Secretary Loren B. Abbett and Treasurer Mearl Peterson.

ARCHITECTS ADVISED ON SAFETY

For the architect with a bent for safety work, the National Safety Council has a new Directory of Occupational Safety Posters which will give him an abundance of source material to suggest to his contractors. The booklet and a price list can be obtained from the council at 425 N. Michigan Ave., Chicago 11, Ill.

Posters vary from general applications to those concerned strictly with specific industries, like building, mining, chemical production, etc.

THE ARCHITECT and HIS PUBLIC

No Matter How "Small" or How "Large", He Must Deal As Much with the Foibles of People as with Materials, So - - - -

No modern architect who wants to put his talents to the best possible use for his clients' and his own interests can lock himself in an ivory tower and commune merely with the most elevated intellectual bubblings. Today's architect must be a person of many facets and he must know how to deal with people. Therefore, it is the smart architect and structural engineer who learn at least a little something about what has been gathered up in the field of "public relations." With this in mind, the staff of the NORTHWEST ARCHITECT *asked Carl Hixon of Kerker-Peterson and Associates, Minneapolis agency which handles public relations problems for the Twin Cities chapters of A.I.A., to present some fundamentals which will be of value to all architects, whether their practices are in the major cities or the smaller communities. It is with pleasure that we present the first of the agency's materials here . . . the editors.*

—

By Carl Hixon

Public Relations Counsel

Public relations is a broad, rather intangible term that covers a broad and rather intangible field. Applied with a plan, however, it produces concrete results! And, like most generalities, a public relations program is made up of many particulars; these should be understood and practiced by every architect who would effectively put his story across to the public.

Basically, a public relations program consists of telling *your story to your community.* It should attempt first to create and explain the need for local architectural services and, second, to point out an architect's qualifications for executing these services. The program should include provisions for justifying architectural fees, explaining mode of operation, defining the architect's responsibilities, his relationship to the client and to the welfare of the community.

In the average community, your best vehicles for reaching the public are the local newspaper, radio stations and any other local periodicals. Add to this such civic, fraternal,

business and school groups as service clubs, local lodges, your chamber of commerce, PTA, etc. These are prime media for contacting large portions of the public with your story. All of them are interested in some form of civic improvement and, if approached correctly, are valuable allies for you in the execution of your program.

Let's examine the local newspaper in terms of a public relations ally for you.

First, the business end of newspaper publishing. A newspaper—be it daily or weekly—exists chiefly on its advertising revenues. Its size and potential are closely linked with the prosperity of the community which it serves. Before the paper can grow, the spending power of its readers must grow and this can only be accomplished by building a bigger and better circulation area. Thus newspapers are continually encouraging the introduction of new business to the area, encouraging patronage of existing business and, in general, promoting any projects that will add to their city's economic potential. Here, of course, is where the architect and the newspaper merge their goals. The architect is out to build a better community—commercial and residential. His work adds value and sales appeal to the city and his progress is an index of the area's growth. This is the business middleground on which the architect and his local newspaper meet.

You Must Have "News"

The editorial newspaperman is a slightly different "breed of cat" than his business colleague. His profession demands that your story, in addition to having a common overall relationship with his paper's objectives, contain the vital and intangible element called "news." No good editor will overlook this requirement and it's useless to think otherwise. This newsy element is the thing that sells papers and justifies the charge to advertisers. Without it, a newspaper becomes a meaningless catalog sheet of opinion.

It is important to your public relations program then that you learn to recognize "news" as it happens to you, as well as the conditions which govern its appearance in print. A case history of mythical architectural news story will serve as illustration.

Suppose that you are commissioned to design a small industrial plant on the outskirts of your community. The owners are modern in their approach to the structure's appearance and wish it to compliment as much as possible the surrounding countryside. Now ordinarily this story as it stands is already considered news by the local press. A new plant in the area means construction activity, a large sum of money changing hands and increased employment opportunities for local labor. Were the paper to print the story at this juncture, the architect would probably receive a nominal mention along with the contractor and suppliers, plus a credit on the rendering.

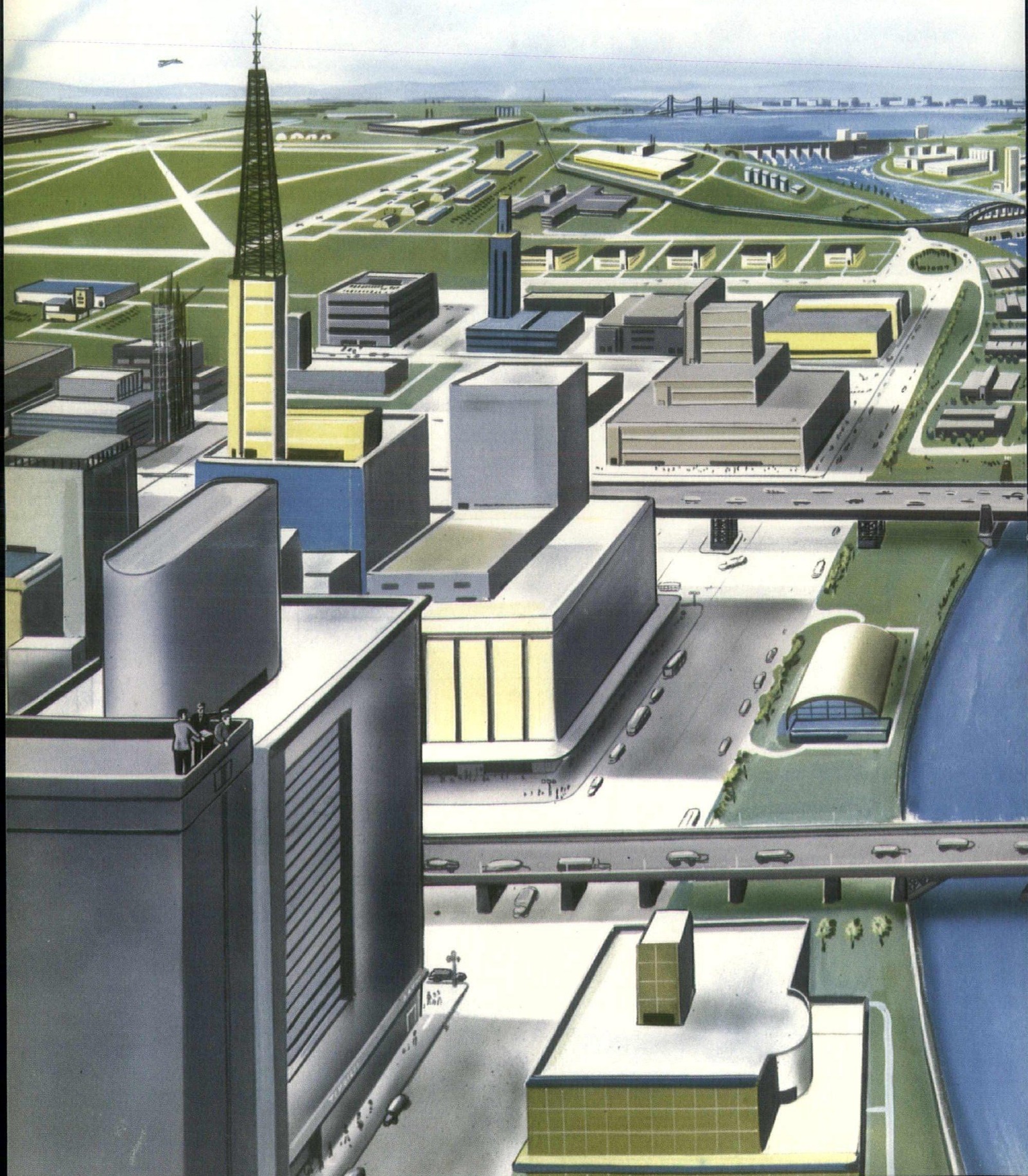
Here is where the architect can strike out on his own to bolster his public relations by making some legitimate extra news for the paper. After a survey and study of the countryside, the architect might drive to the local airport, charter a light plane and pilot for an hour and get a "bird's eye" view of the site—in short, study the problem from an entirely new and different angle. Cost of the pilot and plane for an hour would be about $12.00 and the information gained could prove a valuable contribution to the project. This imaginative approach by the architect, when presented to the newspaper, could easily result in the appearance of such an article as "ARCHITECT GOES ALOFT TO DESIGN LOCAL PLANT!" This "news," in turn, gives you excellent opportunity to explain via the subsequent story how completely an architect enters into the planning of a project.

Checklist Helps

Perhaps this is far fetched, perhaps not, but it serves to illustrate several axioms of good press relation—(1) news must be current, actual and specific, (2) it must be something that the average reader can understand and appreciate, (3) it must take the form of fact and action, (5) it should, wherever possible, have local significance and (5) the burden of generating and reporting architectural news is on you—the paper is in no way obligated to include in its news columns any information other than what is considered necessary by the editors to tell a story.

(Continued on Page 24)

PACAL CITY



During 1952, Paper-Calmenson & Co. furnished steel enough to construct buildings, bridges and highways for an average city.

PACAL CITY was designed and constructed by the best architects and contractors in the Northwest. It is a consolidation of private, city, county and state projects in the best villages, towns and cities in the Northwest.

We express our thanks and pledge to continually better our service and products through increased effort and research.

PAPER-CALMENSON & COMPANY

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(Continued from Page 21)

If these axioms are observed, most editors will be very co-operative in handling or covering whatever material is given them.

One frequent cause of friction between editors and people with a story to tell stems from a belief on the latter's part that newspapers should "educate" their readers; that they should print—for example—articles on architectural practice, as such. Most papers take the stand that their function is to "inform," not to "educate." There is a fine line between the two and the question must usually be threshed out over a specific story. It helps, however, to keep in mind that most newspapermen define "information" in the same breath with "news" and "education" with "speculation, opinion and theory." That's why the hypothetical story on the "ARCHITECT GOES ALOFT . . ." qualifies as "news" by reporting a specific occurrence. The "news" angle serves the architect's purpose in turn by giving him a legitimate opportunity to elaborate on architectural services, which, taken alone, might have been ruled out as too "theoretical." The combination of "information" and "education" in telling the architectural story via public media is the only avenue to satisfaction for both the architect and the newspaper.

The next issue will take up the subject of "Planning Your Newspaper Publicity."

FROST ACTION STUDIES REVEAL HOUSE SLAB DATA

Frost action's important effects on shallow foundations and slabs used for basementless houses have been studied for the past two years by the University of Illinois's Small Homes Council, which has released a set of recommendations based on the studies.

To establish these design and construction requirements, the relationship of temperature, soil type, soil moisture and vertical movement were observed on four experimental floor slabs of house size. The foundations and drainage conditions varied for the slabs, all of which were of 4-inch concrete laid on a moisture barrier over gravel.

The floor and the foundation of such concrete slabs, according to the recommendations, should be "monolithic"—built as one piece to elimi-

nate differences in vertical movement due to frost action. All footings should be placed on undisturbed soil. They should be of a width dictated by good practice and they should be sufficiently deep to be beneath any organic matter.

The various types of soils on which slabs are laid, it is pointed out, is an important factor in design recommendations. The use of a shallow foundation, for example, is not recommended on a silt or a silty-sand soil. Shallow foundations can, on the other hand, be built directly on soils made up of clean sands or gravels since frost causes practically no movement in this type of material. In a mixed grain soil, there must be sufficient clay to make the soil act as a "closed system" over the most prolonged freezing period—that is, there must be enough clay to prevent capillary rise of moisture during the freezing period. Any ice forming in the soil would be due, therefore, solely to the moisture content within the clay. Fills of clean sands or gravels should be used beneath the floor to the bottom of the footing so that the floor and foundation can be subjected to the same amount of frost action.

Although popular belief has it that you can't make brick without straw, the use of such filler material has long been abandoned by modern brickmakers. Now only selected clays are refined, ground and blended by precise methods to produce uniform quality brick and tile products of similar shade, texture and performance.

BANK DRIVE-INS BECOMING POPULAR

More and more banks are providing customers with drive-in facilities and architects must be ready to plan such construction. A definite aid in such planning has been printed by the Mosler Safe Co., 320 Fifth Ave., New York 1, N. Y., and it is available on request.

The booklet, "Super Service Banking Drive-In Plans Manual," highlights some of the country's most efficient drive-in plans. It shows schematic drawings, properly dimensioned, correct turn radii, spacing of windows and many other details of value to the facility designer. Mosler equipment for use in the drive-ins is also discussed.

MORE BUILDERS GIVING GUARANTEES OF WORKMANSHIP, MATERIALS

Protection of new home owners through guarantees of workmanship and materials is being extended more and more by American builders, according to a survey made recently. The guarantees are in the form of service policies assuring the buyer the builder will correct and/or replace faulty wiring, roofing, etc., not normal for the grade of materials used.

The survey covered 270 members of the National Association of Home Builders and 262 of them reported

using this type of assurance form. Instructions on the care and maintenance of the 3,000 materials and parts which make up the modern home were issued to new home owners in pamphlet form by 193 of the builders.

The survey covered a representative cross section of the nation's builders. They pointed out they did not insure owners against unavoidable things like hairline cracks due to normal action of materials.

COOL GROUND WATER USED TO CONDITION NEW YORK HOSPITAL

Cool subterranean water, pumped through the ceiling and wall coils of a new New York hospital by an improved heat pump, has become a simple solution to the institution's summer temperature control. In winter the normal heated water is used for the radiant heating of the structure.

The underground water, in good supply, has a temperature of 50 degrees and its flow is controlled by more than 300 thermostats throughout the work and sickroom areas of the building. The air brought into the building is also controlled by an outside "sensing element" which varies air temperature and humidity in relation to outside conditions.

The hospital is the Long Island Jewish Hospital, whose nine stories rise above eight acres of former farm land.

The placement of slender steel rods in a brick wall during its construction enables the wall to withstand severe lateral forces, such as earthquake or atomic explosions. Reinforced brick masonry is now being widely used in the Pacific earthquake areas, and has recently been specified for blast-resistant hospital buildings by the U. S. Government.

NEW BUILDERS HARDWARE INFORMATION

The Gardner Hardware Co., Minneapolis, reports that the Russell & Erwin Division of the American Hardware Corporation, has issued a booklet, "Care, Adjustment and Maintenance of Your Russwin Builders' Hardware."

Simple pointers are given on how to regulate door closers and door holders, how to tighten a door knob, what to do when a latch bolt binds and simple illustrations of how hardware can be easily adjusted, serviced or replaced.

The booklet will eliminate many of the minor headaches now caused by complaints from tenants and owners to the architect, contractor and hardware dealer regarding simple adjustments and care of builders' hardware.

LAMINATED WOOD SHOWN FOR BEAMS AND PURLINS

For the architect interested in bringing into his designs the charm of wood coupled with the strength created by laminating, a new booklet on "Modern Construction with Engineered Timbers" has been issued by Timber Structures, Inc.

In colored and black-and-white illustrations, discussed fully in text, the booklet tells of sizes and properties of glued, laminated beams, purlins, limits of curvature, arch section dimensions for various roof slopes, spans and loadings and trusses.

The booklet and further information can be obtained from the company at PO Box 3782, Portland 8, Ore.

PLUMBING FIXTURE PROTECTION DURING CONSTRUCTION OUTLINED

Hints for spex on protection of plumbing fixtures and equipment during construction are contained in a publication made available to architects and builders by the Plumbing and Heating Industries Bureau.

Although fixtures are manufactured to give the optimum in resistance to damage during use, the vicissitudes of construction often damage valuable fixtures. By simple illustrations, this booklet shows how

these materials can be protected until completion of work.

The bureau's address is 35 E. Wacker Drive, Chicago 1, Ill.

PLANNING THE HOME LAUNDRY

Taking the blues out of "Blue Monday" for the housewife is a job that too many architects consider when they plan a home.

Good equipment may cut down the work but it cannot save the steps wasted and the lost motions that result from inadequate planning of the laundry space itself. Care and forethought are just as needed in planning the laundry as in planning that other important home work center, the kitchen.

The well-planned laundry is almost never found in the basement today. That location means many back breaking trips up and down stairs with heavy loads, a consideration that rules it out. Instead, it is advisable to place the laundry on the ground floor and to plan it not only for washing but for at least one secondary use.

In some homes, it becomes a large work room with space not only for laundry equipment but also for sewing, home canning, deep freezing equipment or a hobby. Because such a room usually opens near the outdoors, a wash basin and even a tiled shower are often located in it, so children can clean up there.

In other homes, the laundry is combined with the kitchen or located in a small area at one end of it. One family put the wash-day equipment to one side of a dinette and found the arangement very satisfactory. Another remodeled a large old bedroom into a combination bathroom and laundry, with wash basin and water closet on one wall and laundry equipment on the opposite. In this instance an adjacent room was used for ironing.

For the average home, the plan of combining the laundry with other work space or with bathroom facilities is very good. If it is to be placed in the kitchen, it should be located at one end—the equipment will generate a certain amount of heat, which should not be dissipated in the immediate kitchen working area.

One of the prime considerations in planning a laundry in a new home or in remodeling a room as one in an older house is the material to be used for the floor and walls. It should be waterproof, easily cleaned and maintained and very durable. Clay tile is one of the most satisfactory materials for laundries, since it meets all these requirements and at the same time provides needed color.

Color is just as important a factor in the laundry as in any other room of the home, for research shows that color can lighten work or make it drudgery. For the laundry, blue or green in a good clear shade is best, since these hues will make the room seem cool. Clay tile for laundry room floors and walls is now available in a very wide color range.

When the laundry room floor is installed, be sure that it is pitched to drain properly and that a drain is put into it. A clay tile floor can then be washed down in a jiffy by just turning a hose on it.

Laundry activities fall naturally into the four categories of sorting, washing, drying and ironing. Equipment should be grouped with this sequence in mind and materials and articles needed for each activity

should be stored near the appropriate center.

For sorting a table on wheels is excellent for it can be moved about the room and used for a variety of other activities. Another good idea is a built-in sorting counter surfaced with gray clay tile, which make a good background for the variety of colored articles. A washtub can be built in at one end of the counter and storage space provided beneath it.

With automatic equipment a washtub is not absolutely necessary but the homemaker may want one just the same for removing stains.

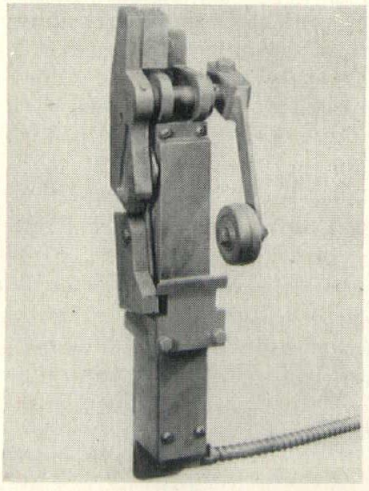
For storage, a three-foot cupboard will take the items used in the laundry. The laundry is a good location for extra storage facilities also—it's a logical place for overshoes, rubbers, raincoats and work clothes.

Lighting is an important consideration in the home laundry. For one thing, it should not "bounce" off the white enamel of equipment. Also, it should be directed onto work surfaces so the homemaker does not have to work in her own shadow. At least two light fixtures are needed in the average home laundry.

Safety should always be kept in mind in designing a laundry. The washing machine should be grounded, of course. The laundry floor should be easy to keep dry so it will not conduct electricity and the surroundings should be as pleasant as possible to induce a good psychological mood in the homemaker.

SAFETY LOCK FOR ELEVATOR DOORS

Adding to the safety of elevator operation is a new safety interlock made by Guilbert, Inc., 1105 Frankford Ave., Philadelphia 25, Pa. The lock, simple in instal-



lation and operation, prevents operation of the elevator until the doors or gates are closed and prevents opening the gates when the elevator is not at floor level.

Electrical contacts in the unit are protected against moisture, dust and dirts, making for long life. Details and prices can be obtained by writing the company.

Bricklaying, one of the highest paid building trades, is also one of the most difficult. More than 80 per cent of a brickmason's time is spent stooping, squatting and squinting at his work. Since most brick work is on the exterior of buildings, bricklayers only average about 200 days worked each year because of weather conditions.

ARCHITECTS CURRENTLY IN PUBLIC EYE

Architects have recently been much in the public eye in the Twin Cities, with a big exhibit at the Walker Art Center and two architects being featured in Minneapolis news stories. The Walker exhibit aroused keen interest as it showed the work of the former firm of Purcell and Elmslie, details of which were given in our last issue. It continues until April 24.

Famed John Jager was featured in a Sunday newspaper story for his long service to the profession and Roy C. Jones, head of the University of Minnesota School of Architecture who retires in June, was the subject of a "Town Toppers" item.

Mr. Jager is one of the area's leading philosophers in architecture and has spent the later years of his life in historical work. His collections of manuscripts, drawings, plans and other materials are often used by researchers. Among his philosophical beliefs is that a worker who deals with the "five technical arts" assures himself of a long and interesting life. His own years would seem to corroborate this for Mr. Jager is 82, will be 83 in May of this year. The five arts he refers to are those dealing with stone, clay, wood, metal and textiles, all of which are basic in architecture.

Born in Yugoslavia, he is a graduate of the University of Vienna, where he taught until sent to China to build military shelters during the Boxer Rebellion. From China he traveled to the United States, where his father had preceded him. They settled in Minneapolis. He likes to refer to his "silent partnership" with the firm of Purcell and Elmslie and he is still in constant letter communication with Mr. Purcell, now a Californian.

The "Town Toppers" column of the *Minneapolis Star* each day presents a short biography of one of the city's leaders in business, the arts, etc. Mr. Jones' sketch included his portrait and reported that when he retires he plans to travel, do some writing and visiting-teaching, sketch a bit and continue his hobby of map collecting.

"Maybe somebody will even want me to sit down and plan a house for him," he commented.

Mr. Jones has been a member of the university's faculty since 1913. He was made head of the school of architecture in 1936 and has served as chairman of a number of the university's building committees which did the planning for Memorial Stadium and other structures. He also had a hand in plans for St. Paul's Robert Street Bridge.

The school's head has given the department leadership in becoming one of the 10 finest architectural training schools in the country. He is proud of the fact that American schools have provided a new architectural leadership which draws European and other students to this country to study, reversing the famed procedure of the older days when all our architects hoped to "study abroad."

Mr. Jones has said that today's architect is a broader person than the "bundle of plans of the past" for "he is an expert adviser on building problems who analyzes the client's needs and attempts to realize them in organized space and structure and give the result some beauty."

A bachelor, Mr. Jones' hobbies also include cooking.

Our Cover Pic...

Skyscraper watchers had a treat when the Fidelity Union Life Insurance Company's new building was constructed for the usually noisy erection of the steelwork was almost soundless. Gone were the usual chatter of riveting hammers and pounding of carpenters' hammers. Instead, through the use of a new Cofar panel for floor construction and use of bolting and welding, the huge building went skyward with ghostlike, silent speed. Our cover shows materials going up as the Dallas building's various stages of work appear from the upper skeletonization through the laying of floors and construction of stairways to the enclosure with brick by the workman in the lower part of the picture.

This picture was made available to us through the courtesy of the American Hoist & Derrick Co., St. Paul, Minn., whose guy derrick is visible at the top. The use of fast, maneuverable and safe equipment, together with time-saving new materials, has stepped up the tempo of modern construction to levels which would amaze builders of a few decades ago.

The Great Wall of China, over 2000 years old and 1500 miles long, is rated as the greatest brick construction ever undertaken by man. It took 400 years to complete.

TORBERT SAID IT

the preface to the catalog of the current exhibit of the architectural work of Purcell and Elmslie at Minneapolis' Walker Art Center . . .

Architecture of merit is no longer so unusual that progressive museums ignore the production of our contemporaries who design in a modern idiom, but a museum can rarely pay its respects to a firm for projects that were executed in the first quarter of the twentieth century. It was in that seemingly sterile period, nevertheless, when our architecture was still dominated by unassimilated borrowings and empty symbolism, that the impact of a new attitude toward building design was felt in this region. In Minneapolis perhaps the earliest clear-cut evidence of the new approach is to be found in the exterior treatment of a group of commercial and industrial buildings that local architects designed around the turn of the century. In the Flour Exchange (1892, completed 1909), the Grain Exchange (1900), the Advance Thresher (1900), and Emerson-Newton Plow Company (1904) buildings, the surface character of Louis Sullivan's design is appropriated with some degree of success, but the buildings do not indicate that their architects shared either Sullivan's basic attitudes or his sensibility.

The buildings that provide evidence of a full understanding of this new approach appear in the Minneapolis area toward the end of the first decade of this century with the establishment of the firm of Purcell and Elmslie. It is obvious that their designs belong to the body of work now popularly described as being in the "Sullivan-Wright tradition". Although Elmslie's long and intimate professional association with Sullivan and Purcell's contact with the work of Sullivan and of Wright were undoubtedly strong formative influences, the contribution that Purcell and Elmslie may have made to the shaping of the "tradition" should be investigated. It is evident that Purcell and Elmslie were not mere followers. Their buildings are the product of an esthetic sensibility that may have been stimulated and in some degree shaped by others, but it cannot have been borrowed.

Purcell and Elmslie were not impractical visionaries. The structures they designed are functional solutions to the problems posed by the building programs, yet designs of the character seen in this exhibition are often described as "romantic-modern". The buildings antedate the International Style and bear little relation, visually, to the several varieties of modern design that make a dramatic use of thin walls and exposed structure in order to emphasize the effect of volume rather than that of mass. Unlike some modern architects, Purcell and Elmslie were never so absorbed in the logic of structure as to neglect the poetry of architecture. Anyone who feels that contemporary architecture should be nothing more than the most direct and logical solution of a shelter problem will necessarily find these buildings romantic. It is true that Purcell and Elmslie belong to that small body of men who envisioned a fresher and more independent mode of design than their society as a whole was ready to accept. Nevertheless, the term romantic should be applied to their buildings with some reservation, for the passage of time reveals that they are among the few buildings from their period that have not become sadly dated. They have not been outmoded by changes in fashion or in building technology because they were conceived in terms of scale and space, the bases of expression proper to architecture.

With Purcell and Elmslie, as with other pioneers of the modern movement, the practice of architecture was more than a profession—it was an act of dedication. Their designs are not contrivances. They are the fruit of convictions—of deeply felt attitudes toward nature, toward materials, and toward man. Beliefs that are embodied in the writing of Emerson and Whitman are here given architectural expression. The buildings command our attention and respect not because it took courage for their authors to defy the tide of electicism, but because they are the architectural form of ideas and ideals that are still, in their essence, right.

By Professor Donald R. Torbert
Department of Art
University of Minnesota

PENNIG BECOMES CHEMICAL SALES MANAGER FOR VAN HOVEN

A. T. Pennig, Jr., has been named sales manager for the chemical division of the Van Hoven Company of St. Paul. A Korean veteran, he has been a sales representative for Cemtein, the protein additive for lightweight concrete manufactured by the company. He has been with Van Hoven since 1946.

CONCRETE EXPERTS DISCUSS PROBLEMS AT SESSIONS

Concrete construction was the subject of a several-day session for building construction students recently at the Dunwoody Industrial Institute, being sponsored by the Portland Cement Association and the school. The sessions were divided into three sections—drafting and estimating, carpentry and highway construction.

Robert Randall, chief structural engineer of the association, discussed design and control of concrete mixes by weight. Vince Meyers demonstrated mixing concrete by volume, typical form methods and use of concrete and masonry on the form. Highway construction was handled by Norman Arquette. Charles J. Hoover, president and general manager, and John A. Hatfield, sales engineer, Waco Scaffolding Co., demonstrated and told about erection of the company's equipment.

More than 200 students attended the sessions.

CHALKBOARD FACTS OUTLINED

A new booklet covers in a down-to-earth manner the technical controversies which exist in selection of chalkboard materials.

"The A B C's of Chalkboard Selection, Use and Care," 65 pages of fact-packed reading, was prepared by W. F. Mullen, on leave from Pennsylvania State College, after two years of studies and interviews with lighting engineers, architects, etc.

Mr. Mullen presents this in the form of an interview between an architect and a school superintendent. Such problems as eye strain, color harmony, chalk-to-board contrast, cost-per-year, maintenance, brightness ratios, etc., are discussed in detail. Although written for the slate industry, the presentation is objective. It covers the pros and cons of all types of chalkboard materials.

The middle section of the book is devoted to a listing of outstanding new schools throughout the nation designed during the past five years that use natural slate chalkboards. Another section of the book deals with maintenance of various chalkboard materials. Also included is a very complete bibliography of all published materials available on this controversial subject.

The booklet has been made available free of charge to all architects in this area by writing W. E. Neal Slate Company, 1121 Dartmouth Avenue S.E., Minneapolis 14, Minnesota.

The world's largest smokestack, built with more than 18,000 tons of brick, is said to be the enormous stack of the Anaconda Copper Mining Co., at Great Falls, Montana. It is 585 feet tall with an inside diameter of 60 feet at the top.

HARVARD GRADUATE CENTER

(Continued from Page 5)

to recall the old Chinese ideal of man related to nature. Most of the buildings are standard and modular elements but dissonant elements provided by auditoria and recreation rooms form a counterpoint in the design.

This idea of never-ending space is consonant, I believe, with the modern idea of motion, of change, and of our dynamic relationship to society in a system of relatives with but a few absolutes. We have not, then, tried to create the finality of axes, but rather a continuous setting for the moving eye resolving itself here and there in a tonic or a dominant chord.

Proceeding from the great courtyard facing Langdell Hall, The Graduate Center opens its own series of outer rooms and, as in the earlier examples, these outdoor living rooms, as you might call them, have one important wall open and leading to the left or to the right into a variation of the previous space in height, width and length. One could recall, for instance, the Barcelona pavilion of Miss Van der Rohe translated in exterior space term. Central to the four or five courtyards of the Graduate Center is a sunken courtyard approximately 300 feet by 150 feet. This court is about four feet deeper than the rest and helps, I believe, to provide a focal area for all the other spaces and also, by the way, a good gathering place for Harvard alumni in June. In the wintertime spotlights illuminate this area for night skating. Where money was such an important factor, the sunken court was much criticized but I must say that I think that Gropius was justified in his persistence as to its validity and final value. Technically, the drainage solution to this court went hand in hand with the over-all problem of what to do with the basement sewer and storm water. For many years the storm water and sewer wastes have been dumped into a common Cambridge sewer in this neighborhood, causing bad overflows in times of flash floods and storms. In some cases back pressure had forced water back up the pipes through the w.c.'s and even ejected water onto ceilings in adjacent buildings. To avoid this rather unattractive condition, and to solve the problem of the nearby sunken court, an underground retention basin of 52,000 gallons was built to hold the storm water back until the flood waters in the city system had subsided.

Compared with the palatial quarters of former eras, the dormitory rooms seem perhaps small and cramped. After all, the older traditional Harvard man had a living room with its pair of bedrooms, although in the years immediately after the war both Yale and Harvard began using the living room in their suites for extra sleeping space. In addition to this sumptuous space in the earlier plans, a fireplace was included to help provide the proper atmosphere for the young gentlemen. Now, while it is regrettable that we find it hard to recapture the old times, there is something earnest and Spartan about the new graduate student. He in many cases has worked hard to provide himself with the money to come to the advanced schools from places all over the world. He is less interested in the social life than the intense and exciting science of law or the exploration of the varied avenues of architecture. His environment, while it must include facilities for recreation and relaxation, must give

him an efficient place to work and to study, as well as a place to hang up pictures of his best girl. Thus, while the single room in the dormitories is only 8′ 9½″ x12′ 6½″ and the double twice that, they are quite well equipped and are not lacking in comfort. The decision to use a standard room unit, which for the sake of economy would be repeated many times as a single room, a double room with curtain in the middle or a pair of singles with connecting door, was made not without realizing how much of a burden this put on the room design. The old dictum of Frank Lloyd Wright which he borrowed from the Chinese philosopher *"to design from within outward"* was never more imperative.

We took as our point of departure the idea that if the room furniture could be made flexible it would be much better, since the student's desk could then be placed against a wall or against a window as the student preferred or the light dictated and the bed could be placed with the head toward the window or away from the window. Thus by giving the student a choice in the solution of his own particular living habits a small intimation of the idea of a democratic choice of electives is made possible within what otherwise might be a rather monastic cell.

This particular approach to the student room problem, that is, the one of free-standing furniture, is in direct contrast to two very good examples of the other type of room, where everything is built in except the chairs—the Antioch dormitories in Yellow Springs, Ohio, by Saarinen, and the Senior Dormitory at M.I.T., Cambridge, by Alvar Aalto. One point which is interesting to note is that the original intent was to have a majority of rooms as curtained doubles (two single rooms with a curtain between) but a vote among the prospective student tenants turned the majority of rooms toward the single room or connecting singles. Although the *architects* were interested in the greater space feeling developed in the double rooms, which indeed they did have, the students felt quite otherwise and preferred the privacy of the cell. The modular window mullion occurring one-half way between every column point; namely, every eighteen feet, permits a four-inch

block wall to be placed on these points. This modular mullion also contains the vertical risers for the convector radiation under the windows.

Eccentricity Needed

Such a rigid framework, as a uniform repetition of these units indicates, particularly on both sides of a corridor, would have been pretty hard to swallow were there not some eccentric element in the organization. From the design point of view as well as the psychological one it seemed wise to advocate a brief visual rest in the otherwise rather austere façades. This was done by introducing in the longer dormitories a Commons Room which served as a "bull session" room, a place for pre-breakfast stretching out or just plain springtime loafing, as these living rooms extend outward through the glass to form living balconies. It is gratifying in the springtime to see the use of these balconies certified by a row of sneakered feet along the railings. Generally on the unsunny side of the building are projections in the form of limestone slab walls. These slabs, housing the utility and toilet rooms, are separated from the major portion of the buildings by a decorative glass pattern divided into small vertically proportioned divisions of five square feet. The patterned glass wall admits light into the fire stairs and gives us a way of integrating into the design a code restriction which otherwise would have been a great nuisance. This latter device of expressing the service block of the buildings together with the commons rooms and their balconies provide the dissonant, and I hope not discordant, elements in the dormitory design.

I am sure that all of you have struggled as we did with the problem of enclosing a quadrangular space with some sort of continuous building. The traditional solution of wrapping the building itself around the enclosure seems very inhibiting in the corners and unsatisfactory generally from a form point of view. We chose to introduce so-called links at the connecting points at the corners for two reasons: to provide not only a clear and articulate pattern within which the simple rectangular buildings might form a union but also incidentally to provide a common stairway for the adjoining wings. In the over-all site plan picture, these glass and limestone stairhall links actually do save stairways.

It was with these several elements then—the rooms, the balconies, the stair links, the dormitories themselves and finally a series of covered walks that lead the students to the Commons cafeteria—that we strove to form space enclosures which would give a sense of serenity to the student environments, a feeling of relaxation in a world that has forgotten how to relax, a world that has forgotten that the necessary corollary to the word *create* is *recreate*. No medieval cloister with its feeling of shutoffness was going to satisfy what was needed here. What we were looking for was an enclosure with an open end, an end always open to the world, an end always open to receive new ideas necessary to provide growing soil for the dynamic civilization of the coming generation.

But what good are ideas if we do not provide a place for

discussing them? To quote Dean Griswold, who was talking mainly about his law students, although the spirit of the quotation could be equally well applied to the other schools: "Through these buildings we are returning somewhat to the ancient tradition of legal education in the home of the common law, where to this day the eating of dinners at the Inns of Court is an essential prerequisite to a call to the bar."

The second floor of the Commons Building seats 500 diners, cafeteria style, and up to approximately 1,200 at one meal by double use of tables. On the ground floor there are lounges and meeting rooms for audiences of up to 250 persons. The actual cooking and preparation facilities for dining are on the second floor, whereas directly underneath on the first floor there are the administrative offices of the kitchen and the main storage units. At first glance it may appear somewhat strange to place the major functioning unit of the building, its dining hall, on the second story. After all it does mean lifting 1,000 persons up a whole floor three times a day, not to speak of the necessary vertical circulation problems of the kitchen in connecting the storage areas with the preparation room by elevator. But if we look back in history, it is not too unusual to find precedent for this lifting upward of people in a building to major areas above. Examples such as the New York Public Library or Widener Library at Harvard, where the main circulation desks and reading rooms are reached by great stairways, or even Wanamaker's Department Store in Philadelphia, where the vertical circulation upward has been highly dramatized, should be remembered.

However, we were not concerned with making people walk up stairs and ramps through mere whimsey. It seemed to us fundamental in a solution of the building to tie together all the miscellaneous strings of circulation in the dormitory group and its arcades with a large concourse running through the entire building. This is essentially the center of the Graduate Center where students may hang their coats, telephone their dates, buy the *Harvard Crimson*, look at the bulletin boards for coming events, examine their marks for the last exam or meet with their friends before starting dinner. From the concourse you can look down a half floor to the lounges where a group is gathered around the FM or the graduate clubs are sponsoring a social get-together. Having bought their meal tickets, the students walk from the concourse onto the ramp which will take them to the central point of division between two complete serving lines on the second floor. The ramp is approximately 90 feet long, turns on itself in the middle and has a slope of slightly over 1:8. It is a reinforced concrete structure which cantilevers its slabs out the sides and off the platform end by means of a central spine wall which rests on a single 10-foot square footing at the base. The nature of a cafeteria is such that a waiting line in rush hours is almost inevitable and the ramp provides a suitable base for a slow moving queue of people. On their right as they move up the incline is an abstract ceramic mosaic mural by Herbert Bayer, giving those who are in line something to look at to make the waiting less boring.

Vertical Circulation Has Purpose

The principle of having a vertical circulation which takes you to the heart of the matter intrigued us very much and it seemed to obviate the necessity of having the students walk through a large dining hall to get to the serving line, as is common in so many large cafeterias. I looked up the Aalto Library in Viputi the other day and recalled a somewhat similar circulation from an entrance up a whole level, by the circulation desk and thence out into the reading areas. One is tempted to suggest the possible application of this principle in such buildings as libraries, and museums, where entrance at a central point would avoid interrupting the continuity of the fundamental reading rooms or exhibit rooms.

The serving line itself is a completely interior area with continues egg crate lighting system overhead. We were worried at first about the color of the fluorescent lighting on the food, but it does not seem to be a great problem. A series of deluxe warm white tubes were used. The great dining hall is divided into several large areas with continuous windows opening on the sunken courtyard of the building group and

the neighboring Langdell Court. The large windows are interrupted only at two or three places along the façade of the building, which gives accent points in the design of the exterior and the interior spaces. There are panels fitting into the general modular treatment of the windows, faced with blue glazed brick on the outside and providing a base for murals by Herbert Bayer and Joan Miro on the inside. Having eaten his meal after having been subjected to the somewhat controversial symbolism of Messrs. Bayer and Miro, the student leaves his plastic tray at the scullery window and goes down a stair to the concourse. There is a scullery and stair at each end of the building. Thus traffic up and traffic down make a completely one-way circulation.

One more advantage of the raised dining hall and kitchen scheme might be mentioned. That is the raised kitchen with its generous natural lighting all around, through clerestories and regular size windows seems to be a very cheery place in which to work.

It is a great privilege to be able to supervise the colors and furnishings of a project that you have designed. Certainly this seems to be the only way to insure the expression which the architect intends. In Cuba the young architects very often design all the furnishings for the houses they design, while this is a rather rare occurrence here. With what chagrin the architect revisits a house he has designed only to find the house being lived in very differently from what he had imagined. We regretfully have to fall back on that old bug-a-boo, "taste," to explain what we feel is lacking. We were fortunate in that our commission for the Graduate Center included choosing and designing the complete furnishings.

At the inception of the work we were very much concerned to find a chair which could stand up under dormitory wear and tear. I don't know why college dormitory inmates are considered to be absolute ruffians but this seems to be the traditional point of view inherent in dormitory design and we accepted it as part of the program. We needed first of all a basic chair for the typical student room and a chair for the dining room which were similar in requirements. Most of the existing models we tried in the contemporary vocabulary were pretty fragile and seemed to be unsuited. It appeared there was a good repertoire of modern furniture for residential work but not a good selection at all for institutional projects.

In the process of selection we had twenty to thirty different existing chair models for everyone to sit in and to try for comfort and strength. We were often disappointed in our search and found some traditional or conservative models, well built and comfortable for a reasonable price but completely lacking in any feeling of design. The final result was that we remodeled an older Thonel design of bentwood construction with a very strong cantilevered one-piece arm. We considered this arm essential for comfort both in the student's room and in the dining hall. This chair is really a variation on the old captain's chair.

We found the construction of the typical office desk also hard to replace. Consequently, here, too, our job was essentially a remodeling one—revising the hardware and adding a

solid wood top with a fine finish instead of the usual linoleum with metal trim. To make this unit complete, a rolling bookcase which doubled as a desk extension, with its wood top at the same height as the desk, was designed.

One of the major problems still somewhat unsolved, I am afraid, is the enigma of when a bed is a bed and when it's a day sofa. This always means that as a sofa it has too wide a seat with no slope. We attempted to solve this by designing wide, triangular shaped cushions to be placed at the back of the bed to make the seat shorter. These cushions can be easily put away at night. In order that the student may sit up in bed and read at night, there is a solid panel at one end against which a cushion can be placed. Apparently this position is rather important for the up-and-coming scholar.

Again in the easy chair, which accompanied each dormitory room and was used in many of the lounges, purely sculptural lines were abandoned in favor of sturdy construction, comfort and economy. These pieces are typically covered with black or brown plastic Boltaflex in the student rooms but in the lounges natural leather and more interesting fabrics were used to give sparkle to what is otherwise rather a stolid exterior.

Other items which were designed included modular coffee tables, some in black plastic and some covered with hemp squares for relaxing tired feet, some conference chairs and assorted tables, lighting fixtures with translucent shades and a compartmented plastic tray 14 feet in diameter for the cafeteria, meant to provide a more sympathetic food receptacle than the usual rectangular monstrosity.

Completion Brought Reassessment

The completion of the Graduate Center gave us a chance to experience and reassess the actual feeling created by a small cityscape. A little while ago when I was just getting out of architectural school, I found it very easy to have violent arguments with friends about this new environment. Would people really like all this planning? Wouldn't it be too dull? What about all these big windows? What were all these exposed columns doing? In any case, the sensation is a new one and in the last fifteen or twenty years there has been quite a body of examples built up that have provided us with a lot of food for thought. Such examples include Van der Rohes' Illinois Tech buildings, the development of the UN complex, Wright's Florida Southern College, The Festival of Britain and, on a much grander scale of course, the TVA planning. The TVA presents a whole valleyscape of integrated planning in technological and sociological fields.

Now while it is futile to pretend that the new look in architecture and planning has all the answers, certainly there are new potentials being opened up because of it. We have witnessed a very free approach to the planning of buildings, augmented by an acute interest in three dimensional possibilities. Witness the skip-stop elevator sections of the Eastgate Aparements in Cambridge, or the Corbusier Marseilles apartments. Perhaps this interest in the sculpture of space is even more obvious in modern small house design. Outside spaces have felt this particular facet of the imagination also. With the advent of large glass areas, living rooms, lounge rooms and other such spaces find an easy extension into the landscape. In larger scale we have found it possible to raise large portions of buildings up to posts, thereby connecting neighboring squares or quadrangles. But along with this greater possibility of spatial extension, a responsibility has grown for limiting space or for creating a sense of enclosure. The greater sense of exposure, compared to former times, demands greater contrast in the containment of space.

At night perhaps the strongest feeling of a new world takes place. The tendency to design windows as a continuous wall, or at least windows going from partition to partition, creates an effect of ribbons of light or planes of illumination rather than point sources. Again the large windows are important, for at night they reveal completely the busy life within a large public building and I must say that the feeling is friendly rather than otherwise. These large public spaces faced with glass have a generous, open and extroverted attitude to the casual passerby. There are other interesting effects at night,

such as the indirect lighting on a wall lit by a continuous ribbon of light from a window at the side. The effect is somewhat similar to a continuous cove light placed vertically on the wall.

I think it is going to be pretty hard to revoke some of these events in architecture. What is actually happening is the building up of a new physical pattern, making in some cases unanticipated effects. We, in fact, do not have quite hold of the stainless steel tail of our friendly Frankenstein. But whether we do or not is unimportant. For although our new architecture has created a whole set of annoying problems in planning for privacy, acoustics, lighting, selection and use of materials for durability, and many others, I believe we must go on exploring the potentials that accrue to use from our present-day civilization and welcome also the myriad of new problems which follow in their wake.

FIRE PROBLEMS

(Continued from Page 6)

if not impossibility, of troweling some of the curved surfaces. The only two areas not acoustically treated were the back wall and soffit of the arch in the sanctury and the walls of the choir gallery and organ chambers. These areas were designed to reflect sound.

A new technique for spraying vermiculite acoustical plastic with a power-driven plaster pump was developed about a year ago. Four different textures can be produced with this application method and it is reported that every architect who has seen such a job has been deeply impressed.

It is virtually impossible to describe these textures in terms that do them justice. They must be seen to be fully appreciated. The over-all effect is a rich, velvety surface with uniform "pile" that casts light shadows. It is quite unlike any other acoustical application and has no suggestion of "slickness." The textures are attractive in any lighting, but become remarkably beautiful under recessed cove illumination.

Three of the textures have been designated as "heavy," "light" and "medium." These are left untouched after the spraying. The fourth texture is a smooth, hand-troweled finish, effective as a contrasting band on light trough fasciae. The heavy and light textures make an excellent combination where a ceiling has different levels: heavy texture on the high portions, light texture on the lower part.

The effects are obtained by changing the motor speeds of the plaster pump, by raising or lowering the air pressure and by reducing the distance of the nozzle from the surface being sprayed. No change is made in the mix itself. For the heavier textures, the air pressure is reduced so the mix will come out in thicker globules and the nozzle is held nearer to the surface being sprayed so that more material is deposited.

The first building in which all four textures of machine applied vermiculite acoustical was used is the smart new restaurant of Blum's in Pasadena, Cal., designed by H. Roy Kelley, AIA of Los Angeles.

OIL AND TACONITE

(Continued from Page 12)

Heavy steel demand has depleted the richest iron ores from Lake Superior ranges (by far the country's most important) to the point where new sources have had to be found. The search has been under way for at least

10 years and it now appears that "manufactured" iron ores will one day be our biggest and most reliable source of supply. . . .

Taconite at best is only about one-fourth iron, the remainder being a mixture of valueless minerals. Each range is composed of rocks similar to taconite (name for the Mesabi ore of this nature) but because of differences in their physical makeup their commercial significance varies. . . . A surprisingly small portion of this rock is usable; most of it is waste. A typical sample will show 35% iron oxides, 20% iron silicates, 5% iron carbonates and 40% chert. Of the four, the iron oxides are the only ones useful in the manufacture of iron and steel. . . . Iron oxides are found in two main forms and have one important difference. Magnetite, a fine grained, black mineral, can be readily picked up with a magnet, while hematite (red rust is an example) is practically non-magnetic. In the commercially usable taconite of the Mesabi Range, nine-tenths of the iron oxide is in the form of magnetite. . . .

Processing taconite requires grinding the rock fine enough to free the microscopic grains of magnetite, then sorting the tiny particles from the rest of the material—tons at a time. . . . Magnetite grains are of the order of 2-thousandths of an inch. Blocks of taconite as they come from the quarry may be up to 4 or 5 feet across and they must be shattered until the fragments are no larger than 3- to 5-thousandths of an inch. . . . Separation is the heart of the process. As the finely ground mud from the final reduction mill moves through the separator, electromagnets draw the tiny particles of magnetite to the surface of a rotating drum while waste particles drop away and are discharged.

Iron content of the mud is now very high—in the neighborhood of 64 per cent. . . . The mud is passed into a filter and water is sucked by vacuum from the soupy, black concentrate, converting it into a thick mud which will cake easily. The mud then enters a slightly inclined rotating drum and by the time it has tumbled and rolled to the far end it has formed into round pellets about an inch in diameter. These pellets are highly cohesive but heat treatment is necessary to make them hard and solid—ready for the rough handling they receive between the plant and the blast furnace.

This preview of the industry that may become a part of the range economy during the next five years covers only the first round of developments. Production from those facilities is expected to reach 6 to 7,000,000 tons a year by 1957. In contrast, current yearly iron ore production from Mesabi ranges mines runs 60 to 70,000,000 tons, while the Marquette, Menominee and Gogebic ranges each produce 4 to 5,000,000 tons a year. . . . Some layers are rich in magnetite, others practically devoid of it. In some layers the minerals are relatively coarse grained, in others they are so fine that no amount of grinding can free them from each other. Thus, while the over-all taconite reserves are almost limitless, only those particular reserves from the richer magnetic layers and within a few hundred feet of the surface are of any commercial importance.

Based on this more conservative picture, usable taconite reserves have been estimated at about 5,000,000,000 tons. That would be enough to produce 1,700,000,000 tons of concentrates, which represents about as much iron as all the ore shipped in the history of the Lake Superior iron ranges.

The Mesabi is not alone in new programs. The first of two plants designed to process jaspery, iron bearing rocks of Upper Michigan, is now being built on the

Marquette range. . . . The hematite-jasper rock has some features that recommend it over taconite. It runs higher in iron and is easier to quarry and crush. Because of its coarser grain size, grinding is simpler. All of this will help offset the relatively higher separation costs . . . for . . . the hematite (non-magnetic) must be separated by flotation, gravity or density actions. . . .

Economic Implications . . .

The taconite industry on the Mesabi has possibilities of going beyond the 20,000,000 tons a year capacity now expected for the two big commercial plants. It is felt that taconite will be one of the chief factors in making up the difference between the expected growth of iron ore demand and decline in output of Mesabi's natural ores. Just how much of the difference will be met by taconite depends on how the costs of its product compare with those of the important competing sources, particularly Labrador and Venezuela. . . .

Costs are a critical problem for taconite. Mining costs are inevitably high—each ton of product must bear the mining costs of three or four tons of crude rock. In addition, power, fuel and water requirements for processing steps are great. Only if all aspects of cost are kept as low as possible can this new industry expect to be competitive with other sources of high grade ore concentrated by nature. Technical advance can have a substantial effect on operating costs through the introduction of more efficient machines and methods.

The taconite industry will be very important to the iron range area and the facilities that serve it. On the Mesabi, for example, it appears that taconite processing will more than offset any loss in employment that might result from the gradual decline expected in production of natural iron ores over the next 25 years. Within 10 years, 6,000 persons may be employed by the taconite industry in Minnesota, almost two-thirds of the number of persons now employed on the "direct-shipping" natural ores. From the standpoint of length of operations, the presently usable reserves of taconite are sufficient to keep a very large industry going for several decades. . . .

Until more data are available, it is impossible to forecast the impact on the taconite industry of slumps in demand for iron ore. Based on trends in population and use of raw materials in the United States, official expectations are for a long term growth in steel consumption —hence demand for iron ore—of very substantial proportions. Such conditions imply the steady employment of both low and high cost sources of iron ore. In the event of severe reductions in demand, however, it must be recognized that high cost sources such as taconite may be at a disadvantage. . . .

The general level of economic activity on the iron ranges of the district can be expected to rise rather than decline with the coming readjustments in ore supplies. This is quite significant, since iron mining supports directly or indirectly a good share of the population in sections of the Ninth Federal Reserve District. The new industry has good possibilities for growth and an extremely long potential "life." Important to the banks and commercial operations in the area is the prospect that the taconite industry will contribute to a steady year-round level of business activity.

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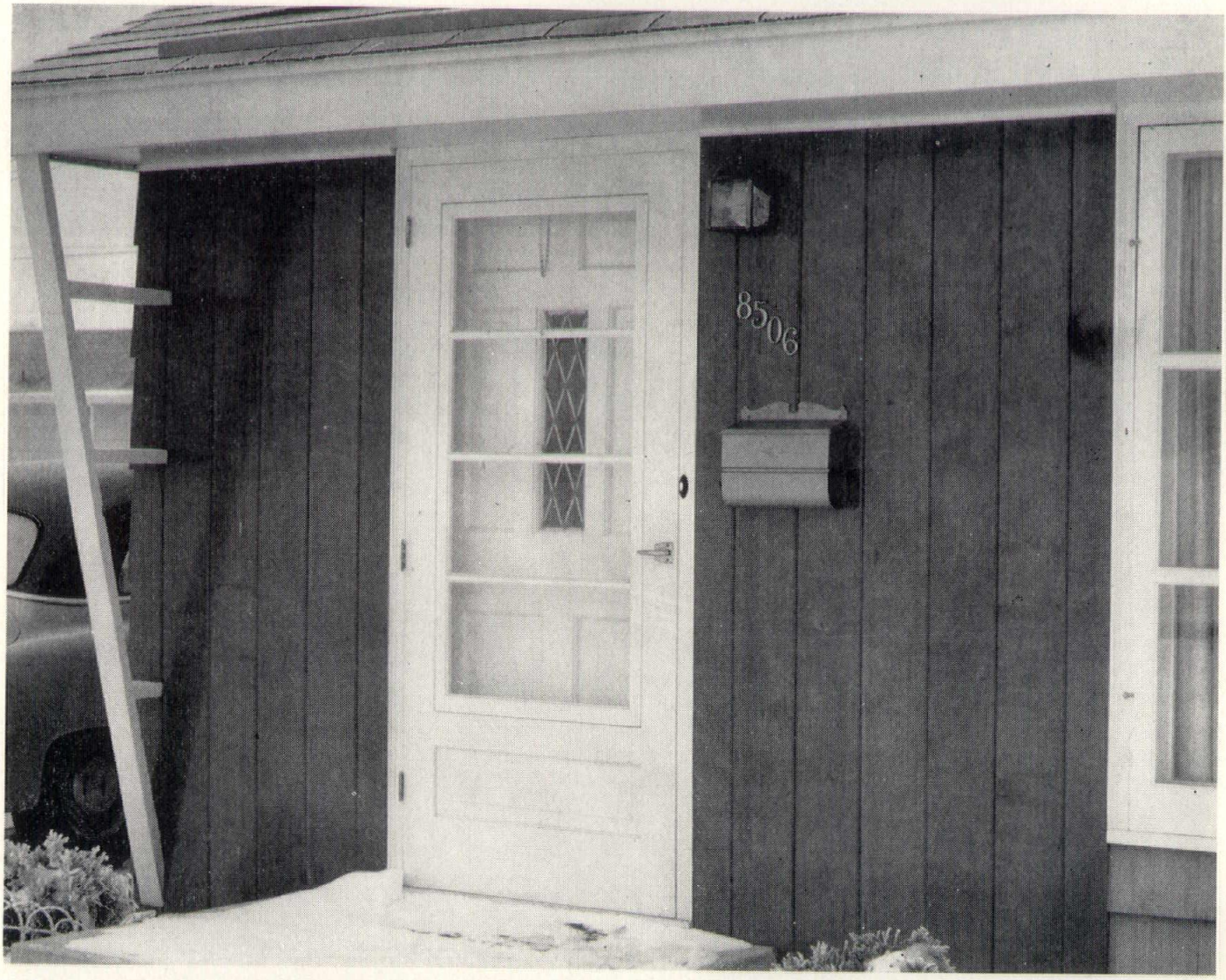

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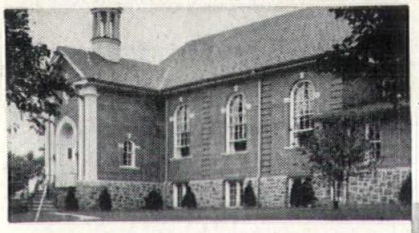

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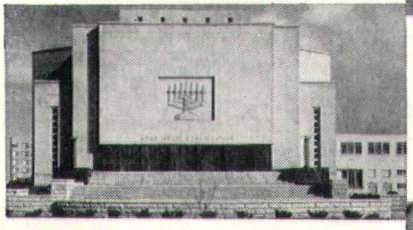
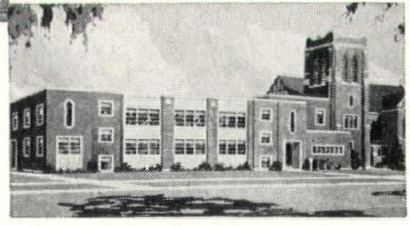


Adas Israel Synagogue, Washington, D.C. . . . Zonolite insulating Concrete used under radiant heating coils in the floors. Architect: Frank Grad & Son, Washington, D. C.



Grace Evangelical Lutheran Church, La Grange, Illinois: Zonolite insulating Concrete used in the basement, as fill between floors and for the roof deck. Architect and Engineer: A. Einar Olson, Chicago; General Contractors: Heidel & Beck, Inc., Chicago.

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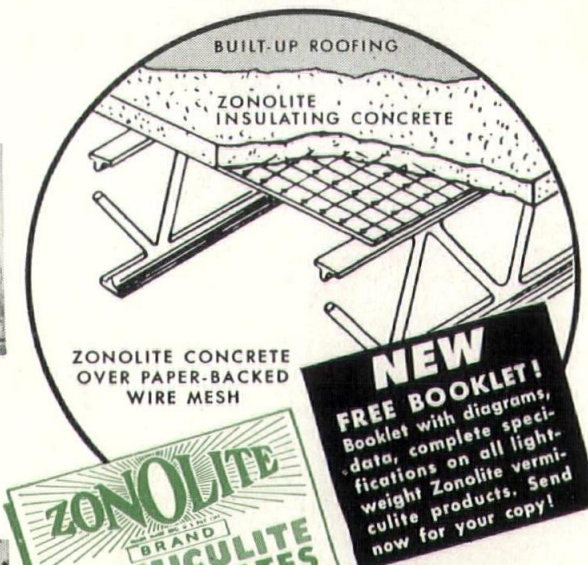

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