OFFICIAL PUBLICATION MINNESOTA SOCIETY OF ARCHITECTS

Wintergreen Galleries *Anycity—1973*

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NORTHWEST ARCHITECT

NOVEMBER-DECEMBER, 1953

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VOLUME XVII NUMBER SIX

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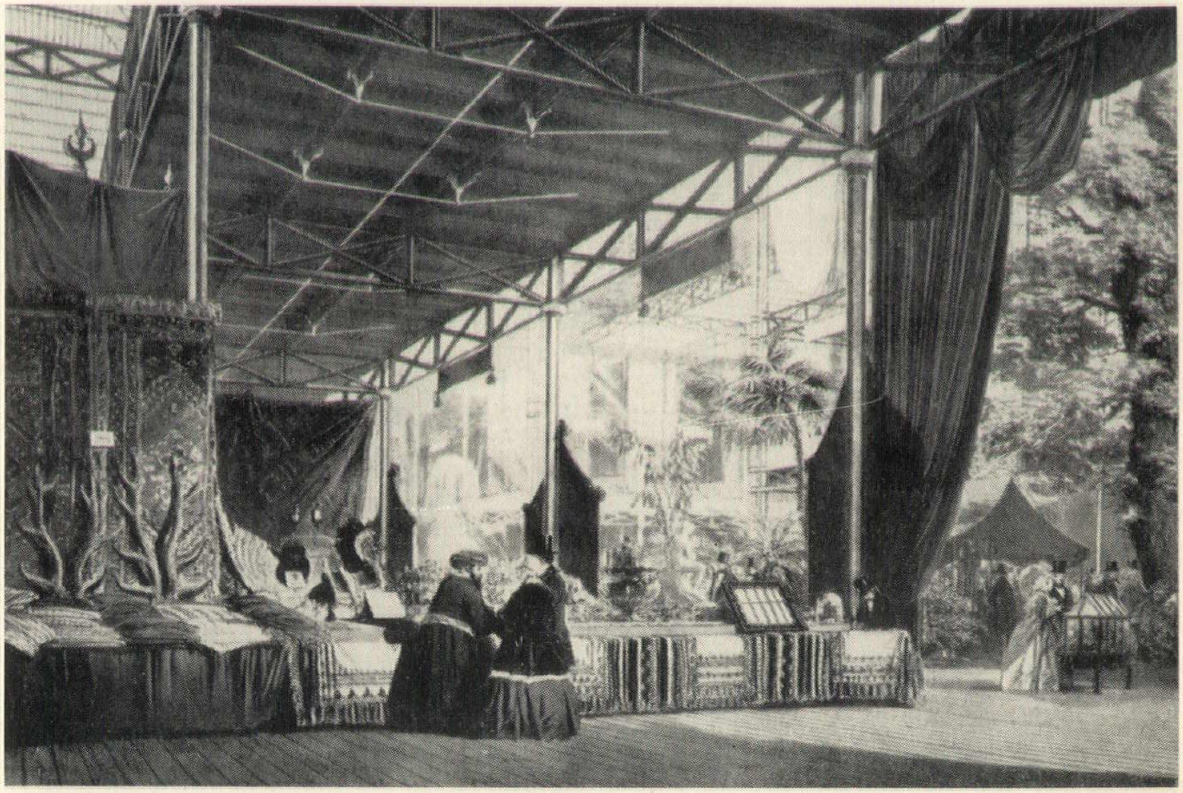
NORTHWEST ARCHITECT

PREDICTIONS OF THINGS TO COME

1850
1970



January 1973 scene in a Minneapolis department store wide open to the "wintergreen gallery" underglass boulevard beyond.

THE BROAD AISLES of Dayton's Downtown, floor by floor from street level to top floors, are newday thoroughfares in the process of change from the standing room aisles of the pioneer "store" to the indoor pedestrian boulevards of progress in the hundred years now ahead of us.

The Display Art in merchandising began as a show-window art which put too long a time factor between the impulse to buy which was created at the sidewalk and the awaited act of purchase at counters yet to be visited, far within the store. Too many potential customers faded away before buying.

Now even the broad aisles are yearly further broadened, and diversified. And for the window-shopper the show-window is not only opened, it has disappeared, and the door as well. All that now remains is that we shall also open the entire city to the sun and light; connect these new age indoor pedestrian boulevards to the adjacent buildings and to the inner streets of neighboring merchants.

THUS BY MUTUAL ACCOMMODATION a fabulous new city will grow naturally, where commerce, freed of the trammels of transportation, will be better able to serve its customers and the general prosperity.

H. W. Fridlund, A.I.A., Editor
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1953

WINTERGREEN CIVI

By William Gray Purcell, A.I.A.
Architect

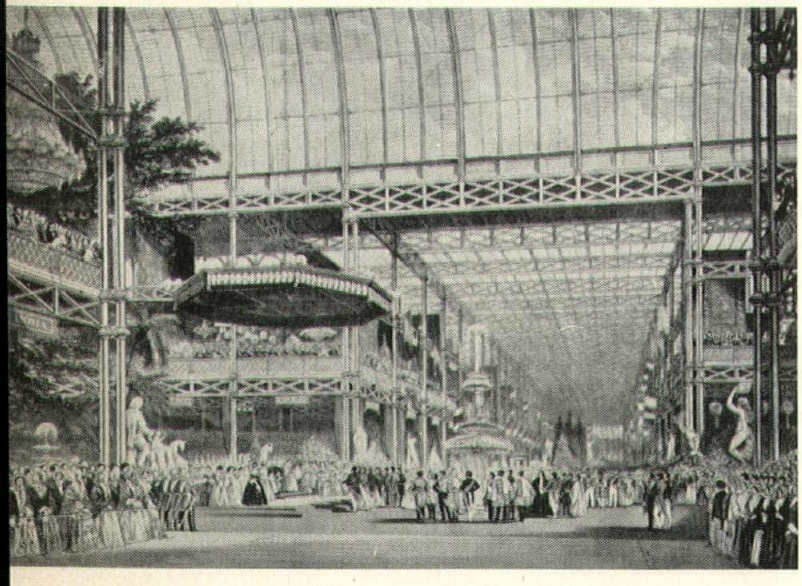
MINNEAPOLIS-ST. PAUL and many midwestern cities face a pressing need to solve two city plan problems:

A NEED to dramatize their character in some better way than by the overworked news picture or worn-dull verbal pitch, vocal or printed.

PROMPT ACTION to stop the diminishing volume and increased cost of "loop" retail business due to travel hazards and transport costs; too high public transit fares; double handling trucking costs; private car parking expense; and for walkers, danger, time loss.

PERSONS who are family purchasing agents must have cheap, prompt, pleasant access to goods offered, or they will go without, or buy by mail. In either event they too often remain dissatisfied. Now let's acknowledge that for a large majority of people buying is itself a form of entertainment — food, clothes, theater, sports. If the labor, time and fatigue factors are too large, everybody loses.

In business, whatever the errand and by whatever means, people, vehicles and merchandise in motion are a 100% loss and it is right here that the greatest savings in the process, "*source-through production-via delivery-to consumer*" can be made. But this saving can only be realized through very close integration between business and city government, engineered by a team of highly experienced experts in many specialties.



CRYSTAL PALACE OPENING CEREMONY May 1, 1851, shows sense of space essential to all indoor merchant "high"-ways, here pictured in use for a civic festival. On business days three-story shops open free upon these "streets," again made gay with plant shows, sales booths and sidewalk café tables.

Photographs in this feature are copyrighted by Victoria and Albert Museum and used by permission.

WE NOW KNOW why the Burnham-Bennett city plan of forty years ago remained unrealized. It was a picture plan thought up by the fashionable theorists of the moment. No part of it was related to any living factor in Minneapolis development. That was the appliqué architectural style of that day. All the civic pressure available was used up blowing the whistle. Then everybody just forgot the whole thing.

So let's really get down to cases as of today.

FIRST PROBLEM

Separation of pedestrian and vehicular travel.

WE MUST HAVE through "streets" for walkers only.

WE MUST HAVE through streets for wheel traffic only, and no pedestrian crossing intersections. This means lifting all foot travel up from present street level to Fourth Floor level or higher, *passing directly through or above existing buildings*, crossing existing streets on transparent, air conditioned "covered bridges" built of structural glass and reinforced plastic. These shelter walkways warmed in winter, cool in summer, safe from traffic hazard, will thus open new areas of unusually attractive interior "store fronts" with no glass and doors needed nor desired, *and all this in rental space where returns are now the lowest.*

The construction of such new business ways can be accomplished without major structural changes in existing buildings, but does present some new concepts for legal solution. Acquisition of easements will be required, to pass through the air above private real estate, whether built upon or not. Such enabling contracts would add to each old building a double frontage walkway even more productive of profits than the conventional grade level store front, now made ineffective by ordeal of automobile.

WITH TRAFFIC SEPARATION as a principal objective in meeting a reconstruction of the city that cannot be too long delayed, I propose that we get on with an analysis of our California-in-Minnesota "Wintergreen," all glass, indoor shopping "high"-ways, which will provide more business and more profits for several hundred merchants, large and small.

THIS PRINCIPLE of a two level city can only be made possible if certain executive power meters are cut in on the management line:

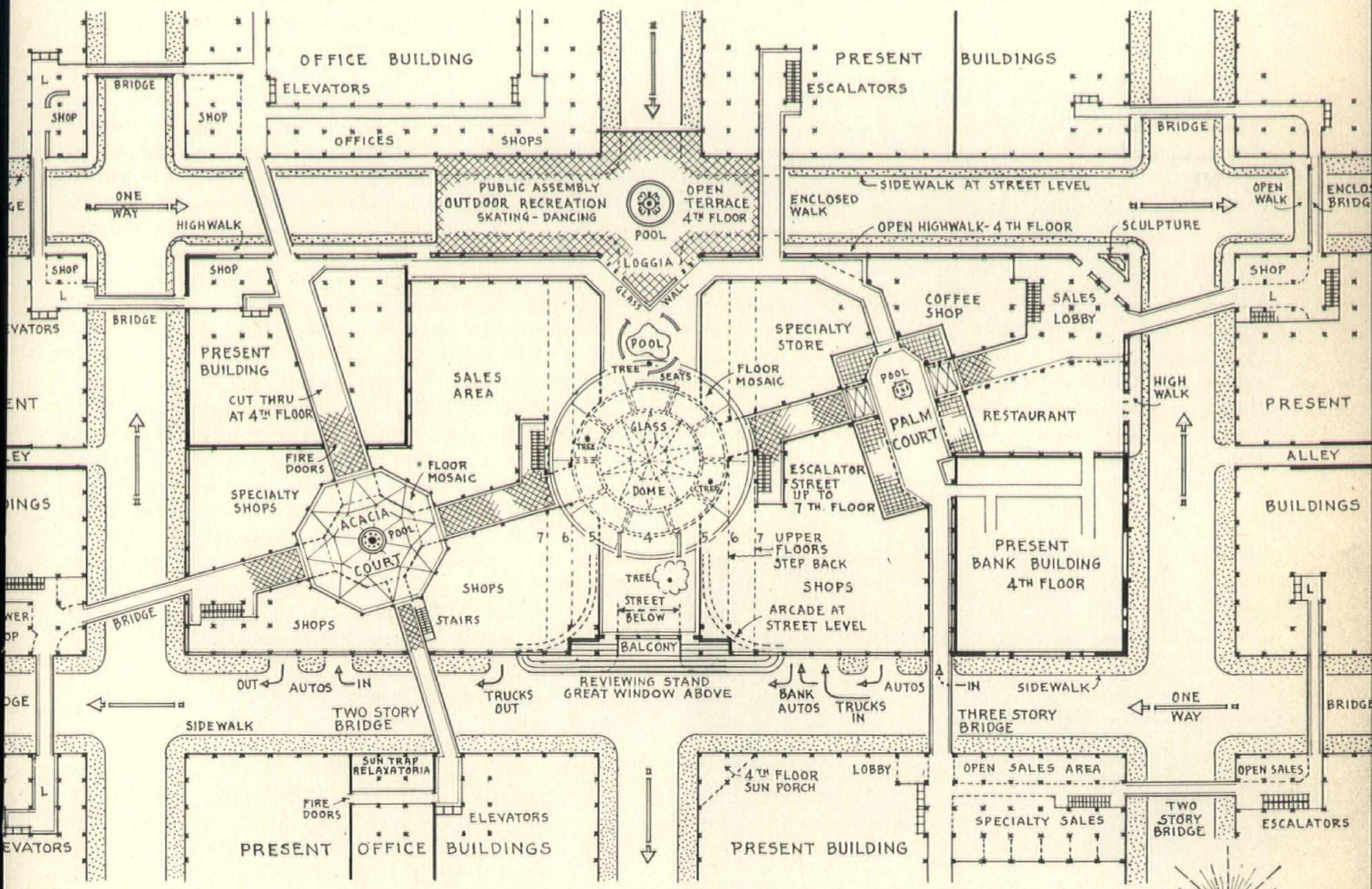
A TIME METER.

A COST METER.

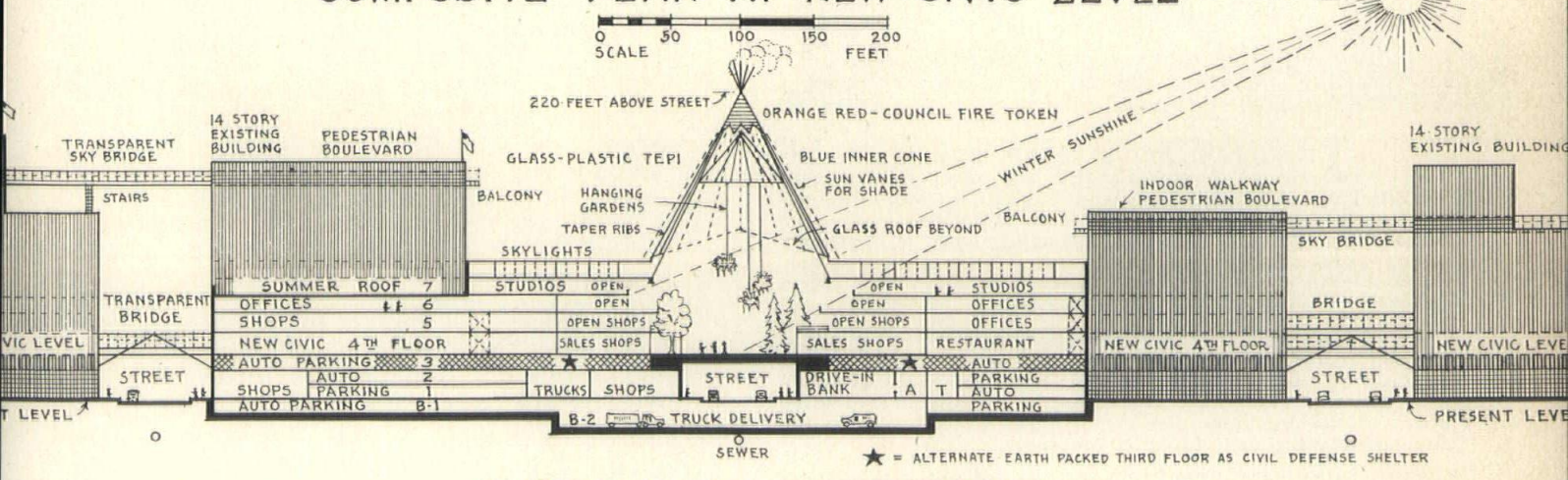
The *Time-dial* will set a production pace and interim goals so that the general public and participating businesses can understand the project, test each new unit as it is constructed and thus be assured at all times that the project is proving its value and living up to all detail expectations.

The *Cost meter* will supply co-ordinate information

DEVELOPMENT UNIT



· COMPOSITE PLAN AT NEW CIVIC LEVEL ·



AM GRAY PURCELL A.I.A. · LONGITUDINAL SECTION · DECEMBER 19

ASK "WHERE CAN YOU LOCATE 'WINTERGREEN' UNIT IN MINNEAPOLIS ?
SWER: "WE HAVE PURPOSELY DRAWN OUR PLAN AS AN EXAMPLE BASE
ASSUMED CONDITIONS. THIS PLAN IS NOT A SPECIFIC SOLUTION.

so that both overall financing and individual owner cost of participation will together keep within sound banking relations.

Our Wintergreen project with the very great changes it will make in every part and at every level of city development is no fiat excitement. It is the normal unfoldment of a basic idea. It can keep pace with any growth of the city, however vast, in a quarter century, in a hundred years even. Whatever the cost, growing naturally out of the seed project which is our Wintergreen Center, continuously expanding toward citywide changes, the costs would be much greater if we persisted in the present system of "error first and trials no end" which has produced the loss and confusion under which we are now trying to do business and is now wrecking the city physically and financially.

First practical move is to establish our working level for the project about 30′-0″ above present street grade. Assign "to parking" practically all the two block area under our building at street level, open, clear on all sides, with additional parking levels one floor up, and one down to basement, for warm car care. Just beneath the 30′ level assign a service floor for merchandise storage available to all the shops with individual space and freight lifts for each.

IN ST. PAUL AND MINNEAPOLIS most pedestrian travel, both horizontal and vertical, must soon be lifted up out of the motor melée, churning through slush, summer souse and windy smust.* In this picture you see it fully accomplished in twelve peaceful acres of organized space built one hundred years ago. The project continued its welcome, practical and profitable service until 1923—seventy years of it.

EVEN UNDER the enlightened business imagination of the Dayton tribe, the "loop" problem cannot be solved by expecting business enterprise to take over the heating, cleaning, paving, sheltering, regulating and financing of large parts of the business districts of cities which are now unsuccessfully trying to function "outdoors."

THE NEW-DAY STREETS and department store sales rooms opening free upon them, such as are shown in the picture above, will be served by streets under a common roof, as highways should be and must be. But this new relation between roads, weather and commerce is no reason why the cost of the resulting benefit to all travel and transport afoot and awheel should not be shared and policed by cities just as the old out-of-doors kind are now so serviced at much greater expense without comparable satisfaction from these now outmoded facilities.
***New word for—5° dust storms!**

And then there is civil defence. It would be possible at small cost to pack this third floor solid with earth. This done, the all-open first floor at street level would give 25,000 people overhead protection in less than five minutes. The sense of openness all around, while adding some danger factor, would eliminate the much worse panic factor induced by a sense of tight enclosure. Some hand operated blast-baffle vanes might be developed to provide added protection without the sense of being boxed in. Those underground garages beneath Pershing Square in Los Angeles and Union Square in San Francisco, promoted as bomb shelters, are actually three story deep traps, where frightened people, stampeding down into such caves among a maze of stored automobiles, distracted by darkness and claustrophobia, would pile up at bottlenecks, or be asphyxiated by the heavy gases of an outside atom explosion, which would pour down the vehicle ramp-ways like a flash flood in a dry wash.

Even if there were no bomb, any day now, a false alarm there in front of the St. Francis Hotel could drive panic'd people down the ramps in a fighting mass. Of the 600 persons who lost their lives in the Iroquois Theater fire of 1903, few if any were burned or even gassed with fire fumes. They died by piling up on one another, on steep stairs, against closed exits.

TO LIFT UP the pedestrians of a new Minneapolis to their new indoors buying and civic recreation "street" level —pedestrian "walkways"—glass enclosed "galleries," a number of varied facilities will be needed:

PLAN THE indoor pedestrian boulevards, not as pre-determined street and business location patterns, but as receivers of the foot-traffic coming from all six surrounding blocks, and get this flow organized and directed at its points of origin, by making maximum use of the approximately fifteen elevator services available in now existing office buildings.

This will begin the gathering of people off present city grade sidewalks, as well as the occupants of present buildings, out of floors above and below, on their errands at lunch hour or five to six o'clock shopping.

Locate escalators at the principal funnels of present foot travel buyers and car parkers. One important feature here is the use of these elevators and escalators as a demonstration for upper level thoroughfares of the future. That is to say, escalators, lifts, elevators must feed and be fed by the enclosed plastic bridges so that the public may cross all four bounding streets at points of convenience, thus bring ten more blocks into the system at once and so on throughout the "loop."

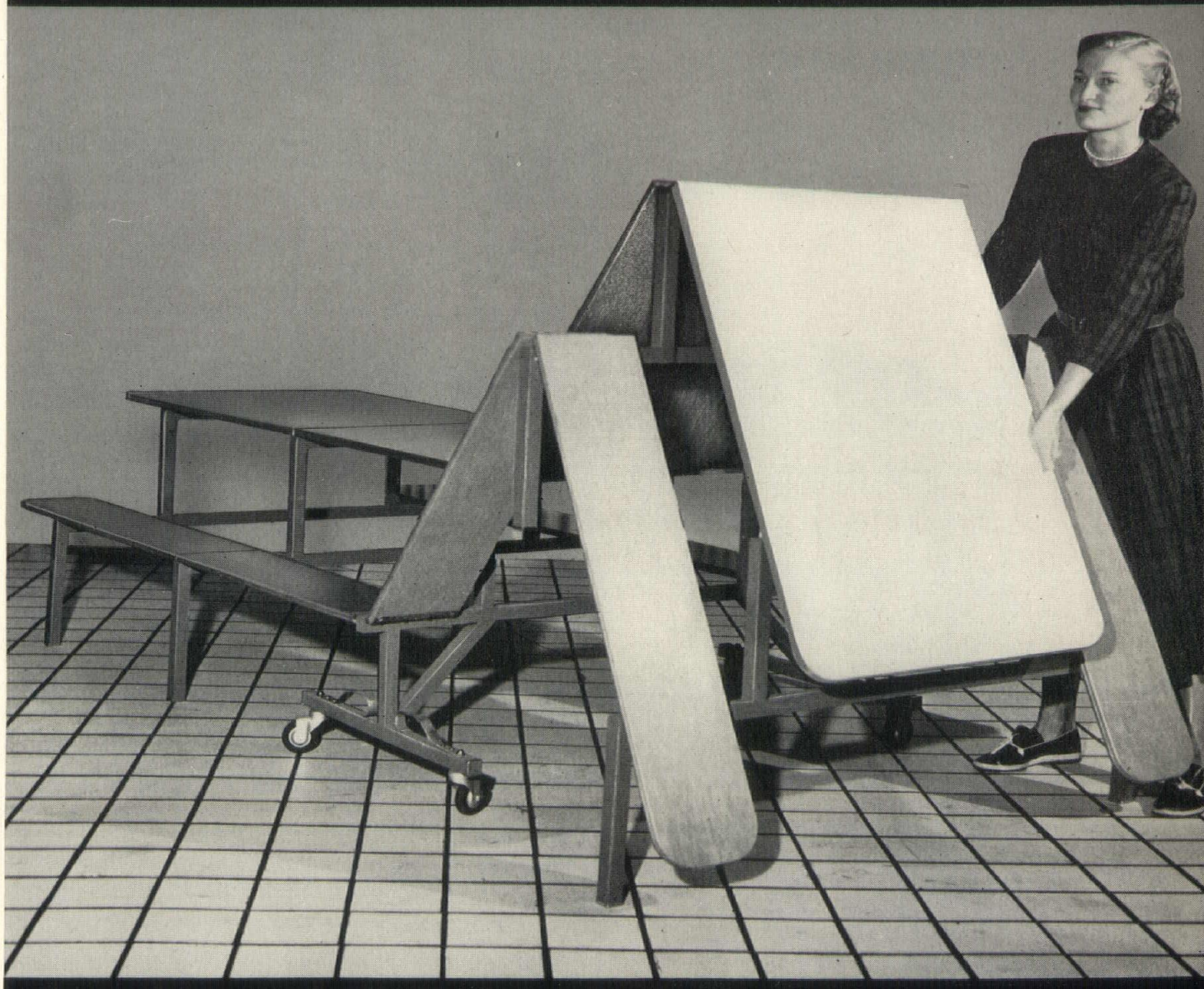
THIS IS ALL SHOWN ON OUR PLAN and it might be good to study the plan on page 5. You will see that it will require from eight to twelve bridges for the two-block area, some of them of two and three stories so as to serve several upper levels of Wintergreen Gallery sales highways. In looking again at our plan, keep in mind that this plan at one and the same time not only proposes to solve its own problems, on its own site, in relation to surrounding city blocks, but to demon-

(Continued on Page 44)

Erickson

Fold-A-Way Tables with Benches

FOR DUAL-PURPOSE USE OF ROOMS



Portable and Wall-Attached Models

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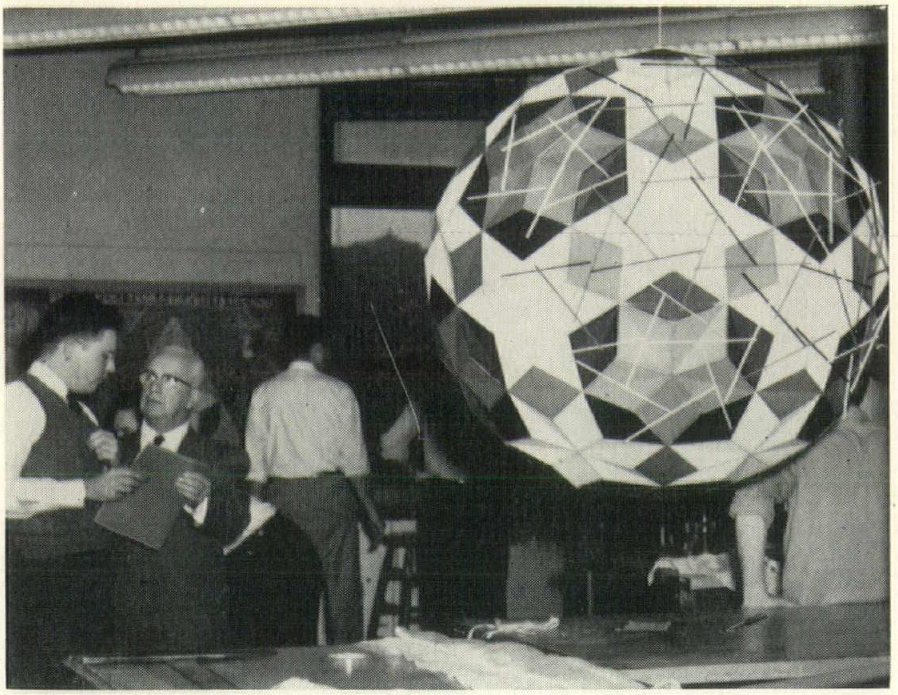
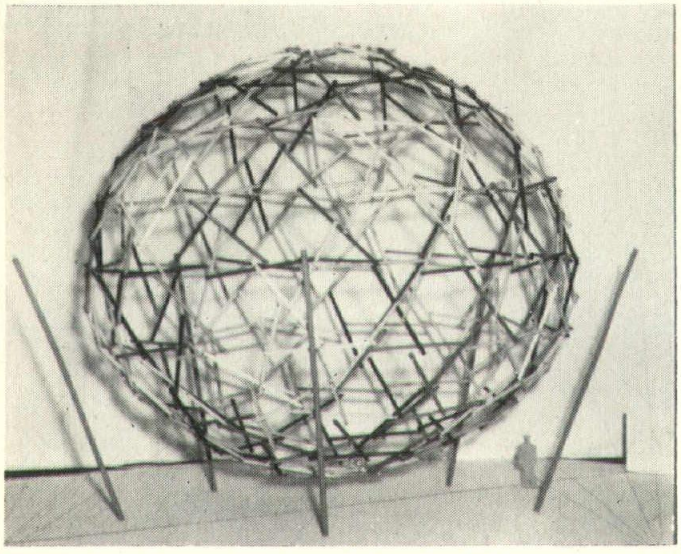
The **PENTAKOSITESSARAKONTAHEDRON**

Bucky Fuller Brings Pure Research on Sphere to University of Minnesota



The "sphere of triangles" with early strut placement (above) gave rise to the Minnesota form shown below left. Mr. Fuller is shown in the top picture talking with his assistant, John Dixon.



Architectural students at the University of Minnesota got a special research inspiration when E. Buckminster Fuller, famed for his Ford Rotunda's geodesic dome, conducted a four-weeks course in form research from November 9 to December 5. Results was the pentakositessarakontahedron shown in our illustrations.

While Mr. Fuller, whose intimates call him "Bucky," has inspired a lot of discussion, no one who has come into his influence can deny the fact that he inspires new approaches in those with whom he works and that his attitudes on pure science are bound to give rise to fresh thinking on architectural problems which will find their ways into definite structures in the future. The Ford dome proves the possibilities.

His attitudes toward individuals and groups entering into his work also is something valuable and worth experiencing. He feels that there is a group entity which is outside and above that of any individual within the group and much greater than the mere sum total of the talents and ideas of the group's individuals added together. The inspiration of man upon man within the group gives rise to a type of thinking which none of them could have conceived possible alone.

This entity was very evident during operation of the course at the university. Some 22 or more students were involved in the project and they were organized into various sections with specific duties and with definite deadlines for achievement of certain goals as the project developed. The basic model of the project, the solid figure in our illustrations, was made up of three sizes and types of triangles. Upon it were placed the struts visible in the picture and Mr. Fuller's students began working out the factors involved in fixing the struts with tension cords into the pattern of discontinuous compression sought. It was discovered that the struts could all be the same length, instead of the originally thought of various lengths. Then followed development of the other structure shown, which was planned to be constructed of struts of polyester fiberglass, first such use of this material, and larger "cords" on the campus. Various units in the team worked out details of the structure.

Mathematical data are basic at the start of the final work on any of the Fuller projects and mechanical integrators are used for the days of computation necessary to evolve all the factors. One unit within the student team did this job.

Mr. Fuller feels that time is of the utmost importance and so encourages his team members to use the fastest

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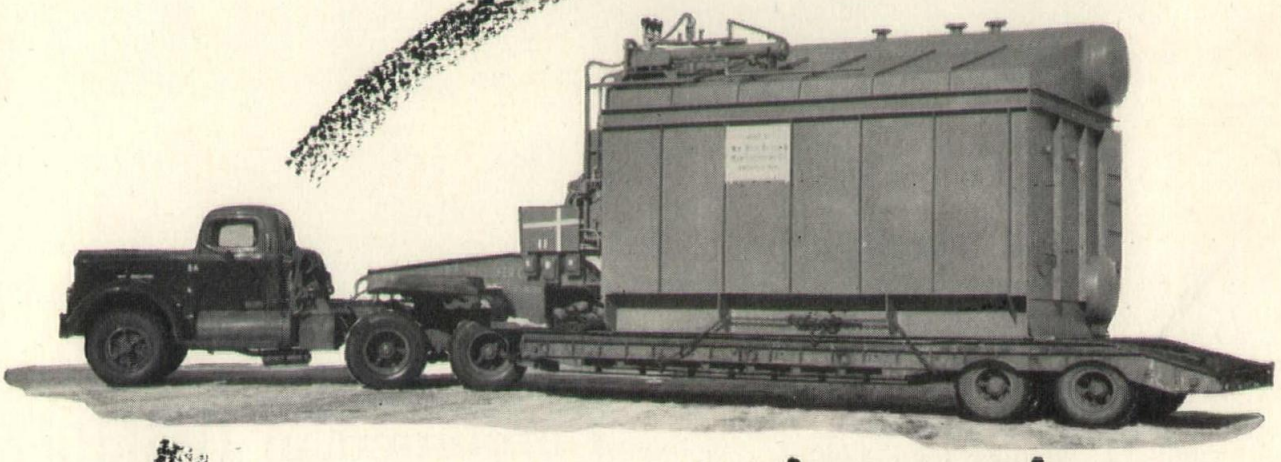
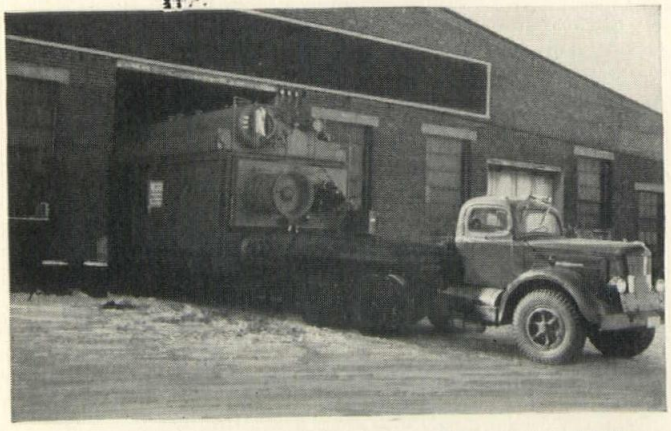
Packaged Boilers by BROS



give your plant low-cost steam!



Here you see how easy it is to get a compact BROS Packaged Boiler into your plant. Through long testing and design research, BROS produces the greatest possible boiler capacity within minimum physical dimensions. Surprisingly little plant space is needed to accommodate this well-engineered unit.

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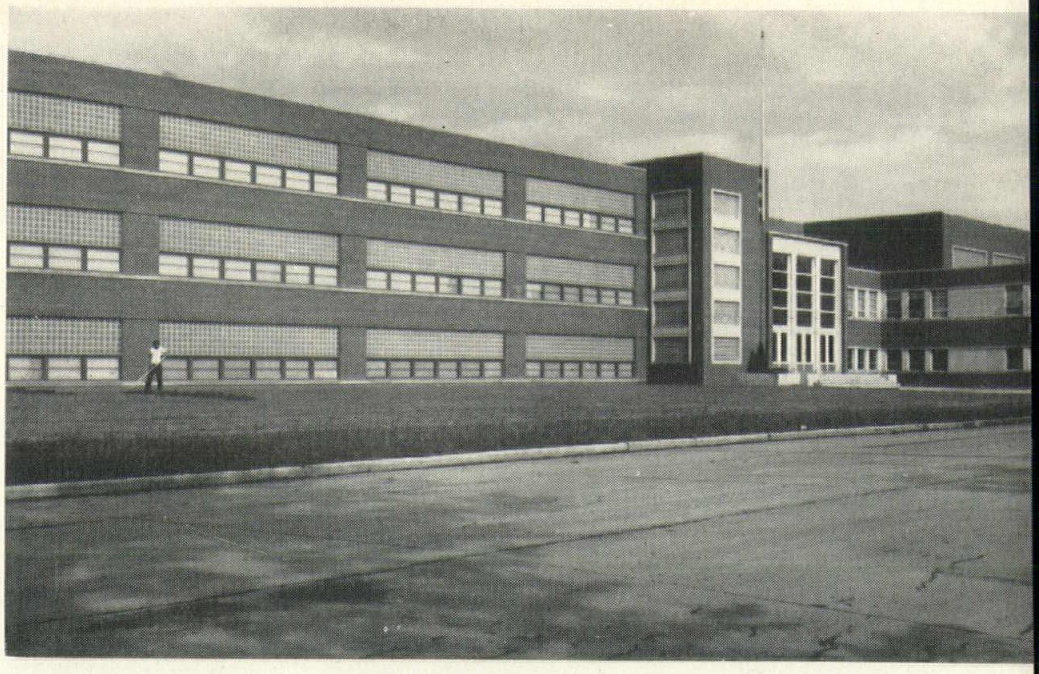
BECHTEL'S SCHOOLS



Clean lines of new $1,300,000 Benjamin Franklin Junior High School in Fargo are typical of Bechtel's style.

Materials and Methods Combined in Building-With-Savings Policy of Fargo Architect

Harold E. Bechtel of Fargo, who has just completed his second term as president of the North Dakota Association of Architects and is now vice-president of the State Board of Architecture, is a graduate of the North Dakota Agricultural College and finished his graduate work at the Massachusetts Institute of Technology. He has been practicing in Fargo since 1940 and recently assisted in organizing the state's A.I.A. chapter.

The majority of his structures in the past few years have been educational buildings for Mr. Bechtel has established a reputation for designing maintenance-free construction and getting maximal value for every dollar spent. The new $1,300,000 Benjamin Franklin Junior High School, for example, provides, at the remarkably low cost of 68c per cubic foot, 25 class rooms, a double gymnasium, an auditorium seating 700 with a fully equipped stage, a cafeteria with a complete stainless steel kitchen that can accommodate 350 students, wood and metal shops, a library, boys and girls' locker rooms and a warming room for skaters using the rink outside.

The pattern of unity that characterizes all of Mr. Bechtel's work is concrete floor construction supported by bar joists fireproofed with 1 inch of vermiculite plaster on metal lath, exterior walls of face brick with a backup of common brick and a bar-joist-supported roof deck of vermiculite concrete, 1:4 mix, 3 inches thick on high rib metal lath.

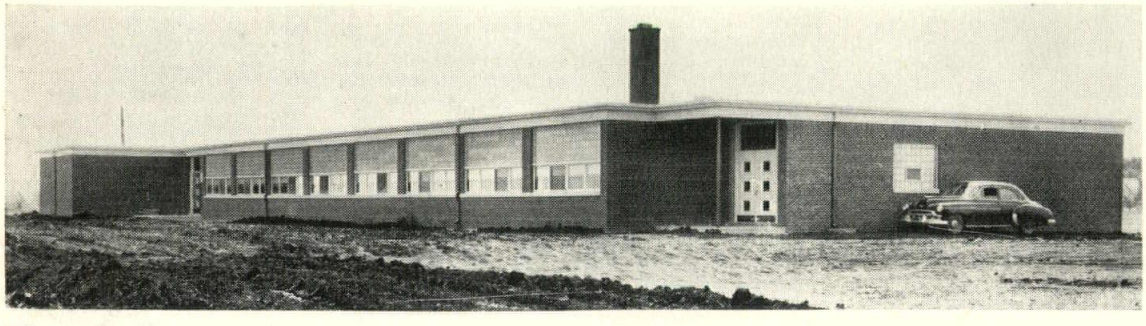
"We've found that bar joists are fast and economical construction," Mr. Bechtel commented. "We get about a 10 per cent reduction in cost with this floor system and the 1 inch fireproofing gives us a 4-hour rating that means lower insurance premiums for the owner. A back-up of common brick for a masonry wall is more expensive in the beginning but it eliminates wall leaks and future maintenance. The roof system saves money by giving as insulation and a structural deck in one operation."

Contractors like to bid on Bechtel-designed projects because they know the job will be awarded on the original letting, without revision. In other words, the building does not have to be redesigned before it can be built within a given appropriation. This is a real consideration for contractors are becoming more and more conscious of the high cost of preparing bids.

"We aim for sound construction with functional design," Mr. Bechtel said. "We keep our buildings as simple as we possibly can, consonant with a pleasing appearance.

"Our general approach to school design is to get every bit of information available from everyone connected

(Continued on Page 42)



The new West Fargo elementary school is long, low and efficient.

Representing America's top manufacturers of building materials and equipment, the Minnesota-Dakota Chapter of Producers' Council extends its appreciation to all members of A.I.A. for their cooperation during the past year. All look forward to the continuation of this pleasant relationship during 1954.

Atomic Bombs to Aggregates Studied During Concrete Conference

Concrete problems, from the effects of atomic bombs to use of proper aggregates, were presented to some 250 architects, engineers, contractors and other interested persons during the early December Third Annual Concrete Conference at the University of Minnesota.

In four sessions during two days, presided over by building leaders like President S. L. Stolte of the Minnesota Society of Architects, W. H. Tusler, A.I.A., Minneapolis, Miles S. Kersten and C. E. Field, a fast stepping program presented speakers and latest films. The conference was sponsored by the Portland Cement Association, the Minnesota Society of Architects, Associated General Contractors of Minnesota, Northwest section of the American Society of Civil Engineers, North Central Commercial Aggregate and Ready Mixed Concrete Producers Association, American Concrete Institute and Minneapolis Society of Professional Engineers.

"The only completely safe building during an atomic blast," Prof. Joseph A. Wise of the University of Minnesota said, "would be one having no windows and heavy concrete walls."

He went on to outline what would happen to other types of structure:

"Conventional buildings having windows can be rendered reasonably resistant to the shock wave, but the contents of the building, including personnel, would not be safe in areas where windows are present.

"It is possible to provide a central core within a building, with heavy concrete walls on all sides, which would protect the contents and personnel against destruction.

"If no such central core is used, then the basement areas below ground level should be designed as shelter areas for personnel."

Prof. Wise said structures designed to resist blasts will probably survive a small bomb (similar to that dropped on Hiroshima) at 1,500 feet from ground zero (center of area bombed), at 3,300 feet from center of a

---

Among those at the conference we pictured (l-r in pictures from top to bottom)—

R. W. Randall, district structual engineer, Portland Cement Association, Minneapolis; Jim Clubb, Minneapolis building department; Jack Perlmutter, Colorado Prestressed Concrete, Inc., Denver; Willard Randolph, A. S. Randolph & Sons Construction Company, Detroit Lakes, Minn.

S. L. Stolte, president, Minnesota Society of Architects, of Bettenburg, Townsend & Stolte, St. Paul; Kenneth Clark, Kline & Clark, engineers, Minneapolis; J. H. Banker, construction consultant, Portland Cement Association, Chicago.

Harold Heil, Austin Ready Mix Concrete Company, Austin, Minn.; Ralph Olson, Contractor, Anoka, Minn.; Ed Saugestad and Arthur Eagan, Ready Mixed Concrete Company, Minneapolis.

W. J. Brull, Northwest Concrete Products Company, St. Cloud, Minn.; Len and Norbert Soukup, Minnesota Prestressed Company, Inc., (formerly Northern States Prestressed Concrete Co.).

A. Allan Bates, vice president, Portland Cement Association, Chicago; Kenneth B. Woods, professor of highway engineering, Purdue University, Lafayette, Ind.; Charles H. Scholer, head of department of applied mechanics, Kansas State College, Manhattan, Kans.

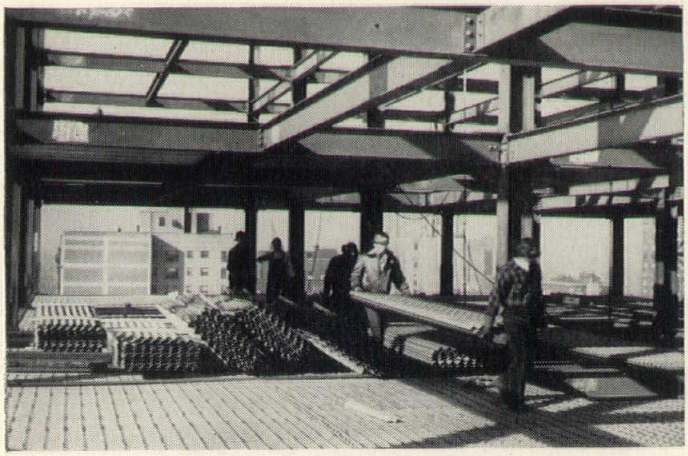
C. E. Field, C. O. Field Construction Company, Minneapolis; Donald Hammel, Owatonna Aggregate Inc., Owatonna, Minnesota.

V. J. Meyers, farm field, S. J. Werner, office engineer, and F. R. McComb, district engineer, all of Portland Cement Association, Minneapolis.

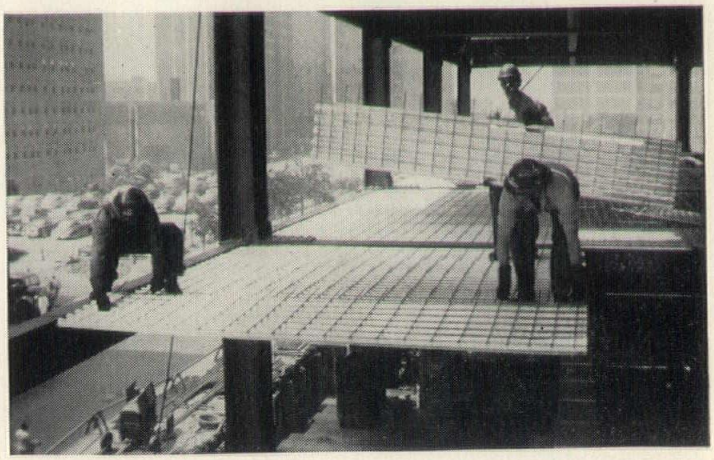
COFAR...

THE REINFORCEMENT THAT FORMS

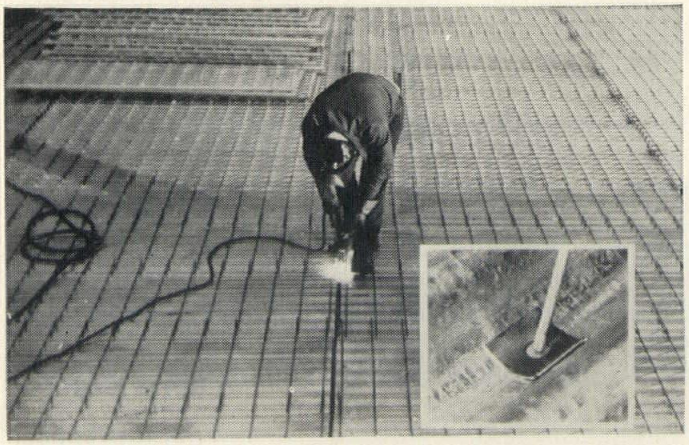
Speeds construction • Cuts building costs
Eliminates wood forms



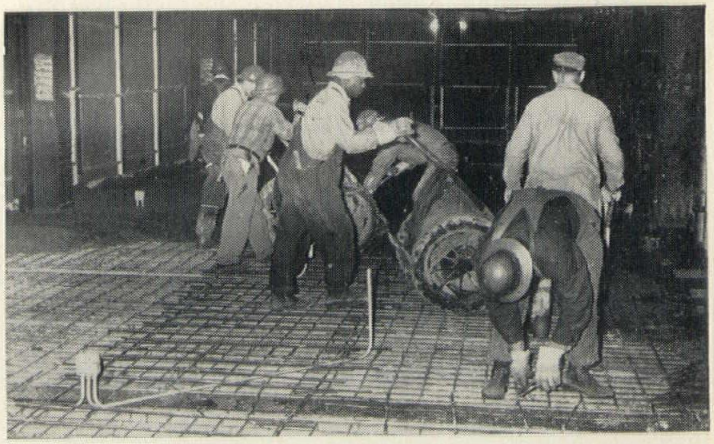
1. Cofar, a deep-corrugated steel sheet with T-wires (transverse wires) welded across the corrugations performs the dual function of reinforcing and forming concrete slabs. All Cofar units are cut to fit the building frame and are ready for immediate placing upon arrival at the job site.



2. Cofar placing follows directly behind structural steel erection. Weighing only 2 lbs. per square foot, Cofar sheets are easily handled. Sheets interlock by a one corrugation sidelap assuring a tight form for concrete. In position, they provide a safe, unobstructed working platform for construction activities.



3. Cofar sheets are welded to the structural framing members. Construction advances quickly, easily. There are no forms to build and tear down and incombustible Cofar eliminates construction fire hazards. Tough, high-strength steel permits Cofar to absorb extreme construction abuse without damage.



4. Placing concrete is a fast operation. The main positive reinforcement is provided by the deep corrugated steel. T-wires welded across the corrugations furnish the necessary temperature reinforcing and mechanical anchorage between concrete and corrugated steel. Result: A safe, high-strength concrete floor.

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More of those who attended—

John Morrissey, superintendent, Ready Mix Concrete, Minneapolis; Fred R. McComb, district manager, Portland Cement Association, Minneapolis; E. J. Kropp, McGough Brothers, St. Paul, Minnesota.

Tom O'Tooley, Mankato Concrete Masonry, Mankato, Minn.; Gordon Chapman, North Central Supply, St. Paul.

H. B. Schmidt, Virginia Ready Mix Company, Virginia, Minn.; Don Erickson, Glacier Sand and Gravel Company, Minneapolis; C. D. Bullock, regional district engineer, Portland Cement Association, Minneapolis; A. B. Benzick, Glacier Sand & Gravel; Harold Anderson, Master Builders, St. Paul.

big A-bomb and at 5,600 feet from an H-bomb center.

In building a blast resistant structure, Prof. Wise listed these as important elements:

1. The structural analysis and design should provide complete continuity throughout, including bending in columns. Spirally reinforced columns are preferred.

2. Venting of spaces to provide rapid equalization of blast pressures.

3. Sufficient dense material to protect against radiation. This means relatively thick concrete floors and heavy masonry walls.

4. Use of tough, strong materials of high ductility (easily molded). High strength concrete (able to withstand 3,750 pounds per square inch) is preferred.

5. Adequate access to shelter areas, with sufficient provisions for sanitation, heating, lighting and ventilation.

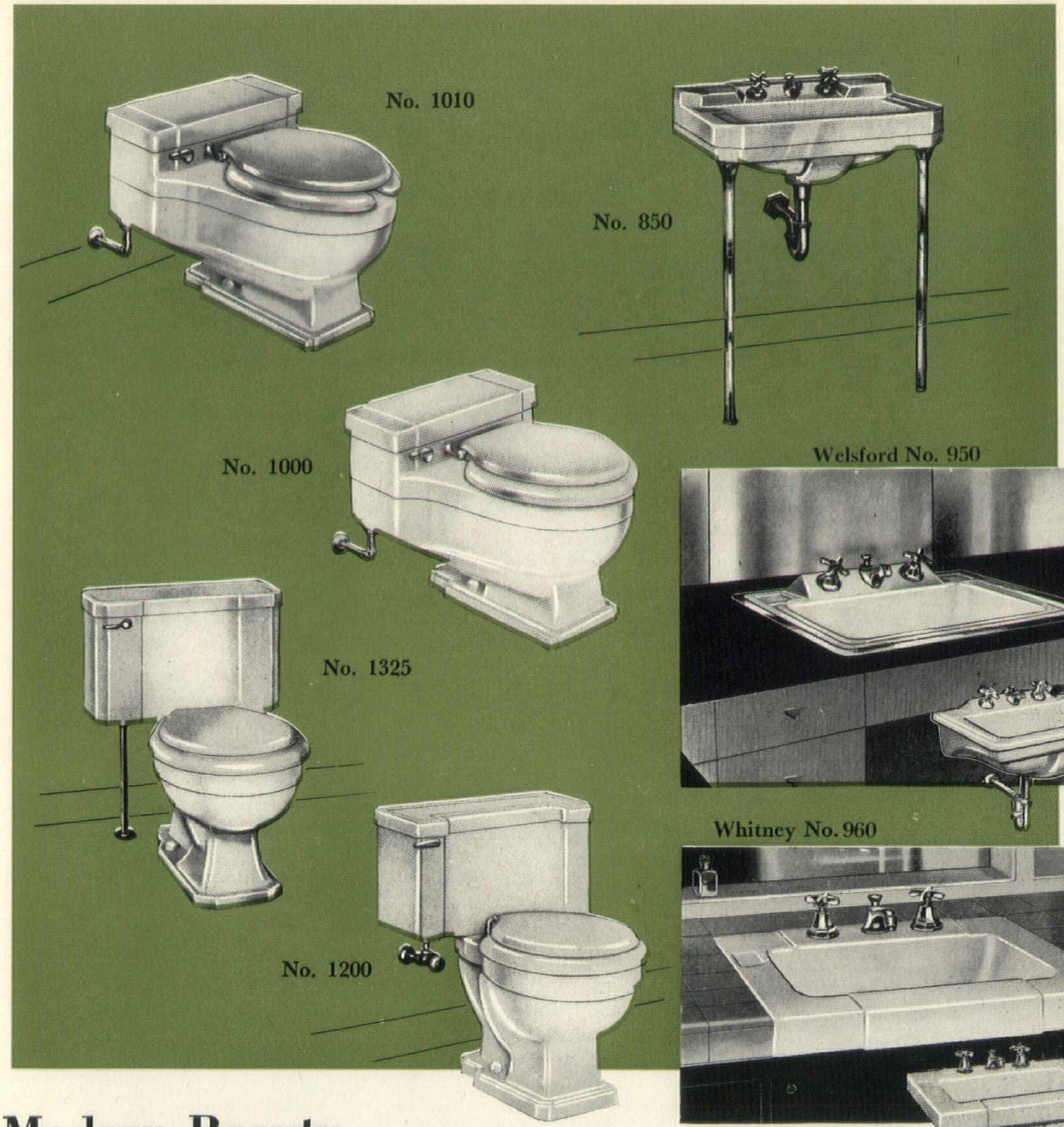
6. The use of shear walls in tall buildings. These shear walls should be continuous from ground to top of the structure and may be used to inclose a central protected core.

7. Symmetrical plan form is highly desirable to avoid twisting action of blast.

Charles H. Scholer, speaking on "Durability of Concrete," pointed up the vital importance of adequate specifications, particularly for durability in concrete exposed to the weather. He pointed out that a great deal has been found out about why scaling takes place on concrete surfaces, where freezing and thawing, soaking rains, salt and similar deleterious materials and conditions work on it. Only through complete and intelligent specifications and proper supervision to see the spex are carried through can the architect and builder be sure of the results.

He listed five causes of surface scaling and breakdown —1, too wet a mix, too high a water-to-cement ratio; 2, poor aggregates; 3, overfinishing or finishing too soon; 4, lack of curing, the most serious cause of scaling and breakdown for the concrete should be kept moist for at least 5 days after placing to assure proper setting with use of burlap, ponding, curing membranes or similar moisture conserving materials; 5, excessive use of salt on or close to the concrete, especially while it is still

(Continued on Page 49)



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Case Nos. 1000 and 1010 One-Piece Water Closets—1½" sheet covered seat, supply pipe, special stop in tank. Non overflow quiet, powerful centrifugal flushing action. Round front or elongated bowls with or without open front seat and cover.

The Willard No. 850—meets growing demand for a dry shelf vitreous china lavatory. Chrome plated supply and pop-up waste fittings, concealed front overflow, soap depression and anti-splash rim, either 22x18 or 24x20.

No. 1200 Deluxe Water Saver Closet Combination—centrifugal action, large water area. Vitreous china tank bolts directly to bowl—not attached to wall. Round front or elongated bowl.

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No. 960 The Welsford—a most attractively designed viterous china lavatory. Illustrated for custom made tile-in tops with chrome plated supply and pop-up waste fitting—24x20". Square basin, front overflow, anti-splash rim, soap depression.

No. 950 The Whitney—latest in tile-in or built-in vitreous china lavatory. Illustrated with Hudee stainless steel rim, chrome plated supply and pop-up waste fitting—22x18". Front overflow, anti-splash rim, square basin, dual soap depressions.

Whether it's a vitreous china closet combination, lavatory, urinal or sink in "whiter white" or pastel colors, you'll find Case offers you the widest possible selection in size and styling.

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Three Basic Changes in Progress

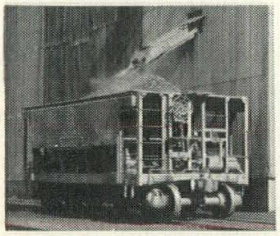
Industrial Developments Add New Wealth to America's No. 1 Agricultural Market

1. Taconite Iron Ore of the Lake Superior Region

2. Oil from the Dakotas, Montana, Wyoming

3. The Missouri River Basin Development

Taconite Iron Ore
Basic Development No. 1



The "New Gold" of Taconite being loaded

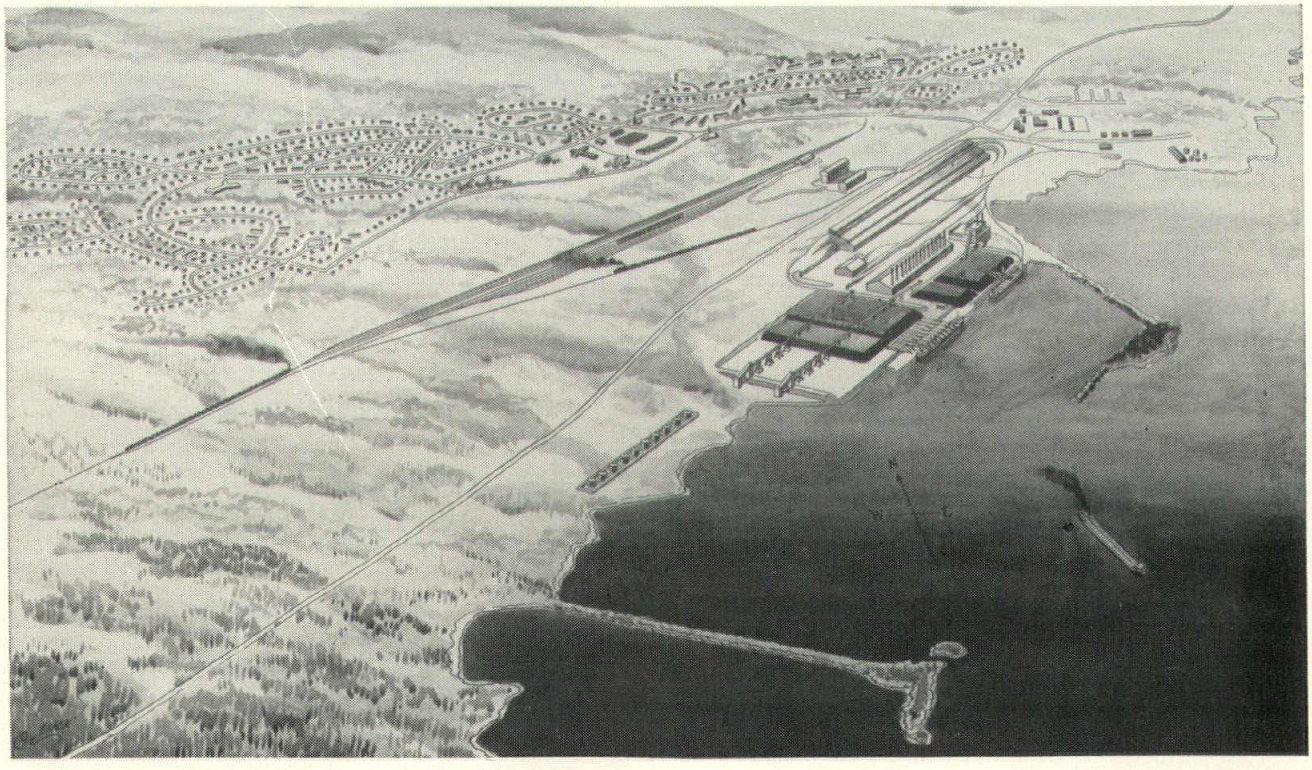
Tremendous things are happening in iron ore mining on the Minnesota, Wisconsin, and Michigan iron ore ranges. A revolution is in progress in that industry!

Vast taconite deposits, the iron and steel industry's ace-in-the-hole card for America's security, are being tapped to supply the huge ore demand for America's steel mills.

This marks an epochal change in iron ore mining, from the easily-dug, high grade ore of the present to the more complicated milling processes now being introduced in iron ore mining.

It also contributes its big part to the permanent shift from the pronounced dominance of agriculture to a combination of iron ore, oil, new electric power, new manufacturing and agriculture in upper west production.

This transformation comes as it begins to be fully realized that the diminishing supply of high-grade, direct-shipping ores of the Lake Superior region can no longer be relied on to do the entire job of keeping



Artist's sketch of plant at East Beaver Bay

Pella ***Casements . . .***

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Includes basement floor . . . providing for spacious dining room and kitchen accommodations.

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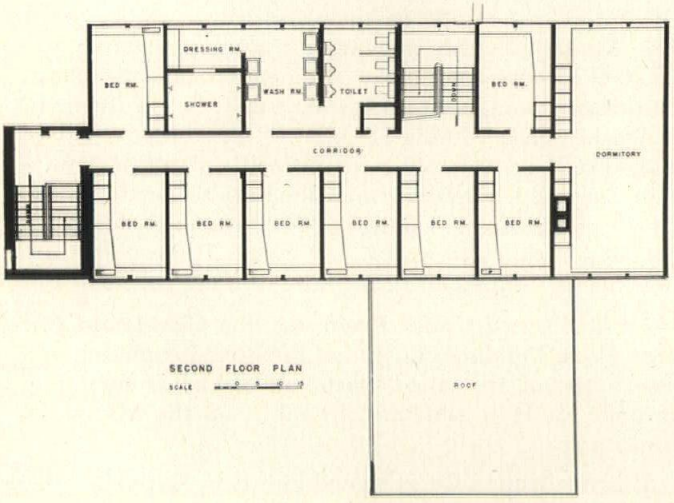

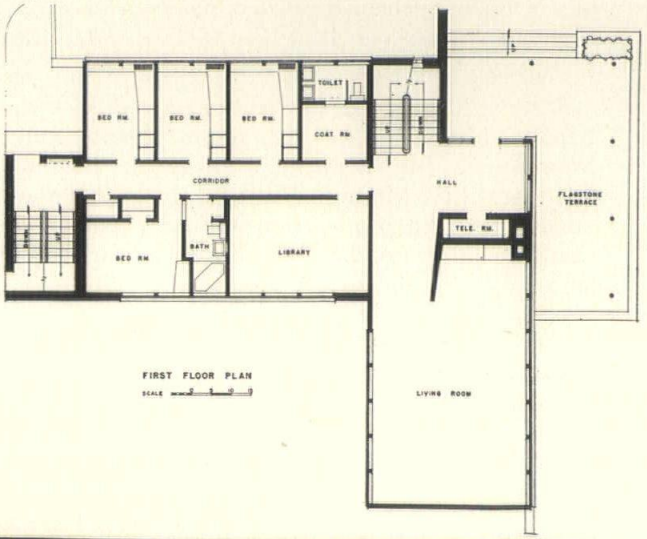

Photos by Photography, Inc.

Air view of the operating plant located at Babbitt, Minnesota.

the nation's steel furnaces going in the years ahead.

Big, New Projects Are Started

Acting well in advance of any eventual crisis, leading steel companies, through their mining subsidiaries, are well on their way toward construction of the largest open-pit mining and ore milling plants the industry has ever seen. Leaders in mining and steel say these operations, now well launched, outrank in importance anything in the history of metal mining.

These gigantic taconite developments are being shaped to blast, dig, and treat more raw iron ore than has yet been produced in the Lake Superior district.

Operations already under way will absorb hundreds of millions of investment dollars. Vast amounts of power, heat and water will be consumed. Large processing plants with elaborate equipment will be built. These operations are long out of the planning stage. Some are being constructed now.

Mining companies have carried on extensive research in taconite ore mining and processing for years.

As a result of this, the building of experimental plants, and the plant construction now in progress on Minnesota iron ranges, three companies are now shipping iron extracted from taconite from the first completions of these facilities, while the larger capacity is being built.

These operations are moving on schedule toward the time when iron from this source will be shipped by the millions of tons.

Two leading steel companies, Reserve Mining Co. and Erie Mining Co., are allocating a total of about $500,000,000 for construction of commercial taconite plants and other mining and processing facilities. A third, U. S. Steel's Oliver Mining Division, is spending more than $23,000,000 on taconite research, with plants at Mountain Iron and Virginia, on Minnesota's Mesabi range. These plants also are designed for expansion into large production and processing facilities. These plants are now making shipments of taconite iron ore pellets.

In Michigan's Upper Peninsula, the Cleveland-Cliffs Iron Co. is building plants and facilities for mining and processing an ore called "jaspilite," which is similar to taconite, at Humboldt and Republic on the Marquette iron range.

Reserve Mining Co. is owned jointly by Republic Steel and Armco Steel Corporation. Erie Mining is owned jointly by Bethlehem Steel, Youngstown Sheet & Tube Company, Interlake Iron Corporation and the Steel Company of Canada.

Reserve Mining Co.'s operations are carried on from Babbitt, Minn., on the Minnesota Mesabi range and from Beaver Bay, a port on the north shore of Lake Superior. Erie Mining's plants are near Aurora on the same range. Each operation will have its own railroad from the mines to the Lake Superior harbor shipping port.

These Are Only Starters

Iron and steel leaders say that taconite processing will increase in volume and importance each year.

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Taconite reserves are estimated to be almost limitless. By 1957 annual production of **taconite concentrate**, the final result of the processed ore, is expected to total about 7 million tons. Shipments are expected to steadily increase each year from there on. The three companies now starting taconite development on the iron ranges are scheduled to produce annually during the next twenty years 30 million tons of taconite concentrate.

Taconite is iron-bearing rock. Mining of it requires blasting from its present natural formations. The blasted rock goes to the big crushing machines for breaking into smaller chunks; then to grinders which reduce it still finer. The separating machines and processes then separate the iron from the ground rock mass. The resulting iron concentrate is baked and moulded into pellets or "lumps" which work better in the blast furnaces than does the finely ground iron concentrate.

This tremendous taconite development is being pushed as a front-rank source of iron ore supply by the same steel-industry companies that are investing huge sums in other large iron-ore fields, in Labrador, Venezuela, southern Canada, and elsewhere. Taconite must compete with ore from those other sources of supply.

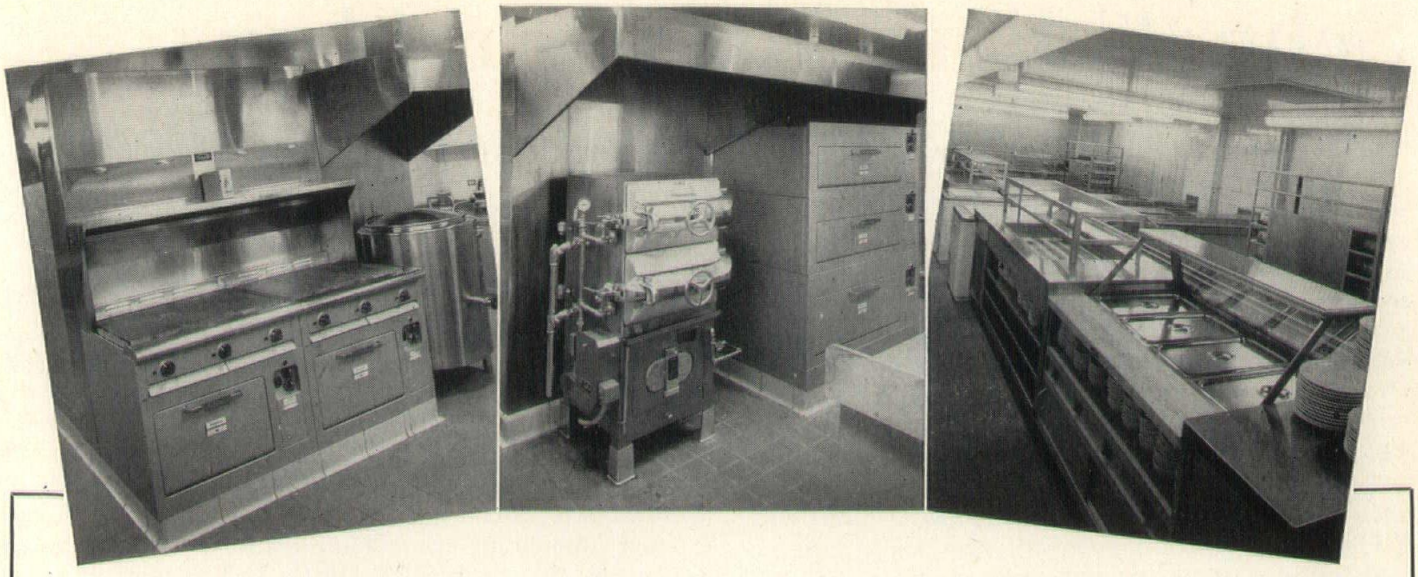
Production cost of taconite concentrate is high, compared with costs of mining ore from Minnesota iron ranges in the past fifty years. But the transportation and other costs on the more cheaply-mined ore from foreign fields is also high. There are also other offsetting items of cost which help the competitive position of taconite. The iron content of magnetite, that form of taconite now being mined, and which will be mined for many years to come, is high. The prospects are good that the taconite industry can and will improve the competitive position of taconite as production increases.

The new taconite product competes in quality with ore from any source. It mixes well with other iron ores. Steel mill engineers say it is tailor-made for smelting. The taconite supply fits in well with the present steel industry system of manufacturing and is comparatively near to the steel mills. From the standpoint of mill operating and the dependability of the supply in all times, including national emergency periods, the steel makers naturally favor taconite development and use.

Will Speed Economic Growth

This amazing mining development promises to powerfully spur economic growth in the Lake Superior region and throughout the upper west. It will result in new towns, increases in population, more railroad mileage and facilities. All through the midwest it will create new industrial, commercial, and other opportunity, including new markets for the upper west and other parts of the country to supply.

Taconite iron ore is one of the three great factors in the industrial revolution in the upper west now in progress. The changes in the economic structure of the upper west being worked by this tremendous mining development are of empire-building importance, and the change is being built in to last for a long time to come.



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MAGNEY-TUSLER and SETTER
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Schools Pose Major Problems . . .

MINNESOTA NEEDS 331 NEW SCHOOL BUILDINGS, STATE DEPARTMENT REPORTS

Abandonment of thousands of "little red schoolhouses" and construction of 331 new, modern school buildings in Minnesota are necessary to give the state what is considered an adequate school program, according to a recently released report by the Minnesota Public Schools Facilities Survey. The survey is directed by I. O. Friswold of the state department of education.

The new structures would cost about $400,000,000. The program would extend through the next six years, providing 9,924 new classrooms by 1959. These would allow abandonment of 5,191 classrooms in 3,200 "little red schoolhouses" throughout the state.

Revamping the state's school districts also is recommended by the survey members in their 161-page report. Working on the theory that fewer districts make better facilities possible by elimination of wasteful duplication and providing a broader tax valuation base to raise funds for the schools, the survey recommended 446 districts. Consolidations since 1947 have resulted in cutting the districts from 7,000 to 5,200 even though 20 counties refused to participate in the consolidation program.

The report's details give particulars for each major school area in Minnesota and is the most complete study of the state's school system ever attempted.

ST. PAUL STARTS FOUR SCHOOL PROJECTS

Four school building projects, to be financed by the city's recent $11,000,000 bond vote for educational purposes, are being pushed by school officials in St. Paul.

The funds were part of a $39,000,000 bond issue approved by the city's voters. The four projects tentatively slated for first action by the school board included one new structure and three additions to existing school buildings.

The recommendations were that Albert G. Plagens, architect, be directed to complete working drawings and specifications for the new Maxfield School; that H. B. Crommett, architect, be engaged to design a six-room and auditorium-gymnasium addition to the Ames School; that Bergstedt & Hirsch, architects, be retained to design an eight-room and auditorium-gymnasium addition to the Hayden Heights School; and that Cone & Peterson be engaged to plan an eight-room and auditorium-gymnasium addition to the Homecroft School.

Other buildings and expansions are in the offing although these four are considered of top priority.

GOVERNOR FIRST

New York's first brick building was built in 1633 as a residence for Wouter Van Twiller, fifth Dutch Governor. The brick was imported from Holland.

10 TIPS PRESENTED FOR SCHOOL SAVINGS

Faced with the problem of providing classrooms for 7,000,000 more children who will start to school in the next five years, a panel of 24 nationally recognized experts in education, architecture, engineering and civic affairs have agreed on 10 major ways to stretch the schoolhouse dollar.

Members of the panel, sponsored by *Architectural Forum*, declared that the total need for new classrooms by 1960 is 770,000. At an average cost of $44,000, including land, this means that new schoolhouse construction, properly carried out in the right places will cost the nation's taxpayers about $34,000,000,000. In order to meet this need, the utmost economy must be practiced, panel members declared. Although more than 50 specific economy suggestions were advanced, 10 major areas were unanimously agreed upon as being most productive of substantial savings. They are:

1. Larger administrative districts are needed to spread the tax base. Major economies result through balancing out taxes, through putting together enough people, enough space, enough personnel and available funds to engage in correlated instead of chaotic building programs. This avoids unnecessary duplication of school buildings, each of which may be inadequate. This trend needs encouragement. Although North Carolina has just reduced 1,600 districts to 103 larger ones and other states are studying the problem much has yet to be accomplished along these basic lines. It was estimated that Michigan, for instance, could do better with 250 to 300 districts than with the 4,500 inherited from earlier days.

2. Long range planning will reduce the high cost of land acquisition. No school board can dodge its responsibility for acquiring land at the earliest possible moment but this requires long range planning and a district large enough to have a range of choice. Land prices are always higher as population becomes more dense.

3. Better programming is needed to make classrooms do a full day's work. The great waste in many schools is represented by classrooms that are not fully utilized all day. A classroom that is unoccupied 50% of the school day represents a building dollar spent for only 50% of obtained value. The panel also mentioned the wasteful practice of building schools that can be used only by day and never for night classes or adult education. Although the tradition of schools completely closed from mid-May to mid-September may be hard to break, such non-use of school buildings is wasteful.

4. There are two ways school building plans can be reviewed to insure maximum economy. The panel recommends that authorities start at 100 per cent and then see what can be subtracted without harm. Then start at zero and add only what is absolutely essential. For best results, try both approaches to the same problem. Some of the things found unnecessary were cupolas, parapets, fancy roofs and other gaudy trimmings. Many schools found that it was cheaper to build on a single floor, thus eliminating firesafe stairs, more costly fire-resistant construction. Last year 76 per cent of all schools

built were one-story and the proportion is rising. Basement elimination was also deemed worthy of study. This problem varies from section to section of the country.

5. Intensive use of non-classroom facilities can save square footage. Not only parents but also experienced school men may be shocked to learn that not over one-fourth or one-third of the total school area of many a school is devoted to "classrooms." The rest is used for administration, gymnasiums, auditoriums, cafeterias and their adjuncts. A second look is valuable to determine whether a cafeteria might do double duty as a classroom or a gymnasium could be used also as an auditorium.

6. Careful study is necessary to bring mechanical equipment into line with need. Nearly 35 per cent of today's schoolhouse is composed of mechanical equipment. Much money can be wasted by "overdesign" of heating plants capable of producing comfort on the coldest night of the year—when nobody is in school.

7. The panel called attention to the fact that school boards and their architects must today climb a veritable mountain of codes before they can start digging a foundation. They believe all states must depart from the "statutory" form of school code, as a great many already have. They recommend that legislatures not only delegate the details to administrative officers under broad definitions of policy but also that such administrators be instructed to set standards of performance and not dictate the expedients so long as performance is obtained.

8. There is much room for standardization without loss of individuality. A great many opportunities to economize are being missed by failure to capitalize on standardization already possible or available.

9. Professional know-how can solve each school's differing problems. No two schools or school sites are genuinely identical in every respect. However, there exist countless schools that can use identical parts, all the way from identical windows, doors, chalkboard panels, lights and heating elements to identical or nearly identical plans for at least the structure of individual rooms such as classrooms and gymnasiums.

10. Imaginative financing can gain the easiest and biggest saving of all. The tiny figure of 1 per cent sounds so small that an inexperienced board may miss its enormous importance in school bond financing. Yet a community that pays 3 per cent instead of 2 per cent on its bonds must realize that this is equal to paying about 20 per cent more for land and construction.

INFO ON HEAT-ABSORBING GLASS RELEASED

Solex Heat-Absorbing Glass is the subject of a new four-page, semi-technical brochure recently issued by the Pittsburgh Plate Glass Company especially for architects, builders and contractors. The folder contains information on application of the product which has become so popular in new construction and also includes tables of solar energy transmission. Copies can be had free on request to the Glass Advertising Department, Pittsburgh Plate Glass Company, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pa.

DUTCH ARCHITECT SPEAKS ON TOWN PLANNING

Willem Dudok, noted Dutch architect now making a nationwide speaking tour under auspices of the American Institute of Architects, addressed a group at the University of Minnesota on November 26. The talk was open to the general public.

Mr. Dudok favors "satellite towns" and is a severe critic of purely functional building design.

"American cities, more than anything else, lack organic town planning," he said during his tour. "If America could come to recognize the need for town planning on a large scale expressing a clear form, it would be a country of unlimited architectural possibilities."

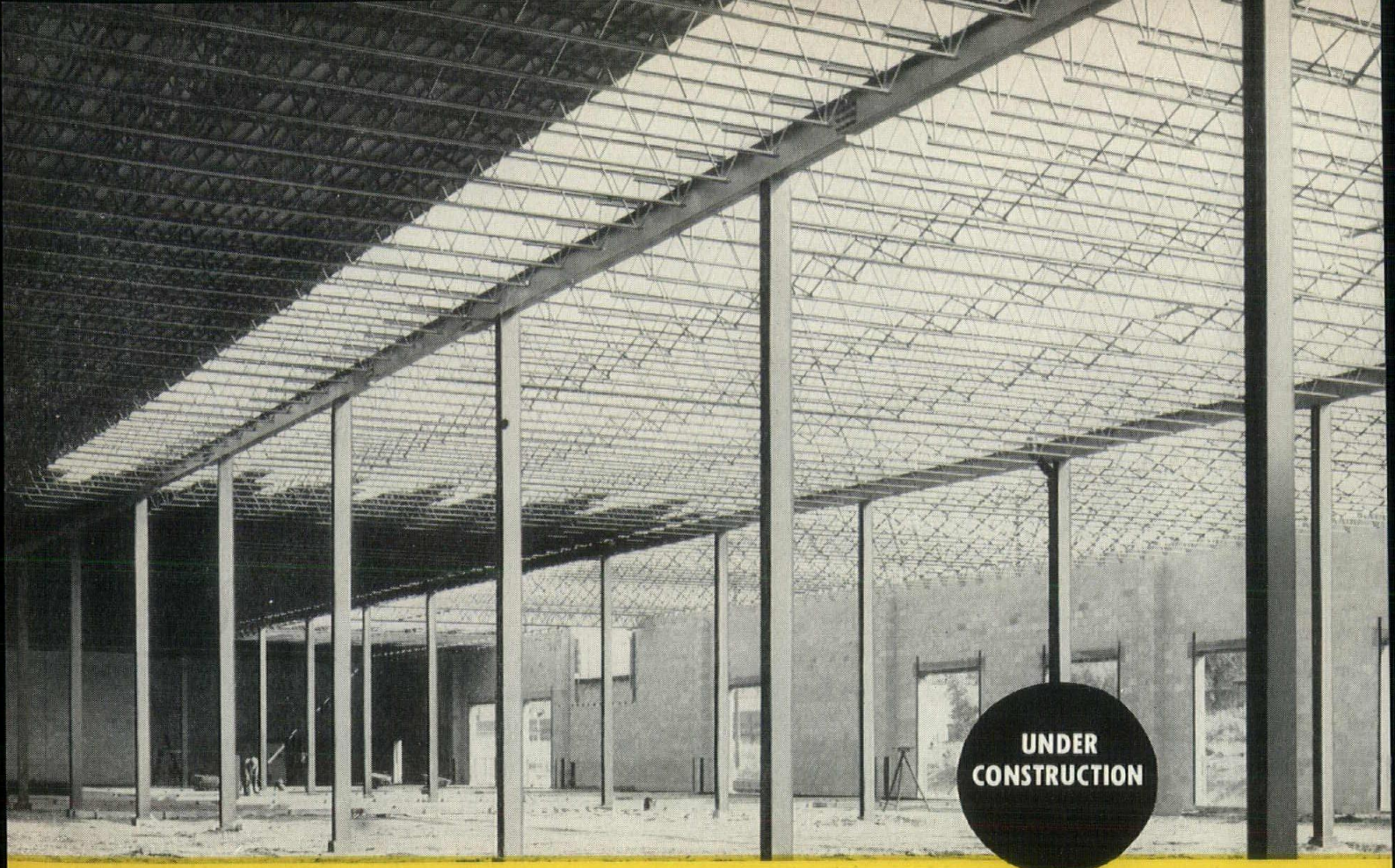
The architect was one of his country's planning pioneers. Believing in limiting town expansion, his plans call for decentralized areas for, he said, "in our time, with its alarming increase in population spreading chaotically over the whole country, things can not be left any longer to chance. It is high time for us town planners to think not only of the expansion of towns but also of their restrictions."

This restriction should come by surrounding towns or sections of cities with parks and landscaped areas on which there would be no building. The satellite towns would be started in an orderly manner, rather than allowing a rapidly growing city to expand in all directions.

In his criticism of functionalism, Mr. Dudok commented that "why only visible construction should be considered as honest work has never become clear to me. Architecture is simply a game of space and we must play that game in our own ways, expressing the times in which we live. Along the heath, behind my house, runs an electric railway with excellent and honestly constructed portal frames of reinforced concrete and how ugly it is and how it disfigures the beautiful landscape!"

He said he believes a building only becomes art when its design is amplified by beautiful and harmonious proportions which "ingeniously express the purpose and especially the cultural significance of the building."

American cities, he remarked, are quite daring in architecture and engineering but, because of the lack of organic town planning, the visitor is left with arbitrary impressions.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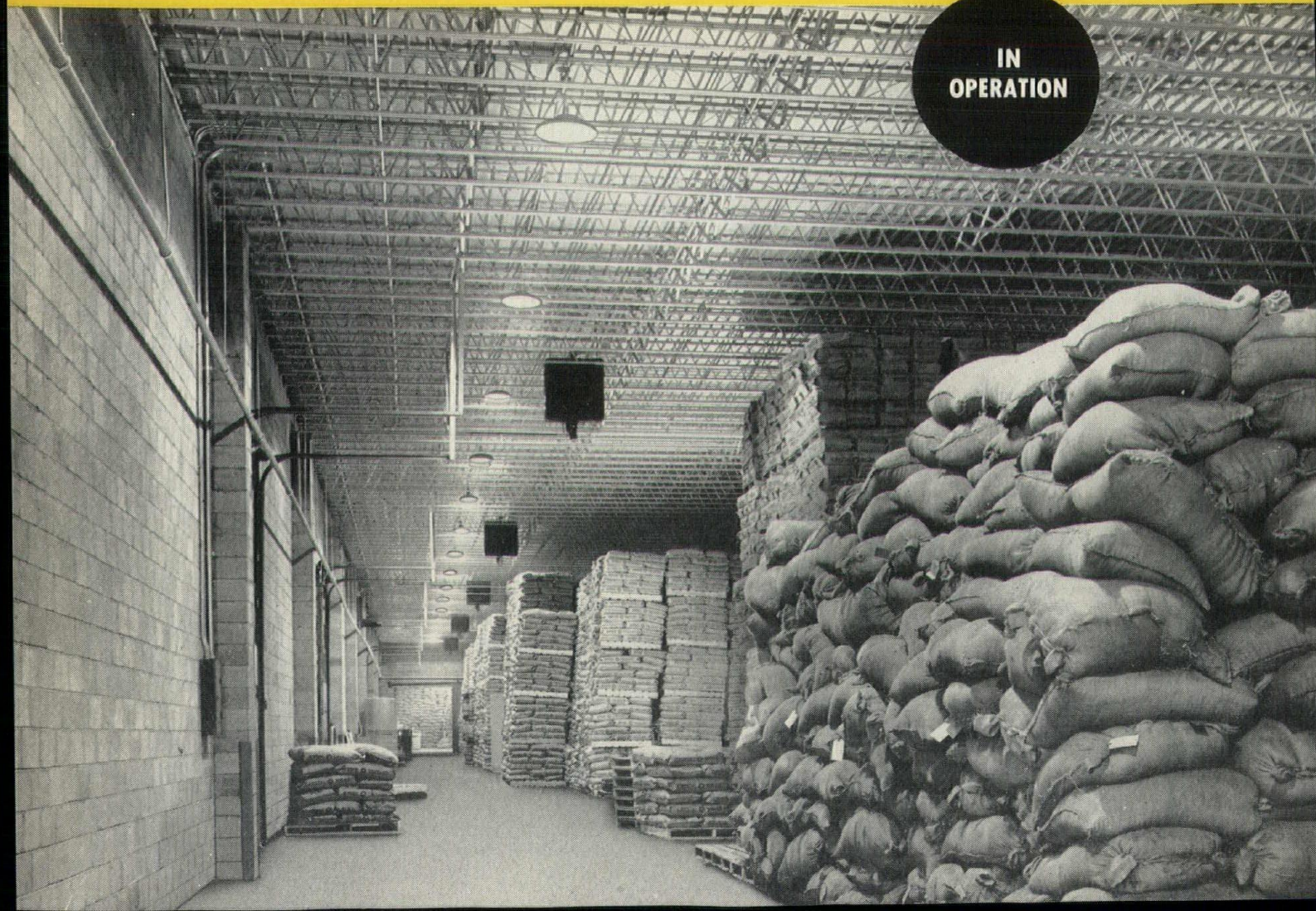
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A.I.A.-P.C. Christmas Party . . .

Captured in our pictures in the montage opposite (identified l-r) are:

1-2-3—The head table of Rollin Child of U. S. Quarry Tile, chairman joint A.I.A.-P.C. committees, S. L. Stolte, president Minnesota Society of Architects, William Meyer, secretary Minneapolis Builders Exchange, Ray Thibadeau, secretary St. Paul Builders Exchange, R. E. Olson of NSPCo., MC and chairman of PC program committee, Louis Lundgren, president St. Paul A.I.A., Vern Larson of Kimble Glass, president Producers' Council, Victor Gilbertson, president Minneapolis A.I.A. chapter, J. B. Bissell of Pittsburgh Plate Glass, H. W. Fridlund, A.I.A., editor of Northwest Architect, J. H. Page, A.I.A., and E. P. Albert of Crown Iron Works.

4—C. M. Tammen, A.I.A., Andy Albert of Crown Iron, R. W. Otto, AI.A., Fred A. Otto, A.I.A, and Bob Olsen of NSPCo.

5—Al Fischer of Overly Mfg. Co., Frank Clark, A.I.A., Carl Buetow, A.I.A., and Ben Meltzer of Ochs Brick & Tile.

6—W. H. Rabe of Ceco Steel Products, Ray A. Hodson of Crane Co., Oscar T. Lang, A.I.A., Al Larson, A.I.A., and George Richesel, A.I.A.

7—Ernest Schmidt, A.I.A., Phil Bettenburg, A.I.A. secretary Minnesota Society of Architects, Geo. Townsend, A.I.A., and Sam Dittenhoeffer of Kimble Glass.

8—E. O. Rood of Sanymetal Products, J. C. Newhouse of NSPCo., A. I. Raugland, A.I.A., and Jack Hustad of Sanymetal.

9—J. E. Homme of Hamilton Mfg., Frank Clark, A.I.A., and K. M. Fullerton, A.I.A.

10—Jack Bissell of Pittsburgh Glass.

11—Duke Johnson of NSPCo., C. M. Tammen, A.I.A., Ray Woods of Pella Products, W. C. Hamilton of Chamberlain Co. of America, and Austin Lang, A.I.A.

12—N. D. Musser of Phillip Carey Mfg., Gordon Matson, A.I.A., Harold Nelson of Natco Corp., and Frank Smith of Community Planners, Inc.

13—Don Nelson, A.I.A., L. Hopkins, A.I.A., C. L. Ammerman of C. L. Ammerman Co., C. T. Olson, A.I.A.

14—B. J. Mulcahey of H. W. Taylor Co.

15—W. H. Tusler, A.I.A., Paul Haugan, Minnesota Mining, E. H. Lundie, F.A.I.A., and Doug Dunsheath of Acoust-Celotex.

16—George Rafferty, A.I.A., S. R. Benson of U. S. Plywood.

17—H. T. Nyberg of Crane Co., Oscar T. Lang, A.I.A., V. E. Siddens, A.I.A., and Leo S. Shields of National Gypsum.

18—Carl Fogelberg of Reynolds Metal.

19—Bill Meyer, Minneapolis Builders Exchange, Vern Larson of Kimble Glass, S. L. Stolte, A.I.A., Ray Thibaudeau, St. Paul Builders Exchange.

20—..... of Pella Products and Brooks Cavin, A.I.A.

21—Arnold Melius of N. P. Railway, Roy Thorshov, A.I.A., and Sid Page of Frank Adam Electric Co.

22—Clayton Fitzpatrick of Kentile, Inc.

23—Vic Gilbertson, A.I.A., John Magney, A.I.A., Austin Lange, A.I.A., and F. E. Homuth of Zonolite Co.

24—C. L. Ammerman and Roy Thorshov.

25—Victor Gilbertson, president Minneapolis Chapter A.I.A., Vern Larson, president Producers' Council, and Louis Lundgren, president St. Paul Chapter A.I.A.

F.Y.I. (For Your Information)

1954 BUILDING OUTLOOK GOOD

The building outlook for 1954 is good, with the year not too much down from 1953's levels, according to a number of firms and economists who have issued forecasts based on statistical studies.

New homes to be started during 1954 are estimated at from 990,000 to 1,000,000 and other construction will be at a related pace. Demand for new homes is still strong although numbers of new families being formed among younger people are considered to be at the drop-off stage.

Backing up a forecast of slightly under 1,000,000 new homes, the United States Chamber of Commerce said that its reports from the mortgage and finance people indicate there will be adequate funds at no higher interest rates than now and possibly at slightly lower rates.

The Federal Reserve Bulletin predicted a strong demand for housing, basing its forecast on the large number of consumers who earlier were considering purchase of a new home within a year. The reserve report also pointed out that with the addition of Korean veterans to those of the previous conflict, the nation's veteran population now numbers about 17,000,000 persons. Of this number only about 3,000,000 have so far availed themselves of the home loan guarantee privilege.

In its year's end forecast, the F. W. Dodge Corporation said that in the states east of the Rocky Mountains construction will decline only 3 per cent as compared with 1953. Thus 1954 promises to be "another big year" for the construction industry. New home starts were set at 990,000, down 10 per cent from the previous year.

In latest definite figures for the Northwest area, Dodge reports set gains of 1953 construction over the previous year (nine months), at 9 per cent. This gain was all the more heartening when set up against the east-of-Rockies total of one per cent gain.

In a poll on conditions taken among 138 of the nation's top economists, the attitude appeared that 1954 will very likely be the second best year in our economic history. The "anticipated drop from the boom levels of 1953 will be quite mild." Drop in the gross national production will be under 5 per cent, the experts reported as a group al-

though some believed there would be a gain and some believed there would be a definite drop, depending on their special aspects of study.

Interesting and important footnote to the building industry is the huge repair and remodeling market which is providing billions of dollars income for industries concerned. This potential is measured at about $11,500,000,000 in a report from Harold R. Berlin, vice-president of Johns-Manville Corporation. He said that the hastily built postwar houses are now entering the needed repair and expansion zone and provide a great impetus to buying in this part of the construction field.

All-in-all, the picture is considered heartening.

F. W. VOEDISCH OF LAYNE-MINNESOTA ELECTED BOARD CHAIRMAN

Fred W. Voedisch, vice-president of Layne-Minnesota Company, was elected chairman of the associate board of directors of Layne and Bowler, world's largest water developers, at their 19th annual convention meeting in Memphis recently.

Mr. Voedisch is recognized nationally as an authority on ground water geology, receiving his training in mining engineering at the U. S. Naval Academy and later at the University of North Dakota.

Others attending the convention included Lee Rogers, president of Layne-Minnesota Company, and Vern Luther, Wayne Reithmiller and Don Vry of Billings, Montana, all members of the Layne-Minnesota staff.

MILE-LONG BRIDGE NEARS COMPLETION

The final span of a nearly mile-long railroad bridge over the Missouri river in central South Dakota has been erected by American Bridge Division of United States Steel Corporation.

The bridge, which is 4,890 feet long, is being built for the U. S. Corps of Engineers and will be used by the Chicago, Milwaukee & St. Paul railroad. It will cost an estimated $6,000,000. Crews of American Bridge have been at work on the

34 modern spans since January 23, 1953.

The bridge consists of four 98-foot deck plate girder spans, twenty-five 120-foot deck plate girder spans, three 240-foot deck truss spans and two 372-foot through truss spans. About 6,000 tons of steel are being used in its construction. Steel for the bridge was fabricated in the Minneapolis and Gary, Ind., plants of American Bridge Division.

A new and higher bridge was needed when the government decided to raise the level of the Missouri river 70 feet and flood the basin north of Chamberlain to the new Fort Randall dam, 84 miles south on the Missouri.

STONE USE ENCOURAGED BY BOOK

A booklet notable for its presentation in color of typical building stones and which is crammed with ideas for houses has been published by the Stone Council.

"Homes of Natural Stone" presents a number of plans which are available to architects and its center section is in full color, showing the texture, pattern, use and colors of stones like Berea Sandstone, Colorado Pink, Crab Orchard Stone, Indiana Limestone, Mankato Buff, Oneonta Stone and Tennquartz.

The uses run the gamut from planting boxes and walks to complete houses and so the volume contains many suggestions for the designer of homes and similar smaller structures. Expansion of the ideas will give added interest to major buildings also.

More information on the volume can be obtained from Stone Council Secretary, 40 E. 56th St., Indianapolis, Ind. The cost of the volume is 50 cents.

WRIGHT EXHIBIT IN SPECIAL PAVILION

The pavilion at the S. R. Guggenheim Museum in New York which housed the recent Frank Lloyd Wright exhibition—"Sixty Years of Living Architecture"—was specially designed for the event and is the only Wright building in New York.

The pavilion is 145 feet long and covers 10,000 square feet of exhibition area. It is styled in the Wright manner, made of curtain wall materials and from an angle looks like a greenhouse. The structure itself aroused as much interest among many of the visitors to the show as some of the exhibits it houses.

MACHINES APPLY MORE PLASTER

Machine application of plaster is expanding and more and better applications are being made as the new techniques are refined and plastering materials redeveloped to fit the machine requirements. Original plastering is now done by machine and the use of machines to apply special plaster coatings for acoustical control, etc., is spreading.

Plaster groups, both manufacturers and applicators, are embarked on an aggressive campaign to promote use of plaster.

HOMUTH NAMED WESTERN MINERAL MINNEAPOLIS SALES MANAGER

F. E. Homuth has been named Minneapolis district sales manager of Western Mineral Products Co., Min-

Mr. Homuth

neapolis vermiculite processors, L. J. Venard, president, announced. Mr. Homuth has represented the firm in the Twin City area for the past two years and is well known in architectural circles. He succeeds R. L. Eikenberry, who has been appointed assistant sales manager to H. W. Steiff, vice president in charge of sales. Duties of the newly created position will cover every phase of sales management, Mr. Steiff said.

FREE SKETCHBOOK AND VERIFICATIONS OFFERED BY FOLLANSBEE

Two aids to architects are being offered free of charge by Follansbee Steel Corporation, manufacturers of terne metal roll roofing.

One is a sketch book with pages cross-sectioned in the architect's eighth-inch scale. These books are expected to be especially useful when the architect is in the field and must make preliminary or supplementary sketches.

The other is a bound book containing 50 verification certificates, used to indicate that the architect believes the contractor has installed the roof according to specifications of materials and workmanship and is therefore entitled to payment as specified by the contract.

Architects can obtain either or both books by addressing Follansbee Steel Corporation, Gateway Center, Pittsburgh 30, Pennsylvania.

ARCHITECTURAL WOODWORK INSTITUTE OF AMERICA FORMED

Recently 130 architectural millwork manufacturers from over 30 states and Canada met in Chicago to form a national association. After adopting an organizational program and name, the directors of the architectural Woodwork Institute of America elected the following: President Chas. A. Rinehimer of Rinehimer Bros. Mfg. Co., Elgin, Ill.; First Vice-President Claude Twiellenmeier of Crescent Planing Mill Co., St. Louis, Mo.; Second Vice-President C. W. Fischer of Hallack & Howard Lumber Company, Denver, Colo.; Third Vice-President Wm. L. Otis of Columbia Lumber & Manufacturing Co., Columbia, S. C.; Treasurer Elmer Root of Standard Manufacturing Company, Appleton, Wis.

Other board members included Albert Carlson of Aaron Carlson, Inc., Minneapolis, Minn., and F. P. Delaney of Metz Manufacturing Company, Dubuque, Iowa.

At the director's meeting, board

members voted unanimously to launch an architect relations program providing useful service information to the architects; to retain the 40 year old Millwork Cost Bureau to provide cost data and other services; to seek supplier co-operation in the form of financial support plus research and promotional work; to work with and help establish regional associations with the aim that all regional associations will be federated in the Architectural Woodwork Institute of America. The board employed Byrne Marcellus Company, 332 South Michigan Avenue, Chicago, as secretary-manager of the institute.

NEAL SLATE ADDS WAREHOUSE

The W. E. Neal Slate Company has enlarged its warehouse facilities with addition of a one-story concrete structure to the warehouse originally erected in 1952. The company can now supply more of the area's slate needs directly from stock, Mr. Neal reported. The firm specializes in slate and chalkboard materials and also distributes Venti-louvre louvres, Emeri-Crete aggregates, etc.

HARDWOOD FLOORING RESEARCH RESULTS REPORTED

Results of interest to architects specifying hardwood flooring have come out of research sponsored by the Maple Flooring Manufacturers Association. The project was aimed at controlling movement of floors.

Included in published results were these facts:

1. Expansion is greater for floors laid with wide strips than the expansion of those laid with narrower face strips.
2. The tendency for floors to buckle can be lessened by reducing the undercut.
3. Nail resistance to floor expansion cumulates toward the center of a floor and becomes less near the edges.

Because of this latter relation, the greatest movement of the floor occurs a distance of 1 to 3 feet from the edges and practically no movement occurs throughout the main or central portion.

Using the basic information obtained in the first phase of study as background, the second research project was conducted to investigate further methods of controlling the expansion of maple flooring. A report presenting the summary of this

investigation will be published early in 1954.

CONSTRUCTION JOB FIRES UNDER CONTROL FIRE

The attitude that there is little chance of fire damage to a building under construction—especially when it is "merely a skeleton"—is being fought by fire prevention people and their campaign has much in it of value to the architect. Architects sometimes have that horrible experience of seeing their ideas go up in smoke as fire hits one of their designs while it is being erected.

The National Safety Council has issued some thought producing material on this situation, which we quote:

It takes only common sense, along with some fire extinguishers and a few preventive steps, to avert the blazes that happen on so many jobs from any one of the following sources:

1. Accumulations of debris caused by failure to keep the site cleaned up.
2. Electrical hazards—faulty circuits, overloads and short circuits.
3. Temporary or permanent heating, such as salamanders, oil or kersosene heaters, stoves and radiators.
4. Accumulations of flammable materials like tarpaulin enclosures, sawdust in electric motors, oil and gasoline and drainage.
5. Sparks in combustible atmospheres, tanks and places where flammable materials, including welding gases, are stored or have accumulated.
6. Hot exhaust from vehicles and equipment on dry grass or near other natural, stored or erected combustibles.
7. Uncontrolled or careless use of cigarettes or matches.
8. Welding operations.

Yes, buildings do burn while they're under construction. In 1948, in Trenton, New Jersey, a salamander ignited tarpaulins which were protecting the rear of a four-story building under construction. The flames traveled up the length of the tarpaulins and rapidly spread through the floors.

The watchman, who failed to notify the fire department immedi-

ately, was burned to death attempting to fight the blaze alone. When the fire was finally put out, damage was estimated at $1,000,000. This case emphasizes the importance of turning in a fire alarm promptly.

Not only buildings, but bridges, tunnels, and subways under construction can be involved in destructive fires. If these fires aren't extinguished in the first stages, they burn with a freedom they wouldn't have in a completed fire-resistant structure. When you think of any mass of formwork and the tarpaulins, it isn't any wonder that we should all be concerned with the fire hazard.

The two important things to do once a fire is discovered are these: call the fire department immediately and put out the fire. So that you can put out any fire you find, fire extinguishers of approved types should be placed in convenient locations on every job.

But fire extinguishers won't help unless you know how to use them. For instance, it's extremely important that only carbon tetrachloride or dry powder extinguishers be used on electrical fires. Foam type extinguishers are best for oil, grease, and paint fires. Soda acid and carbon dioxide are most effective on fires in wood, paper, and fabrics.

We should all make it a point to watch for fire hazards and do our part to get rid of them. For example, we should dispose of paper, cement sacks, rubbish, scrap lumber, sawdust and other construction debris every day.

Welding and cutting operations, salamanders, and smoking account for 75 per cent of all construction fires; so we know the main things to watch out for.

Every normal precaution should be taken during welding or cutting operations. Watch out for sparks or hot metal or slag, which can start fires quickly. With the proper protection, this equipment, as well as rivet forges and other spark producers, can be used safely.

Another thing, don't burn free-burning combustible materials in salamanders. Use coke and see that the salamander is solidly placed so it won't topple over. A 3- or 4- inch bed of sand under the salamander will lessen the fire hazards. Keep tarpaulins at least 10 feet away and fasten them down.

NEW MALARKEY CATALOG FOR WOOD PLANNERS

A new eight-page catalog presenting Malarkey redwood and fir "Shadowood" plywood, Shadowood redwood lumber and matching moldings in full color has been issued. Of interest to the designer who uses panelling, the booklet has specifications, suggested finishes and uses and installation photographs. Marked for the A.I.A. file, the booklets are

available from M and M Wood Working Company, 2310 N. Columbia Blvd., Portland 17, Oregon.

HANDFULS OF INFO

being some bulletins and booklets architects will find informative.

Furniture—

"The Dunbar Book of Modern Furniture" is rich in style and as modern as the 1954 calendar. Well illustrated, the ideas for integrated furnishings are worth study by architects to whom fall the extra task of spex for furniture and furnishings. Author Edward Wormley has much to say about modern design and its many problems for designers and users of modern furniture and can provoke you with his ideas. The volume costs $1.00 and is available from Dunbar Furniture Corp., Berne, Indiana.

Cold Cathode—

Crammed with information and technical details, the "Handbook of Cold Cathode Fluorescent Lighting," 52-page booklet offered by the Fluorescent Lighting Association, is a good source for data. The book, prepared by Bernard F. Greene, contains data on the electrical and photometric properties of the cold cathode lamp and auxiliaries, along with information on the proper ways for using and installing it. Costing $1.00, the volume can be ordered from the association's Dept. E, 100 W. 42nd. St., New York, N. Y.

Rubber for Protection—

Use of chlorinated rubber protective coatings in water and sewage plants, paper mills, storage farms, chemical processing plants and food factories is documented in "Protection with Parlon," a Hercules Powder Company publication. Architects will find information about use of the material, its properties, examples of protection obtained and instructions for application among the pages of the booklet. It can be obtained from Hercules Powder, Wilmington, Delaware.

Architectural Porcelain—

New construction and remodeling both can be aided in achieving the unusual through use of porcelain enamel and for the architect and builder interested in this material the Davidson Enamel Products, Inc., has just released a pamphlet on general use of its products and details of its installation. The booklet is free, can be had from the company at Dept. F-53, Lima, Ohio.

A similar booklet with very adequate detailing is also available from Ingram-Richardson Manufacturing Co., Beaver Falls, Pa.

Floor Problems—

Everything from construction of an "average" wooden floor to design of heavy duty floors for special buildings has been gone into in a new publication on "Floors and Floor Problems," issued by The Tremco Mfg. Co., 8701 Kinsman Rd., Cleveland, Ohio. A hint of the contents and value is contained in the chapter heads, which include "Practices of Floor Construction," "Why Concrete Floors Deteriorate," "Special Problems of Industrial Floors" and "Floor Problems of Offices, Schools and Institutions." The booklet is obtainable from The Tremco Mfg. Co., and is free.

Since the natural colors of clay products are, with few exceptions, mixtures of shades rather than pure colors, the accepted practice in specifying color for brick and tile is to require the shipment to match an approved sample.

Fuller's Research

(Continued from Page 8)

possible methods modern industry can place at their disposal. Mechanical integrators and airmail, the telephone and telegraph are all "tools" in getting the job done under the Fuller training and students and others get a new slant on some things they have always taken for granted as "fast enough." If there is a more expeditious way possible, use it, under the Fuller plan.

The day of "feeling your way along in building is passing, Mr. Fuller feels. The future lies with the people able to design precisely so that every factor involved in a design can be predetermined. This is the age of mathematics in construction when the integrator will push out the mere adding machine. This use of higher mathematics in design is a longtime method with Mr. Fuller and his teams and he has inspired many students to make their own progress after they went out into practice. He also has inspired them to work as teams after leaving his project's aura.

However, he and his coworkers also recognize the need for a bridging of the gap between pure research results and practical application to the day's problems in the workaday construction industry. The application of his pure science facts in the geodesic dome to the rotunda of the Ford layout indicates the manner in which this will be achieved as the mass of research results are interpreted by others into construction language and put into various structures. Modern industry has come to recognize the need for pure research and its accumulation of basic facts for out of this can be drawn the essentials with which to build or create new and progressive products or structures. Mr. Fuller's role in today's construction industry is to help build the mass of basic facts. In doing this he fights against isolation, feeling that in groups and the group interplay of ideas more and faster progress can be made.

The Minnesota project is neither isolated nor repetitious. An important thought in all of the Fuller projects—he is now on a nationwide tour to conduct courses in various colleges—is to make each one new and a step upward from that which preceded it. The Minnesota course is one of the longest. Only other stops he is scheduled for in the Northwest are two at the University of Michigan. The Minnesota design follows immediately after a similar project at Princeton and shows several

points of improvement over the results attained at the eastern school.

The Minnesota model, which incorporates 270 struts and string for the tension, is not intended to suggest a completely spherical building. Only parts of the structure would be used, as in a dome. It is the development of the theory that while present day building pyramids compression units—like brick on brick with weight added to weight—the use of tension to offset the weight load can lighten structures. The Fuller structure employs tension and compression with their interplay achieving the maximum in strength with a minimum in weight.

Mr. Fuller said he first was struck with the possibilities of the tension-compression method when sailing a boat along the coast of Maine. He pointed out a mast is held in place by application of these forces and a boat's structure utilizes them and achieves better structural results than any building. It also does this with greater economy of materials.

For those readers who would like to obtain more detailed and technical information about Mr. Fuller's ideas, which we have avoided here because of space limitations, we give the following bibliography.

Nine Chains to the Moon, Fuller, Richard Buckminster. N. Y.: J. B. Lippincott Co., 1938, xvi p., 21, 405 p. illus. 2 fol. diagrs. (In print to 1949. Frequently available through Gotham Book Mart, West 47th St., between 5th and 6th Avenue, New York, N. Y.)

The following items by R. B. Fuller are available from Richard Hamilton, Research Associate, Department of Architecture, Massachusetts Institute of Technology, Room 7-335, 77 Massachusetts Avenue, Cambridge, Mass.

The Comprehensive Designer, Chicago, Institute of Design: Fuller Research Foundation, 1948 rev. ed. "trans-formation" Vol. 1. No. 1. N. Y.: Wittenborn-Schultz, 1950.

Design for Survival Plus, From lecture series given at Illinois Institute of Technology. 6 Burns Street, Forest Hills 75, N. Y.: Fuller Research Foundation, 1949.

Designing a New Industry, Transcription of talk to engineers of Fuller Houses, Inc. Wichita, Kansas, February, 1946. With reprints of *Fortune* article on Fuller House, N. Y.: Fuller Research Foundation.

Earth, Inc., Address to University of Kansas Agritectural and Engineering Schools, June, 1946. N. Y.: Fuller Research Foundation, 1947. 20 p. folded chart of historical curve of science and technology.

Fluid Geography, Printed from an article in the *American Neptune,* April, 1944. 28 p. contains fold-out map: 2nd ed. of Dymaxion Projection (pat.) of world map. (First pub. in *Life* magazine, March, 1943.)

Preview of Building 1950-2000, From talk given at University of Michigan, Ann Arbor, 1949. N. Y.: Fuller Research Foundation.

MANY HAVE SAID IT!

Edited By WILLIAM GRAY PURCELL

● **AFTER FORTY YEARS**

The prophecy time—fulfilled in part.

"NO ONE can possibly imagine himself the creator of a new style of Architecture. Especially not in the instance of our new era style which is slowly crystallizing as the product of *entirely different,* vastly extended, interrelated, interlocked and interdependent activities of all humanity."

John Jager 1912

—

● **A "3 x 5" MEMORANDUM**

Comes to the surface

I HAVE BEEN THINKING of the importance of transmitting the creative impulse on through into free action. Nerves charged with signals as if to secure action, but with no action resulting, tear modern citizens to pieces; that's the physiological equivalent of "racing" the engine. Mechanical "hurry" is continued impulsing of future actions before the time arrives to perform them. Such pre-impulses produce an effect on the human heart, similar to the "knock" in an automobile engine when you feed too much gas on a slowing pull.

Contemplation is the best preparation for accomplishing all things with a reasonable balance between impulse and activity. Coupled with this is the necessity to secure release for even low potential nervous activity by making memoranda of the pushing thoughts that come to one. At the same time these notes will let you sow these thoughts, some to fall into dry gravel, others into fruitful loam.

February 16, 1926

(Took this seed idea 27 years to sprout. Too much gravel!)

—

● **WHO IS YOUR ENEMY?**

At what is he driving

WORKING TOGETHER, living together, or playing together does not make a group unless its members can freely exchange what is on their individual minds. So "Communism" hates communality; National Socialism is anti-social; and the American Continuity since Magna Charta, June 15, 1215 A.D., is not what the American Fascists are now trying to make you believe. Alexander Hamilton, Thomas Jefferson, and Thomas Paine were all good Americans although in disagreement over both means and ends. Nobody can "get behind" the Fifth Amendment because "behind it" is solid with the whole Constitution. But you will have to stand firm both sides of it or "they" will tear it down. Don't let them take it away. Its whole purpose is *the defense of the accused:* whoever has not been accused has no need of the FIFTH AMENDMENT.

● **CREATION BEGINS WITH THE WORD**

And it had to be right

IT IS INTERESTING that Louis Sullivan always titled his plans "Dwelling for . . . etc." Dwelling — a place for man's spirit; permanency; unity. "The relation of the house to the site potential is half the architecture," says the Chinese proverb. And too, every dwelling must have something of the old fashioned Valentine about it.

"What! Surely not 'romantic'?!"

That too is a function of Architecture, for nostalgia is the most powerful of all emotions which move men.

"How are you to accomplish that in 1953?" "That is your problem."

At the very least, when people come to see your "dwelling," there must be, for them, some thing that will make them catch their breath; and for you, with the coming "home," never a return without a glow in your heart. If such quality be missing, you may as well go rent a flat . . . "with plenty of closets."

—

● **POETRY IN ARCHITECTURE**

The "West" too must find it

DISCOVERY

Of the things He will do for the world
I cannot invent
New things,
Like the airships
Which sail
On silver wings;
But today
A wonderful thought
In the dawn was given,
And the stripes on my robe,
Shining from wear,
Were suddenly fair,
Bright with a light
Falling from Heaven—
Gold, and silver, and bronze
Lights from the windows of Heaven.

And the thought
Was this:
That a secret plan
Is hid in my hand;
That my hand is big,
Big,
Because of this plan.
That God,
Who dwells in my hand,
Knows this secret plan
Of the things He will do for the world
Using my hand!

TOYOHIKO KAGAWA

We will be delighted to give full credit to publishers of this superb poem if some one will tell us who they are.

● **SMELL AS ARCHITECTURE**

One Whiff rebuilds it for you

AS A BOY in the Oak Park, Illinois, grammar schools my early contact with architecture began when I climbed over Frank Lloyd Wright's first buildings then going up on our street, Forest Avenue. I saw that their construction was of funny thin bricks, and of all things!, *plaster!* right out *doors!*, framed with flat bands of wood, smelling of creosote stain instead of paint, *hinged* "church windows" in *homes,* "pottery" porch rails . . . 'n' everything!" I came to feel that all this was right, and that buildings really should be made of delightful new *kinds* of everyday building materials which did not appear, used that way, in the ordinary run of houses.

—

● **HERE IS A NEW ONE**

TOLD ME by Kenneth M. Nishimoto, A.I.A., Pasadena architect, a very able, sensitive artist in materials of the building arts. He said: "In southern Japan — only — there is in common use the word bu-ten' (pronounced buh-TEN). It is a conversational exclamation. Used in introduction, like 'Well . . .,' or as thought focusing interlude like '. . . and so . . .' But it is not in-tied to any Japanese root."

How come?

"When in 1850-70 American sailors from trade ships kept landing and trying to recount their adventures to the local politicos who were learning English fast, they would be saying:—"

". . . yes, we stuck on bar at low tide — but then — when tide rose, etc."

". . . we ran out of water 'but then!' . . ."

"This bu-ten' is the old colloquial story teller's 'bu(t) t(h)en' first smiled at by their Japanese listeners then slanged into Japanese mouths that dislike terminal "t's" and can't say "th," just as we pick up all sorts of European slang for quick meanings."

—

Bechtel's Schools

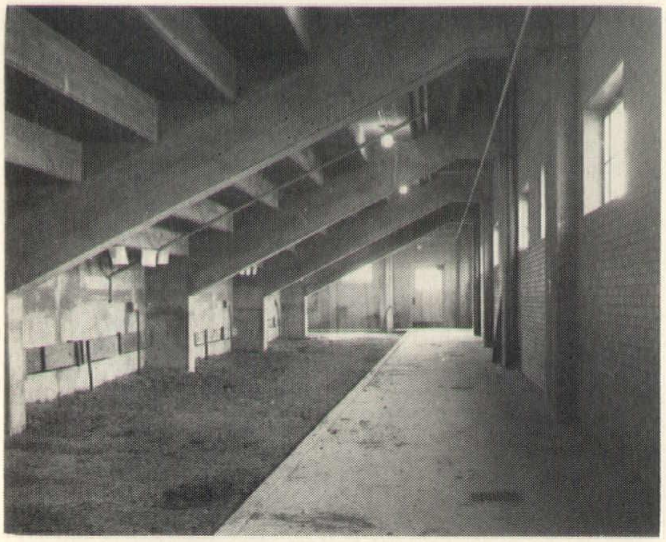
(Continued from Page 10)

with the building. We have to visualize the project in an over-all way, approach each building with an open mind and segregate it as to the use of the various sections. No two structures are ever alike, not even schools, because their requirements differ. Usually a teachers' committee is set up to work with the principal and superintendent of schools and this committee checks over the preliminary plans and makes additional suggestions. From that stage we go to final drawings."

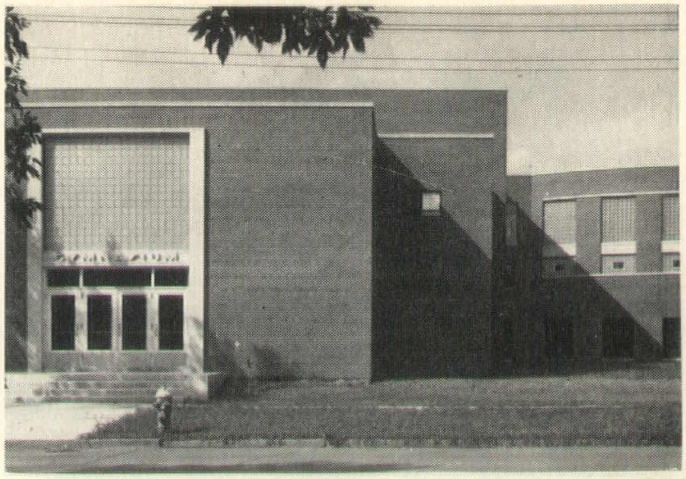
Besides Benjamin Franklin Junior High, new buildings in the Fargo area designed by Mr. Bechtel include the $700,000 addition to Agassiz School, the $167,000 West Fargo elementary school, a $250,000 parish educational building for the First Lutheran Church, a $185,000 addition to the Clara Barton school and three new buildings on the NDAC campus (Agricultural Engineering $110,-

000 Livestock, $250,000 and Home Economics, $450,-000). Except for the parish educational building and home economics structure, the erection cost of the others was 80c per cubic foot.

The parish educational building cost 90c per cubic foot, for there was a design problem in connecting the corridors to the adjacent church built in 1925. The size of the lot was also limited and the exterior had to be matched as closely as possible with the existing church. The new building contains three auditoriums



Cattle stalls are space utilizers under the NDAC Livestock Building's Bleachers.



Fine mass arrangement is seen in this view of the new Agassiz School addition.

(one on each floor), 33 Sunday School rooms, church offices and Luther League, Ladies' Aid and Boy Scout rooms.

The home economics building cost $1.03 per cubic foot, due to the large amount of mechanical work needed for laboratory equipment. This two-story and ground floor structure has six complete kitchen units in each of three laboratories, an assembly room seating 100 with a complete kitchen and a stage that can be used for food demonstrations or fashion shows, an art department, private offices, three complete clothing laboratories and a textile testing lab that can be maintained

within one degree of a desired temperature and one per cent relative humidity.

The livestock building is unique. There is nothing like it for livestock judging at the college level in this part of the nation. It has a commodious arena with concrete bleachers on each side to seat 1,600, pens and stalls for the animals compactly placed under the sloping bleacher sections, a slaughtering room and meat cutting department with overhead tracks, cold storage lockers, two lecture rooms and a small animal room for veterinary work.

A useful provision in an elementary school is the multi-purpose room of the West Fargo school, which can be used as an auditorium, cafeteria or large classroom by rolling back a folding partition. There is also a stage and a completely equipped kitchen for, while this is not a rural school, it has a fairly large enrollment of farm children brought in by school bus to whom a hot noon lunch must be furnished. This one-story school, long and low to save money on wall construction, has eight classrooms, a library and principal's office and was built at a cost of 80c per cubic foot.

For heating and ventilating, Mr. Bechtel prefers the split system with a central fan unit. In North Dakota schools, 15 c.f.m. per pupil must be circulated through the building, 50 per cent of which must be outside air.

Wintergreen

(Continued from Page 6)

strate the method by which, *without upsetting present business and property values,* these new day retail boulevards may and will naturally extend themselves in all directions and on varied levels to allow all loop merchants access to the free moving buyers. These secondary pedestrian streets will inevitably come to be located so as to make best use of what is now slow rental space in existing buildings, and at that particular story height which had proved to be the best average for existing buildings, easiest as to re-assignment of use and calling for minimum new construction for connecting links. The opportunity for greatly increased rentals would be a very strong pull toward full co-operation.

In the instance of existing buildings, the cost will be reasonable. With little increase of capital investment, building management can benefit by the profits from growing business in the many new shops, instead of depending on mere static containment of equity investment. Two corporation ideas, corporate city government and corporate private business, here unite to increase net worth and stabilize earnings — actually to stop the economic explosion of which Dayton's Southdale is but the first bang.

ALL TEN BLOCKS surrounding our new glass shopping center would also eventually have escalators both for their own advantage in attracting people, and as normal free-feeding of the greatly increased traffic of customers into and from the new buying climate.

WITHIN OUR GALLERIES you would also expect, and we have shown on our plan, many stairways of easy gradient for hurry-people in floor to

floor movement, mostly down, going to retrieve their autos. These intercom up and down facilities of all types would encourage free movement by customers to offices and shops on the four terrace floors of Wintergreen Galleries, rising in open air tiers above the new 30′ level, with each floor recessed by the width of one generous "sidewalk" width, to let light and sun down into all levels.

In our general plan and sectional drawing on page 5 we have based the relations of Wintergreen main sales floor to the surrounding buildings as a generally expanding fourth floor system because, in the inner marginal loop area, most buildings are under six stories. There is no question but that on Nicollet between 5th and 10th such new indoor boulevards for walkers could, and to begin with, perhaps might go to the 8th floor, with bridges at that height, the covered ways taking to the air above some lower buildings. Covered permanent "gang planks" bridges would serve nearby taller buildings.

For example, imagine the roof of any one of Dayton's top floors opened up with a vault of glass, replanned as an indoor highway with wholly open shops either side, and at both East and West ends leaping over Seventh and Eighth to reach the rear of the Medical block and Besse Building and on down to Andrus, and in the other direction, touching Browning King in passing and on down south as far as business could be served or developed. Another such pedestrian boulevard could reach out to the North.

It has always seemed to me curious that owners have been willing to expend so much money going down into the muck and pipes to secure basements and sub-basements, when, for a third of the cost and half the maintenance, they could plan for, or rebuild the first, second and third floors of any building in such a way as to provide the same services. This done, the fourth floor as under our proposal becomes the "premier étage," the "first floor," the principal floor, so-called, in Europe, where these terms refer not to the street level floor, but to the floor which is *one flight up* above the street.

Every sales and advertising man knows the subtle factors resting in the "up" concept. You can easily get people to go up, look up, be happy in being up, but it takes a powerful cash discount to get them "down" and they are never quite happy about it. Bedrooms in the half basements of dwellings, even if perfectly lighted and sunned, are just not liked. I designed a wholly above grade servant's room in a house on a very sloping lot, and a very pretty room and bath it was; but still is was "down below" and it proved unacceptable to servants. Said Mrs. Dr. Walker, "people just do not like to go downstairs to bed" — she said a lot!

Anyone who has enjoyed Olvera Street in Los Angeles with its open booths, or has seen for the first time the wide open food shops of the Pacific coast, will appreciate the business possibilities of our covered streets and open terrace shopping centers for all types of business. I visualize all these as without "store fronts" and much of the sales business done right out under the glass sky, in 75° temperature and 24% humidity in the midst of tropical flowers and foliage when Minneapolis is 20° below outside and tense with 5% humidity.

(Continued on Page 48)

COVER PHOTOGRAPH

THE CRYSTAL PALACE — LONDON

Completed—May 1, 1851

Burned—November 30, 1936

★

DOES THAT PICTURE PLEASE YOU? It does me — very much. It should please today's purists, with its complete and unashamed acknowledgment of mechanical assemblies for the practical parts of buildings.

And too, this Greenhouse Architect, Paxton, had very advanced ideas of color, and well he might, his life given to the service of flowers. At his insistence, the slender iron pillars and vault ribs were painted with vertical stripes of pure primary red, yellow, and blue, the Medieval heraldic colors. The then popular pastel-tint picture painters, of that sentimentalist day in art, were shocked at the idea. But the decorative result was praised by almost everyone. The whole show was gorgeous with color as many lithographs remain to tell us.

And so, in this London Crystal Palace, great lessons were learned about dynamic color and organic structure. Exciting machine age patterns appeared for the first time as beauty-in-architecture, new patterns made possible only through the willing acceptance by designers of the strange, stark assemblies disclosed by engineering and manufacture.

★

THIS BUILDING AS ARCHITECTURE represents almost the very first recognition and demonstration of the beauty of machinery. Curiously enough "the public" liked it. The art critics disliked it — John Ruskin despised the building. Viollet le Duc, then at the height of his battle with the École des Beaux Arts in Paris found it right in line with his own projects. Paxton and le Duc almost alone in the world of creative arts believed that things only exist in the use of them — all their uses — body, mind and soul. As with all artists capable of producing living art, both these designers demonstrated that design is not arrangement by esthetics. It is the result, within the beholder, of an event coming to him in satisfaction because it *works right*. In designing the Crystal Palace Paxton did not begin with a formulation of art and design principles which were then translated into forms corresponding to his theory. He was just a practical man, but he knew iron and glass construction. He loved his green houses when he got them built and filled with nature's shows. And who doesn't love greenhouses in winter to this very December day. All Minneapolis *will* love our vast Wintergreen, five acre, "green house" when it is built twenty years from now.

Paxton's Crystal Palace of 1853 and our seven story salesgarden set down in the midst of cold business and colder customers proves that the art of business and the art of art come into existence only when an article pleases you. It is no different in art than it is in business. Profits are pleasing but producing profits is a very difficult and dangerous art. Even in business, profits are not all. My uncle truly said, "If you can't enjoy 'doing business,' why do it?" But is "modern" art pleasing? Well, pleasure is a very large word. What is "unpleasing"

is also "pleasing" to many—to too many, perhaps, in these days of "abstractions" from what had no original existence to be abstracted. In architecture, that is "building-as-art," the satisfactions are many. They overlap. Architecture is all things to all men, it is total experience. Architecture calls for no abstractions; it calls for production, for process, for the materializing of joyful performance. Architecture calls for fill-fulling, not taking away.

Why build these cities glorious
If man unbuilded goes?
In vain we build the world, unless
The builder also grows.
Edwin Markham

All this is held for you in that cover picture. The very first photographs of buildings were the daguerreotypes of these all glass halls of 1851—and it took the world one hundred years to again find a use for such buildings and to build them—the crystal cube of the new Lever Soap Building in New York, for example—the new all glass walled Bank on "Fifth Avenue," New York City.

★ ★

OUR PRINCIPAL OBJECT in showing you this picture on the cover is related to what we wish to illustrate with the plan for the Wintergreen Gallery project on page 5. All our pictures together with the plan illustrate the way in which interesting and vital architecture meets, acknowledges and solves all the human circumstances to be encountered.

For example, in 1850 an irascible Colonel Sibthrop, in Parliament, enemy of the whole Crystal Palace idea, when unable to defeat the project by direct action, succeeded in passing a preservation mandate for some ancient elm trees which stood in the center of the only available site. Resourceful Paxton, the Architect-Greenhouse Designer, then decided to build *over* and *around* the trees, lifting a "transept" vault of glass high enough to clear their tops. This resulted in one of the most effective features of the design, both in general view and in the sense of loftiness and vastness of interior space, made the more convincing by the living presence of obviously real, age old trees.

And so at long last, in our day, such trees will add sincerity and charm to Dayton's Southdale Wintervale Patio and we in turn propose hundred foot high, evergreen, tropical trees as a feature of our downtown Wintergreen Galleries recommendations.

As in Paxton's acceptance of the trees, and many other new conditions, so in our assumed special conditions we too have accepted two large hypothetical "buildings" together with the special demands of surrounding buildings where the habitual flow of people is already channeled by elevators and by all the entrance lobbies of buildings which are too useful or costly to be disregarded, and profitably and mutually available.

★ ★ ★

IN CONCLUDING our study and enjoyment of this cover picture supplied by the Victoria and Albert Museum, I have recently seen a chromo-lithograph of this scene. The gorgeous Turkey red of the hangings, the

green trees with their dark blue violet trunks, gold banners, the dignity of the ornamental wrought iron gates in black and gold contrasting with the white marble sculpture, make up a stage setting for festival not to be seen again for nearly a hundred years. The ladies' costumes and parasols of that day were also very colorful; the exhibits were everywhere pressing the idea of novelty and progress; the new gas lighting was a marvel to everyone. The whole vast interior was caught in the webs of slender iron work glittering like candy sticks in the sunlight flooded space.

Nothing like it had even been seen. It was "modern" and as such constantly referred to. Now we propose that Minneapolis move on from the one hundred years success of the Crystal Palace and not only give its citizens and their guests a unique enterainment but a practical and continuing stabilizer of city development and prosperity.

Why wait for the next American "World's Fair"? Why boondogle "roads and bridges" for make-work of a type which is now done with more machines and *fewer* men? Let's forget the 1886 road-gang as a substitute for the poorhouse and the soup line and get going on a "make-work" which is also a "make-business" enterprise —a permanent continuity calling for skills of the largest variety of trades and the fewest machines. Let's start before we get bogged in the next depression now rattling every sales manager's slowing volume charts. Let's dramatize what we are and where we're going and then let's prepare to act in time and for all time. W. G. P.

A MOST INTERESTING BOOK of 140 pages and several hundred illustrations, "The Great Exposition of 1851," may be obtained from the British Legation, Washington, D. C. Price 6 shillings ($1.00). Paper covers but very well done.

ANOTHER BOOK which I found useful is "The Great Exposition—1851" by Yvonne French. 300 pages fully illustrated. The Harvill Press, London. For any one organizing large civic enterprises calling for diverse co-operation and expert servicing in public relations between construction, finance, management, and government this fully documented book is an indispensable handbook.

Wintergreen

(Continued from Page 45)

Our four floors with all the daylighted and sunlighted space above the new 30′ level would also be served with automatic passenger controlled elevators at many key points, freight elevators serving stock replenishment by truck, available to all merchants, as it is so ably planned at Southdale. It is quite possible that this would be a good place to introduce the continuous-flow, multicar, conveyor type of passenger elevator, requiring no operator and very efficient up to seven floors. These have been in use for fifty years in some parts of Europe and one wonders why they have never been used in U.S.A. Also provided, in due course, would be one of the numerous carpark lift systems connecting the three lower garage floors with all seven floors of Wintergreen and on up as a tower for sixteen floors if there were a building that high to be served with a bridge. Ride up with your car, walk to your office under cover without returning to the street.

Let's really go modern in a big way. Finish the job. Why wait for the "Village of New York City" to do it. "Make No Little Plans."

Concrete Conference

(Continued)

green, this affecting concrete laid late in the year when salting of ice during winter assures the chemical will find its way to the concrete.

Research results show, Mr. Scholer said, that there is only one sure prevention of scaling from these causes and that is with the use of air-entrained concrete for all exposed areas. He said air-entrainment, either with air-entraining cement or special additives, makes concrete highly resistant to all five causes of early breakdown.

A. Allen Bates, luncheon speaker the first day, reviewed the research program of the cement industry and told about the "cemeteries" where test blocks and posts of concrete with various mixes, ingredients and methods of preparation are all exposed to similar weather conditions year after year. He pointed out that these cemeteries are now more than 10 years old and results are becoming more and more definite. He told how the test pieces were marked from No. 1 to No. 6 on a scale of breakdown, the higher the number the more the breakdown with No. 6 meaning totally gone. He said that results showed that air-entrained concrete after 11 years was the only one that rated a No. 1 classification. It had held up almost perfectly regardless of all factors.

Don Hammel told the conference of a new plant for heavy media separation of aggregates in Medford, near Owatonna, Minn., one of only three such plants in the country. Completed this fall at a cost of $150,000, the plant removes all deleterious materials like soft shale, iron oxide, etc., which would not be possible with use of washing or water methods. The materials are removed by a flotation process similar to that used in production of taconite in the iron industry. A heavy specific gravity fluid is used to remove exactly what is desired, leaving clean aggregate behind. It is possible to exactly calculate the gravity.

The importance of good spex again was brought to attention of listeners during the presentation of "Watertight Masonry Walls" by J. W. McBurney and Willard Randolph. An interesting aspect of this spex problem was pointed out in that where no spex for concrete are given the bidder who cuts corners which destroys quality can underbid all others. This puts the reputable company which will insist on good workmanship, proper curing, etc., "behind the eightball" because these procedures which assure excellent final results cost extra money. The architect who uses complete concrete spex, then, assures that all will be on the same footing and assures his client of good results. Poor workmanship, inadequate supervision, lack of proper curing, etc., were listed as things which directly affect the watertightness of concrete, particularly important in the northern, freezing states. This problem is under study by the joint A.I.A.-A.G.C. group.

Jack Perlmutter of Denver, using slides, described a new prestressed, precast concrete plant in Denver. The plant mass produces wall panels, roof slabs, beams and girders, all prestressed in a special bed 380 feet long. The materials are becoming more and more generally used, he said, in schools, warehouses, commercial and industrial buildings in the Denver area. A new plant for this same type of prestressed precasting is being erected at New Brighton and will be in production after the first of the year, the group was told.

Louis P. Corbetta of Chicago and New York presented the story of the new warehouses at Great Lakes, Ill., naval station which are fully precast, wall panels and roof slabs all being cast on the site and placed into the structures. The buildings are fireproof

and builders utilized blown-on insulation, with one inch of material being machine applied to roofs and walls. The buildings were finished at a cost of $5.63 per square foot, this including utilities installation, profit of contractors, etc.

The conference used the facilities of visual education in presenting much of the material with outstanding new films being shown. Included were films on "How to Make Quality Concrete," "How to Transport, Place and Cure Quality Concrete" and "The Navy Builds All-Precast Concrete Warehouses."

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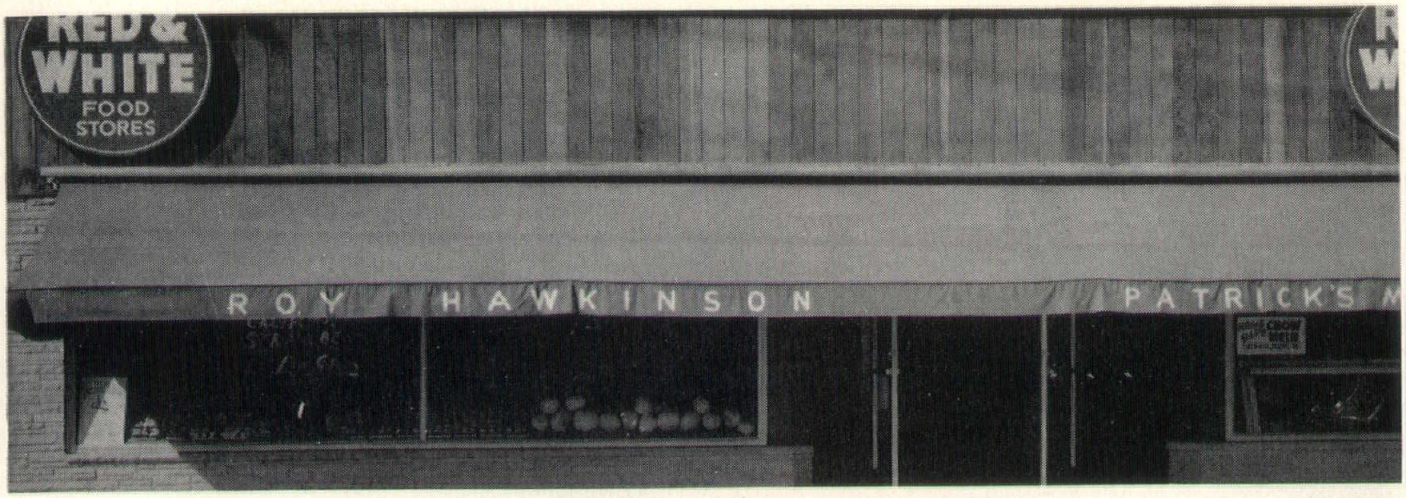

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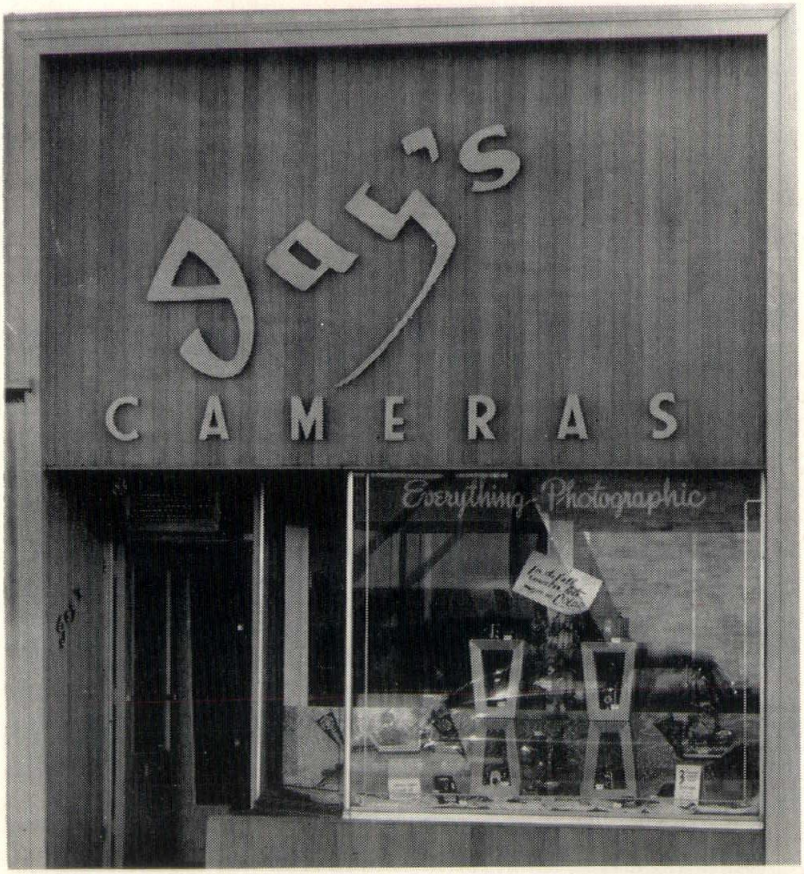

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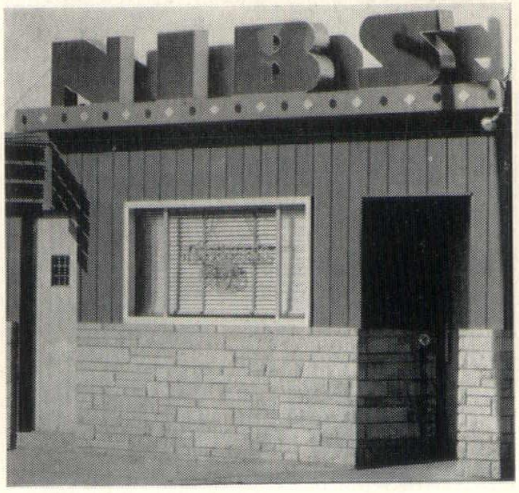

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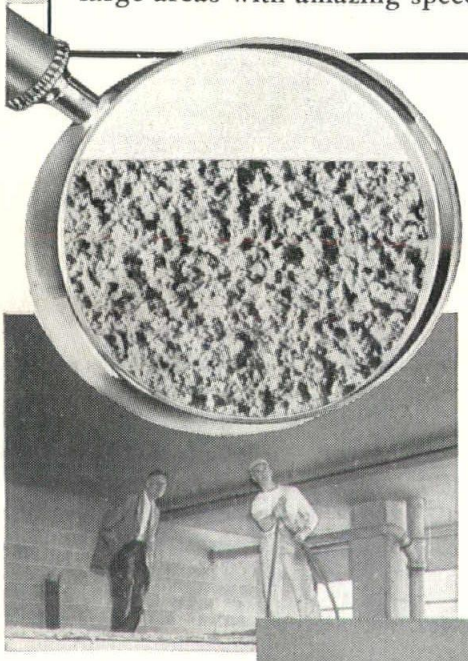

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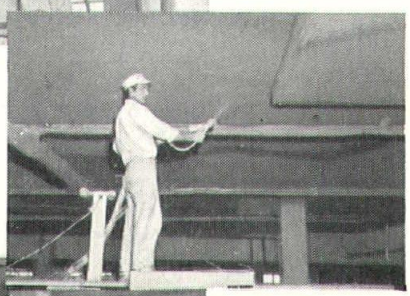

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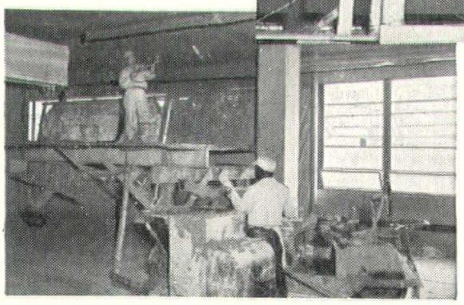

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