BETWEEN "OUT MODED" AND MODERN PIPING LINES...

- No modern architect would specify, nor would a realtor of today think of using kitchen and bathroom fixtures of fifty years ago; in fact, practically all materials used in building construction have been greatly improved or even completely changed during the last fifty years.

Every architect, building manager, realtor or home owner knows that reliable piping for plumbing and heating is the most important thing in the building. Unfortunately, this vital matter is not always given thorough consideration. Much more time or money may be spent on handsome and modern fixtures for bathroom and kitchen, for instance, and although this is commendable, very often the fact is overlooked that unless these fixtures are supplied with a permanently dependable piping system, their efficiency in a very short time will be greatly impaired.

To use out-moded, rustable pipe with its old-fashioned threaded fittings to supply modern fixtures and radiators, is as impracticable as it is inconsistent. STREAMLINE Copper Pipe and Solder Fittings that cannot rust or clog is the ultra-modern piping system that bridges the gap between out-moded and modern piping lines. It is the permanently reliable conducting system that insures efficient service from up-to-the-minute fixtures and radiating units, year in and year out. The first cost of STREAMLINE Copper is about the same, or very little more than rustable materials, and under normal conditions it will ast the building. Investigate this system that prolongs the life of the fixtures and actually enhances the value of the property, before you specify or install.

STREAMLINE Copper Pipe is manufactured in three wall thicknesses—K, L, and M. M is most generally used for plumbing and heating purposes.

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PENCIL POINTS  MARCH, 1939
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ANNOUNCING 4

1 2 3 4

PENCIL POINTS
MARCH, 1939
OWENS-ILLINOIS
INSULUX GLASS BLOCK
COMPETITIONS
$15,000 IN PRIZES

SMALL HOUSE. $2,500 in prizes. Competition closes May 22, 1939.

THREE SHOPS. $2,500 in prizes. Competition closes August 21, 1939.

DAIRY. $2,500 in prizes. Competition closes November 20, 1939.

NEWSPAPER PLANT. $2,500 in prizes. Competition closes February 19, 1940.

Plus $5,000 in five GRAND AWARDS on a predetermined point system to competitors who place highest in the above competitions.

The program for Competition No. 1 is published in the March 1939 Architectural Forum. The programs for Competitions Nos. 2, 3 and 4 will be published in future issues of The Architectural Forum.

OWENS-ILLINOIS GLASS COMPANY, INSULUX PRODUCTS DIVISION • TOLEDO, OHIO

This competition has been approved as a Secondary Competition by the Special Committee for Secondary Competitions for the territory of the New York Chapter, American Institute of Architects. Full participation is permitted to all Institute members.

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In your community, members of the United States Building and Loan League are ready to finance new construction, modernization or sales for you—or refinance!

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MARCH, 1939
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INGRAM-RICHARDSON MFG. COMPANY
BEAVER FALLS, PA. • FRANKFORT, IND.
Warren Cheney, Sculptor, whose work is represented by the examples shown on pages 157-160 of this issue, is a Californian now living in New York. He has exhibited during the past eight years at group shows in San Francisco, Los Angeles, Dallas, and New York City and has held two one-man shows—in San Francisco, in 1934, and in New York, at the Marie Sterner Galleries, in 1936. His work has appeared in a number of magazines and being shown this month in Art Instruction, in illustration of "Emotional Expression in Sculpture."

A graduate of the University of California, Cheney received European training at L'Ecole des Beaux Arts and from Hans Hofmann. For five years he was Lecturer and Instructor of Sculpture, at Mills College, after which he spent a year teaching at the University of California.

In 1934, Cheney was invited by the Metropolitan Museum of Art to execute a piece for the American Industrial Arts Exhibition. He created the graceful terra cotta, "Amor Caelestis," now a part of the permanent collection of the San Francisco Museum of Art. Last spring he attracted attention with his three 15-foot sculptures in the primitive manner, used in the setting of "Sacre du Printemps" as presented by the Horton Dance Group at Hollywood Bowl.

James C. Rose, whose series of articles on a modern approach to landscape design has been presented in the last few issues, explains that he is spokesman for a well-defined group of young designers "held together by the force of belief in group-consciousness and a oneness of ideas about the possibility of restoring landscape design as a dignified profession, through a new departure. "Finding little professional sympathy with the new developments, Garrett Eckbo and I formed a small group of five members who devoted ourselves exclusively to experiments in the contemporary approach," Rose states. "The group has grown rapidly, and finding great sympathy with the younger members of the profession, now has a large auxiliary body from California to New York. We have plans for traveling model exhibits, and our first book, which explains the whole point of view, is scheduled to appear in the spring. It will be a completely graphic presentation, and will be illustrated by members' work and the exploration of new dimensions in landscape."

Of his personal background he states: "I cannot believe that anyone would want to pigeon-hole my background and training to the number of years in this school or that office. I have never thought of my own life in terms of time served in various institutions; and take no pride at all in having studied at Cornell, as an undergraduate, and in the Harvard School of Design, as a graduate. It seems to me that a bland listing of these facts would give rather a blurred impression of my background. "I was completely tied up in the Beaux Arts system for three years, but gained glimpses into the contemporary approach, from Dean Hudnut, Dr. Gropius, and the illuminating seminars of Prof. Joseph Albers. My study of Architecture under Prof. Henry A. Frost, of Harvard and Cambridge Schools, had a definite and beneficial effect in my transition from the Beaux Arts to the New Approach. He has the qualifications of a truly great teacher. "I have always thought of training (Continued on page 22)
A PRACTICAL FACING FOR EVERY TYPE OF STORE FRONT!

COLORFUL K.Z.S ARCHITECTURAL PORCELAIN ENAMEL

ADVANTAGES

25 attractive satin finish colors plus black and white. (Acid-resisting)
Special shapes, designs, and colors.
Sturdy fabrication of panels with heavy 16-gauge, extra-flat enameling steel — 5/8" flanges — strong welding.
Architectural porcelain enameling, fused on both sides under tremendous heat — non-porous surface — lasting colors.
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K.Z.S Panels represent the culmination of years of development in the architectural use of porcelain enamel. They combine the strength, adaptability, and comparative lightness of steel, with the permanence and non-porous nature of glass.

Additional facts will show you why the trend is to K.Z.S. Porcelain Enamel. WRITE NOW FOR NEW ILLUSTRATED BOOKLET.
WHAT DO YOU THINK?

A well known practicing architect has submitted a manuscript to Pencil Points on the subject of specifications. We would appreciate hearing from any one who has an opinion to express on the existing specification material that has been published and the desirability of a new work on this subject. Have you any preferences as to the form in which it should be presented—card file, bound book, looseleaf? Would you want such a specification writing help at a price of $10? What value do you put upon it? Write Don Graf of Pencil Points, 330 West 42nd Street, N.Y.

Shortage of Skilled Draftsmen Foreseen

A shortage of skilled architectural draftsmen in the event of a building boom in the near future is foreseen by C. C. Zantzinger, Philadelphia, chairman of the Committee on Education of the American Institute of Architects. Opportunities for graduates of architectural schools lie in the possibility of greater building activity, he points out.

Since 1936, Mr. Zantzinger reports, enrollment in architectural schools appears to have been at a standstill, although the consensus of opinion is that the current year will show an increase. In 1935-36 there was an increment of about 250 students over the previous period.

"The Government in its many different agencies employs a great number of draftsmen who have been attracted to Washington from all over the country," Mr. Zantzinger points out. "The question is, will they stay there and consequently create a shortage of men at home, or will they, with a recovery in business activity, be glad to leave their present employment. The permanence of low salaries in Government may have its charm."

HAVING ELECTRICAL TROUBLES?
WHY NOT USE WADB?*

"Westinghouse Architects' Data Book"

You tell him, brother! If he'd rather struggle overtime with wiring diagrams or other electrical details, than to take short cuts with WADB, that's his hard luck. Personally, we'd use the office copy or look in Sweet's for all the easy-to-use details.

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The New Burnham Yello-Jacket boiler is equipped with a Bilt-in Tankless Taco hot water supply heater.

Does away entirely with a storage tank. Insures freedom from all sediment and stains of basin and tub from rusty water. Gives a continuous supply of piping hot water that's always crystal clear. A tempering valve insures a uniform temperature, preventing any possibility of excessively hot water caused by long intervals between use.

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Burnham Boiler Corporation
Irvington, N. Y. Zanesville, Ohio
HERE'S a little Colonial house that has just been completed in Wilmette, Illinois, one of Chicago's suburbs. It is typical of thousands of moderately priced houses that are being turned out by architects all over the country.

It is typical and yet there is one big difference—it is protected against "the worst storm in 40 years." When that storm comes, the basements in every house in the block will be flooded by backwater except this one.

In this little Colonial house the recreation room and the modern heating plant are protected by an Imperial "Floatless" Sump Pump. The floor drains and the laundry tubs empty into the sump, and the drainage is then handled automatically by the pump as shown in the hook-up drawing below. Even if the sewer level rises to grade this basement will be absolutely dry. There is no way for backwater to enter.

Read what Mr. Warner Pearson, the architect, says about sump pump protection and then write for the Imperial bulletin that shows how easy it is to incorporate this modern scheme for basement protection in some of your building designs.

THE IMPERIAL BRASS MFG. CO.
541 So. Racine Ave., Chicago, Ill.

WRITE FOR BULLETIN No. 438
It will give you typical hook-ups and other information needed should you decide to include a sump pump in your next residence layout. Refer also to Sweet's Section 27 Catalog No. 22 for specification details.
Michigan Jubilee
Set This Month

Leaders of the Michigan Society of Architects are completing preparations for a "Silver Jubilee" Convention, March 16-18, at the Hotel Statler in Detroit. A record attendance is expected and Kenneth C. Black, Lansing, President of the Society, has announced that problems of interest to the architects of the state will be discussed.

Commemorating the 25th annual session of Michigan architects, an architectural exhibition and a display of building materials will be featured. The convention will conclude with the Third Annual Building Industry Banquet, given jointly with the Producers' Council Club of Michigan and the Builders' and Traders' Exchange of Detroit.

F.A.E.C.T. National Officers Reelected

The national officers of the Federation of Architects, Chemists, Engineers, and Technicians were unanimously re-elected at the recent convention of that organization, in Washington, D.C. Lewis Alan Berne is president and others of the executive board include Marcel Scherer, vice president in charge of organization; Stuart Green, Minnesota, and Jules Korchien, Washington, D.C., vice presidents; and James A. Gaynor, secretary-treasurer.

A feature of the session was the presentation of a T-square, drafting board and honorary membership in the F.A.E.C.T. to President Roosevelt, through Marvin H. McIntyre, secretary to the President. This presentation, welcoming the President "into the fraternity of architects and engineers . . . as an architect who designed his own summer cottage . . . and as an architect whose social vision has designed, in a broader sense, houses for the American people through a functioning housing program," brought a letter of appreciation from President Roosevelt.

Policies of the F.A.E.C.T., defined at the convention, put the group on record against sectionalism, racial and union discrimination in WPA activities; for legislation in support of WPA; for cooperation with industrial unions and the coordination of activities of white collar and industrial workers; for prevailing rates of pay for technical employees on public works projects; against amendment of the National Labor Relations Act; and for enactment of Wage-Hour provisions for technical employees.
MAKE OUR EXHIBIT YOUR WORLD'S FAIR HEADQUARTERS

A sketch of our booth at the World's Fair is shown below. It has been designed to be of maximum interest to architectural men. The polychrome porcelain enamel mural forming the background of our display is the work of Daniel Boza, of Bomat, Inc., Cleveland. It measures 219 square feet in area, and portrays the Porcelain Enamel City of the Future. Our exhibit of sample porcelain enamel applications has been chosen with care to be architecturally interesting and informative. We will be looking forward to seeing you!

WHEN you visit the New York World’s Fair you will see the majestic twin pylons in the forecourt of the Communications Building... J. Scott Williams' huge polychrome porcelain enamel mural... the map of the world on the YMCA Building...

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PENCIL POINTS MARCH, 1939
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It gives you the information you want about Parker Processes. It lists the units to which they are regularly applied and names the companies consistently using them in their finishing systems. No cost or obligation.
The well-designed library and spacious drafting room of the McIntire School of Art and Architecture at the University of Virginia, Charlottesville, formerly were the shower and locker rooms and the playing floor of the Fayerweather gymnasium. The building has been remodeled for use of the school during a period of 15 years.

McIntire School Quarters Enlarged

Students of the McIntire School of Art and Architecture at the University of Virginia, Charlottesville, have resumed classes in spacious and well-lighted quarters in Fayerweather Hall, just remodeled for the third time in its 15-year transformation from a gymnasium to an academic building, reports Edmund S. Campell, head of the School, who planned and directed the latest changes.

Opened in 1893 as one of the largest and best-equipped university gymnasiums in the South, Fayerweather Hall was outgrown in 30 years and the playing floor was in 1923 fitted under direction of Professor Joseph Hudnut, now Dean of the Harvard Graduate (Continued on page 30)
Anaconda Through-Wall Flashing

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PENCIL POINTS
MARCH, 1939
School of Design, as a drafting room for the McIntire School, which had been founded three years before through a gift from Paul G. McIntire, of Charlottesville and New York. In 1930, Professor Campbell supervised renovation of the basement, which became a library and study for the School.

Last year, with a grant from the State and other funds, further remodeling was made possible. A balcony provides more space in the drafting room, where excellent lighting through glass brick wall panels and indirect fixtures make drafting less arduous. Ventilating fans and screens make the building more comfortable the year around. A stairway connects the freehand drawing studio, once the swimming pool, with the main drafting room and a balcony on the drafting room level adds to the utility of the library, in which the ceiling has been raised. The exterior of the building also has been altered to be more in keeping with the original university buildings designed by Thomas Jefferson.

Scarab Convention
The national officers and delegates attending the recent 22nd general session of Scarab Fraternity, professional architectural group, appear above in an official convention picture made at Cincinnati. Eleven of the twelve active chapters were represented at the convention, at which the officers were all reelected and Los Angeles was selected as the 1939 meeting city. Those shown include: (left to right—first row) Robert Deshon, Bottomley, Verner F. Smith who is national secretary-treasurer, B. Kenneth Johnston who is national president, Dean Norman S. Schneider of the University of Cincinnati Engineering School, a guest speaker, Professor Lang of the U. of C. Arts College, a guest speaker, and Johnson; (second row) William Guentter, Knight, Lester Thomas, Bilbro, Worsham, Bowers, and Tatum; (third row) Rather, Armstrong, Courtney, Val Cassels, and Thomas Berger; (fourth row) Herbert F. Heidt, Good, Joseph C. Didinger, Steigler, and William G. Waters; (fifth row) Bliss, George Danforth, Paul A. Wilhelm, Charles S. Ash, Wood, Stieby, and Woodworth.

New Instructor
Appointment of the artist Guy Pène du Bois as instructor in the Cooper Union Day School of Art is announced by Guy Gaylor Clark, Art Director of the Union. Du Bois succeeds Ernest Fiene who was recently commissioned to paint two large murals, covering an area of approximately 2,000 square feet, for the Needle Trade High School, N. Y.

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PENCIL POINTS
MARCH, 1939
One of the many CALDWELL fixtures for the HORACE H. BACHTHAM SCHOOL of GRADUATE STUDIES at Ann Arbor, Michigan. Architects and engineers—Smith, Hinchman & Grylls, Inc. The fixture shown above was used in the entrance to auditorium.

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DESIGNERS AND MANUFACTURERS

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The development of the modern classroom—center of any school design—is shown by these photographs in New York public schools representative of successive eras. The 19th Century classroom at the top was devoted to instruction in chair-caning, at Public School 147 Manhattan. The room in the center, in Public School 5 Brooklyn, was built in the early years of this Century when C. B. J. Snyder was school architect. At the bottom is a room in Christopher Columbus High School, designed by W. C. Martin, Architect, and completed February 1, 1939.
Since the days of Horace Mann, a century and more ago, the United States has been preeminently a leader among the nations in the education of the young. Millions of dollars are poured each year into the building of schools—public schools, private schools, progressive schools, conservative schools; and, especially since the federal government, as a relief measure, has been subsidizing town and municipal construction, school buildings have been rising all over the country. Nowhere does the architect have a better chance to display his skill than in the planning of school buildings, and nowhere does he perform a job of greater importance for the public welfare. Schools should, therefore, be among the most characteristic, if not the best, architectural works of any period, and some examination of schools today should reveal a great deal about American architecture as well as about American life.

In a way, the job has been made easy for the architect. Technical problems have been studied and re-studied. Colleges for teachers and educational research bureaus seem to have examined almost every phase of the problem, from the size of school furniture to the amount of maintenance required for each pupil; and all the result of this research is easily available. The manufacturers of school equipment have large and efficient technical forces. In a sense, then, the work of the designer would seem superficially to be merely that of assembling the various spaces required by these almost standardized essentials into a coherent pattern. Yet the disappointing number of stupid—and even of downright bad—school buildings shows that, even with all of this aid, the task of school design is not a simple one, and the final results must be determined by a great many more things than the mere adding up of square feet within four walls.

In part, the difficulty of the problem lies in something for which the architect has no responsibility—the particular educational philosophy of the school board or committee for which he works. School architecture is especially sensitive to the exact demands of the individual problem, and that problem in turn is determined absolutely by educational ideals. Education in the United States is in a period of transition and unrest. Some school boards demand the standardized, conservative education of thirty years ago; some seem to be at the mercy of every latest fad. In many cases mere laziness is behind the first type, mere love of novelty behind the second; and with such a basic lack of any exciting, controlling idealism it is perhaps not strange that the programs for building which such bodies produce, and the buildings which they erect, are as inconclusive or as stupid as they are. Even in such an important consideration as the size of schools there is little unanimity of opinion. If education is founded on the development of the individual, the size of classes and the size of buildings should be small enough to allow the individual to count. If, on the other hand, education is founded on the ideal of producing a standardized type which is deemed desirable, the very large, impersonal building is fitting. In general, American education has been founded on the individual ideal; yet nowhere in the world are larger or more impersonal knowledge factories produced than our typical urban elementary and high schools. There are all sorts of reasons for this fact: the tremendous increase of urban population, the sudden raising of school age limits, the perennial fact that no city ever has a sufficient amount in its budget for school construction, and the supposed economy of large-scale construction and institutionalized maintenance.

Thus, at the very beginning, the American architect is faced with a major inconsistency in the presentation to him of a problem which seems, on the face of it, almost insoluble—that is, how to produce a fit environment for the education of sensitive individual children in a building where five thousand are gathered together in classes all too large. How the architects must look with envy at Holland, for instance, which has set a maximum of 250 children for each elementary school, so that in many Dutch cities there is a small and inti-
In progressive schools, corridors are often used for displays relating to the things being studied. The children prepare these displays themselves. Here is one, dealing with China, in the halls of the Dalton School, New York.

mate schoolhouse in almost every large dwelling block.

It appears, then, that not only educational ideals determine American school architecture, but other brutal economic and sociological facts contingent on our whole urban make-up. The school is seen merely as another victim of the inordinate desire for centralization which has hampered so many elements in human life. In the less centralized areas the problem is manifestly simpler, and that is why so many of the best schools of the United States are to be found in the comparatively small cities and towns of the Middle West and the Far West, and in the suburbs rather than in the cities themselves.

Once the size of the school has been determined, happily or unhappily, it is the kind of education which the school is intended to produce which will control its design. Essentially, American education is today divided into two camps: those who believe in the so-called progressive education, and those who feel that the conservative, time-tested arrangements, with the proper modifications to keep them up to date, are the best. We may assume that the principle of the progressive school is that the minimum of exterior discipline should be applied to the child, and that the only true discipline is that which the child himself develops through his relation to himself and to the other children with whom he is so closely associated, and also that knowledge is best gained not through learning by rote but as a result of activity in work and in play.

The progressive school will, accordingly, be a place where such implied disciplines as fixed desks in straight rows are resolutely avoided, and where there is adequate area for play and for manual and artistic work. The school environment will tend to become more nearly like the home environment, and the total area required per person will be tremendously increased; so that the progressive school will require a total area of from 1½ to 2 times the area of the conservative school for the same number of people.

The conservative school, on the other hand, will require the most efficient and carefully planned classrooms, with a perfection of lighting and an economy, through the careful arrangement of equipment, impossible under the other scheme. It will substitute for the more or less free activity of the first type a more closely organized activity, in which all the members of the school will take part at stated times. The goodness or badness of either type of school will depend on the perfection with which it creates an environment for its functions.

Yet, despite these vast differences, there are many requirements which the two types of school have in common; for both must be based, if they are to express the real ideals of American education, on the individual child himself, first and foremost. There has, moreover, been a constant reaction between the two basic ideals; and even the conservative school today requires, as a matter of course, places where children can work and express themselves in the arts, and places where they can play comfortably and safely. These elements have been accepted for a long time in all schools; and, since they are expressions of ideals now almost a century old, it is not strange that we have worked out many important standards.

The architects, like the educators themselves, often forget the enormously valuable contributions of their predecessors; and, during the last decades of the 19th and the first of
the 20th century, men like C. B. J. Snyder of New York, William B. Ittner of St. Louis, and John Donovan of Oakland, Calif., had worked out definite standards of safety, convenience, and efficiency in school design which should not be forgotten. In our search for the new, the true values of the old must be examined with the greatest care before they are discarded. Take, for instance, the problem of exit stairs: the completely enclosed exit stair, with a wire-glass screen and door between it and the corridor, daylighted, and with a direct door to the outside air, is an element of school design so absolutely necessary for safety, so thoroughly proven in times of emergency, that it is discouraging to note that in some cases school architects, looking for the quality of flowing space or for the free planning so characteristic of our day, and in thoughtless imitation of admired European examples, have gone back at times to the open stair. Will some unnecessary school disaster, through smoke panic, be necessary to prove the danger of this alternative?

The classroom is, of course, the center of any school design, of any type. So much has been written about it, and so much is readily available, that any detailed consideration of its requirements for either progressive or conservative schools is unnecessary; yet here again common sense in evaluation of the old, as in the development of the new, is above all things necessary. If we have the free furniture arrangement of the progressive school, we must of course abandon the ideal of unilateral lighting; but in the conservative classroom any abandonment of this idea is inexcusable. We must never allow any supposed stylisms to interfere with our lighting; and, if it was wrong for the 19th-century architect to allow the necessity for pilasters or individual windows on his exterior to break up the classroom light with ugly shadows and produce on the student's paper a welter of confused cross-shadow from his hand and his pencil, it is equally silly today to allow the desire for horizontal banded windows or vertical expressions, or the use of glass brick, or what not, to produce classrooms that are glaring, too brilliant with violent and disturbing blackboard reflections. In the conservative classroom at least, we have learned, through trial and error, the advantage of a certain amount of exterior wall space at the teacher's end of the room; and stylisms have no more reason to make us forget this lesson today than they did in the past. One has only to go to the New School of Social Research, by the late Joseph Urban, to realize how the desire to get horizontal unbroken bands of glass on the façade has compromised the planning and even the convenient use of all of the classrooms on the front of the building. Of course the progressive classroom brings more problems, such as the arrangement of necessary working space, its acoustic treatment, and its relation to the study space in such a way that there may be easy supervision and yet no interference; the equipment is as yet unstandardized, and if there is less need for blackboard space there is more for bookcases, cabinets, lockers, and so on.

If the classroom is the center of school architecture, the corridors in any large school are its bane. Their necessary great size and the desirability of natural light bring a host of problems to the planner. Corridors are expensive to build and difficult to supervise, and if the desire is to have all classrooms on one side of the corridor only, for reasons of orientation, the inordinate length which results seems inhuman and wasteful. If the problem of vertical circulation, through escalators or elevators, could be economically solved, it might indicate that for the large school some type of multi-story building was in many ways better than the more extended plan required for a building of one or two stories, since several
Nyholm

Street side and, below, courtyard side of the Ansonia, Connecticut, High School. William Lescaze, Architect; Vernon F. Sears, Associate. Its character of simple clarity, its long straightforward horizontals, and its clear color treatment distinguish this building. This is architecture which children can really understand and love.

short corridors are more easily handled than one long one. Little by little, growing familiarity with elevators and growing perfection in their design has made it possible, at least for large urban schools, to realize these advantages; and it is undoubtedly true that on any congested city lot a building of eight or ten stories can be designed which will furnish more light, more air, and more play area than the older type of three or four-story building. It is encouraging to see that in many of the new designs for New York City schools the multi-story buildings do give precisely those advantages of light, air, and space which the report of the committee of architects appointed by the Board of Education to examine the entire problem signalized as necessary elements in all future school buildings. Nevertheless, all the attempts to solve the problem of the very large school seem, even at their best, mere compromises. Perhaps the problem as stated is fundamentally insoluble, because the over-large school is itself contrary to the highest educational ideals.

The school problem is further complicated by the fact that so frequently the school must serve not only as an educational institution but also as the social center for its neighborhood. From the point of view of mere maintenance, a school plant which is working every evening as well as during the daytime is more economical than one which is only in use a few hours a day. American cities are notoriously lacking in lecture halls, auditoria, and social rooms, and it is a definite addition to the civic amenities if the school buildings can, in part, take their place. The architect of such a combined building is really forced to a double task; and the interrelations of those parts of the building which are used only for education, per se, and those parts which are as well used by a larger public, frequently of an entirely different age group from that of the pupils, is a matter requiring the most careful detailed consideration. Here again de-centralization has its virtues, and it is much easier to solve such a problem where the site allows the
The Fitchburg, Massachusetts, High School obtains its effect through a frank and disarming simplicity. Its architects were Coolidge, Shepley, Bulfinch & Abbott

school auditorium, social rooms, and perhaps the gymnasium and swimming pool to be set apart in almost separate wings, which can be easily shut off from the rest of the building.

Nevertheless, despite all these difficulties and complex requirements, we may accept that, in America at least and for American conditions, the basic problems of school planning are well known and frequently well solved. We accept as matters of course that the ideal school must have sun in all its classrooms during some part of the day. We know the special rooms, like studios and some laboratories, which demand north light. We understand the problem of kindergarten and classroom design, and the requirements of gymnasiums, swimming pools, and athletic equipment. We realize the necessity of outdoor play space in the closest connection with all school buildings, and the desirability of school gardens and, in many parts of the country, of outdoor classrooms as well. Yet, even though we realize all of this, it would indeed be a critic insanely optimistic, if not totally blind, who would claim that the schools of America, by and large, have the attractiveness and beauty which they deserve. It is evidently not in the details nor in the general conception of the planning alone that all the secret of school design lies, and to find out how we may make schools better we must look further and more deeply into the entire school problem.

Perhaps the greatest secret in the design of schools lies in the architect's basic approach. Schools are for children and for youths; not only for children and youths en masse, but for individual boys and girls, your children and mine. Between these two concepts there is an enormous chasm. The school for children en masse is bound to be depersonalized, a knowledge factory, with all of the industrial spirit which the factory idea connotes. It will be a building conceived in terms of cubic feet, and not in terms of the child's reaction to it. It will be hard, perhaps even brutal. And it will almost always be stupid. In other words, it will be the average American school, designed for an education that thinks in percentages and...
Interesting and simple forms composed with an intimate scale make the Idaho Springs, Colorado, High School a building which children will take to their hearts. In the corridor view below, the recessed exhibition case, the curved jambs of the doors, and the cutting down of apparent height by the wall treatment show some well expended thought by the architects, Frewen & Morris for a school board that thinks only in dollars. It will be a school to which the child will go either as a mere matter of course, because “one does,” or even by force, as if to a prison, to escape when possible and to disregard when attendance is necessary. It will be, that is to say, the school of the legendary child who lives only for vacations, and who arrives at the end of the day, or at the end of his course, bored, tired, regimented into a pattern, and rebellious. It will be the school which produces gangs and gangsterism, headline readers and haunters of the movies. It requires a knowledge of only the most obvious qualities of a large section of American life to realize with what ghastly efficiency it has accomplished this job. This is particularly deplorable, for, if American education has had any constructive ideals to offer to the world, these have been ideals of that individual education which must be the foundation of a real democracy.

If the architects of schools could only accept this tremendous ideal as a controlling attitude, what an amazing revolution in the character of our school buildings might result; for an education of the individual means an education of persons, and it means not only personalized teaching but a personalized architecture. The ideal school architect must understand the tastes of children and of youths as deeply as he understands the qualities of building materials. He must, as it were, design half with the mind of a child, and produce buildings which children will grow to love instead of merely to tolerate. He must, even in the conservative school, as far as he can, personalize his standardized classrooms, introduce bright colors, make his corridors attractive with floods of light, perhaps with plants or exhibition cases. He must keep in mind always the scale of the people for whom the buildings are chiefly designed. This is easier perhaps in the case of children of kindergarten and elementary school age than in the case of the adolescent, and it is generally true that kindergartens and elementary schools are more at-
The Fowler Elementary School, Fresno, California. Franklin & Kump, Jr., Architects. The close relation of indoors and outdoors found in so many California schools is well shown by this example with its generous glass areas and its human, personal scale. Illustrated more completely in the February Architectural Record.

The Fowler Elementary School, Fresno, California. Franklin & Kump, Jr., Architects. The close relation of indoors and outdoors found in so many California schools is well shown by this example with its generous glass areas and its human, personal scale. Illustrated more completely in the February Architectural Record.

The adolescent is in a strange, unstable state, between youth and adulthood, full of timid searching for beauty and truth, and yet frightfully self-conscious about expressing this yearning. He is experimental, arrogant and retiring by turns, at one moment the anarchistic radical, at the next the most hidebound of conservatives. Could there not be in our high school architecture some subtle understanding of this critical state, some quality which will emphasize the timid search for beauty and goodness, and by variety and imaginative quality of form and color aim at preserving and developing individuality? Most of our great high schools seem designed almost as if to deaden and defeat every single one of these "better" adolescent qualities, and to emphasize instead the crudest type of mob reaction by their mechanized vastness and their hard impersonality.

It is, therefore, with all the more pleasure that one comes upon the exceptions, such, for instance, as Lescaze's Ansonia, Conn., high school, with its free planning, its fresh openness, and its clear, gay colors. There are details in the planning, such as the connection between the classroom wing and the auditorium, which are perhaps not solved as well as they might be had there been a less rigid adherence to the psychology inherent in what is usually called the "International style;" but of the general effectiveness of the whole, of its quality of, shall we say, clear youthfulness, there can be no question. One imagines that it is a school which its pupils will love and be proud of. It brings up the fantastic idea that, with an ideal architecture, one might sometimes have a school spirit based on pride in and love of school buildings, just as intense as that which is today based on football prowess.

Another school, much more conventional in type, the Fitchburg, Mass., high school by Coolidge, Shepley, Bullfinch and Abbott, has, despite its conservative style, some similar feeling of gracious personality. To be sure, it has the many stories, the great red-brick, many-windowed walls, and the trappings of rather conventional ornament which are found in the usual impersonal school building; yet somehow here there is a difference—there is about it all a complete simplicity, a delicacy, and a rather fresh note in its classic revival ornament, which sets it quite apart from the usual Colonialesque high schools of the day, which seem in some ways almost more mechanical and more drearily uniform than even many of the schools of twenty years ago by Snyder or by Ittner. Fitchburg, on the contrary, has a distinction all its own. Perhaps it lies in the simplicity of the plain end walls of brick, broken so pleasantly by the stair window and the exit door below; perhaps it lies in...
This drawing by Chester B. Price, Delineator, shows how the multi-story design for Public School 118 Manhattan, by Eric Kebbon, Architect and Superintendent of New York's School Buildings, gives more sun and air to all classrooms and also throws open a larger area of the site for playground and garden use. The central block contains classrooms; the wings, an auditorium and gymnasium.
the delicacy of the detail; perhaps it lies in the tying together of all of the windows in continuous bands by white panels. It is difficult to analyze, but the effect—the quality—is certainly real, and it would seem that this too might become a building which its pupils would respect and feel affection for.

Different, too, but equally eloquent of a personalized and not a mass education, are a number of recently built schools in the Middle West, of which the Idaho Springs, Colo., high school by Frewen and Morris is characteristic. Here again there is a distinction of form and of detail which brings personality into the design. There is a simple contrast of windows and of unbroken brick wall which is strong and beautiful, and above all there is a scale which is individual and not monumental, a scale which somehow makes the whole seem a building made for children, a building which children will appreciate.

It is in the Far West that the most radical experiments in school design have been made; and, taking the area as a whole, it is undoubtedly the Far West which has in recent years produced the largest number of beautiful school buildings. Of course, the problem in the Far West is more simple. The climate is generally mild, with none of the terrific temperature differences with which the eastern architect has to contend. Outdoor corridors become possible and desirable, and courtyard plans of various types are thus made possible, with all that that means in intimacy and the combination of enclosure and open air. Moreover, the land problem is less acute and sites generally are much larger. Yet these advantages which the West enjoys, great as they are, do not explain the entire difference in character between the schools in the two regions. Western architects have for years been more daring in their attack on the school problem than their eastern colleagues. John Donovan was using the courtyard type of school in Oakland over thirty years ago, and Allison and Allison in the neighborhood of Los Angeles were experimenting in various types of broken-up plans at almost the same time. Obviously either the educational authorities were much more radical, or else the architects were much more alert to the opportunities for leadership; in either case the advance was real, and not merely a matter of climate and land area.

The western courtyard schools are well-known, and the work of Neutra in developing the one-room-deep school, with outdoor classrooms opening off the indoor rooms, has been revolutionary. If his were unique examples, we might accept them as merely the contribu-

The inviting character of this entrance and the banded motives which carry around the curves and tie the whole together distinguish this large school in Los Angeles by Morgan, Walls & Clements. The same human character and intimacy are even more obvious in the interior court shown in the frontispiece. This is architecture which has real meaning for the adolescent students.
tions of individual genius; but they are not, and such a school as the Fowler elementary school at Fresno, Calif., by Franklin and Kump, Jr., shows with what charm, with what a sense of the individual pupil, other architects are developing similar schemes.

Nor is this daring, fresh approach limited to comparatively small schools like these, but equally unconventional thinking has gone into many of the large urban schools both of San Francisco and Los Angeles. There, the idea of breaking up a large plant into a group of separate buildings almost like a college campus has been accepted and developed to an extremely high degree of efficiency and beauty. A noteworthy example is the recent Thomas Jefferson high school at Los Angeles, Calif., by Morgan, Walls and Clements. This last example is particularly instructive. Not only does this basic system of planning allow the units to be cut down into buildings of normal human scale, but it also permits a freedom in space and mass composition that is bound to add interest to the group. Besides, the whole, despite its over-heavy pylon forms, is handled with fresh and imaginative detail that is vivid, personal, and exciting; and, whether one likes the particular style of the detail or not, it is impossible to deny its stimulating quality as an expression of the qualities of the concrete of which it is built. The whole somehow has the true school character, without being like any other school, and it has in addition that rare personal quality which will make the school a living thing to its pupils.

This quality is a subtle thing, and difficult to achieve, especially in the larger schools. The new designs for the New York City schools are a case in point. They constitute a revolutionary advance over their predecessors in plan and mass conception; from every point of view with regard to light, air, and convenience they are excellent. Especially brilliant is the 8-story school proposed for West 93rd Street; its airiness is a striking vindication of the multi-story scheme and of the fresh approach of the new board of design. Yet to me, at least, its character somewhat misses the personal, intimate quality which would appeal strongly to children; for me, it has followed too closely the vertical expression of structure which we have come to associate with commercial work.

The school problem is therefore an even more difficult problem from the aesthetic standpoint than for the mere complexity of its requirements; but, if it is difficult, it is also perhaps the most significant, the most rewarding, and one of the most valuable contributions which the architect can make to American life and to the continued dynamic vitality of American democracy. The school is the first place in which a child comes in contact with his social environment; it is the first place in which he becomes conscious of a milieu larger than that of the family, and the place where his relations to his fellow beings first become important in his eyes. The environment in which this takes place—its decency, its beauty, its cleanliness, its attractiveness—will do much to form these early important conceptions.

If, when the child goes to school, he is forced into a crowded, ill-ventilated, impersonal, institutional kind of environment, in which he feels himself only a unit in a great machine, then his attitude towards society is likely to be conditioned by some basic frustration of individual development, some fundamental feeling of futility, which may damage him for life. If, on the other hand, the school in which the child must pass some of the most formative years of his life is pleasant, bright, airy, personal, so that he may come to feel some definite emotion at its loveliness, as he feels happy in its convenience, he may not only have a feeling of heightened pleasure, of more worth-while activity, but also develop in this congenial environment some sense of social responsibility, of adding his own personality to the whole.

Seen thus, the creation of beautiful schools becomes not only an interesting architectural problem, but a real necessity for the healthy growth of a democratic America.
MICHIGAN UNIVERSITY'S NEWEST ADDITION

THE RACKHAM SCHOOL OF GRADUATE STUDIES

SMITH, HINCHMAN & GRYLLS, ARCHITECTS

In the design and construction of the building of The Horace H. Rackham School of Graduate Studies, recently completed at the University of Michigan, a rare concurrence of interests aided the Architects, Smith, Hinchman & Grylls, of Detroit. They found at their disposal adequate funds to meet all requirements, the skill of experienced builders, the knowledge of campus authorities, and a precise program which had been prepared by the administrative officers of the University after a careful study of the needs and operations of the Graduate School.

In planning the building, the Architects followed a schedule of space requirements which included the following elements allocated to the lower and upper parts of the structure:

Lower floors—an auditorium or lecture hall to seat 1,200 persons, with speaker's platform, rather than stage, and spacious arrangement of seats in amphitheater form to facilitate discussion from the floor and ease in movement; a covered approach for automobile traffic; main entrances on the south, with an ample entrance hall and coat rooms, retiring rooms, etc., to serve the lecture hall, and auxiliary entrances on the north in view of future campus development; administrative offices of the Graduate School and the Rackham Trust Fund; workrooms and shops; storage area.

Upper floors—study hall with adjacent book and magazine rooms; women's lounge, with writing room and music room adjacent; men's lounge, with writing room and music room adjacent; a memorial room; two small conference rooms; four large exhibition rooms and exhibition corridors; a small lecture hall to seat 250; two meeting rooms; three reception rooms in group with small lecture hall; two small meeting rooms, to seat 60; ten workrooms; coat rooms, store rooms, etc., to serve all above; fan rooms for ventilation of the several parts of the building, to permit joint or separate use; no heating plant, as service is by a tunnel from the University power plant.

From this schedule, which was prepared in 1935 upon the permanent endowment of the Graduate School by the Horace H. Rackham and Mary A. Rackham Fund, the Architects developed six distinct types of structure. From these, the accepted solution was chosen by the President of the University and the Dean of the Graduate School, with the Trustees of the Rackham Fund. The endowment of $4,000,000 and the gift of $2,500,000 for land, building, and furnishings, from the Rackham Fund generously supplement the University's resources for the Graduate School.

To these advantages may be attributed some part of the success the Architects have scored with this impressive structure, which is at once a memorial to Mr. Rackham and a symbol of the increasingly important graduate functions of the University. It was recognized that the requirements of the lower floors, which include the auditorium or large lecture hall in the center, were greater than those of the upper floors. This has been reflected in the disposition of the simple masses; the set-backs providing terraces at several levels of the five-story structure. The exterior walls are of Indiana limestone with a granite base course and few embellishments. Window and door frames are of bronze and the roof is copper.

The nature of the problems presented by the program, and the spirit in which they have been met, are indicated by the following comment on the significance of the building, by William E. Kapp, of Smith, Hinchman & Grylls, who handled the work as representative of the Architects from the first sketches until the installation of the furnishings:

"For visitors to Ann Arbor, the building will constitute the most tangible evidence of the School's existence . . . and it is a constant reminder that research and the training of new investigators are indispensable services to society . . . The possibility of intellectual recreation is evident, and the specialist has opportunity to become a scholar.”
Several of the models used in the development of the final solution of the Rackham School are shown here with the corresponding sketches, from which they were modeled, on the opposite page. In addition to these, at least one asymmetric plan was essayed but the sketch at the bottom of the opposite page approximates the structure as built and the model below illustrates the set-back masses and interesting terraces of the formal building.
The distinctive character of the new building designed by Smith, Hinchman & Grylls, Architects, of Detroit, for the Horace H. Rackham School of Graduate Studies at the University of Michigan, Ann Arbor, is indicated by the photographic portfolio on the following pages. Points of interest, from the principal façade on the page opposite to interior features that follow, were pictured by R. W. Tebbs, Architectural Photographer, New York and Detroit.
The principal entrances to the Rackham School are located in the South front, which faces the University Library and a mall between the buildings, and give direct access to a richly-decorated entrance hall, shown on page 148. The detail on the opposite page illustrates the embellishment in the classic manner, modeled by Joseph Parducci for the facade, and the dignity of the bronze and glass doors.
Key to the first floor arrangement of the Rackham School is this spacious entrance hall. The three doorways in the center of the wall facing the entrance, one of which is shown at larger scale on the opposite page, open on an interior lobby and a two-story auditorium or lecture hall beyond. These blue leather, bronze-studded doors harmonize with the blue-green leather cushions of the ebonized furniture. The flanking openings give access to stairs and to side offices and workrooms on this floor. The blue-green ceiling is stenciled in gold and polychrome and the walls of an effective Pompeian red have a black marble base and trim.
A reception room in modified Pompeian décor, providing space for dances, informal meetings, and social events, is located on the top floor of the Rackham School, above the elaborately decorated auditorium, from which the detail on the opposite page was taken. The room colors are yellow and gray, with red and gray used in the alcoves at either end and rugs of blue, black, and gray. Doors from this room and adjacent corridors lead to a roof terrace which will be furnished and planted for use in summer months.
In the center of the top floor of the Rackham School is this amphitheater seating 250. The steeply-stepped floor affords a perfect view of the picture screen and laboratory table, from any part of the room. The carpet is dark green and the seats a medium green. Horizontal bronze bands and a frieze decorate the brown walls of acoustical material.
Elevations of the Rackham School, from the office of the Architects, Smith, Hinchman & Grylls, of Detroit, show the north front, at top, and south front of the structure distinguished by the unbroken, curving wall of the auditorium. The over-all dimensions, exclusive of terraces, are 196' x 250' and the arrangement of masses reflects the Graduate School needs, which dictated more space on lower floors. The section below illustrates the complexity of the planning for rooms of varying heights.
The restraint in embellishment which characterizes the Rackham School exterior is illustrated by this detail of a window overlooking one of the upper terraces. The view of the study hall on the opposite page shows the richness of the interior decoration and the furnishings.
PYLON OF PEACE
Model by Warren Cheney
FIGURES FOR TEAMSTERS’ HALL
Outstanding examples of Warren Cheney's dynamic interpretation of familiar subjects are these large-scale figures completed in 1937 by the young California sculptor, now living in New York, for the Teamsters' Union Hall in Oakland, California, designed by John B. Anthony, Architect. Elliott Sandow was sculptor of the over-door relief on the building, on the page opposite.
"SOURCES OF THE NEWS"
Symbolized by three figures—Man's Hopes and Aspirations, Power of the Press, and Man's Sorrows and Disappointments—which were designed by Cheney for a newspaper building. The contrast between these works and the sculptor's lyrical terra cottas, such as "Espere" on page 160, has interested critics where he has shown...
"ESPÈRE"
Terra Cotta by Cheney
5 BUILT-IN FURNITURE

ELEVATION 5/8" scale

PLAN

SECTION 3/8" scale

RICHARD J. NEUTRA . . . . Architect

LUCKHAUS STUDIO

MARCH • 1939
COMPARATIVE DETAIL

SECTION 2

ELEVATION at B

ELEVATION at A

ELEVATION at C

ELEVATION at D

SECTION 1 1/2 scale

PLAN 1/4 scale

SECTION 2 1/2 scale

ELEVATION at C 1/4"=1'-0"

C. COGGESHALL  Designer

PENCIL POINT
5 BUILT-IN FURNITURE

PLAN Scale \( \frac{1}{4} = 1\)'

FRONT ELEVATION Scale \( \frac{1}{4} = 1\)'

SECTION A

EDWARD D. STONE, CARL KOCH

ASSOCIATE ARCHITECTS

MARCH • 1939
SECTION at B

FIREPLACE ELEVATION Scale ½"=1'-0"

EDWARD D. STONE, CARL KOCH . . . . Associate Architects

PENCIL POINT
THE THRESHING FLOOR

A SECTION DEVOTED TO BRUTAL FRANKNESS

RICHARD KOCt of Haverford, Pennsylvania, expresses a forcible opinion on the contrast between Bauhaus design and the current architecture in Germany, in this letter about our discussion of them in the January issue.

RECENTLY, in talking to one of your representatives, I suggested that, for a pleasant surprise, PENCIL POINTS show something that is being built by the non-Bauhaus Germany. In the meantime, I perceive, you have quietly gone and done it.

But why the diffidence and apologist? Is editorial conviction already cowed to the point where it must introduce the meritorious German work by the side door? And even if political considerations had a place in PENCIL POINTS, are you so dead sure about your factual information and understanding of what's going on over there to adopt an axiomatic tone about them?

My own information about the developments in Germany, while sporadic, considerably exceeds what can be gained from the domestic press. And I find that their copious cultural productions (i.e., writing, painting, architecture, landscaping, etc.) are not to be dismissed with their political-social ideas, which stress the organic and personal element. This again is quite consistent with their rejection of the Bauhaus, Gropius, Nolde, Grosz, Moholy-Nagy, et al; who to them represent what is intellectual, dialectic, fascist, ephemeral, and essentially commercial,—e.g., "Has madam seen the latest in hats? Offhand it seems a little bizarre, but it's really very smart and will be all the rage next season."

Your thesis, as to the source of meritorious work in Germany today, is very engaging. But we must not forget that Hitler himself is a very fertile planner and that among the 17,000,000 who voted for him before 1933 must have been a few gifted architects. Over here, we only hear from the "rejects," who are inclined to be vocative. And I doubt that those addicted to a Bierstube Gemütlichkeit over there would be of much use in the energetic program of today.

You certainly deserve heartiest credit for having publicly revealed that all is not stagnant in Germany and that it may offer a healthy stimulus here—even if it meant overcoming your personal distaste. But I hope that you will also recollect this letter in a few years when Bauhausism and its related conceits have been packed away for the moths. By that time, a few more open-eyed people will realize that the Youth Hostels, Ordensburger, Opera Houses, K. d. F. resorts, Haus der deutschen Kunst, etc., over there, not only have some permanent merit, but are the definite expression of the present regime and the human beings who use them.

The following suggestions to Ellis F. Lawrence, Chairman of the A.I.A. Advisory Committee on Preparation for Practice, come from a "sadder but wiser" reader, whose name is withheld at his request to permit frankness.

NOTICING the reasons, listed in PENCIL POINTS, why your Committee should exist, I am suggesting here another point which you should consider. From experience which I have had, future architects should be warned about lurking hazards hidden within the laws for licensing architects.

These laws which have been passed in the various States, controlling the registration of architects, are generally believed by the members of the profession to be helpful to their best interests. However, this is not the point of view of the lawmakers. These registration laws are passed to protect the "People of the State" against the architect, on the theory that the State's police control can regulate matters involving the health, safety, and lives of the people. Examining Boards of Architects are not primarily concerned with the interests of the profession but with the protection of the "People of the State."

Accordingly, in some States, particularly in New York State, provision is made in the law whereby the "People" can make easy complaint against an architect, on the grounds that he is incompetent, negligent, and deceitful. Such complaints can be made formally in writing, with no great amount of effort, before the Board of Examiners of Architects, who upon hearing them may decide to hear them again in "formal hearings" where the evidence is recorded in minutes. This Board then acts as though it were an impartial one, hearing the complaints for the first time, which of course is not actually the case with some of the members, for they may already have listened to the complaints previously.

At least they go through the motions of listening like an impartial group of judges. If, after the hearings, they decide to report adversely to the Regents, they may recommend the suspension of the architect's license or other forms of punishment.

Now as simple as this procedure may seem and harmless to the honest architect, it actually is full of dynamite, for it has all the machinery needed if someone wants to "get" an architect politically for certain ideas he may have expressed. It also provides an excellent means of black-mailing an architect at practically no expense and in a manner that is quite legal. It costs the person complaining no money, and he has thrown open for his service the entire legal staff of the Attorney General's office to help his side of the case. The architect is immediately at a disadvantage in defending himself against such an attack, for he will be up against heavy legal fees and will be charged with the cost of the minutes taken at the meetings.

So, now, the complaining "People" can call up the architect on the telephone and threaten him that unless he pays them the money which they are demanding for certain alleged defects in their buildings, they will "smear" the architect's professional reputation. The defects in the buildings to which they refer may be so fantastic that
they dare not bring them up in a civil case against the architect.

The unsuspecting architect, realizing the ridiculousness of the claims of the "People" against him and also how unjust they are, may tell these "People" to go ahead and make their complaint to the Examining Board. He may even be under the delusion that since the board consists of architects themselves, it will be taken through the nature of the fantastic charges. Little will he realize the depths to which the "People" can carry out their threats to "smear" his professional standing. Maybe his legal advisers will tell him to pay the "hush-money" and shut the "People" up and keep the whole thing quiet. It is quite possible though, he may decide to fight it out and not buckle down to such methods of blackmail.

Well, it's just too bad for him, the day he decides to defend himself, because there is no predicting into what difficulties he will get. Secret agents may visit all of his clients and fill them with suspicions concerning his honesty, and any architect knows that it takes little to arouse trouble among certain nervous women clients, when a job is nearing completion. He may suddenly find himself personally charged with negligence because of alleged neglect of his superintendent. What is more, the buildings used as evidence may all be in another State, and he will have the utmost difficulty and expense in getting hold of witnesses to testify for him, because of the laws governing the rights of citizens in different States. It is even possible that he may find himself deprived of his license in his home State, because of the alleged incompetencies in another State, where he continues to hold his license (a situation which even legal minds would not anticipate in their dreams).

He may be deluged with hundreds of petty complaints, kept secret until the moment they are sprung into the evidence, for, unlike a court, no bill of particulars of the complaints need be filed beforehand, so that the defendant may know the nature of the charges and from whom to expect them. Almost anything may be admitted to the evidence for the purpose of padding its pages and creating the impression, by this kind of smoke screen, that there really is some trouble. Obviously no one is going to read with care some political oil is poured into its bearings by the legal advisers of the certain "People" who are carrying out their threat to ruin the architect because he wouldn't pay.

Physicians long ago became familiar with these methods of blackmail that are within the law. They found protection through insurance. Your committee ought to consider this growing hazard and warn architects of it and look into the matter of insurance for architects. The laws will not be changed, because they are for the "People" and not the architects.

The mere mention, in a recent issue, of a surmise reference to "The Monograph Series" had the happy effect of drawing this constructive letter from an ardent champion of Russell F. Whitehead's diligence and taste in recording the best of Early American architecture. R. L. Ulrich, of Cambridge City, Indiana, knows what he is writing about, since he has visited the historic spots he wants pictured.

In the last few lines of The Threshold Floor you mention that you have had a letter panning The Monograph Series. I am most interested as to find most uninteresting, barring a few houses of peanut brittle rockwork with cut-stone trim, rather more curious than good—across Upper Pennsylvania—and then into New England again, the Western Reserve, and, believe me, this is New England. Here almost every town has a green, and the first I saw, at Canfield, was laid out by an ancestor of mine. His home was in Litchfield, Connecticut, and its plan is repeated, a little smaller, and most unfortunately, without the houses.

As Atwater Center is a church with a very good tower and porch. The body of the church and its side windows are "Gothic," though, and inside it is covered with the most lamentable tin "wallpaper" ever seen.

At Tallmadge there is a remarkable church on a large circular green. The original town was laid out a mile square, with eight radiating streets, and named after its founder, a most eccentric old gentleman. The greens continue across Ohio, growing smaller, and the old houses less frequent. At Waterville, south of Toledo, there is "The Columbian House," 1820, which looks older, and several good dwellings.

The area which I consider you might "Monographize" are: Pennsylvania — Bedford Stone Houses, Lancaster County, Ephrata, and other of the religious colonies of New England, of which this is one.
of the most ancient and most complete. Massachusetts—Ipswich, more Newburyport, Beverly; New Hampshire—more Portsmouth; Maine—Fryeburg; Ohio—Western Reserve—Dayton, Greek Revival houses and Court House; Urbana, Greek Revival houses, Delaware College Building; Atwater Center Church, Tallmadge Church, Farmhouses, Norwalk, Milan, Portsmouth.

Also, a number devoted to maps showing location of old buildings in towns of New England, something like those of Boston in the special issue.

This has grown into a travel book, but I was and am impressed by the things I have mentioned—especially Ohio—which is so far from what you may justly consider the center of architectural America.

The forthright manner in which A. J. Symons declared his views on the plight of city dwellers, in a lecture at the Health, Sport, and Fitness Exhibition of the R.I.B.A., in London, appealed to us and is reprinted here in part, with the permission of the R.I.B.A. Journal, which reported it.

Nearly ten years ago I was forced to the conclusion that it was impossible for me to live comfortably in London unless some miracle endowed me with an unworked-for fortune; and having no unexpected uncles, I therefore retreated to one of those country villages where there is no gas, no water, and no electric light, but in which I found all the space I needed to use my leisure profitably for the price of a single room in Paddington. Fortunately, my main exercise has always been taken in field walks and walking tours, so that I have been able to maintain a reasonable fitness of body despite the lack of any of those places of organised sport which we are promised for the future. And, meantime, I have thanked my stars for my good fortune; for month by month I have watched the greatest city in the world sliding down an architectural inclined plane, with an ever-increasing momentum, towards the bottomless pit of the minimum life.

The social historian of the future, if there are any historians in the future, cannot fail to be astounded at the nerveless acquiescence of London's population in the continuous fall in their architectural standard of living. To-day, every mews and stable in London is an eligible residence; the artisan dwellings of Chelsea are painted up as smart small homes for the upper middle class; and everywhere we see rising the clifflike prisons in which our children are to be incarcerated.

The Englishman's home used to be called his castle. In London it is fast becoming his cell; a rather comfortable, an almost padded cell, but still a cell. And, pursuing the analogy, it might be said that it is proposed in this (recreation) exhibition to improve the exercise ground for the prisoners. We must certainly be thankful for any concession we can wring from our restricting modern. Sports fields, swimming pools, gymnasiums—by all means. But let us not make the mistake of thanking them too heartily for these distractions or they will persist in the mistake of thinking that better exercise yards are what the prisoners really want. What they really want is to be let out.

Who can foresee the end of this continual contraction of the space in which the ordinary man lives and amuses himself? The present stage was sharply brought home to me a week ago, when I visited for the first time the fifth-story place of confinement of an old friend who has just begun a term in one of the more expensive London gaols. The kitchen was a kitchen, i.e., the stair cupboard was the hall, the sitting-room was the dining-room, the balcony was the garden, and two rival radios from the next door cells contended for the prisoner's attention. This was grim enough, and a pathetic example of progress backwards. But contraction will not end there. Already there are flats consisting of a single room, an ingeniously arranged care-free cell for the service of the minimum life. Is there any reason to doubt that, failing some unexpected change, the day will come when these will be the rule?

Whatever may be said concerning the economic necessity of the minimum flat, of its trouble-saving compensations, of its advantages to the bachelor or city worker, one thing at least can hardly be denied concerning them; that with a few inconsiderable exceptions they are a restraining influence upon family life, and that they limit the employment of leisure to amusements which can be followed elsewhere or which require no space. Which of these is the graver evil from the national point of view I am not called upon to decide. The title I have chosen for this random address is "The Rights of Leisure"; and it is with the limitations of leisure imposed increasingly upon us that I wish to deal.

First, I must remind you what leisure is. The phrase "a man of leisure" is frequently taken to mean "a man with nothing to do," but leisure is not idleness; it is an active state. The dictionary definition is "freedom or opportunity to do something"; "an opportunity afforded by unoccupied time"; and it is in this sense that I use the word. Leisure is self-chosen activity, and as such it is, perhaps, the most important of all the factors which make for individual happiness.

There is a school of Utopians, the most prominent of whom is Mr. Eric Gill, who hold that a man should be satisfied in and by his work. And so he should. But is it likely, is it possible for the majority today, or in any much of the future as we can see, or bear, or dare, to look at? Alas, on the contrary; the majority are bound to ungenial jobs, stereotyped work, uninspiring labours which yield little or no mental pleasure. What compensations can they find in the minimum flat? What opportunities for more congenial effort? What encouragement for that self-development, which is the most satisfying of all pursuits? The wireless licences are multiplied, the cinema and theatre queues are lengthened and the open roads more and more congested by refugees from the minimum life.

But the consequences do not stop there. Denied even a kitchenette (as he will be before long) the flat-dweller will be driven to choose between the restaurant, which he cannot afford, and the tin. What a choice, between insolvency and dyspepsia... I do not wish my architectural friends, and particularly our distinguished chairman, whose personality and work I have admired for more than ten years, to regard me as an unreasonable caviller at circumstances which are not of their creation, but are the outcome, as I am told, of inevitable economic causes. But I do not believe that they are inevitable. "Inevitable" is the most overworked and most misused word in our vocabulary. It is inevitable, I was told by one of your members last week, that not a single small house should be left in urban London. It is inevitable that the Bloomsbury squares should be destroyed. It is inevitable that rents should go higher and ceilings be lower. I do not for a moment believe that any of these things are inevitable. They may happen; if no steps are taken to stop them it is even probable that they will happen; but not inevitable.

The principal reason why the rebuilding of London is taking the form that it is taking is the rise in land values. But it is surely pertinent to ask, to whom is the land becoming more valuable? Not to the users of it; not to those who are forced to pay more than they can afford for unsatisfactory and diminishing accommodation. Let us realise quite clearly what is happening. We, the consumers, are being forced to accept less and less of our money because estate agents, ground landlords...
Nor is this finance-engineered on September 12. The nearest parallel to the post-war mania which has transformed the environs of London into an eyesore which stretches in almost every direction for any distance up to 20 miles. If ever I am privileged to speak in this Institute again I shall cast my remarks in the form of a three-act play. In the first act the impoverished landowner will be seen selling his acres to a speculative, who is buying them with money borrowed from a building society. In the second the speculative will be observed selling the acres bought with building society money to a building contractor who is purchasing with money from the same source. And in the third you will see the working-man paying down £21 and obtaining the house that Jack built—through the aid of a building society...

I hope I shall offend no one if I compare the architectural profession to an ostrich. Many architects realise these circumstances perfectly well, but in some miraculous way they have persuaded themselves that it is no concern of theirs. An unnatural division has established itself in their minds between architecture and building. What is done on a large scale, and is commendable, is architecture; what is done on a large or a small scale which is bad, is merely building. It is natural that individual architects who are conscious that they are doing good work should hold this view. But history will not hold it. Just as we look back at the eighteenth century and the building age, conscious that, apart from the Adams, the Levertons and the Soanes, there were hundreds of lesser and now anonymous upholsters of an excellent tradition, so the observing eye of the future will confound together all the architectural activities now proceeding and will probably say bluntly that the age of taste was succeeded by the age of hash.

An "inside story" of the circumstances attending the preparation and publication of Dr. Werner Hegemann's "City Planning: Housing" books, reviewed by Alan Mather in our February issue, is furnished by W. M. McRortie, President of the Architectural Book Publishing Company, Inc., with the comment that it was "most refreshing to read such a review by a man who has obviously studied the subject about which he writes, and who is expressing an honest and considered opinion." His letter follows.

 Naturally, we read your review of the "City Planning: Housing" series in the February issue of PENCIL Points with somewhat mixed feelings, but with the strong wish that it had been possible to explain the circumstances surrounding the appearance of these books before the review was written.

Dr. Hegemann originally proposed to us a single book of illustrations and text to continue the subject matter of "Civic Art" from 1922 to 1937. That was the original agreement with him. Later, he came to feel very strongly that it would be impossible to combine text and illustrations in any book of feasible size. Somewhat reluctantly, therefore, we consented to a three volume series. Dr. Hegemann finished the manuscript for "City Planning: Housing" Volume I, but he was a very sick man when it was done. He said, "When the work is finished, I am finished," and so it turned out. That left us with one volume of an announced three volume series, and some obligation to the many people who had bought this first volume in good faith.

There seemed to be another obligation to Dr. Hegemann's family since it was asserted that work on all the volumes of the series had progressed far enough so that the other two volumes could be finished by collaborators.

By reason of this somewhat doubtful obligation, but more because we knew how much Dr. Hegemann wanted his work brought up to date, we consented to continue the series with Dr. Amshen, Elbert Peets, William W. Forster, and Robert C. Weinberg as editors. All these brilliant and devoted people were doing their job started by someone else. All might possibly have worked along other lines except for that fact. All, including the
publishers, certainly went ahead without expectation of much financial reward.

In spite of all these handicaps, "City Planning: Housing" Volume III seems to have filled a distinct need since it sells steadily in every civilized country in the world. That, indeed, is the case with all three books of the series, the first two being nearly sold out.

Although we did do our best with this series in the very difficult circumstances described above, we probably should have done much better, and we are very glad, indeed, that your disapproval seems to be confined mainly to our shortcomings as publishers.

Can Architects prosper by entering the field of interior decoration, in addition to their established practice? Mortimer F. Freehov, New York Architect, makes a good case for his contention—but we want to know what others have to say about this.

The scarcity of commissions has shunted some architects into the field of interior decoration. Few people build, but many have problems involving decoration and furnishings. It would seem logical that the architect seek to augment a meager income by entering this market. Certain obvious doubts arise. Is he qualified? Is it ethical and professional for the architect to act as a decorator? This letter will attempt to answer these questions.

First, let us examine a little the makeup of interior decoration and its exponents. Is it a truly professional enterprise or a commercial business? One difference between these two is that business is concerned principally with making profit, whereas the term "profession" implies the rendering of expert service in the best interests of others. Somewhere between the two, and imbedded with the attributes of both, lies interior decoration.

This field of endeavor evolved from the realization that average people need advice in selecting furnishings. Its range has been enlarged to include entire ensembles, utilities, and even construction problems. This comprehensive scope makes it essential that decorators be thoroughly trained, experienced, and ethical. Since it involves design, highly skilled service, and the handling of expenditures as agent in the interest of others, the practice of decoration assumes a professional aspect. Inasmuch as it is customary for the decorator to sell merchandise to the client at a profit, it is also a business. Since business is concerned with profit, and since what is best for the client may tend to reduce such profit, a delicate situation results.

Let us make a few comparisons. The architect's function is like the decorator's in many respects. The practice of architecture is kept strictly professional in that the client pays a fee for services only. Labor and materials are charged at face value, with no profit to the architect. It is the general contractor who assembles all the various prices and commodities which go into a construction job, and makes a business profit on the operation. One of the principal objections to awarding a contract to a builder who employs his own architect is that the client loses the benefit of disinterested supervision. Decorators assume a dual role akin to the combination of architect and general contractor. They render professional service and make profits on the items which they furnish. This system gives the decorator a status which calls for highest integrity and the confidence of the client.

Perhaps a closer analogy is that of the advertising agency. Here, as in the case of the decorator, there is a professional advisor and creator whose profit comes from sales. The important distinction is that the publications allow the agent a standard rate of discount which is known to the client. In the case of lawyers, doctors, and other professionals, the fee, as such, is paid directly by the client. It would seem, then, that interior decoration is the only field involving the professional aspect in which the client is not aware of the fee he is paying. Perhaps this needs clarifying.

Until rather recently, employment of an interior decorator was considered a luxury only to be afforded by the wealthy. Through the cooperation of supply outlets, quantity production, and standardization, the practice became more general. Information as to discounts became somewhat more widespread. The point was reached where the purchaser employed the decorator not only for expert service, but in order to gain the benefit of lower prices by sharing in the discounts. Hence arose the paradox of the client expecting to obtain merchandise plus professional service at a lower cost than that of the merchandise alone.

The conscientious decorator renders a tremendous amount of service. Shopping, designing, selecting, co-ordinating, supervising, and infinite attention to painstaking details involve a lengthy and costly procedure. Inasmuch as most orders are for comparatively small amounts, discounts have been established at wholesale prices, with a ten percent allowance to the client. One result was that many concerns catering to decorators established a series of graded discounts from high list prices. The deduction of regulation percentages still left a set of retail prices. This system tended to satisfy the purchaser's demand for bargain rates, and allowed a residue for the decorator in the additional, unrevealed discounts.

Under pressure of competition, many decorators offer an arrangement on the alleged basis of absolute, net, wholesale prices, with a ten percent charge for services. Except on large scale orders, no decorator can work on this low margin and do a conscientious, capable job. The whole cut of the dealer's own making—the collection of commissions at both ends, and an elaborate machinery for disguising transactions from clients. Scrupulous decorators use the system to obtain only reasonable profits. Unprincipled ones use it for all the traffic will bear. The client seldom knows which is which.

Exponents of interior decoration range from pretentious establishments down to painting contractors and upholsterers. Here let it be said that there are many capable, conscientious decorators who are thoroughly trained, experienced, and ethical. Unfortunately, most of them are not. Public credulity and the mania to purchase at wholesale offer a tremendous market to dilettantes. There are many of these, many wives of busy men seeking genteel employment of their time. Others are in need of additional funds. Some in furnishing their own homes have evoked such admiration from friends of doubtful taste as to feel that here is the call to a career. All have discovered a field with easy pickings. These women are of the same stamp as those who attend lectures on psychoanalysis and practice superficial parrot-truths on friends and family. They are one with those who attend scattered courses in music or art, and set up as critics.

The preparation of those in this group consists of a short home or Saturday course and the acquisition of a vocabulary of such terms as Directoire
and Regency. Many of the astute gather momentum rapidly, profit by experiment, and use their clients as guinea pigs. A few are sincere, with good taste. These might serve a useful purpose as consultants on furnishings. Most of those in this amateur group reach out far beyond their limited understanding and rely upon keeping one step ahead of an uninformed clientele. While sad experiences are not inevitable, neither are they exceptional. There are many such practitioners in the field. In spite of a trail of tragedies they persist, and succeed in winning approval where capable exponents fail. Quackery often is fostered by victims. It is difficult to understand approbation in the face of damning evidence. The writer questioned fifty women whose homes had been expertly criticized as being poorly and expensively decorated. Only four had the temerity to confess error in choice. The husbands mostly professed indulgence, but when pressed, confidentially admitted practical objections, mainly concerning comfort and cost. Any statement critical of aesthetics can be set aside as constituting a difference of opinion. There are no inflexible rules of taste. Certain forms, values and relationships create favorable sensuous reactions which establish standards among cultured people in any current, local civilization. The approach may be varied, but if such established principles as fitness, scale and harmony are contradicted the result is unpleasant. The incompetent decorator rationalizes such result by persuasion on the ground of the client's alleged lack of sophistication. To express dissatisfaction is to admit the allegation.

The American Institute of Interior Decorators advocates that the education and training of its members should be, basically, the same as an architect's. The properly-trained interior decorator is one who has studied for three years or more in a qualified school, or who has had the equivalent under able guidance. Study should be augmented by apprenticeship of several years. Preparation should include drawing, composition, design, and color. It should cover elementary construction and lighting principles, history, architecture, character and composition of materials and methods of execution. It should promote familiarity with fine arts in all media, such as painting, weaving, sculpture, cabinet work, and ceramics. It should include, also, information as to financial values, and the development of ability to deal with craftsmen.

This list is not more formidable than the requisites of any other profession. The aggregate provides a fund of information from which the able decorator draws in solving even the simplest problem. Such background is required knowledge of quantities of fabrics, the construction of furniture, the varieties and intrinsic fitness of materials. It is essential to thorough understanding of color, usually a subtle problem. Further, profundity in certain matters brings an understanding of one's limitations in others.

The architect's preparation and experience, augmented by special study, are perfect for this function. A check-up in many of the best decorating concerns discloses licensed architects among the personnel. This would be surprising information to most clients. They do not understand the problems involved, and in particular, do not realize the need of structural sense in decoration. This lack of understanding most often results in giving precedence to the dictates of the decorator over the suggestions of the architect when both are employed. One of the architect's greatest problems in entering this field is that of convincing the client of his aptitude. Time after time arises a situation where the infinitely more sophisticated experience of the architect is set aside and the im-practical theoretics of the untrained decorator prevail. To the uninformed client the architect seems to be entering a new field. Actually, he is merely carrying his work to a logical conclusion by handling the entire job.

One of the most important functions of an architect is the conservation of the client's finances. This has been true, especially, in recent years. He has developed to a remarkable degree the ability to achieve results at minimum expenditures. Limited budgets and disproportionate demands of clients have resulted in economical design. The architect keeps a zealous watch upon all costs, if for no other reason than to keep the project from expiring with the taking of bids. This same tendency, applied to interior design, should make for tremendous savings for the clients. It has been the custom to limit the architect and to open the purse strings to the decorator. Even the desire to boast of expense, and the tendency to measure successful execution in terms of high cost, might give way in the face of proven savings.

The establishment of a satisfactory system of fees for the architect-decorator is another difficult problem which calls for an education program. People who have been misinformed are not readily convinced by a denouement, unless it is given wide publicity. As a professional, the architect-decorator should be paid a fee for services, and the client should be given the benefit of the lowest possible costs. This is no simple matter to bring about.

Still another difficulty is raised by the practice of purchasing at wholesale and selling at retail. Wholesale furniture or fabric concerns will not sell to architects at lowest discounts. Most furniture concerns will not even sell to decorators at wholesale unless the purchaser is an organization with established credit and a retail store for re-sale. Many of the best wholesale houses do not favor the sale of merchandise to the ultimate customer at wholesale rates. It is necessary for the decorator to purchase the items as a dealer and re-sell to the customer, just as the storekeeper does. With this arrangement, the architect loses his professional standing and becomes a merchant. Further, he becomes directly responsible for the quality of the merchandise. Often, too, he must finance the project for a considerable period.

Under the existing system, then, the architect-decorator must choose between evils. He may maintain professional status by proposing that the client pay the actual costs based upon net, wholesale bills and add the fee. In such case he runs the risk of losing the order because the fee, if inadequate, will seem exorbitant to a client who has been quoted a ten percent arrangement by a decorator who intends to collect at both ends. As alternative he may feel that to get business, he must follow the established method and let his conscience be his guide. The chances are that under this arrangement the architect will adhere to his ethical standards and not over-charge. In such case, however, the professional aspect becomes cloudy. The very fact that remuneration becomes an unknown quantity, concealed from the client, opens the way to suspicion and to temptation.

It would seem to the writer that decoration offers a wide field of possibility to the architect. Before this market can be exploited properly, a tremendous job must be done.

First—who those who would seek to do this work must equip themselves with certain specific information for proper qualification. They must become thoroughly familiar with all such details as may have been extraneous to their practice as architects, and thus avoid such errors as are committed by superficially trained decorators.

Second—the widest possible publicity must be disseminated as to the proper qualifications of a decorator and the fact that an architect has these qualifications.

Third—the buying public must be informed of such trade secrets as the decorator's actual mark-up, wholesale discounts, and the decorator's operat-
ing costs. Some arrangement akin to that of the advertising agency would then become possible.

Fourth—wholesale concerns must be prevailed upon to cooperate by accepting the architect on the same purchasing basis as the decorator.

If such a program could be devised and successfully propagated, architects would be in a position to practice decoration on a professional basis.

Probably of more than local interest is the struggle against "red tape," described by Eli Benedict, Architected, of New York and New Jersey.

I submit as a subject for discussion in your section called The Threshold Floor the experience of architects practicing in New York City with the local Department of Buildings.

The Commissioner of Buildings of New York City was recently questioned by the Chamber of Commerce of Queens Borough as to the causes of delay in the reading and approval of plans filed by architects in that Borough. His explanation, as reported in the public press, was that the defective plans filed by so many architects caused a slowdown in the handling of all plans, good, bad, and indifferent. When the plans are read by the plan examiners, a long list of objections are necessary and many corrections have to be made by the architect, thus slowing up the action on all current work because all applications are considered in their sequence of filing.

He did admit, though, that a larger plan examining staff might help. Are the architects so sloppy in their work? Or, is it a case of departmental red tape? Will New York City architects back up the Commissioner if he applies for a larger appropriation of funds for an increase of staff?

The writer has had over 35 years experience in dealing with the Building Department and has never felt like commending it for speed even when his plans were perfect from the building code standpoint. Brutally and frankly, should the department be renamed "Department of Building Obstruction"? How do architects feel?

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NEWS LETTERS FROM OUR CORRESPONDENTS

Potomac Patter

The annual Open House of the College of Architecture of Catholic University held last month in the main drafting room over the gym, (if there are other drafting rooms, don't look now,) marked another progressive year in the development of one of this nation's better architectural schools. But again we cannot help reiterating the fact that of the facilities available at C. U.'s Architectural School the most important is a handicap—paradoxical as that may be. We make reference to the place—Where. The How and When are facilities indeed, remembering that C. U., under the able leadership of Fred V. Murphy, has gained the reputation of consistently contributing winners and placers in major traveling scholarship competitions. But this most discordant Where.

It is remarkable that this handicap doesn't take a greater toll—yet an explanation may be found in the fact that, as Undergraduate James Shulman, our host, pointed out, the spirit of true architectural learning runs so high that environment gives way to heredity of traditional achievements. This lack of Where reflected greatly on the exhibition of student work—past and present. To have attempted to hang a characteristic architectural exhibit in the above-referenced main drafting room over the gym, would have required extensive interior remodeling at a cost of time and money prohibitive. However, the best was done under the circumstances. The walls were completely covered with colorful and interesting renderings, the larger pieces hung high—for gazing purposes only—and the smaller drawings so placed that critics such as you and you and the architecturally intelligent public could, if the spirit moved, climb over the well-worn drafting tables to give them "the works."

Included in the show, of course, were the so-called "permanent exhibit" drawings. Postgraduate Bill Lockard, an evening student with daytime duties at Procurement, proudly proclaims that today's drawings, compared with the masterpieces of the past, are just as rich, fresh, and free and that more room will be needed to house those new additions to the "permanent exhibit." A true disciple, so help us! Of student work, Bill says, "The individuality in problem solving that C. U. stresses is evidenced by the fact that the great majority of designs are modern, notwithstanding that the immediate surroundings abound with more or less excellent examples of Classic and other deep-rooted styles."

Speaking of excellent examples, the famous McLean Residence, in the heart of Washington's business section, is now being torn down to make way for one of the largest office building projects in America since the Depression started. The wrecking of the beautiful Italian Renaissance residence will no doubt sadden the architectural gentry hereabouts and elsewhere; for this work of John Russell Pope, executed in the very early years of this century, has since become the subject of copyists throughout the land. With its passing will go an example of craftsmanship of which there are already too few. Its exterior and interior metalwork were objets d'art; its brickwork a skillful tapestry daringly jointed. Its interior marble stairway was the pièce de résistance; for which, even now, architect, builder, or debuteante would pay a pretty penny. One of them probably will.

It appears that the effort to save the Decatur House has taken a most prolific form by dint of Congressional action. Senator Tydings (Maryland) and Representative Rogers (Massachusetts) have both introduced Bills to their respective legislative bodies to save this historic house. "As a museum for relics and records pertaining to Commodore Stephen Decatur," whose heroism during the War of 1812 deserves national recognition, this building and its original appointments (well-preserved) would serve well the general public but as architects we should support these Bills for the more personal affiliations which this architecturally historic precedent has for us. The Decatur House can and should be a shrine to the first professional architect to come to these shores bringing with him skill and beauty and implanting a new thought in architecture. Benjamin Henry Latrobe, a pioneer of the Greek Revival in America, rightfully deserves to be remembered. What could be a more fitting tribute than to permit his first private commission in Washington, the designing of a residence for a national hero, to stand as a reminder that architecture in America was influenced by an Englishman, with a French name, who specialized in Greek? Your support is solicited. Write your Congressman. Apropos of the thoughts above-recorded, it may be that the Honorable Thomas R. Ball, Representative from Connecticut, the first architect elected to Congress, will exercise his profes-
sional ability as both architect and legislator so that Congress may be convinced that $300,000 to preserve the Decatur House is a small sum to pay for a monument—and no cherry trees are involved.

**Red**

**Can Spring Be Far Ahead?**

As daily a problem as ever posed the seeker for underlying worthiness is that of identifying the true hot-air-artist. To put it another way, when does a *prima facie* bull-thrower motivate any bit of useful progress? Such a one would not then be the pure berry, but a probable asset, garrulously inclined, with a little hypertrophic distemper in the thyroid to account for it. Architecture is a platinum mine for suspects, as every pursuit must be for it. Architecture is a platinum mine for suspects, as every pursuit must be for it. Architecture is a platinum mine for suspects, as every pursuit must be for it. Architecture is a platinum mine for suspects, as every pursuit must be for it. Architecture is a platinum mine for suspects, as every pursuit must be for it.

Harkening back a piece to Lipp's (Boulvard St. Germain) I recollect many artists in embryo who may since have become great masters. Forfgettered there for "une brune" or two, these young Americans loved to take a helicopter flight into the realm of ideas or opinions, abstract or concrete (1:3:5), on the propulsion of Mr. Lipp's beer. "Let's discuss something," would be the demand. "Shall we indulge in trials, untrials, activism, de-activism, or Canadian reciprocity?" It would be apparent from the selections that some of the subjects had figured in recent college courses, while the others stemmed from the heart, but in every case they produced nothing but melted hot-air. Occasionally a phase of architecture might be chosen, but that left the painters and writers panting out of it for they were quantitatively shy on trade terms and catch-phrases.

It is a local fact that the florid and ecstatic handling of architectonic discussion has almost vanished before humorless modernity. "Fine great," "Swell big," and such old reliables have been hewn away from the simple noun and discarded. In their place we have new favorites like "wart," "bulge," "soft-bilge," "wallop" (meaning an ungodly hunk of something, adventitious or otherwise), and "brain-storm" to succeed "creation."

The Boston Architectural Club's annual initiation of novices took place on February 8th. Massier George R. McClellan and his fellow officers inducted the lads into full atelier membership with ritual and traditional observances. President Loring's short address stressed the importance of mental alertness, authentic original thought, and liberality towards another man's point of view.

Like an Easter sermon, advice to a young man ideally handled admits of few variations, but it has to be reiterated because its fulfillment is so much a matter of self-discipline and honest sweat; a fact which keeps up its market value in season and out. So Archangelo Cascieri urged co-operation between students and with older men, and John Alter, Robert Bellows, and James Ford Clapp added more yossoirs to the arch, of which the key-block is the student's own response to academic stimuli. (Note: In these days of the declining arch one should amend the above to read, "added more concrete to the slab, of which the cantilevered portion is," etc.) Pete Larsen (Niels H. to you) represented the first class to have graduated from the B.A.C. atelier, and President Whitmore, of the B.S.A., outlined a plan for professional assistance, by which a group of unselfish architects will help the apprentice variously, during the now so-difficult early years. He urged decentralization with respect to locales for the practice of architecture, having evidence that numbers of young men have gone to smaller cities and flourished. After the formalities there was a plenitude of food and drink, and the opportunity to view a general exhibition, high in quality, of this year's work from the atelier.

A few days later the writer had ocular proof of the truth of President Whitmore's theory of deploying, when he met Architect M. E. Witmer of Portsmouth, New Hampshire. Here was a Boston man who had really found spiritual and economic satisfaction in a provincial city, after having looked the States over; even New York.

On February 17th a meeting of the Architectural League of Boston produced a pair of instructive points. The first was a check-up of all the two hundred odd architectural offices listed in Boston's telephone directory. There was usually someone present who knew what was going on in any given office, and it led to the slogan, "Stay West, Draftsmen." Except for temporary injections of PWA adrenalin and the few establishments that cater to great wealth, the picture was drab. What about housing? Ho-hum. Some are beginning to think it can't happen here (Feb. 20).

The second event of the League's meeting was a talk by James H. Sheldon, Secretary of this city's Trade Channels Council, who knew much about attempts to help the organization among technical and professional employees, and was the more convincing for having no specific knowledge of the current architectural scene.
PENCIL POINTS DATA SHEETS

Prepared by DON GRAF, B.S., M.Arch.
THE DISREGARD OF THE OBVIOUS

This department has been on the verge of busting into print on various occasions with purely personal digressions on the illogic of architectural education.

For instance, we think the Beaux Arts system of teaching design is unfair because jurors cannot standardize good taste, beauty, or logic in architecture. It is discouraging to many because reward bears little, if any, relation to effort or sincerity. It breeds dishonesty—for the student of design can "play the jury" and prosper extremely uncertain results. Through the agency of the esquisse it puts an undue and punitive emphasis on the danger of a single misstep in the analysis of the "programme"—

Also, in our humble opinion, there are a number of other brunette hairs in the butter of architectural pedagogics. The solemn mummery of teaching the architectural neophyte how to design plate girders, calculate the shear in rivets, and analyze stresses in hundred-foot king-rod trusses, all strikes us as silly. Especially when he is kept completely in the dark regarding such matters as a lintel for a four-foot-wide window or the rafter.
loading on a five-room Cape Cod bungalow roof.
And French! That's required in many schools—presumably so you can revel in the abstractions of Viollet-le-Duc. (We found Madrue's *Mille Nuit et Une Nuit* much more entertaining.)

Then there were (in our scholastic career) the matters of entropy, and calculating the economical thickness of pipe insulation for the long distance transmission of high pressure steam. But nobody in our Heating class ever found out how big to make a radiator to heat a room!

We studied "The Calculus" and analytics and textiles and hygiene and military tactics and God only knows what else. To attend the class in acoustics, however, we "architects" had to get special permission from the Dean of the School of Music—this course having been especially included in the University curriculum for the co-eds with more or less unfounded expectations of appearing at the Metropolitan. How comforting it must have been to them later to think that their ambitions were frustrated because the time of reverberation was too prolonged in the various concert halls where they appeared!

**DATA SHEET NEWS OF THE MONTH**

We have over 50 Data Sheets in preparation for a number of the country's best known building product manufacturers. Watch the advertising pages of *Pencil Points* carefully in the forthcoming months for announcements of these new free sets. They will contain material never before covered in *Data Sheet* form and all of them will contribute greatly to the value of your *Data Sheet* Library.

**DON GRAF**

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**ART AND MECHANICAL DRAWING**

**ART ROOMS**

Rooms devoted to art instruction should be so located as to receive north light.

Not less than 30 square feet of floor area per student should be provided.

Provide adequate arrangements for electric connections, water supply, ventilation, display spaces and storage facilities.

A typical art room plan is shown above.

**MECHANICAL DRAWING ROOMS**

The provisions for mechanical drawing rooms are practically identical with those of art rooms and where class schedules allow, the same room can be and often is used for both purposes.

Rooms devoted to mechanical drawing should be so located as to receive north light, and artificial lighting should be provided to correspond with those of art rooms and where class schedules allow, the same from 6:00 to 9:00 p.m.

**SCIENCE LABORATORIES**

**SPECIAL REQUIREMENTS**

Allow 2'-6" for aisle space on both sides and rear of the room.

For each pupil, allow a minimum of 20 square feet of floor area in addition to the 7 feet of teacher's space.

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**DON GRAF'S DATA SHEETS**
A MATERIAL OF VERSATILITY

PORCELAIN ENAMELED IRON SHEETS

BY D. H. GROOTENBOER AND DON GRAF

Editor's Note: This is the first in a series of articles stressing the properties, characteristics, and construction methods of materials and equipment. The following subjects will be treated in forthcoming issues: Paint, Plastics, Adequate Wiring, Air Conditioning. Others will be announced from time to time and readers are urged to suggest technical subjects in which they are especially interested and upon which information would in their opinion be particularly useful.

Porcelain enamel is very, very old. Yet, after thousands of years, porcelain enamel is, today, finding new utility in exciting and unprecedented ways. Ceramics, metallurgy, engineering, art and architecture have contributed to the developments which place this material of the ancients in the rank of the world's most modern building products. British tumuli and barrows have yielded enameled ornaments and weapons . . . the pylons in front of the Communications Building at the New York World's Fair 1939 are built of 1,000 porcelain panels. Artists of the Renaissance decorated watch cases and lockets with delicate miniature paintings on a background of white enamel . . . J. Scott Williams has just completed a 2,000-square-foot mural in porcelain enamel. Three hundred years ago, porcelain enamel panels were used in the doors of a Russian church . . . at Girardville, Pennsylvania, a brand new school building is now being occupied, believed to be the first in history to have an exterior entirely of porcelain enamel.

The Egyptians knew the art of vitreous enameling. One of the early methods of enameling is now known as champlevé. At the time of the Roman occupation of Britain, the Gauls and Britons seem to have employed this process.Depressions were cut into bronze and filled with enamel, which was afterward fired. A writer of 240 A.D. said, "The barbarians pour colors into bronze molds; the colors become hard as stone, preserving the designs.''

In the 800's, cloisonné was introduced in Western Europe. The designs in cloisonné are outlined with bent wire secured to a metal ground. The areas between the wire are filled with an opaque enamel. The Chinese excel in the manufacture of small objects by this method.

Up to about 1450, the objects to which porcelain enamel was applied were really pieces of metal-work. At this time, however, a number of goblets and small plaques appeared, in which both the background and the design were executed in porcelain enamel and ceramic colors. This was the departure that eventually led to the modern "continuous-coat enameling."

One of the early instances of the modern process of porcelain enameling on iron sheets especially made for the purpose, was the manufacture of porcelain enamel water closet tanks to supersede the older tin-lined wood tanks. Sometime around 1910, porcelain enamel ice-box linings were introduced. Then the stove manufacturers adopted porcelain enamel door panels and splash backs. Kitchen pots and pans, table tops, kitchen cabinets, washing machines, plumbing fixtures joined the porcelain enamel cavalcade which had started thousands of years before.

Although the first enamel covered dwelling was built in Germany in 1895, it was not until 1928 that the material began to make progress as a wall material in the United States. The first American porcelain enamel covered house was built in 1932. The Century of
Progress Exposition in 1933 at Chicago exhibited two residences finished in porcelain enamel.

Because of its color range and brilliance, porcelain enamel as a wall material first received its widest recognition in commercial structures. One drug store reported an 80% increase in business after installing a porcelain enamel front. Gas stations, hot-dog stands, bus terminals and other business buildings appeared with increasing frequency. To meet this growing demand, manufacturing units came into being over a wide geographical range, creating a fortunate condition for the distribution of architectural enameled products. Because of this and the short processing time, custom-made jobs today may be completed and delivered quickly. Prompt deliveries by rail, motor express or manufacturers' trucks are possible at a minimum expense and minimum danger of damage from shipping.

Porcelain enamel is essentially an opaque glass, and should not be confused with either brushed or baked organic enamels belonging in the category of painters' materials. Porcelain enamel is composed entirely from minerals, having no organic ingredients. The versatility of porcelain enamel proceeds from its mineral composition and the method of manufacture. History records no permanent colors except in the field of glass and ceramics. Porcelain enamel offers a complete range of lasting colors of any value or intensity, as well as stippled effects and designs printed by a screen process. Being a vitreous material, it is non-porous and non-absorbent and is as easily cleaned as a china dish. It has unusual resistance to abrasion and can be supplied in acid-resisting finishes. It has almost unlimited possibilities of surface contours. It can be applied to welded, stamped or drawn shapes. It is light in weight, the finished product usually weighing less than 3 pounds to the square foot. In many cases, porcelain enamel construction can be completely salvaged for re-use. It is vermin-proof, fire-resisting and non-inflammable. It is reasonable in cost.

The backing material to which the porcelain finish is to be applied requires careful preparation. Since the porcelain is a ceramic material, it has to be fired to render it vitreous. Iron sheets, therefore, have been developed, which have the same coefficient of thermal expansion as the finish coating. These sheets are referred to as enameling sheets. Enameling iron is far removed from usual iron and steel sheets. It must be uniform in composition; flat for panel work; ductile for drawn, formed and embossed designs; and free from all defects that would cause blemishes in the finished porcelain enamel. Above all, enameling iron must provide surpassingly strong adherence if the porcelain enamel is to bond tenaciously to the base metal. As a general rule, 16 or 18 gage sheets are used, but 20 gage is sometimes employed if the finished panel is carefully backed up or veneered to provide the necessary rigidity. Before enameling, the sheets are sheared, bent, drawn, punched or formed to meet the conditions of the design. Fluting, reeding, louvers (not louvres) or other special forming may be required. Flanges, clips and pieces for installation connections are welded in place and filed smooth. Holes are punched or cut preferably at this time—although a portable electric ceramic hole-saw can be used on the job in emergencies to make holes in the finished porcelain enamel sheets.

The fabricated sheets are cleaned of all dirt and grease and then pickled in an acid bath. The pickling removes rust and scale and etches the metal. The result of the etching is not visible to the naked eye, but a magnifying glass will show a roughening of the surface which provides a bond for the adhesion of the ground coat of porcelain enamel. Some of the mineral ingredients for the ground coat are referred to as adherence oxides, and are so compounded that they have an affinity for the metal and will fuse with it. The minerals are melted together at temperatures up to 2500°F. By sudden immersion of the molten mixture into water, it is shattered by thermal action into light, airy granules which are called frit.

The frit is ground with clay and water to make a liquid which passes a 200-mesh screen—comparable to the fineness of flour or face powder. The metal is dipped or sprayed with this liquid mixture. The pieces are then dried at about 200°F. The water is driven off, leaving a layer of powdered material. The sheets are then fired at about 1500°F. A dark-colored glass-like coating is created, which fuses into the metal and creates an intimate bond with it.

A standard enameling furnace accommodates panels up to about 4' x 10', thus limiting the size of pieces that can be safely fired. Because such large units are difficult to handle during fabrication, the maximum practical size is generally taken as from 2'-0" to 3'-0" wide by 4'-6" to 5'-0" long. Porcelain enamel may have either one or more cover coats. Monochrome panels for architectural work should have two cover coats. If only a single cover coat is used, the tendency is to apply it too thickly in order to make sure of hiding the ground coat. Two thin coats

The intimate bond created between the enamel cover coat and the special iron sheets is shown in this photomicrograph. The illustration does not indicate the relative thicknesses of the two materials.
are generally agreed to produce the most desirable result for architectural use.

The cover coats are applied in a similar manner to the ground coat. The frit used is of a different composition, however, being composed principally of feldspar (aluminum silicate), cryolite (sodium aluminum fluoride), and fluor spar (calcium fluoride). Feldspar is commonly used in making artificial teeth and opalescent glass. Cryolite produces opacity in glass. The liquid coating for cover coats will also contain pigments in the form of mineral oxides. The fusing temperature of the cover coats is lower than that of the ground coat, to prevent the second and subsequent firings from loosening the ground coat from the metal.

Panels of porcelain enamel in polychrome generally require that the lightest color in the design be applied over the entire piece. After firing, the next lightest color is dipped or sprayed on and dried. A stencil is then imposed over the piece and the unwanted areas are brushed off. The piece is fired, and the process repeated until all the colors of the design have been applied.

A comparatively recent development is acid-resisting porcelain enamel. It is non-porous to a degree that repels the attack of every injurious acid that conceivably would be encountered in building service. For all exterior uses, it is recommended by a number of the enamel manufacturers.

Porcelain enamel may be specified in a finish variously termed glossy, glaze, or lustrous, or in a matte finish. Up to this time, the glossy finish has been most used, because of applications demanding brightness and, consequently, high attention value.

In an article by Paul V. Blackburn, appearing in the Enamelist, the author describes some new surface textures for architectural enamel. The breaking up of flat surfaces by means of corrugations and other embossed patterns presents many interesting decorative possibilities. Narrow corrugations and fine crimped patterns produce results which are surface textures rather than features of design. In one example, 3/16” corrugations are accentuated by spraying at an angle a darker blending color than the base color. One side of each corrugation picks up the darker color while the other side shows the original base color. The corrugated panels may also be enamelled in solid color, creating a surface not unlike the tooling of stone. By placing panels with corrugations at different angles, a variety of checkerboard or striped effects could be produced in a wall because of the angle of the incident light. The crimped process corrects the tendency of large, flat surfaces to accentuate slight waves in the material. Highlights are reduced to a large extent by the minute corrugations in one direction. The reduction is still greater if the surface is broken with crimping in two directions. In a flat area, even the matte enamel produces a fair image of reflection. A dead matte surface is not practicable in porcelain enamel because such a surface would readily collect dirt and would not have good weathering properties. Therefore, for illuminated displays, these crimped enamel surfaces serve the purpose of a true dead matte and non-image-reflecting finish. A still further advantage of the corrugated method is the great stiffness which is added to the metal and the consequent possibility of using lighter gages.

An analysis of the manufacturing procedure shows that six steps may be required:
1. Manufacture of the frit
2. Manufacture of the enameling sheets
3. Fabrication of the sheets
4. Enameling the metal
5. Backing of the enameled sheets (if specified)
6. Installation of the finished pieces

According to R. M. King, Technical Director of the Porcelain Enamel Institute, lack of experience on the part of contractors and mechanics in the erections of enameled panels resulted in unsatisfactory work in some of the first installations. Because of this, several manufacturers took upon themselves the responsibility for all steps in the manufacturing process—even performing architectural work in a few cases. At the present time, it will be found that there are a number of manufacturers who perform two or more of the manufacturing functions, but encroachment of the manufacturers on the prerogatives of the architect are happily being discouraged by the Porcelain Enamel Institute. At some time or another in the history of almost every building product there have been manufacturers who have had the bright idea of superseding the architect in order to further the sale of the product. It is fortunate that in a new and growing industry such as that of porcelain enamel, the producers are being advised by their technical director "that the professional architect be included in any scheme of distribution."

The fairly recent and sudden discovery of the new design and utilitarian possibilities possessed by porcelain enamel, naturally resulted in a great deal of confusion.

Three panels with 3/16" corrugations placed vertically, horizontally, and diagonally. It will be seen that a great variety of patterns can be produced by using these three panels in different combinations. The corrugations create a dull or matte effect and correct the tendency of slight waves to be accentuated.
### HEADINGS

- Exposed fastening
- Exposed fastening
- Snap-on molding
- Clip strip
- Spring clip
- (Clip fastening clip lifts into flange slots)
- Lug fastening
- Interlocking flanges

- Hanging hook
- Pan and lug
- Vee clamp
- Galv channel (continuous)
- Spring clip

### SECTION SHOWING VARIOUS METHODS & SYSTEMS USED FOR SECURING PORCELAIN ENAMEL PANELS, PANS AND SHEETS.

### DIMENSIONS FOR CURVED PANELS

**Note:** These dimensions recommended as standards.

<table>
<thead>
<tr>
<th>Radius</th>
<th>A - max.</th>
<th>B - possible</th>
<th>B - recommend</th>
<th>C</th>
<th>D - max.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>7/8 circle approx. 45&quot;</td>
<td>1&quot; to 6&quot;</td>
<td>11/2&quot; to 6&quot;</td>
<td>6&quot; to 44&quot;</td>
<td>1&quot;</td>
<td>1&quot; none</td>
</tr>
<tr>
<td>12&quot;</td>
<td>3/4 circle approx. 103/4&quot;</td>
<td>1&quot; to 4&quot;</td>
<td>dilla</td>
<td>6&quot; to 44&quot;</td>
<td>1&quot;</td>
<td>1&quot; none</td>
</tr>
<tr>
<td>18&quot;</td>
<td>1/2 circle approx. 203/4&quot;</td>
<td>1&quot; to 4&quot;</td>
<td>6&quot; to 44&quot;</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>3/8</td>
</tr>
<tr>
<td>5-16&quot;</td>
<td>45&quot;</td>
<td>none</td>
<td>7&quot; to 44&quot;</td>
<td>1,2 or 3</td>
<td>3&quot;</td>
<td>3/8</td>
</tr>
<tr>
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<td>48&quot;</td>
<td>none</td>
<td>7&quot; to 44&quot;</td>
<td>1,2 or 3</td>
<td>3&quot;</td>
<td>3/8</td>
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<tr>
<td>19-16&quot;</td>
<td>46&quot;</td>
<td>none</td>
<td>7&quot; to 44&quot;</td>
<td>1,2 or 3</td>
<td>3&quot;</td>
<td>3/8</td>
</tr>
</tbody>
</table>

### BUILDING PANEL COMBINATIONS

Available not only in sections shown above by Philip G. Knobloch, porcelain enamel is also made with backing of any required thickness to be used as load-bearing material to take the place of equivalent thicknesses of masonry.
The architectural imagination, being what it is, quickly outdistanced the manufacturers' facilities for supplying required information. (In one of the better-known architectural references, we still find porcelain enamel products cleverly grouped with roof scuppers, sidewalk doors, flagpoles, leader shoes, door knockers and bronze memorial tablets!—it should be said, through no fault of the porcelain enamel manufacturers, however.) It has been determined that architecturally trained men design about 70% of the new buildings of this country, and about 50% of all remodeling work. The makers of porcelain enamel have, in the architectural profession, a tremendous potential market for their product. These companies are rapidly developing their service, distribution and manufacturing technique. Constant vigilance in the maintenance of standards for the industry as improvements and developments take place, and carefully planned servicing of architectural organizations with the finest reference drawings and clearest text matter obtainable, together with technical advice on request, will pay generous dividends to the enameling industry.

Generally speaking, there are four major types of porcelain enamel construction. These are:

1. Flat sheets
2. Flanged sheets or "pans"
3. Flanged sheets with auxiliary backing, not load-bearing
4. Load-bearing auxiliary-backed sheets

Each of these types will be found to have its own advantages for specific building problems. Methods of attachment for each type have been developed—some of which are shown on the accompanying drawing. In selecting a type of construction and method of attachment the designer will want to consider several points. Is the attachment positive? Does it allow for expansion and contraction? Is it desirable to have the panels removable and replaceable in case of damage?

The question usually asked by one unfamiliar with porcelain enamel design is, "Will it chip?" A truthful answer can only be, "Of course it will chip!" (So will granite, glass, tile, paint, cast iron, plaster, concrete—if you strike them hard enough.) The fact that porcelain enamel will chip under very heavy impact proves its flintlike hardness. It is this extreme hardness that makes it enduring.

Chipping is a break or chip within the enamel itself, not usually exposing bare metal or extending down to the ground coat on ware with a good bond. Careful shop practice in manufacturing, combined with proper handling on the job will result in an installation having as high or higher impact strength than many traditional materials customarily used without question. There is nothing delicate about good porcelain enamel. The ordinary kitchen sink is a porcelain enameled iron product which receives more abuse in a year than a building surface would take in many years. Porcelain enamel sinks of a vintage of the last decade do not chip. Earlier porcelain enamel sinks chip because the enamellers thought they needed many coats to make it wear well. Experiment has proven that the thinner the cover coats of porcelain enamel are, the more durable the product is and the more severe the blow will have to be to chip the material. A recent development in the manufacture of frit for the cover coats allows about 40% reduction in the thickness. Chipping is practically eliminated be-
Artist J. Scott Williams' quarter-size cartoon for the huge ferro enamel mural being placed above the entrance portal of the Shelter Building at the New York World's Fair. The mural, 28 feet high and 70 feet wide, dramatizes the elemental forces in nature in Man's conquest for better living. From left to right, the large figures symbolize: (1) Snow and Winter; (2) Cold and Frost; (3) Sun; (4) Wind; (5) Lightning and Thunder; (6) Rain and Flood. The kneeling figures (middle): (1) Recreation, Sports and Toys; (2) Shelter; (3) Public Welfare; (4) Education; (5) Religion; (6) Art. A completed section measuring approximately 13 feet by 14 feet, photographed from a temporary assembly in the factory appears below, at right.
Bathroom walls and fixtures are of porcelain enamel, in the illustration at the left, creating a pleasing unity of surface as well as a room that is sanitary and readily maintained. Porcelain enamel toilet partitions such as those at the right should not be confused with those having baked-on paint enamel finishes. The porcelain enamel partitions are made of two pan-formed sheets, porcelain enameled on both sides. The sheets are then assembled and cemented under pressure to a ¼" thick rigid fiber core. The doors are made the same way.

Tainable in porcelain enamel, and the ease of maintaining its original brilliance, have prompted the use of the product for such applications as theater fronts, gas stations, bus terminals, food stands, store fronts, bar rooms, and many other places.

A combination of the properties possessed by porcelain enamel has recently been responsible for an entirely new and unprecedented adaptation which dates from the association of D. H. Grootenboer and Philip G. Knobloch in architectural practice in Pottsville, Pennsylvania. Both of these men having come from large cities where school buildings were constructed of fire-resisting materials, were amazed at the number and size of wood school buildings in the Pennsylvania mining section. To them, it was little short of criminal to house children for hours each day in buildings which were veritable fire traps.

Investigation proved, however, that there was a structural reason for the frame construction—the people of the mining community apparently loving their offspring with the same parental intensity that obtains in other localities. It was found that the buildings had to be light-weight construction so as to withstand the earth movements caused by sub-surface mine workings. Earth movements did not always result from activity directly under the buildings affected—sometimes they took place from operations hundreds of feet away on an adjoining slope or hillside. Workings directly under the buildings caused vertical subsidence which is easily remedied by proper footing design. Workings at a distance, however, caused a sidewise slipping. Frequently both conditions were encountered on the same plot of ground. The illustration shows what happens to conventional construction under such conditions.

Frame buildings constructed upon reinforced concrete foundations seemed to withstand the strain because of the truss action of the light skeleton members. The architects devoted considerable time over a period of three years in trying to arrive at a solution which would combine light weight, practical cost and non-inflammability. When the architects were commissioned to handle a high school building for the town of Girardville, Pennsylvania, they decided to utilize porcelain enamel for the exterior, as a result of their research and observations. The solution was so interesting and satisfactory that laymen and individuals in the building field journeyed from many sections of the Eastern United States to view this new type school. The foundation walls of this building are reinforced with concrete. The superstructure is of light weight structural steel.
members, so braced and arranged as to withstand the peculiar strains that are caused by the mining operations. The exterior walls have structural channel studs spaced about four feet on centers. To these studs the porcelain enamel units are secured by an ingenious method of fastening developed by the architects.

The plates or panels are of the pan or flanged type, on 18 gauge enameling sheets. One-half inch thick rigid insulating board is cemented to the back of each piece. Joints between the finished panels are pointed with a plastic pointing compound applied by means of a calking gun. The exterior walls are finished on the inside with metal lath mounted directly to the channel studs and plastered in the usual manner. The wall spaces are filled with mineral wool insulation, blown into place.

The pride of the pupils of this school is no doubt invoked for the better care and respect of their fine new building by the use of the high school colors for the exterior. The walls are oyster white with deep blue trimmings. It has been found that the building is practically self-cleaning—an important virtue in an area where the handling of coal creates a dirt-laden atmosphere.

Before adopting porcelain enamel for this school building, the architects conducted some office tests of the type with which every architectural man is familiar. These tests would probably raise the eyebrows of the Bureau of Standards and the ASTM—but who is to say

A general view of the world's first all porcelain enamel school building, located at Girardville, Pennsylvania. The Architects were D. H. Grootenboer and Philip G. Knobloch. The combination gymnasium and auditorium in the Girardville High School is contained in a wing, so planned that access from outside may be had without entering the classroom portion. In the entrance Architects Grootenboer and Knobloch have taken advantage of the flexibility of the material to create a circular motif. The dark blue of the entrance is relieved by stainless steel trimmings, and the doors themselves are painted black.
In the Girardville High School, Architects Grootenboer and Knobloch evolved a unique scheme for attaching the porcelain enameled iron panels directly to the steel studs. The stud spaces were filled with mineral wool.
In the Girardville High School, the spandrels between first and second floor windows contain louvers to supply fresh air for the ventilating system. The letters are formed of porcelain enamel iron, are free standing and cast interestingly deep shadows on the white background. The auditorium entrance is marked by a stainless steel marquee with stainless steel bands on the wall surface above and porcelain enamel letters. Jambs are of dark blue enamel.
A general view in the Chase National Bank, Rockefeller Plaza, designed by Reinhard & Hofmeister, New York Architects, showing the porcelain enamel sheathed columns. A clever handling of materials and an interesting movement of line emphasizes the design possibilities of combining modern materials. Note the detail on opposite page. This is said to be the first use of porcelain enamel for this purpose, for which it seems to be satisfactory.
whether laboratory tests or the abuse conceived by the architectural mind best reveals the rigors that a material will have to withstand in actual use? At any rate, samples of porcelain were pounded with hammers, thrown on a concrete floor, bent to see how soon the porcelain surface would crack. Acid was poured on the samples and other tests were made which may have been unorthodox but which convinced the architects of the feasibility of the product for this particular use.

There has been achieved in the finished structure a building that is fire-resistive, weighs approximately the same per linear foot as a well-constructed frame building, maintenance costs are very low, and its cost is comparable to first-class brick-and-stone trim construction.

In writing specifications for porcelain enameled iron, architects should be careful to specify enameling sheets, and that the gage shall be 16 or 18, depending upon the size and type of panel to be used. Sometimes 20 gage material is used, but it is not recommended unless properly backed up, or for small units. Also specify the kind of flanging required, and here, a good porcelain enameler should be consulted as most enamlers have distinctive methods of their own. If the architect intends to take competitive figures from the suppliers of the enameled sheets, it will be necessary to determine whether or not the distinctive methods are patented or are of such a nature that competition will be eliminated.

Is the porcelain to be regular, weather-resisting, or acid-resisting? Enamed surfaces should withstand the Porcelain Enamel Institute standard tests for specified properties and classification. Weather-resisting enamels should be specified for outside exposure. Regular enamels may be used for interiors when not subjected to corrosive materials. Acid-resisting enamels should be specified for especially corrosive conditions and are recommended in many cases for regular exterior use. The type and number of coatings should be stated definitely. If a backing of insulation board or other material is desired, specify its thickness and that the materials are to be combined at the factory. For convenient and economic installation of the porcelain enamel panels the jointing should be detailed to limit the size of any unit to about 10 square feet, with the greatest dimension not exceeding 5' 0". The method of attachment should be clearly shown and specified, whether by concealed clamps, bolts, moldings, or other method. Joints must be calked with a plastic material especially adapted to porcelain enameled iron, and the calking should be forced in with a gun to a depth of not less than one-half inch.

If there are any soffit plates, louvers, or lettering, and any special shapings required by special conditions of design, don't forget to specify that the building shall be thoroughly cleaned with warm water and a good grade of soap. Kitchen abrasives should be used only where necessary to remove grease, paint, or calking. No cleaning acids should be used, even on acid-resisting enamel, because of the harmful reaction on the calking.

Panels should be individually wrapped by the manufacturer for shipment. They should be stored flat in a weather-proof shed. *Insist on this requirement.* If the panels have been transported by truck in rainy weather and the wrappings have become wet, see that the paper is immediately removed. Porcelain that is not acid-proof may be stained by wet wrappings.

The architectural specifier, fortunately, can obtain an excellent reference work to help him in the writing of porcelain enamel specifications. The Technical Research Section of the Porcelain Enamel Institute, Inc., has prepared an 8½ x 11 booklet of 28 pages, entitled *Recommended Materials and Practice for Architectural Porcelain Enamel.* This brochure can be obtained by writing to the Institute at 612 North Michigan Avenue, Chicago. Information in this handbook is reliable and authentic. It is recommended that it be used as the guide for obtaining the best of the fine qualities of porcelain enamel for architectural purposes. The data are compiled by a committee of leading designing engineers drawn from the porcelain enamel industry. The Institute will be glad to supply, in addition, any available information of a special nature which is not covered in the handbook.

During the manufacturing process, there is very little that the architect can do in the way of supervision, for a large majority will have no occasion to become familiar
The Marlyn Apartments, Washington, D. C., Harvey Warwick, Architect. It is believed that this building is the first example of the use of flanged porcelain enameled sheet spandrels. The enamel is light cream in color, with two burnt-orange vertical stripes.

In the Ford Motor Company Exhibition Building at Dearborn, Michigan, by Architect Albert Kahn, porcelain enamel forms the field and border of these panels. The figure is of porcelain enameled cast iron. There are seven figures similar to this one on the building.
with porcelain enamel shop procedure. However, one can require tests of the base metal, submission of color samples, check detailed shop drawings, and observe the usual architectural precautions for fabricated materials.

In superintending the field work, particular attention should be paid to the erection of the first or lower panels. These should be carefully aligned, leveled, and plumbed. Much future trouble will be obviated if the first pieces are properly erected. See that all fastenings are pulled up tight and that the calking is forced to the proper depth. Do not allow the interior of the wall to be closed in until the calking and fastenings have been rigidly inspected from the rear.

The erection of porcelain enamel is so simple that any average workman can apply the panels. It should be observed that in most unionized sections of the country, the structural steel workers claim jurisdiction. The selection of a responsible manufacturer is fully as important in avoiding job difficulties in the use of this material as it is with any other building product.

Because of the rapidly increasing use of porcelain enameled iron in new ways, the designer should understand that building laws do not, in all localities, allow the full capacity of porcelain to be realized. Right at the moment, for example, the Building Code for the City of Pittsburgh requires that walls be of 12-inch masonry for fireproof buildings within the city limits. An attempt is being made to secure a revision of this mandatory legislation to permit the erection of porcelain enamel light-gage steel structures. It is quite possible that success in securing such a change in Pittsburgh will point the way to bringing other restrictive codes up to date.

The following list of manufacturers of porcelain enameled iron products will provide an architectural organization with sources of supply and information. These companies will be found willing to cooperate with the architect in solving specific problems. Neither the completeness nor the correctness of this list is guaranteed. If any persons discover errors or omissions, they are invited to communicate with PENCIL POINTS, and a list of corrections will appear in an early issue.

## SOURCES OF FURTHER INFORMATION ON PORCELAIN ENAMEL MATERIALS

### Trade Association

- Porcelain Enamel Institute, Inc., 612 N. Michigan Ave., Chicago
- Manufacturers of Enamel Frit
  - Chicago Vitreous Enamel Products Co., 1425 So. 51st Court, Cicero, Ill.
  - Ferro Enamel Corp., 4110 E. 16th Street, Cleveland, Ohio
  - Ingram-Richardson Manufacturing Co., Frankfort, Indiana
  - Porcelain Enamel & Manufacturing Co., Baltimore, Md.

### Manufacturers of Enameling Sheets

- American Rolling Mill Co., 1938 Armaco Ave., Middletown, O.
- Bethlehem Steel Company, Bethlehem, Pa.
- Empire Steel & Tin Plate Co., Mansfield, Ohio
- Granite City Steel Co., 20th and Madison Avenue, Granite City, Ill.
- Great Lakes Steel Corp., Detroit, Mich.
- Inland Steel Co., First National Bank Bldg., Chicago, Ill.
- Jones & Laughlin Steel Corp., 311 Ross Street, Pittsburgh, Pa.
- Newport Rolling Mill Co., Newport, Ky.
- Otis Steel Company, Cleveland, Ohio
- Republic Steel Corporation, Republic Building, Cleveland, Ohio
- Sharon Steel Corp., Sharon, Pa.
- Youngstown Sheet & Tube Co., Youngstown, O.

### Suppliers of Architectural Porcelain Enamel

- Ace Porcelain Steel Corp., 46 Gt. Jones St., New York City.
- Acme Metals Company, Detroit, Michigan
- Art Porcelain Products, Inc., New York City
- Artercraft Sign Co., Kibby and Black Sts., Lima, Ohio
- Atlas Enameling Co., St. Louis, Mo.
- Baltimore Enamel & Novelty Co., P. O. Box 928, Baltimore, Md.
- W. A. Barrows Porcelain Enameling Co., Cincinnati, Ohio
- Beaver Enameling Co., Ellwood City, Pa.
- Bettinger Enameling Corp., Grove St., Waltham, Mass.
- Bronx Porcelain Co., New York City
- California Metal Enameling Co., Los Angeles, Calif.
- Chattanooga Stamping & Enameling Co., Manufacturers Road, Chattanooga, Tenn.
- Chicago Vitreous Enamel Products, 1425 So. 51st Court, Cicero, Ill.
- Davidson Enameling Co., Clyde, Ohio
- Davidson Enamel Products, Inc., 300 East Kibby St., Lima, Ohio
- Enamel Products Co., 300 Eddy Road, Cleveland, Ohio
- Erie Enameling Co., Erie, Pa.
- Ferro Enameling Co., Oakland, Calif.
- General Porcelain Enameling & Mfg. Co., 4139 W. Parker Avenue, Chicago, Ill.
- Independence Stove & Furnace Co., Independence, Mo.
- Ingram-Richardson Manufacturing Co., Frankfort, Ind.
- Ingram Richardson Manufacturing Co., Beaver Falls, Pa.
- Maul Macotta Corp., 1640 E. Hancock Avenue, Detroit, Mich.
- Modern Porcelain Products Co., Plainfield, N. J.
- Newark Porcelain Enameling Co., Bloomfield, N. J.
- Porcelain Metals Corp. of Louisiana, Inc., 1400 So. 11th St., Louisville, Ky.
- Porcelain Metals, Inc., 28-20 Borden Avenue, Long Island City, N. Y.
- Porcelain Products Co., Cicero, Ill.
- Porcelain Service Company, New York City
A sizable interior installation of porcelain enamel is to be seen in the new laboratories of the Chicago Vitreous Enamel Products Company. Porcelain enameled iron was employed for walls, some of the furniture, lighting fixtures, columns, shower, and toilet stalls, and ceilings in two sections of the laboratories.
Because of an extensive, country-wide building program of hospital facilities, Typhonite Eldorado offers this month selected equipment symbols for use in hospital work. The aim is to aid in standardizing symbols of equipment used repeatedly on working drawings. These symbols will supplement the usual and well-known equipment symbols of plumbing fixtures, etc.

The original drawing reproduced here was made with a Typhonite Eldorado F, on "Penciltex" drawing cloth. On tracing paper an HB would probably have been the degree to choose.

Free. An actual size blueprint is offered for your file by the maker of Typhonite Eldorado, The Master Drawing Pencil. Just write: Pencil Sales Department, 167-J3, Joseph Dixon Crucible Company, Jersey City, N. J.

*Typhonite* is a new form of natural graphite, used exclusively by Dixon in making leads for Eldorado, The Master Drawing Pencil. Typhonite graphite consists of extremely minute particles produced by a whirlwind or typhoon of dry steam. This new exclusive Dixon process is one of the reasons why Eldorado pencils hold their points longer, give off freely, and make opaque lines and figures.
WHEN YOU
Remember

1. View of Craig Service Station, Erie, Pa., that suggests how effectively porcelain enamel can be adapted to this type of building. Almost any color combination may be used and the strong adhesion of porcelain enamel to the Armco Enameling Iron base provides a surface that will withstand extreme abuse. 2. Said to be the largest all-porcelain enamel faced structure in the world, this department store building in Lansing, Mich., dominates its surroundings. Only by color reproduction could you hope to get the true effect of its attractively colored porcelain enameled macotta exterior. The base metal is Armco Enameling Iron. 3. Showmanship in porcelain enamel distinguishes this Pittsburgh, Pa., theatre exterior. The smooth surface and attractiveness of the wide tower expanse is a tribute to skilful enameling on Armco Enameling Iron. 4. Porcelain enamel on a base of Armco Enameling Iron gives this electric sub-station, Middletown, Ohio, a durable exterior that will always be bright and attractive. Maintenance costs are reduced to a minimum. Clip-Strip was used for attachment and trim of the porcelain enamel panels. 5. Advertising power is essential to a restaurant front. In Benny Leonard's New York restaurant it was achieved by generous use of porcelain enamel on a base metal of Armco Enameling Iron. The result is an exterior that looks clean and inviting and suggests a like interior at all times.

OTHER ARMCO METALS: For information on Armco sheet metals send for a free set of Don Graf Data sheets.
DESIGN FOR PORCELAIN ENAMEL

the Base Metal is Important

6. Attractiveness and durability feature the exterior of this Louisville, Ky., Greyhound bus station, all porcelain enameled on Armco Enameling Iron. It will not fade, tarnish, rust nor wear appreciably. Rapid temperature changes have no effect on porcelain enamel because of its high resistance to thermal shock. 7. The modern design and construction of this Armco research building, Middletown, Ohio, makes it a notable example of porcelain enamel architecture. It houses a complete porcelain enamel research laboratory whose skilled staff collaborate with enamelers and architects on architectural building problems. 8. Approximately 5,200 square feet of porcelain enamel on Armco Enameling Iron was used in remodeling and enlarging this American Stove Company research building, St. Louis, Mo. The color scheme of ivory with black trim will never turn dull nor fade. 9. Formed metal plumbing ware, porcelain enameled on Armco Enameling Iron, will please even the most discriminating client. The refreshing lines and unusual color possibilities lend new inspiration to the architect’s decorative talents. 10. This night view demonstrates the dramatic effects that are possible with porcelain enamel. In this San Francisco, California, store attractive porcelain enamel on Armco Enameling Iron provides a fitting exterior for the porcelain enameled products on display in the showroom.

- There is something about porcelain enamel you should know . . . This hard, rich mineral finish can be no better than the base metal on which it is fused.

This is why so many exacting manufacturers and enam­elers have for years standardized on Armco Enameling Iron. Not only was it the first special enameling iron, but today is more widely used than any other base metal. The exceptional flatness, uniformity and ductility of this highly refined iron—its specially processed surface that bonds smoothly and tenaciously with the porcelain enamel—these and other vital technical qualities make your specification of Armco Enameling Iron a safe and satisfying one.

It will be reassuring to you to know that Armco Research has collaborated with architects and enamelers since porce­lain enamel was first used in building construction. Natur­ally a great deal of useful information has been accumu­lated, which we are glad to make available to you.

Another valuable aid is the Armco architectural reference service. Before you design for porcelain enamel, write to us and we shall put you in touch with competent enamelers, men who will work with you closely and intel­ligently in reproducing your designs. Just use the coupon, or write us on your firm letterhead. The American Rolling Mill Company, 681 Curtis Street, Middletown, Ohio.

MAIL FOR ARMCO REFERENCE SERVICE

Please put us in touch with competent porcelain enamelers in our territory. We are thinking of using porcelain enamel for:

FREE DUCT CALCULATOR: An Armco duct calcu­lator is offered to help you figure air conditioning ducts.
S E R V I C E  D E P A R T M E N T S

THE MART. In this department we will print, free of charge, notices from readers (dealers excepted) having for sale or desiring to purchase books, drawing instruments, and other property pertaining directly to the profession or business in which most of us are engaged. Only those items will be listed for sale which we can no longer supply from our own stock. Such notices will be inserted in one issue only, but there is no limit to the number of different notices pertaining to different things which any subscriber may insert.

PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed free of charge.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions.

SPECIAL NOTICE TO ARCHITECTS LOCATED OUTSIDE OF THE UNITED STATES: Should you be interested in any building material or equipment manufactured in America, we will gladly procure and send, without charge, any information you may desire.

Notices submitted for publication in these Service Departments must reach us before the twelfth of each month if they are to be inserted in the next issue. Address all communications to

WYATT C. HEDRICK, INC., Architects and Engineers, have opened new offices at 405 Nixon Building, Corpus Christi, Texas. This new firm will be known as Hedrick & Fox, Inc., and will operate in addition to the parent organization at Fort Worth, Texas.

MERTON E. GRANGER, Architect, has removed his offices from the Empire Building to the Foote Building, 316 South Warren Street, Syracuse, N. Y.

KENNETH D. STORMENT, Architect, has opened an office for the practice of architecture at 725 Hutton Building, S. 9 Washington Street, Spokane, Wash.

JAMES EARLE MILLER, Architect, formerly Architect-in-Charge, Public Works Projects, U. S. Department of Agriculture, has opened an office for the practice of architecture at 303 East Walnut Street, Hanover, Pa.

WILLIAM A. LOUMOS, Architect, has established an office for the general practice of architecture in Suite 509 Winthrop Building, 7 Water Street, Boston, Mass.

FRED L. MARKHAM, Architect, has established an office for the general practice of architecture at 45 North University Avenue, Provo, Utah.

CARL L. SVENSEN, Architect and Engineer, has moved his office to 1509 Avenue K, Lubbock, Texas.

MILLS, RHINES, BELLMAN & NORDHOFF, INC., Toledo, Ohio, Architects and Engineers, announce that Mr. Reeve Kelsey Biggers has been admitted to membership in the firm.

ERNST JONSON, Designer, has opened an office at 17 East 42nd Street, Room 1030, New York, N. Y. Mr. Jonson's work includes the designing of furniture, textiles, posters, packages, mural decoration, etc.

FREE EMPLOYMENT SERVICE

ARCHITECTURAL PARTNERSHIP WANTED: An architect who has conducted a practice in a western city, largely residential, will be glad to discuss a partnership with an architect located in or near New York City. Is especially interested in interior design. Can successfully handle any part of the work in an architect's office, including the preparation of specifications. Box No. W. C. A.

YOUNG MAN, 21, High School graduate, Night School student in architecture, desires position in architect's or construction office. No experience but willing to start at bottom. Harold Howard Richman, 52 McDaniel Avenue, Jamestown, New York.

ARCHITECTURAL DRAFTSMAN, ambitious young man, five years' experience making drawings, new and alteration work, familiar with city departments, graduate of Cooper Union Institute winning second prize. Box No. L. H. L.

ARCHITECTURAL DRAFTSMAN, 26, desires position in architect's or builder's office; six years' experience in designing, making working plans, specifications and personal supervision of small homes and stores. Go anywhere for reasonable offer. John Mancinelli, Jr., 44 Elizabeth Street, New York.


PERSONALS

Eugene A. Stopper, Liberty Trust Building, Philadelphia, Pa., would like to purchase a copy of the November, 1932, issue of the Architectural Forum.

Edward B. Lee, 1210 Chamber of Commerce Building, Pittsburgh, Pa., would like to purchase the following copies of PENCIL POINTS: June through December, 1920; January through April, 1921. Will pay any reasonable price plus postage.

J. Valentine Grady, 956 Lincoln Road, Grosse Pointe, Michigan, would like to obtain a copy of the Frank Lloyd Wright issue of the Architectural Forum, published the early part of 1938.

SPACE TO RENT: Office space is available in architect's office on the 12th floor of the General Electric Building, New York, for an architect or draftsmen who wishes to carry on his own business. Details may be discussed with Mr. Prentice Sanger, Architect, 570 Lexington Avenue, New York. Mr. Sanger's architectural library would be available for use.

Hyman Rubin, 1010 Intervale Avenue, Bronx, New York, would like to obtain copies of PENCIL POINTS for July, August, September, and October, 1936. He has for sale the following: February, 1935, PENCIL POINTS; December, 1932, and May, 1933, Architectural Forum. In excellent condition.

HYMAN RUBIN, 1010 Intervale Avenue, Bronx, New York, would like to purchase a copy of the November, 1932, issue of the Architectural Forum.

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THE MART

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(Continued on page 52, Advertising Section)
Except for steel, the shoes we wear would be little better than medieval sandals, with their shapeless ugliness and destruction of foot health.

The arch which assures comfort, safety, lasting appearance, is made by a steel brace concealed in the leather. Heels are possible because of steel nails. Steel eyelets keep the laces from tearing the leather. The laces thread easily because of steel tips—to say nothing of the steel machinery vital to processing the leather and making the shoes themselves.

It takes almost 100 pieces of steel to make most pairs of modern shoes, and they are only a small fraction of the thousands and thousands of pieces of steel you use every day to make life comfortable and safe. Steel makes possible your electric light, home heating plant, canned food delicacies, automobile, office building and factory, railroad—in fact steel makes possible the standard of living on which civilization depends.

For almost every one of this multitude of uses a special steel is required, and Youngstown maintains a great laboratory and special staffs of research and field experts to find exactly the right steel for every modern use.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon and Alloy Steels
General Offices
YOUNGSTOWN, OHIO
How to get interiors that are bright, colorful, charming at low cost!

**TEXOLITE**

Texolite* is a development of modern paint chemistry—a paint with which you can secure colorful, fine appearing, durable decoration at a cost so low and at a speed so fast that it will astound you.

**MOST JOBS—ONE COAT**—One coat of Texolite will usually give superior coverage over most surfaces.

**DRIES FAST**—No need for you to have rooms out of order for a week when you decorate with Texolite. Under most conditions it dries in less than an hour.

**ECONOMICAL**—One gallon of Texolite usually covers from 500 to 700 square feet of finished plaster surface—more than the wall area of the average room.

**WIDE COLOR RANGE**—Texolite is available in a wide range of colors. It comes ready-mixed in 9 soft-hued pastels and 9 brilliant, deep colors. With the Texolite Deep Color Mixing Guide you can accurately secure and match over 40 other variations of these standard colors as well as the "dusty" colors so popular with interior decorators today.

**Send today for the Texolite Deep Color Mixing Guide and the 40-page book "Modern Principles in Paint and Decoration"—and learn how you can save money on your next decorating job.**

**UNITED STATES GYPSUM COMPANY**

300 West Adams Street, Chicago

*Registered Trade-Mark

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**PUBLICATIONS ON MATERIALS AND EQUIPMENT**

of Interest to Architects, Draftsmen and Specification Writers

Publications mentioned here will be sent free unless otherwise noted, upon request, to readers of PENCIL POINTS by the firm issuing them. When writing for these items please mention PENCIL POINTS.

K. Z. S. ARCHITECTURAL PORCELAIN ENAMEL STORE FRONTS.—Folder announcing the addition of K. Z. S. architectural porcelain enamel facing panels to the complete line of Kawneer store front construction. Included are sections for key elevations, standard shapes and full descriptive and erection data. 4 pp. 8½ x 11. The Kawneer Co., Niles, Mich.

MARLITE FOR CREATING BEAUTIFUL HOME INTERIORS.—Brochure describing and illustrating Marlite, a modern wall covering for bathrooms, kitchens, recreation rooms, living rooms, breakfast rooms, etc. Included are suggested designs, color charts, ceiling layouts, etc. 16 pp. 8½ x 11. Marsh Wall Products, Inc., Dover, Ohio.

Published by the same firm, "Marlite for Creating Beautiful Commercial Interiors." Catalog illustrating applications of a type of wall covering in commercial and institutional interiors. Standard panel designs. 16 pp. 8½ x 11.

BRADLEY TYPE EH AND EF WASHFOUNTAINS.—A.I.A. File No. 29-h. Bulletin announcing and describing a new line of semi-circular washfountains in enameled iron and stainless steel for small or narrow washrooms of stores, offices, schools, institutions, factories, etc. 4 pp. 8½ x 11. Bradley Washfountain Co., Milwaukee, Wis.

MAJESTIC BUILDING NECESSITIES FOR THE MODERN HOME.—New catalog covering a complete line of Majestic products, including garbage receivers, kitchen ventilating fans, incinerators, milk and package receivers, coal chutes. Circulator fireplaces, grilles, fireplace dampers, radiator furniture, etc. 28 pp. 8½ x 11. The Majestic Co., Huntington, Ind.

WOODWORK THAT LIVES IN LIVABLE HOMES.—Attractive brochure, dealing with the subject of Arkansas soft pine, discusses the advantages of this wood for the interiors of homes. Included are directions and specifications for finishing. Profusely illustrated. 16 pp. 8½ x 11. Arkansas Soft Pine Bureau, Boyle Bldg., Little Rock, Ark.

CARRIER AIR CONDITIONING — REFRIGERATION — HEATING.—A.I.A. File No. 30-f-1-2. New catalog presenting air conditioning equipment, for the many uses from a single room to an entire building. As an easy means of quick reference, all products are listed according to application and type of equipment. In addition to air conditioning for homes, stores and offices, refrigeration and heating equipment are included. Each type of product is described according to application, function, advantages, operation, installation, dimensions and sizes. 16 pp. 8½ x 11. Carrier Corporation, Syracuse, N. Y.

(Continued on page 46, Advertising Section)
Where traffic is a problem

The answer is a floor of Armstrong's Asphalt Tile

HALLS and corridors call for special floor treatment. Many architects have found the solution in Armstrong's Asphalt Tile, the resilient flooring that withstands heavy traffic.

This low-cost, durable flooring can be installed over any type of subfloor—and it is the only type of resilient floor that can be installed over concrete in direct contact with the ground, on or below grade.

There's plenty of scope for attractive designs when you use Armstrong's Asphalt Tile. Its many plain and marble effects may be combined in a wide range of colorful floors. The marble patterns are especially suited for entries, since tracked-in dirt is less visible against these grainings.

Asphalt Tile is easily cleaned and kept clean. Daily sweeping and occasional washing and waxing keep it neat and serviceable for years. Scuffing feet do not wear off the colors, because they run through the full thickness of the material.

See Sweet's


Armstrong manufactures the only complete line of resilient floorings: Asphalt Tile, Linotile (Oil-Bonded), Cork Tile, Rubber Tile, and Linoleum. Therefore, our Architectural Service Bureau is in a position to give you unbiased advice on floors for every requirement.

**RUBBER TILE**
**LINOTILE (OIL-BONDED)**
**ASPHALT TILE**

Armstrong's LINOLEUM
and RESILIENT, NON-CERAMIC TILES

**CORK TILE**
**LINOWALL**
**ACOUSTICAL CEILINGS**

PLANNED FOR TRAFFIC is this entry hall floor in the McCutney High School, Lancaster, Pa. Architect Henry V. Shaw specified Armstrong's Asphalt Tile, Corkwood, and Linowall for many important areas in this school.
BUILT WITH PENCILS

Architects and Draughtsmen will recognize the basic truth of the point we illustrate here — namely that all buildings are first "built" with PENCILS. Experience shows that there is no more responsive and satisfactory tool for the purpose than the MICROTOMIC VAN DYKE. It is strong, smooth, always dependable. Its MICROTOMIC lead possesses superior covering qualities because it is denser, finer-grained. Excellent for blue-print work. Complete opacity prevents ragged edges. Erases cleanly, eliminating blue-print "ghosts"—and you will find each of the 18 degrees from 7B to 9H accurately graded and uniform throughout. Also obtainable with Chisel Point Leads in degrees: 4B, 2B, HB, 2H, 4H and 6H.

MICROTOMIC VAN DYKE DRAWING PENCIL

EBERHARD FABER
The Oldest Pencil Factory in America
Are you dressing-up your Main St. with these 7/8" THIN stone veneers?

The dark stones from the Alberene quarries have become extremely popular for new construction, as well as for remodeling, on Main St., U. S. A. They meet the demand for dark exterior materials which can be installed at moderate cost and on which upkeep will be negligible. They polish naturally to a rich, deep satiny finish, not reflective or mirror-like. Having great toughness and density, facings, bulkheads and spandrel panels can be cut into sections as thin as 7/8". The buildings shown on this page are typical examples of what can be accomplished at moderate cost.

A set of samples, conveniently boxed, showing the range of stone, including mottled dark blues and greens, from the Alberene quarries will be sent gladly. . . . Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York, N. Y. Quarries and Mills at Schuyler, Va. Sales offices in principal cities.
PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 46, Advertising Section)

ANDERSEN COMPLETE WINDOW UNITS.—A.I.A. File No. 19-e-13. New brochure covering the Andersen line of casement windows, Narroline double-hung windows and basement windows. Specifications, details, sizes and typical installations. 18 pp. 8 1/2 x 11. Andersen Corporation, Bayport, Minn. Published by the same firm, "Andersen Wood Casements." Folder explaining outstanding features of a line of wood casement windows. Table of sizes. 6 pp. 8 1/2 x 11.

GOODRICH RUBBER TILE FLOORING.—New catalog describing the Goodrich line of Rubber tile flooring. In addition to listing sizes and thicknesses of both tile and accessories, the catalog contains illustrations of over thirty different color selections. It also pictures several typical patterns which can be made by combining tile in various color combinations. 12 pp. 8 1/2 x 11. The B. F. Goodrich Co., Mechanical Rubber Goods Division, Akron, Ohio.

METAL LATH NEWS.—A.I.A. File No. 20-b-1. January issue features metal lath construction in theatres, schools, stores, residences, etc. Included are specifications for expansion-type anchors for attaching suspended ceilings to concrete construction and for hangers for suspended ceilings. Also blackboard and jail cell details. 16 pp. 8 1/2 x 11. Metal Lath Mfrs. Assn., 208 S. La Salle St., Chicago, Ill.

CALCIUM CHLORIDE AND PORTLAND CEMENT.—Useful publication for architects, engineers and contractors shows clearly and concisely the exact effects of calcium chloride on portland cement mixes, including setting time, early strength and ultimate strength. It shows how calcium chloride affects curing and why the addition of calcium chloride permits a reduction in water cement ratio with a resulting increase in density and water resistance. In addition it contains data concerning the marked effects of varying temperatures on the strength of concrete. Two sections of the book are devoted to technical facts and three sections to practical information. Structural concrete, paving concrete, and concrete products are each dealt with separately. 48 pp. 6 x 9. Solvay Sales Corporation, 40 Rector Street, New York, N. Y.

HEIL COMBUSTION OIL HEATING.—Bulletin No. 130-A giving detailed description of the construction features of model ISS Heil combustion oil burner. 4 pp. 8 1/2 x 11. The Heil Co., Milwaukee, Wis. Published by the same firm, "Heil Water Softeners." Bulletin WS-151A describing the construction and operation of a type of boiler-burner unit for boiler heating service in new homes, duplexes, small apartments, greenhouses, country estates, etc.

EMERSON ELECTRIC FANS FOR 1939.—Catalog No. X3349 describes and illustrates a complete line of electric fans, including kitchen ventilating and exhaust fans. Tabular matter, prices, etc. 24 pp. 8 1/2 x 11. Emerson Electric Fan Co., St. Louis, Mo.

(Continued on page 50, Advertising Section)
Thousands of owners say

HOLLAND

Automatic Furnace
AIR CONDITIONER
FOR OIL OR GAS

GIVES LOWEST COST WINTER COMFORT

Before a single Holland Automatic Furnace Air Conditioner was sold, Holland engineers had spent many months checking and re-checking performance figures, not only in the laboratory but in actual home installations. As a result, they were firmly convinced that the average installation would certainly cost no more to operate than coal-burning equipment of comparable capacity. This opinion has since been fully confirmed.

Thousands of Holland Automatic Furnace Air Conditioners in use in regions where average prices prevail for all fuels have consistently shown lower operating costs than the equipment they replaced. In many cases the savings effected by Holland were truly remarkable.

When your specifications call for Holland, therefore, it is positive assurance of a satisfied client. Still more convincing is the fact that the Holland Furnace Company assumes full responsibility to your clients—in fact, fully guarantees perfect heat in every room. If you are not already fully informed about this surprisingly economical unit, why not mail the coupon for complete information?

HOLLAND FURNACE COMPANY
HOLLAND, MICHIGAN

World's Largest Installers of
Home Heating and Air Conditioning Systems

HOLLAND FURNACE COMPANY, Dept. PP-3, Holland, Mich.
Please mail information on subjects checked below:
☐ Automatic Furnace Air Conditioner for Oil or Gas
☐ Coal-Burning Heating and Air Conditioning Systems
☐ Automatic Coal Burner ☐ Automatic Oil Burners
☐ Data Sheets ☐ Have Engineer Call

Name
Address
City
State

PENCIL POINTS
MARCH, 1939

49
The Art Director tore his hair, “This drawing’s smudgy, have a care—Before you draw another sketch Remember this, untidy wretch—‘Castell’s’ the only pencil made That does not flake, my fine young blade!”

We want to let you in on a trade secret: When a competitor tries to market a drawing pencil do you know what he frequently uses as a basis of comparison? He says, "Mr. Dealer, this pencil is almost as good as "Castell." In other words, the trade itself is agreed that "Castell" is the world’s best pencil, the STANDARD for comparing others.

For only a few pennies more you can work with "Castell" instead of a pencil almost as good. This trifling difference in cost gives you the greatest graphite purity known to science, a pencil that does not scratch, flake or smudge, resists 6 lbs. writing pressure and has an unvarying scale of 18 degrees. To do your best work it’s logical to use the best pencil you can get.

A. W. FADEL, INC. • NEWARK, NEW JERSEY

WORLD’S FINEST DRAWING PENCIL—NONE HIGHER PRICED IN AMERICA

AW FABER-CASTELL
DRAWING PENCIL IN THE METAL BOX
15¢ each $1.50 per dozen

PUBLICATIONS ON MATERIALS AND EQUIPMENT

(Continued from page 48, Advertising Section)

MARKS BROS. COLORED GLASS BRICK.—Set of folders with descriptive, setting and specification data covering a line of colored glass brick for numerous architectural and decorative purposes, including store fronts, facia, doorways, windows, partitions, fireplaces, bars, walls, panels for indirect lighting, etc. 8½ x 11. 4 pp. Marks Bros., Inc., 470 E. 133rd St., New York, N. Y.


MANUFACTURERS’ DATA WANTED

CARL L. SVENSEN, Architect and Engineer, 1509 Avenue K, Lubbock, Texas. (Data on churches, equipment, etc. Also A.I.A. data.)

WILLIAM A. LOUMOS, Architect and Engineer, Suite 509 Winthrop Building, 7 Water Street, Boston, Mass. (Data on building materials and construction, samples for a display of building materials, and complete A.I.A. file data.)

JAMES EARLE MILLER, Architect, 303 East Walnut Street, Hanover, Pa.


HEEDRICK & FOX, INC., Architects and Engineers, 403 Nixon Building, Corpus Christi, Texas.

FRED W. LANGHENRICH, Architect, 611 National Bank of Commerce Bldg., Charleston, W. Va. (Data on housing, institutions, schools, technical data.)

DALE A. WHITE, Architect, 20 West Main Street, Carrollton, Ohio. (Data for use in the designing of a boys' training camp to house about 500 youths, to be constructed mainly of wood, for year-round occupancy.)

WILLIAM R. KLESSE, Architect, 83-a South Drive, Valley Stream, N. Y. (Data on residential work, store fronts, public buildings, etc., for A.I.A. file.)

M. F. STERN, Architect, Grand Hotel, Muizenberg, Cape Town, So. Africa. (Data on materials and equipment from manufacturers, particularly those who have representatives or agents in Africa.)

B. WADE EATON, Designer, 205 Bacon Street, Wal­tham, Mass. (Data for complete A.I.A. file, descriptive data on materials and equipment, samples.)

KENNETH R. WALLER, Designer, 2418 13th Street, Moline, Ill. (Complete data for A.I.A. file small residential work, store fixtures, interiors and store fronts.)

C. V. BARNES, Designer, P. O. Box 2, La Junta, Colorado. (Complete data for A.I.A. file and data on residential work.)

JACK C. WHITWORTH, Draftsman, 711 West French Place, San Antonio, Texas.

ERRATUM: In last month’s issue of PENCIL POINTS in this column, Mr. R. R. Haselton of 29 Marion Avenue So., Glens Falls, New York, was listed as an architect. This is incorrect as he should be listed as a Designer and Builder.

WORLD’S FINEST DRAWING PENCIL — NONE HIGHER PRICED IN AMERICA

AW Faber-Castell
Drawing Pencil in the Metal Box
15¢ each $1.50 per dozen

PENCIL POINTS
MARCH, 1939
Put Porcelain Enamel where you want

PERMANENCE

BRILLIANCE

AND COLOR

AT LOW COST

As a decorative material, porcelain enamel is one of the oldest mediums on record. But as an architectural material, porcelain enamel is new—so new that only relatively few of the more common architectural applications have thus far been explored.

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STUDENT at Columbia University School of Architecture, three years' civil engineering training at City College School of Technology, graduate of Mechanics Inst. of N. Y., four-year course in architectural drafting and design with some office experience, desires summer employment anywhere in U. S., Mexico or South America. Age 21. Ken Brehm, 116-13 Jamaica Ave., Richmond Hill, N. Y.


(Continued on page 54, Advertising Section)
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(Continued from page 52, Advertising Section)

HAVE you a "beginning job" and $20 per week to exchange for the willing and loyal services of a would-be-architect, 23, who will type, do junior drafting or whatever you say to the best of his ability? Studying evenings. Will go anywhere. Walter J. J. Phane, 109 Northampton Ave., Springfield, Mass.

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Marble is a tradition. It has always stood for the best. It's a symbol of integrity.

Walls patterned in Vermont marble are an investment in character.

The illustration shows how architects Cram & Ferguson used Vermont marble as a trim for the exterior of the Lamont Infirmary at Exeter.

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For Bulletins on various forms of marble construction—Random Ashlar, Marble Trim, Store Fronts, Mantels, Markwa, the Marble Tile, Lumar, the Luminous Marble—write Vermont Marble Company, Proctor, Vt., or any of the following branches: Albany, 75 State St.; Boston, 44 School St.; Chicago, 228 No. LaSalle St.; Cleveland, 4300 Euclid Ave.; Dallas, 1513 Wall St.; Houston, 310 Brinshurst St.; Los Angeles, 727 West 7th St.; New York, 101 Park Ave.; Philadelphia, 22nd & Westmoreland Sts.; San Francisco, 525 Market St.; Tacoma, 1120 East 'D' St. In Canada write Ontario Marble Co., Ltd., 403 Manning Chambers, Toronto.
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Being glass, Vitrolite has a glistening, reflective, sanitary surface that is non-sorbent. Walls and wainscots of this durable glass will never become odorous. Being glass, Vitrolite will not wear out. Neither will it become unsightly due to the action of steam, moisture or changing temperatures. Being glass, Vitrolite is completely indifferent to dust, grease, smoke, soot. It is easily cleaned. Re-decorating, of course, is never needed.

Soffits of color-fused, tempered Vitrolux provide flattering, softly-diffused, overhead illumination. L·O·F polished plate glass mirrors, clear or in colors, complete these modern ensembles.

Build with glass, today! We will be glad to cooperate with you on any unusual design problems. Meanwhile we invite you to write for our latest literature illustrating Bathrooms and Kitchens of Vitrolite.

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LIBBEY - OWENS - FORD

Vitrolite

Visit the Libbey-Owens-Ford Exhibit at the Golden Gate International Exposition, San Francisco, 1939.
Despite Terrazzo's rugged durability, it lends itself to rich, colorful patterns. Note the cheerful school floor above.

SHOES...AN ARMY OF THEM, SCUFFING AT THE FLOORS, KICKING THE WALLS...TERRAZZO RESISTS EVERY ABUSE...ALWAYS LOOKS CHEERFUL.

WHEN you think of a school floor today, you think of something friendly in appearance, inviting—nothing that looks like an "institution." Yet school floors and walls must withstand almost every variety of punishment.

Durable, attractive, easy to keep clean, low in maintenance costs—these are the requirements. And experience proves that Terrazzo fills these requirements to perfection. In fact, Terrazzo, a combination of marble and cement—either white or gray—is the architect's own material. Usually mixed right on the job, it is completely adaptable to his treatment and design. The range of colors and patterns which he can use is limitless. No two designs need be alike. And he can be sure that the finished job will turn out exactly as planned. Patterns will be clear, colors rich and bright—and permanent.

Terrazzo is so durable and costs so little to maintain that it is used in theatres, stores, hotel lobbies, railroad stations, even for streets. Get the latest data on Terrazzo and its uses. Write The National Terrazzo and Mosaic Association, 1406 G Street, Washington, D.C.

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

56

PE N C I L  P O I N T S
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TO THE simple lines of this modest utilitarian structure architectural concrete brings a clean, rugged beauty. But this United States Government Post Office tells only half the story.

You can use architectural concrete to lend distinction to the large as well as the small structures whether the building you are designing calls for simplicity of form, or whether it must combine decoration with strength. You will find it adaptable to an infinite variety of building types and almost unlimited in its decorative possibilities.

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The coupon will bring you more information on how and where architectural concrete is being used. Fill out the coupon today. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Chrysler Building, New York City.

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and are
★ Installed Faster
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In the past you have probably specified expensive flexible cove bases because you knew they were installed right against the finished wall (without recessing or keying)—because you knew their smooth, even surfaces and perfect fit meant good looks—because you knew they didn’t show mop marks or scuffs—because you knew they never needed repainting. Now you can have all these advantages for as much as 40% less cost. FLEX-O-BASE, the great modern improvement in cove bases, is the answer. You should be completely informed about this new item. Write David E. Kennedy, Inc., today, for full details without any obligation.

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FOR DETAILED INFORMATION WRITE TO DAVID E. KENNEDY, INC.
58 Second Avenue, Brooklyn, N.Y.


What! Another history of the English house! Yes, but this time only a miniature whose illustrations have been taken from Nathaniel Lloyd’s much longer standard work on the subject. Brief notes here help tell the history of English domestic architecture and enough illustrations have been added to cover the Nineteenth Century and the first third of the Twentieth.

But, alas, the compiler again confronts us with the formalized statement that we are viewing the documentary evidence of social evolution, whose continuous tradition can be fully appreciated in the English house. Why can’t these architects get their ideas straight? Why must history and the social viewpoint continually tie and

(Continued on page 60)
HOW G-E FLUORESCENT MAZDA LAMPS ENHANCE THEATRE ARCHITECTURE

The new Lakewood Theatre in Dallas is lighted with daylight fluorescent Mazda lamps, used in silhouette strip lighting of the mirror ceiling. E. G. Zennett of the Interence Circuits, and R. P. Patterson, architect, planned this installation.

The new G-E Fluorescent Mazda lamps offer architects several distinct advantages in designing theatre lighting. They give several times more light than incandescent lamps of the same wattage and color. And since, for the same amount of light, they are 50 per cent cooler, they put less burden on air conditioning plants.

With the daylight fluorescent lamp, which gives the closest approach to real daylight ever produced at high efficiency, architects can build "indoor daylight" into theatres to enhance the beauty of murals and other architectural designs.

The new Lakewood Theatre in Dallas, Texas, offers a good example of the effective use of fluorescent lighting. In the lobby, daylight fluorescent Mazda lamps have been used for silhouette strip lighting of the mirror ceiling.

Available in pink, blue, green, red, and gold, in addition to warm white and daylight, G-E Fluorescent Mazda lamps provide a wide range of lighting application for marquees, foyers, auditoriums, lounge rooms, and displays.

For further information, write to General Electric Co., Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

PENCIL POINTS MARCH, 1939
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Soss Invisible Hinges

"Are there but not seen"

They are conspicuous by their absence!

Adaptable for anything that hinges.

Write for complete data.

Soss Manufacturing Co.

653 E. First Ave., Roselle, N.J.

(Continued from page 58)

Twist themselves into Indian knots? For the second book, "A Renaissance Masque with Text and Settings by Mr. Thornton Bishop" seems a more suitable title—for in spite of the author's assurance and the glowing preface by Harvey Wiley Corbett, it is difficult to see just what it has to do with the social development of the Renaissance in Great Britain. It seems more plausible that the publishers thought Mr. Bishop's beautiful pencil drawings needed some historical accompaniment, to which was tacked the timely sub-title used. Certainly, there are many who will want and treasure the book for the drawings alone, which are exquisite in their sensitive interpretation of loved monuments.

Publishers, and writers, of architectural books seem not to have learned yet that chronology is not history—any more than royal cotillon favors and merchants' account books tell the whole story of society and economics. However, here we are again with the familiar buildings from familiar viewpoints.

The knowledge that most of the monuments reverently shown in the book are actually threatened with the destruction that has overtaken many of their contemporaries—as social and economic impediments of modern England—nullifies much of the "inspirational" quality Mr. Corbett attempts to cast over them in the preface. But as the last pages of the book are read, we find magnified that nostalgic lament which, in echo, underlies the movie travelogue ending with "a fond farewell to Beautiful England of the Renaissance."

Since the Civil War in Spain, a no less nostalgic note attaches to the illustrations and comments on Spanish architecture, by Mr. Bevan, who has sought to provide "not a collective study of individual buildings" but a "condensed evolutionary study." Because this includes the architecture of Spain in his Colonial manifestations, some of the more exotic Mexican churches are illustrated. Evolutionary or not, the author has succeeded in collecting under one cover information that has not always been readily available, even to scholars and archaeologists. The book affords a broad glance over the subject. The chapters on Pre-Romanesque, Romanesque, and Mudéjar phases make welcome additions for those already familiar with the world-famed masterpieces of Spanish architecture of other periods.

L.R.W.

(Continued on page 62)
HELP REDUCE THE COST
OF HOME OWNERSHIP

With Carey BUILDING PRODUCTS

The homes shown here are typical of thousands in which greater durability, increased comfort and lower upkeep have been attained through the use of building products perfected by modern research. In these new developments, Carey Research has been an important factor, aiding materially in reducing the cost of home ownership without sacrifice of established architectural standards. Carey Building Products, developed in the Carey Research Laboratory and proved in actual service throughout the nation, offer new advantages, wear longer and cost less to maintain. Some Carey Products give permanent, fireproof service and never require paint protection. Others provide new comforts and effect savings in fuel and maintenance that make their use a definite economy to the home owner. When you specify these and other Carey Products you serve the best interests of your clients. For further details of Carey Products, see our Catalog in Sweet's or write Department 54.

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CAREY CORK-INSULATED SHINGLES
CAREY ROCKTEX HOME INSULATION

Made of asbestos and cement ... fireproof, rot-proof and wear-proof ... no paint or other upkeep needed.

The Shingle with outside mineral surface for protection; cork underside for insulation. Provides roof and roof insulation for roof cost alone. Saves fuel.

Provides maximum control of room temperature ... will not shrink, bulge, rot or burn. Effects fuel savings that normally return cost in a few years. Produced in bat, wool and granulated form.

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NOW... permanent walls of ENDURING BEAUTY

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ARMSTRONG'S Linowall is to walls what Armstrong's Linoleum is to floors. It is permanent, waterproof, and easy to clean. Despite its advantages, it costs only about half as much as other permanent finishes. It is resilient, does not chip, crack, or craze, and its resilience renders it less subject to cracking than rigid materials.

Linowall fits in with any type of decoration. A wide range of colors and patterns is offered for both residential and commercial installations. Unique, original designs can be created by inlaying or appliqueing Linowall with glass, metal, carved wood, or carved linoleum designs.

Sweet's Catalog contains full information—or we will gladly send you complete details of this new and versatile wall covering. We will also give you the name of your local Linowall dealer. Write the Armstrong Cork Company, 1206 State St., Lancaster, Pa.

Armstrong's LINOWALL Made by the makers of Armstrong's Linoleum

PILLAR TO POST, by Othert Lancaster ($1.75, 100 pages, 6 1/2" x 9 1/4", with drawings by the author — Charles Scribner's Sons, 597 Fifth Avenue, New York).

And now a fresh note in architectural publishing—humor! Amused as the reader is sure to be by a flippant account of the devious ascent/descent from the Doric Order to the lally column, he will not catch the author-critic far afield from facts just because he has dropped the customary formality. Rather this English Architecture Without Tears is a reliable miniature history more readily understood than most.

Sly and not-so-sly satire at the expense of the succession of styles and building methods to which the architects, commercial builders, and others have resorted through the ages is abundant. The later chapters, devoted to the by-paths into which English designers have muddled in recent years, probably will be most enjoyed by those American readers who can readily identify the corresponding vagaries followed in this country. But the earlier "essays" on the historic styles cannot fail to entertain even the casual reader.

Lancaster's lively drawings add much to the pleasure afforded by the volume, aptly illustrating such original divisions of the subject material as Public House Classic, Municipal Gothic, Stockbrokers' Tudor, Marxist Non-Aryan, By-Pass Variegated, or Bankers' Georgian. That the author was fully aware of his temerity in poking fun at a subject usually reserved for unctuous academic murmuring is indicated by his thoughtful note: "All the architecture in this book is completely imaginary, and no reference is intended to any actual building, living or dead."


When Claude Bragdon issued the original edition of The Beautiful Necessity in 1910, he wrote in reference to his theory of architectural cycles: "It is not unreasonable to believe that the movement toward mysticism, of which modern theosophy is a phase and the spiritualization of science an episode, will flower out into an architecture which will be in some sort of reincarnation of, and a return to, the Gothic spirit, employing new materials, new methods, and developing new forms to show forth the spirit of the modern world, without violating ancient verities."

In his preface to this, the fourth edition, he states: "No subsequent increase of knowledge has caused me to distrust the essential soundness and validity of the ideas here set forth."

His story of how the same Beautiful Necessity determined the characteristics of much of the widely-separated periods of architecture, and of how some of the more obvious laws of natural beauty have been applied to architecture, still holds a goodly amount of stimulation for one who will take the trouble to read it.

Practical for folding rolled prints or drawings the draftsman likes to hate in arm's reach are corners cut from cardboard boxes and thumb-tacked to the table or desk top, points out Frank Bentley, Draftsman, of Clinton, Iowa
ID you ever stop to think how important pencils are in the production of a great engineering and architectural project such as this? From preliminary sketches to finished drawings and specifications, pencils are responsible for the speed and facility with which ideas are put on paper.

With Venus Drawing Pencils speed and facility are doubled! These pencils are made of a finer, smoother, stronger lead under the patented colloidal process* ... exclusive with the makers of Venus.

Precisely graded in 17 shades of black, Venus Drawing is the preferred pencil in most drafting rooms. Are you using them? If not put them to the test ... soon!

With only the slightest variation in grade, the Sixth Avenue Subway will actually weave over and under four other subways from 4th Street to 53rd! Of the many obstacles to the construction of this $2 million dollar subway, the network of underground railroads at 34th Street was the greatest challenge to engineering genius. Here the new Sixth Avenue Subway, the B. M. T., the Hudson & Manhattan Railway and the Pennsylvania Railroad will come within a few feet of one another!

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PENCIL POINTS
MARCH, 1939
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Rusty or rotten sill members are often responsible for poor fitting, drafty windows... and many times cause premature window failure. Mesker Steel Sash with Genuine Wrought Iron Sills reduce school window maintenance costs over 90% and definitely insure weather tight, easy acting windows for the entire life of the building!

The Booklet... MESKER G. W. I. SILLs is yours for the asking. It explains and illustrates why window sill members rot and rust away causing premature window failure. It presents an effective way to permanently avoid this ever present window problem.

Maginnis Pleads For City Planning

Normal security will return to the United States in 1939, if a European war does not intervene, Charles D. Maginnis of Boston, president of the American Institute of Architects, declared in a recent forecast calling "ugly communities" the nation's outstanding artistic problem.

City dwellers, Mr. Maginnis points out, are so patriotic that they find "a curious relish in local disorders." He expresses confidence, however, that an aroused public sensibility will overcome the architectural "stultification" of the cities...

"Hopefully we note exceptionally intelligent enterprise here and there, as in the beautiful development of the New York Park system which proves what can be officially accomplished in the face of public inertia. The talent is copiously available in America by which our cities can be brought to the impressive standards of order which obtain in the best communities of Europe.

"The architectural profession, which is supremely qualified for this challenge, has so far been permitted to deal with units of the city scene rather than with the whole of it. It must be enlisted into this larger relationship if our cities are to vindicate the pretensions of our national culture."

Two of a series of fresco paintings by Alice McNair Tenney, young Minnesota artist, depicting the March of Minnesota for the taproom of a Minneapolis hotel are pictured here. Regarding fresco painting, which can be lighted without the disturbing "shine" or highlights of oils, as adaptable to modern decorative requirements, Miss Tenney has developed light-weight, portable fresco panels of soft finish plaster applied directly on the rough surface of Celotex board. The usual rough plaster foundation coats were omitted by Miss Tenney, who found that the completed panels can be moved easily, even flexed slightly, and fixed in place, without cracking or otherwise damaging the frescoes. The completed panels, 7 by 8½ feet, weigh approximately 175 pounds each, as compared to Diego Rivera's portable murals approximately the same size painted on two coats of plaster over steel lath and reinforced wood backing, which weigh up to 1,200 pounds each. Her fresco panels can thus be moved easily...
In modern store front design, metal plays an increasingly important part. That is why architects find Pittco Store Front Metal such a valuable tool in creating effective, sales-producing fronts. The Pittco line, with its wide variety of beautifully designed mouldings, bars and sash, its unique relationship of styling between members, its sharp, clean contours and graceful lines, offers you exceptional latitude in store front design.

At the New York World's Fair, see the full-size Pittco Store Fronts of the "Street of Tomorrow" in the "Forward March of America Building," and the miniature Pittco Fronts in the Glass Center Building; or, at the Golden Gate International Exposition, see these miniatures in the Homes and Gardens Building.
COMPETITION ANNOUNCEMENT

Eero Saarinen, Ralph Rapson, and Frederic James, all of Cranbrook Academy of Art, Bloomfield Hills, Michigan, have been announced as the prize-winning team in the American National Theater and Academy educational competition for the design of a Festival Theater and Fine Arts Building for the campus of the College of William and Mary, Williamsburg, Va.

The prize-winning designs in the competition were to be on exhibition at The Museum of Modern Art, 14 West 49th Street, New York, until March 15.

A. Conger Goodyear, president of the sponsoring organization, in announcing the award of the $1,000 first prize, expressed full approval of the jury’s choice and praised the designs submitted in the competition, which opened November 15, 1938, and closed January 31, 1939. Kenneth Stowell, A.I.A., Editor of House Beautiful was the Professional Adviser.

Both the second and third prizes, totaling $1,000, went to Philip L. Goodwin and Edward D. Stone, Associated Architects, of New York, in the judgment conducted with strict anonymity. Honorable mentions and $100 each went to Richard Neutra, Los Angeles; Hugh Stubbins and Marc Peter, Jr., Boston; Bissell Alderman and William Hartmann, Cambridge; Henry E. Hebbeln, Cranbrook Academy; and to Will Rice Amon, of New York.

The jurors, announced after the judgment, were Lawrence B. Anderson, M.I.T. Assistant Professor; Lesl Cheek, Jr., head of the College of William and Mary Fine Arts Departments; Antonin Raymond, Architect; L. Simonson, Scenic Designer and Theatrical Consultant; and Roland A. Wani, Principal Architect of T.V.A.

Saarinen is associated as an Architect with his father, Eiel Saarinen, and has had experience in the country and Europe in this field of study, and has practised in this country and Europe in the theatrical and stage productions. Rapson was a prize winner in the Ladies’ Home Journal small house competition an is now studying town planning under Eiel Saarinen at Cranbrook Academy.

Columbia Prizes

The Hamlin Prize of the Columbia University School of Architecture has been awarded to Vincent G. Kling, East Orange, N. J., third-year student, for the best design of a memorial porch in an urban housing group, it has been announced by Dean Leopold Arnaud. The Illuminating Engineer Society Prize for the most effective solution of an illuminating problem in architecture goes to Carl E. Stowell, graduate student, 540 West 123rd Street, who last year won four student medals at the School.

The Hamlin Prize was founded in memory of Alfred Dwight Post (Continued on page 68)

(Continued on page 68)

J. Ormsbee Simon made this crisp sketch at Harvard
Approved for Federal Specifications for Hardwood Flooring

NOFMA OAK FLOORING

Qualifying for Federal specifications under Commercial Standards CS-50-36, U. S. Dept. of Commerce, NOFMA Oak Flooring, produced exclusively by the members of the National Oak Flooring Manufacturers' Association, has long been the criterion of value in hardwood flooring. So it is that the NOFMA label shown here, specifies a traditional material of extreme strength, handsome appearance, and wearing qualities that stand up under the rigorous treatment imposed on school floors.

As a plus value to this guarantee of stabilized quality, NOFMA has developed authentic specifications for trouble-proof framing and sub-floor construction, as well as specifications for the laying, finishing and care of NOFMA Oak Floors, and has incorporated them in the comprehensive NOFMA Specification Manual, A. I. A. File 19-E-9.

A copy of this manual is yours for the asking, and remember, NOFMA Oak Flooring, produced by the leaders in the hardwood flooring industry, is available anywhere in the United States through local distributors.

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333 DERMON BLDG. MEMPHIS, TENNESSEE

This NOFMA Specification Manual greatly simplifies preparation of specifications . . . serves as a Master Work Sheet . . . and includes complete NOFMA grades. Your copy will be mailed free on request.
Architects Specify Hillyard’s Super GYM Finish

Architects that specify Hillyard’s Super GYM Finish ... to be applied under supervision of a Hillyard Maintenance Engineer may rest assured that the building owner or institution will receive the best obtainable in materials, methods and workmanship.

For many years Hillyard’s maintenance materials have been specified by America’s leading architects, approved and endorsed by well-known public and private institutions and by flooring manufacturers.

See Sweet’s Catalog, Section 17, Page 40. Call or wire the Hillyard Sales Co. for the Hillyard Maintenance Expert in your locality, his advice, recommendations and cooperation is yours for the asking.

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B. S. A. Award

The annual prize of $100 offered by the Boston Society of Architects to students in the schools of Architecture of Harvard University, the Massachusetts Institute of Technology, and the Boston Architectural Club, has been awarded to John G. Kelley, graduate student at the Institute.

This year’s design subject was “A Dance Pavilion in a Municipal Park.” It was imagined, for the purposes of the problem, that a city of importance had a beautiful, wooded park area where a dance pavilion was required to relieve overcrowding.

Kelley, whose design was one of 55 submitted, is the fourth successive M. I. T. student to win the annual contest. He is the son of Mrs. Alice G. Kelley, of New York City. After receiving his Bachelor’s Degree at Princeton University last spring, he is now studying at Technology for a Master’s Degree in Architecture.

Glass Block Series of Competitions Listed

Architects and designers are offered cash prizes totaling $15,000 in a series of four consecutive Insulex Glass Block Competitions to be conducted by the Owens-Illinois Glass Company, expected to bring about a broader understanding of the correct application of glass block, its limitations, and its capabilities.

The subjects of the competitions will be Small Houses, Three Shops, A Dairy, and A Newspaper Plant. Each of these is to extend over a period of three months and to carry cash awards as follows: first prize, $1,000; second, $750; third, $250; fourth through eighth, $100 each. In addition, on the basis of points scored in the four competitions, the company offers grand prizes of $1,500; $1,250; $1,000; $750; and $500.

Each of the competitions will be judged in a different city, by outstanding Architects of the area about that center. The first will be judged in Chicago by John Wellborn Root, Alfred Shaw, William Peirera, George Wallace Carr, C. Herrick Hammond, George Fred Keck, and Paul Schweiker. The others will be judged in San Francisco, Cleveland, and New York. Henry H. Saylor, A.I.A., of the Architectural Forum editorial staff, will be the Professional Adviser.
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Marti Monument
Awards in the inter-American competition for the design of a $500,000 Monument in Havana, to the Memory of José Marti, National Hero of Cuba, conducted during the past five months by a Government Committee, have been announced following the recent meeting of the jury composed of Government and professional leaders of Havana. The first prize of $10,000 was not awarded and that amount was used to increase the remaining awards.

The highest prize, $5,000, with Silver Medal and Diploma, went to the design submitted by Jean Labatut, Architect and Professor of Architecture at Princeton University, Enrique L. Varela and Raul Otero. G. Waterland and F. Herrera, Sculptor, also collaborated in the design.

The third prize, increased from $2,000 to $4,000, went to the design submitted by Luis Echevarria, Esteban Betancourt, and Manuel Alvarez. A fourth prize of $2,500 was created by the jury and awarded to Nicholas D. Vassilieve and Alexander Sanbugnac.

Seven remaining prizes of $1,500 each, instead of the five $1,000 prizes originally offered, went to the designs submitted by: Eugenio Batista, Aquiles Maza, Raul Macias, and Juan José Sicre; Evelio Goyantes and Felix Cabarocas; Manuel Tapis Ruano, Victor Morales de Cárdenas, and Jesus M. Castrillón; Humberto Bartolomé and Gabriel Martina of Brazil; Walker & Weeks and Fischer & Jiroud of the United States; Mario Pani and Armando Quezada of Mexico; Pedro Serafin Marco and Teodoro Ramos Blanco. All are of Cuba unless otherwise noted.

Honorable mention was received by Ignacio Asunsulos, A. Balzaretti, and Carlos Herrmann, of Mexico; Mauricio Gomez Mayorga and Enrique Motlán, of Mexico; Frederick Cleveland, of the United States; Enrique Aragón and Adolfo Fonsanelli, of Mexico; Mario de Paria Zambrano and D. A. Waranka y Mazzucachall, of Brazil; Alberto Manrique Martin and Gustavo Arcilla Uribe, of Colombia; Carlos Obregon Santacilia and Juan Leonardo Cordeiro, of Mexico; Nicolás P. Lluy and Ángel Marti Cobo, of Cuba; Arnulf Perretton and Edgar Keen, of the United States; Serafin de Lara and Guillermo Tolentino, of Manila, P.I.

It is understood that the Committee is discussing the possibility of executing the design by Labatut and his associates, as the focal point of a new civic center for the Cuban capital.

Stewardson Scholarship
The Managing Committee of the John Stewardson Memorial Scholarship in Architecture has announced its 39th competition for a $1,000 traveling scholarship for the study of architecture in this country or abroad, under supervision of the Committee. Applicants are required to forward to the Committee, not later than March 17, 1939, the information called for in Registration Blanks obtainable from the Secretary, Edmund R. Purves, The Architects Building, 17th and Sansome Sts., Philadelphia, Pa.

The competition is restricted to those who have studied or practiced architecture in Pennsylvania for at least one year immediately prior to the scholarship award, having completed four years of college and/or office experience, and who are not less than 22 years old or more than 30 years old on March 25. From those who qualify, the Managing Committee will choose five to enter a competition, the rules and dates for which will be announced.

Booth Fellowship
The College of Architecture, University of Michigan, announces that the George G. Booth Traveling Fellowship in Architecture will be offered again this year, and the competition in design will be conducted during the two weeks beginning April 7.

This competition is open to all graduates of the school who have not reached their 30th birthday on that date. Prospective candidates should write to the office of the College of Architecture, University of Michigan.

Princeton Prizes
Two competitive prizes of $500 each, in the School of Architecture, Princeton University, have been announced for 1939-40. The purpose of these prizes is to permit men of unusual ability, who desire to complete their professional training, to profit by the opportunities offered by the School of Architecture, the Department of Art and Archaeology, and the Graduate School of Princeton University.

The prizes will be awarded as the result of a competition in design to be held approximately April 17 to 28, 1939. The right is reserved to withhold either or both awards in case no candidates are considered to have reached the required standard.

For application blanks, write to M. L. Beck, chairman, Princeton Prizes, McCormick Hall, Princeton, N. J.
Prize-winning drawings in the inter-American competition for the design of a Marti Monument in Havana, the focal point of a civic center for the capital—by Jean Labatut, Princeton University Professor and Architect, and his Associates—are shown above and on the opposite page. The photograph below shows a model of the monument, whose star-plan recalls the Cuban flag in architectural form.

Barre Granite, 1939

The Contest Committee of the Barre Granite Association has announced that the nationwide Select Barre Design Competition will be repeated this year, with $1,500 in cash prizes to be awarded by vote of those attending the conventions of the Memorial Craftsmen of America, the Association of American Cemetery Superintendents, and an expert jury of the Society of Memorial Craftsmen and Designers. The sponsor will again be the National Alliance of Art and Industry.

Rules of the annual competition have been revised to permit residents of Canada to participate, and the restricting phrase "moderate cost" has been omitted in calling for designs for memorials. The area of the front elevation of the memorials also has been increased from 20 to 30 square feet.

As in the 1938 competition, three sets of prizes will be awarded. In each case, the first prize will be $200; second, $100; and third, $50; with six honorable mentions of $25 each. The competition deadline is September 1, 1939. Full information may be obtained from T. Tracy Lawson, Barre Granite Association, Barre, Vt.

(Continued on page 72)

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Preliminary Awards

The preliminary judging of 250 entries in the Plexiglas Sculpture Competition took place in New York, February 20. The judges were Katherine S. Dreier, Robert Laurent, and James Johnson Sweeney, all of New York. The competition was sponsored by Rohm & Haas, Philadelphia, makers of Plexiglas, and the Museum of Modern Art, New York. Gilbert Rohde, design consultant to Rohm & Haas, acted as technical advisor.

The judges made no attempt to award specific prizes. The entries were in sketch form only and five sketches were chosen to be executed in Plexiglas. The awards of prizes will be made late in April on the basis of executed designs. Artists, whose sketches were chosen for execution are: Alexander Calder, New York; C. K. Cushing, Stony Brook, Long Island; Werner Drewes, New York; Herbert Matter, New York; and Xanti Schawinsky, Edgewater, New Jersey. Harald Barnett of New York City and Lawrence E. Roberts of Pasadena, California got Honorable Mention.

The winner, who will be chosen just prior to the opening of the New York World's Fair, will receive a cash prize of $800. In addition, his sculpture will be shown in the Exhibit of Rohm & Haas in the Hall of Industrial Science, Chemicals, and Plastics at the New York World's Fair.

Rome Alumni Prizes

The Alumni Association of the American Academy in Rome has announced the winners of the prizes and medals in the 13th Annual Collaborative Competition for students of architecture, landscape architecture, painting, and sculpture. Prizes of $400, given in memory of the late Robert W. Gardner, by a group of his friends, were awarded as follows:

- First Prize of $200 to team from Cornell University: O. H. Dahlstrand, Architect; A. W. Atkinson, Landscape Architect; Miss R. E. Rogers, Painter; and Miss E. Abbe, Sculptor.
- Second Prize of $150 to team from Cranbrook Academy of Art, Bloomfield Hills, Mich.: H. Hebbeln, Architect; Miss V. Beatty, Sculptor; D. Scholes, Landscape Architect; R. Rapson, Architect; H. Weese, Landscape Architect; C. West, Painter; and Donald Gregory, Sculptor.
- Medal and $50 to teams from Cranbrook Academy of Art, Bloomfield Hills, Mich.: H. Hebbeln, Architect; Miss V. Beatty, Sculptor; D. Scholes, Landscape Architect; R. Rapson, Architect; H. Weese, Landscape Architect; C. West, Painter; and Donald Gregory, Sculptor.

The International Federation for Housing and Town Planning, of Brussels, has announced an International Congress, July 8-15, in Stockholm, Sweden. The judges made no attempt to award specific prizes. The entries were in sketch form only and five sketches were chosen to be executed in Plexiglas. The awards of prizes will be made late in April on the basis of executed designs. Artists, whose sketches were chosen for execution are: Alexander Calder, New York; C. K. Cushing, Stony Brook, Long Island; Werner Drewes, New York; Herbert Matter, New York; and Xanti Schawinsky, Edgewater, New Jersey. Harald Barnett of New York City and Lawrence E. Roberts of Pasadena, California got Honorable Mention.

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We are calling particular attention to these letters at this time in the hope that we may be able to discover hidden talent in other cities—men who would be willing and able to write as entertainingly and informatively about the architectural goings-on in their respective communities. It might be too much to ask for a contribution from each city every month, but surely there must be someone in Detroit and St. Louis and Cleveland and Atlanta and Milwaukee and Chicago and Seattle and Philadelphia, and other centers of architectural good fellowship, who could write us at regular intervals in a gossipy way for the edification of their fellow professionals.
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NEW PENCIL DRAFTING CLOTH
Under the name Pencil-tex, the Frederick Post Co., Chicago, Ill., recently introduced a new pencil drafting cloth which, it is claimed, may eliminate the use of ink in drafting rooms.

Of similar appearance to fine tracing cloth, Pencil-tex has a new and patented velvety surface with a remarkable affinity for pencils of all degrees of hardness. It is claimed that even the hardest of hard pencils will leave a sharp, uniform, ink-dense line in its wake. This line intensification, together with a glass-like transparency, permits the production of a blue print with the sharp contrast of prints made from fine ink tracings. Prints made through Pencil-tex are said to be completely workmanlike appearance of blue prints made from ordinary pencil drawings.

NEW INCINERATOR USES ONLY WASTE AS FUEL
A new low-cost home incinerator that consumes all wet or dry garbage and burnable rubbish, yet uses only the waste itself as fuel, has just been announced by the Majestic Company, Huntington, Ind.

This new No. 30 Majestic incinerator, a neat, compact, portable unit only 24 in. in diameter and less than three feet in height, has a capacity for three bushels of waste material. Installation is very simple, as the unit connects to any furnace flue and will not interfere with the operation of any type of heating equipment.

It has a specially designed, slotted lining in the fire chamber, which, it is said, materially deodorizes the burning refuse, by forcing all smoke and gases to pass through the flames and rubbish before entering the flue. Odors cannot escape into the basement.

Beneath the fire chamber is a draw grate which can be pulled out to allow ashes and unburnable material to drop into the ashpit. The access door, located on top, is large enough to admit bulky odds and ends, and contains a draft opening which can be regulated as a hot blast, to speed the drying and burning of garbage and refuse. Another feature is its continuous, round base which rests flat on the floor, so that dirt cannot collect beneath the incinerator.

The shell is of steel, finished in heat-proof aluminum and trimmed in black. Top, liner, grates and bottom plate are of heat-proof cast semi-steel. Shipping weight of the unit is 255 lbs.

Another model, the new No. 3 Majestic incinerator, is identical in appearance and most features, but being designed especially for use where only dry refuse is to be burned, it does not have the slotted inner lining.

NEW TYPE MULTI-BREAKER PANEL
The Square D Co., Detroit, Mich., announces the introduction of a line of multi-breaker panelboards which have been designed to meet the need of a moderately priced circuit breaker panel for schools, store buildings, office buildings, public institutions, large houses, industrial plants, etc.

The type NMM is shown with main circuit breaker but is also available with main lugs only. This type can be furnished with any number of single pole or double pole breakers in branches except any one panel is limited to 40 breaker poles.

Several types are available and all are equipped with adjustable mounts, interiors and trims for the interiors so that the may be set plumb and true in the wall surface.

NEW NOTE IN DOOR SIGNALS
Incorporation of architectural themes in door signals to harmonize with interior motifs, is a new feature of a group of modern door chimes for homes, designed by Onnie Mankki of Designers for Industry, Inc., Cleveland, for the Edwards Company, Norwalk, Conn. The dignity and pleasing lines of these signals are in complete harmony with the soft musical notes that announce a caller, as exemplified by the Moderne model illustrated. The case, 8 1/4" x 4 1/2" x 2 1/4" is a standardized housing in varied finishes and decorations for the mechanism of tubular chimes or concealed xylophone bars, the latter being most satisfactory for small homes.

Further indicative of the variations in the four new styles are the Colonial in ivory suede with American eagle and Colonial star in brass relief (burnished brass tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); the Colonial in ivory suede with American eagle and Colonial star in brass relief (burnished brass tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); the Colonial in ivory suede with American eagle and Colonial star in brass relief (burnished brass tubes); the Patrician in oyster-white suede and satin-silver lyre embossed on Wedgwood blue (satin-silver tubes); 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DUO-THERM ANNOUNCES LOW-COST FURNACES

Specifically designed to meet modern small home requirements, a new line of low-cost fuel oil burning utility furnaces has been announced by the Duo-Therm Division of Motor Wheel Corp., Lansing, Mich.

Adaptable to both basement and utility room installations, the new Duo-Therm units are said to successfully fill a long-felt need for a modern automatic oil burning central heating plant, priced well within reach of the average three, four or five-room house.

Available in both manual and thermostatically - controlled models, the furnaces are offered in two sizes — 50,000 and 75,000 BTU output. All models are equipped with Duo-Therm's bias baffle dual chamber burner, which permits of high-low operation, eliminating cold floors and stratification. This feature, plus a super-sensitive room thermostat, is said to produce straight line temperature control with more uniform heat circulation throughout the entire home.

Other features include a built-in waste stopper or economizer, double casings, large capacity humidifiers, attractive square type outer cabinets, latest type controls, automatic draft regulators, simple low-cost installation, rigid braced construction details, etc.

Where forced circulation is desired, two types of units are available. One of these is a low cost package fan which is installed beneath the base of the furnace. The other is a complete filter-blower unit.

NEW CONCRETE FLOOR PAINT

A new paint for concrete floors is announced by the National Chemical & Mfg. Co., Chicago, Ill., manufacturers of casein paste paint for interiors and synthetic resin and casein paint for exterior masonry. In general, it has a binder composition similar to outside Luminall. The new paint will be called Luminall cement floor paint and has a binder of synthetic (alkyd) resin and casein with a high strength metallic oxide pigment. It is said to have the tenacious bonding power that is characteristic of alkyd resin. Other characteristics include extremely easy applications and high coverage per gallon. The film retains its elasticity which gives it longer life. It does not chip, flake, alligator or powder off. It comes in paste form and thins with water.

MILCOR TO OPEN LARGE BRANCH PLANT IN BALTIMORE

The Milcor Steel Company, Milwaukee, Wis., announces the establishment of a large branch plant and warehouse in Baltimore. The entire line of Milcor fireproof building materials and sheet metal building products will be carried at the Baltimore branch, which will be in charge of R. S. Schneider who has been appointed as manager.
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MARCH, 1939
YESTERDAY'S architects planned home heating with such queer contraptions as you see above. They were the latest thing in heating equipment at that time.

Today, the latest thing in heating is the bituminous coal stoker—the modern, convenient method of burning the Universal Fuel—Bituminous Coal.

Both yesterday and today, bituminous coal has been the low cost fuel practically everywhere. Heating, after all, is a local problem. To find the right answer to it, you must know the local costs of fuel, the amount of heat needed, the convenience for which your clients wish to pay. When proper consideration is given all of these phases of the problem, either bituminous coal or coke is most likely to be the right answer. And when you add due consideration for future possibilities of rising prices and shortages of supplies, either bituminous coal or coke is the logical fuel for convenient, comfort-giving, economical heating.

Modern designing provides for the use of the Universal Fuel in minimum space with maximum convenience. To help you more easily plan for use of the low-cost Universal Fuel, we have prepared a series of modern heating equipment layouts in typical modern basements. These are published in our free booklet, "The 1939 Basement Plan Book," together with plans for the economical heating of basementless houses with the Universal Fuel and plans for coal bin construction of various materials and ingenious design.

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PENCIL POINTS
MARCH, 1939
**You can stake your reputation on Milcor Expansion Products**

Milcor Corner Bead is part of the Milcor fireproof system that insures permanent plaster beauty and an enthusiastic client.

Milcor's interlocking web of expanded metal reinforces corners against unsightly cracks, chipping, or cleavage. The job stays new-looking — a credit to your reputation years from now.

Milcor originated and patented Expansion Corner Bead and provides everything you need, in all types of expansion products, to meet any structural condition — makes it so you can depend on it.

Your interior details can't name a Corner Bead, Picture Mould, or Base Screed that Milcor doesn't carry as a stock item. Only Milcor offers the new cove lath. Only Milcor gives you the major savings of Milcor fireproof partition systems — the most important development in years in fireproof construction. Your contractors get prompt service, without delays, from strategically located Milcor plants and warehouses, through local Milcor dealers.


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Milcor here uses the word "system" in its true sense — not to signify a limited, inflexible setup applicable only under certain conditions, but to represent an array of individual products, types, weights, metals, etc., that a complete, coordinated metal backbone can be designed to suit any condition of fireproof construction — all with Milcor products engineered to work together.

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