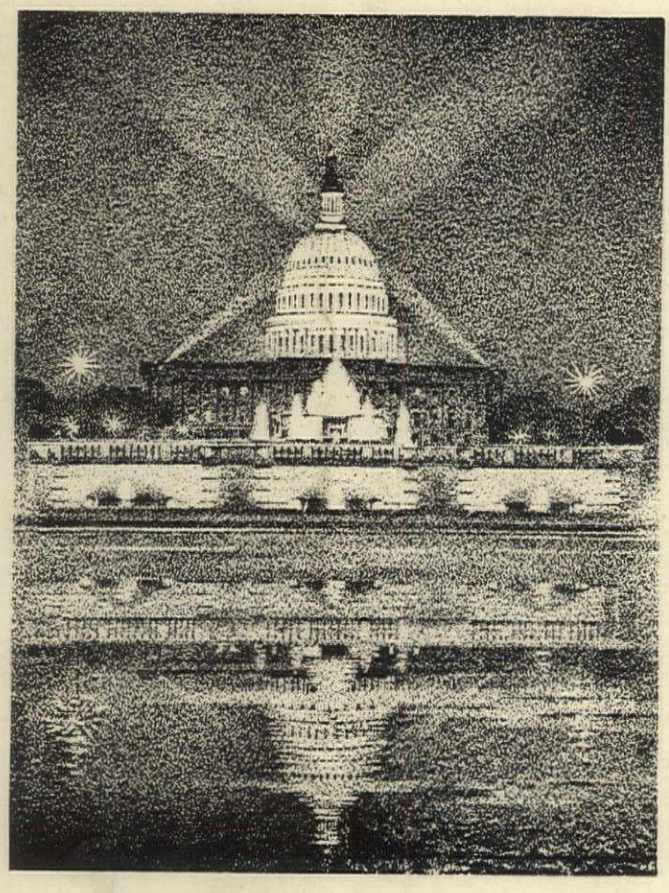
THE FEDERAL ARCHITECT



Published for the Association of Federal Architects

July, 1938
Vol. 9, No. 1

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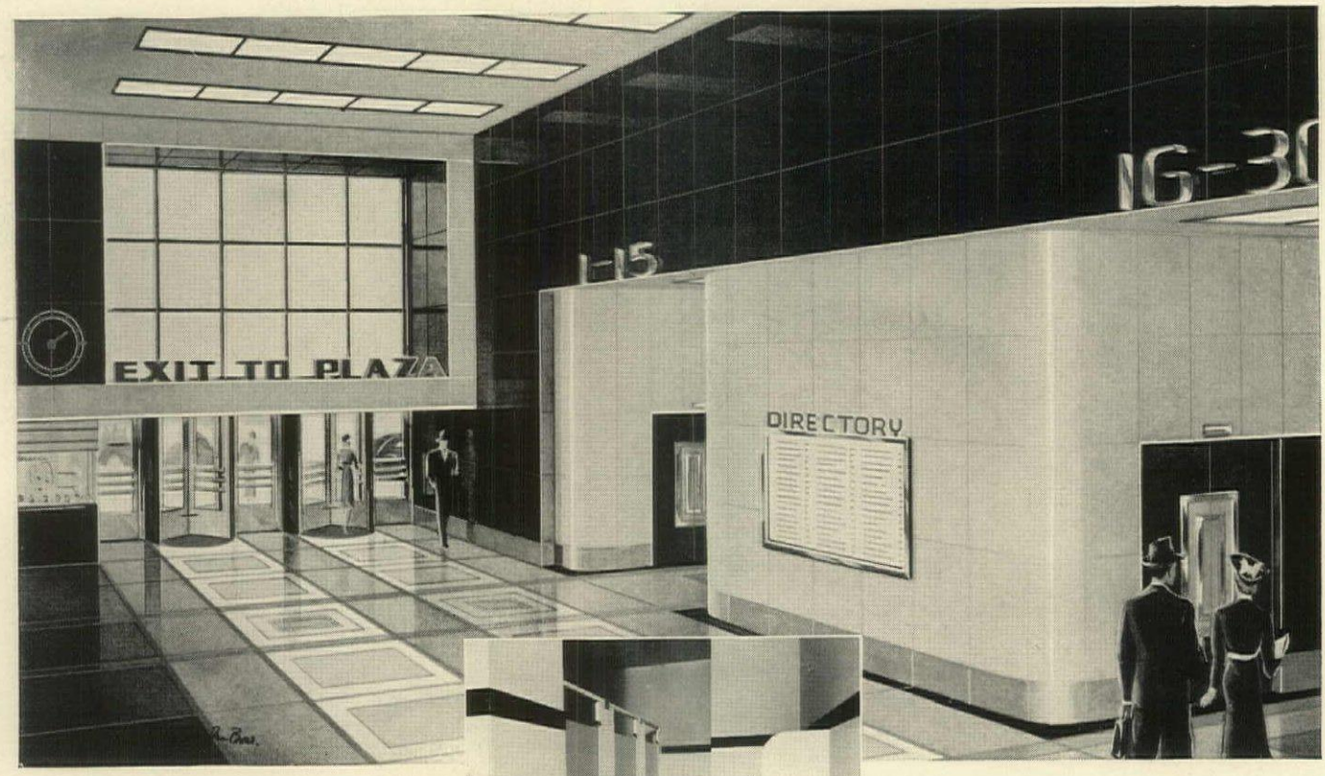

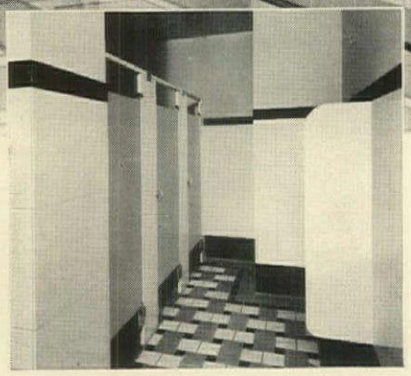

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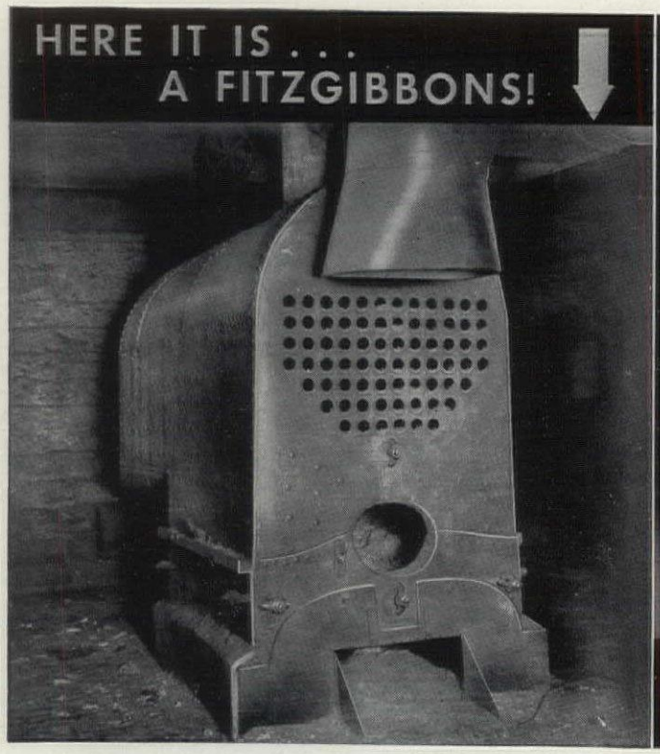

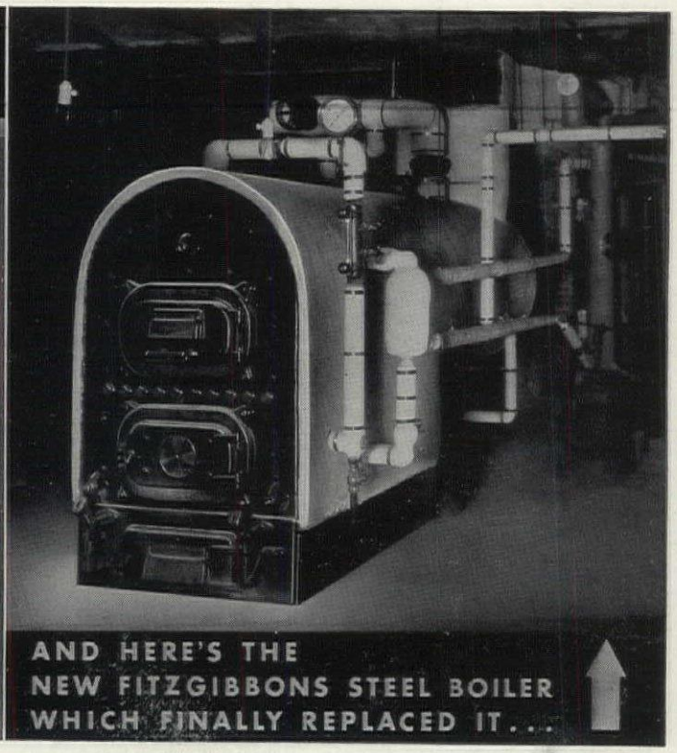

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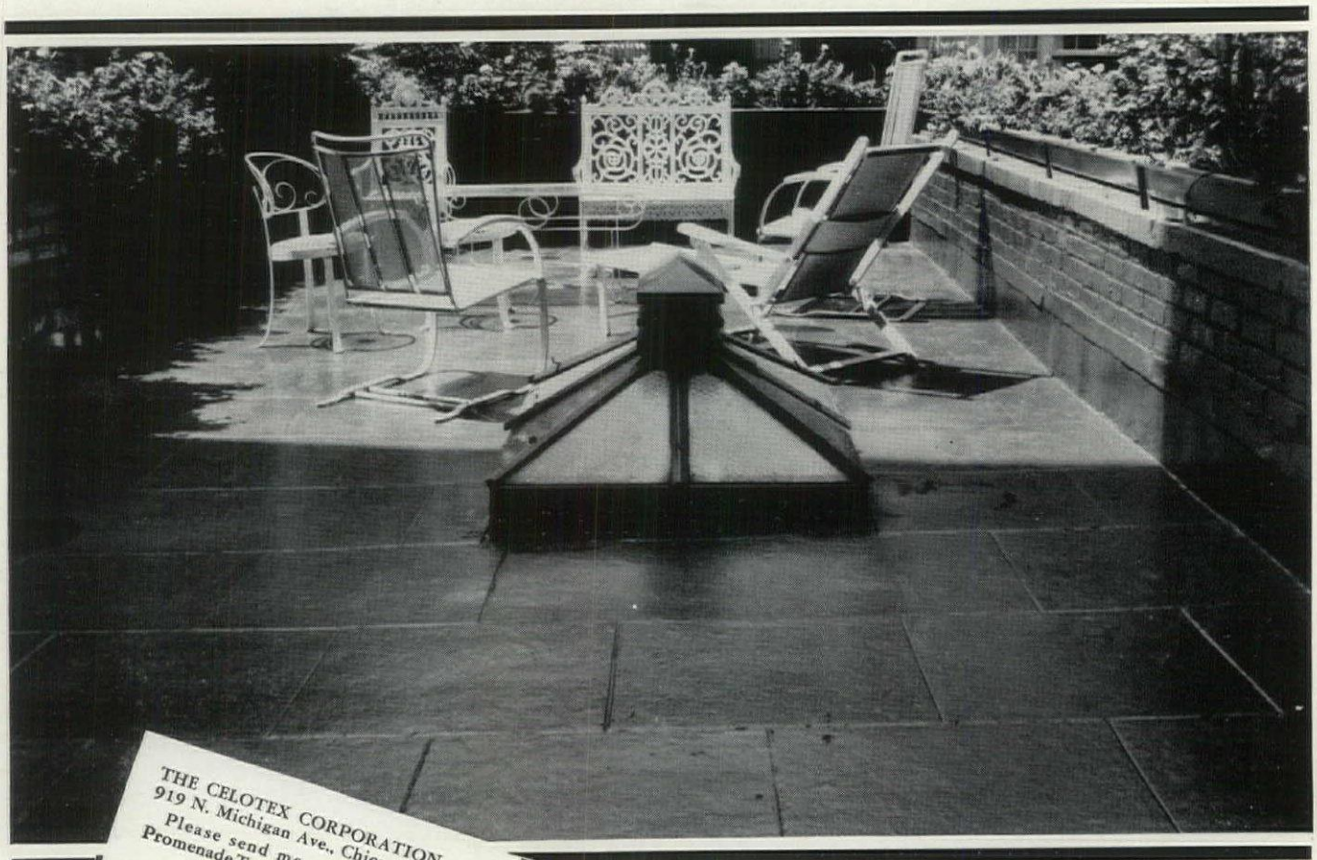

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THE FEDERAL ARCHITECT

Published for the Association of Federal Architects, 1700 Eye St., Washington, D. C.

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Vol. 9
No. 1

JULY, 1938

EDWIN B. MORRIS, *Editor*

Table of Contents

Entered as second class matter at the postoffice in Washington, D. C., July 1936; additional entry Baltimore, Md., under act of March 3, 1879. Published quarterly for the Association of Federal Architects, 1700 Eye Street, N. W., Washington, D. C. Subscription price $1.00 per year.

LETTER FROM JUDGE WETMORE

1433 Mendavia Avenue.
Coral Gables, Fla.
June 30, 1938.

Dear Eddie:

I have your letter of the 25th instant, and I feel greatly relieved. It is comforting to have this evidence that so far as concerns the road from my door to yours, the Post Office Department has not made it a one-way route. I wish the Governor of the North hadn't said what he did to the Governor of the South, for I would like to make use of the same observation on this occasion.

You make me smirk with satisfaction and vanity when you tell me that some of the men in the office and a number in the field have been pleased to hear from me in the roundabout way afforded by my letters to you. I don't believe that you are just stringing me, for only last week I received a letter from one of the most discriminating men in the field force who said: "THE FEDERAL ARCHITECT is developing into a splendid publication. In format it is very good indeed, and the editors have succeeded in keeping it from going 'high hat'." Then he added a dab of honey for me by saying: "I have greatly enjoyed your communications, and surely hope that you will go on and on furnishing Ed with copy." I must confess that at times the urge to do as he suggests creates a pressure on my mental sphincter that is painful. If the FEDERAL ARCHITECT had gone "high hat" my communications would have been as much out of place as cotton stockings on a chorine—just about.

But why do you tap so timidly at my bower door? When I ask: "Who's there?" I hear a "still small voice" no louder than that of my conscience replying plaintively: "It's Ed, Judge, and I want to ask if you can't write me another letter."

Why so meek? Have you forgotten that the passing years are crowding me further and further into the gloom of the outer circle that is occupied only by the fade-outs of have-beens? I think your technique is a trifle faulty. In my opinion, if I am still entitled to have an opinion of my own, the way to do it is to kick open the door, stride over to the Captain's desk, bring your fist down on it with a bang, and say: "Hey, you! The boys want to hear from you. See? Send on another letter—pronto—or else—." You will observe that I don't take any stock in the old adage that you can catch more flies with molasses than with vinegar. That is an exploded theory. It isn't being done either way to any extent. It may have been O.K. in the horse and buggy days but the auto has made fly-catching a difficult pursuit.

Do you recall the "exercises" we were required to write in the copy book in our school days? One was: "Comparisons are odious." I have no purpose to indulge in them—comparisons I mean. I am now speaking only of our old organization. That it was a pretty good machine is evidenced by the fact that it never failed to meet any demand made upon it. Like Rome, it "was not builded in a day." It was a product of a process of evolution based on experience, some of which was painful. When we found holes in our skimmer we mended them. When we needed additional legislative authority we went after it. We changed our procedure to keep step with changing methods and conditions on the outside. Occasionally in our efforts to institute reforms we labored with as much optimism and with as little success as my father did on one occasion. I don't think I ever told you about it. My father was a lawyer and we were living in a sizeable Iowa community. An almost daily caller at his office was a harmless village pest who was afflicted with what the French call "a spider on the ceiling" but which we diagnose as "bats in the belfry." His obsession was to peddle around something he had read, and get a cross section of public opinion on it. It was his invariable custom to walk in and say: "I've got something here I want to read to you." It was useless to suggest to him that you were occupied—he could wait—and I mean wait. Having read what he had brought he would say: "There, what do you think of that?" It mattered not in the least to him what response was made so long as it expressed some view. One day as I was standing at the office window I saw this pest coming directly across the street headed for my father's office. He had a large book under his arm, an ominous indication that the call might not be brief. I said to my father: "Here comes Adams." With a satisfied expression on his face and a note of determination in his voice, my father exclaimed: "I'm going to turn the tables on him. I'm going to beat him at his own game this time. Watch me." I watched. Presently Adams entered and said: "Good morning. I've got something here I want to read to you." "That's all right," said my father, "but

(*Continued on page* 40)

WHEN WASHINGTON SWELTERS

Capitol of the United States. Carrier Corporation, Syracuse, N. Y., *Contractor;* Charles S. Leopold, *Consulting Engineer.* "Freon" air conditioning by Carrier Corporation.

12,000 TONS OF "FREON"*

AIR CONDITIONING *keep government buildings cool!*

Library of Congress Addition (right)—Jacobsen Bros., Chicago, *Contractor.* Peerson & Wilson, *Architects and Consulting Engineers.* "Freon" refrigeration for air conditioning by York Ice Machinery Corporation

Department of Justice Building (left) — G. A. Fuller Co., *Contractor;* I. H. Francis, *Consulting Engineer.* "Freon" refrigeration for air conditioning equipment by York Ice Machinery Corporation.

Dep't of Agriculture (Administration Bldg.) (left)—Riggs Distler, *Contractor.* Designed by Nat'l Park Service. Charles Leopold, *Consulting Engineer.* "Freon" air conditioning by Frick Co.

Post Office Building (right)—McCloskey & Co., *Contractor;* Mehring & Hansen. *Sub-Contractors;* Syska & Hennessey, *Consulting Engineers.* "Freon" refrigeration for air conditioning by York Ice Machinery Corporation.

Department of Interior Building (Old) (below)—National Park Service, *Consulting Engineer.* Contractor and manufacturer of "Freon" air conditioning equipment—York Ice Machinery Corporation.

Archives Building (below)—G. A. Fuller Co., *Contractor;* Clyde R. Place, *Consulting Engineer.* "Freon" air conditioning equipment by York Ice Machinery Corporation.

Senate Office Building (above)—G. A. Fuller Co., *Contractor;* George A. Weschler, *Consulting Engineer.* "Freon" refrigeration by York. Additional air conditioning by Raisler Heating Co.

New House Office Building (left)—Pennsylvania Engineering Co. of Philadelphia, *Contractor;* George Weschler, *Consulting Engineer.* "Freon" air conditioning by Pennsylvania Engineering Co.

Old House Office Building (right)—Pennsylvania Engineering Co. of Philadelphia, *Contractor.* Charles S. Leopold, *Consulting Engineer.* "Freon" air conditioning by Pennsylvania Engineering Co.

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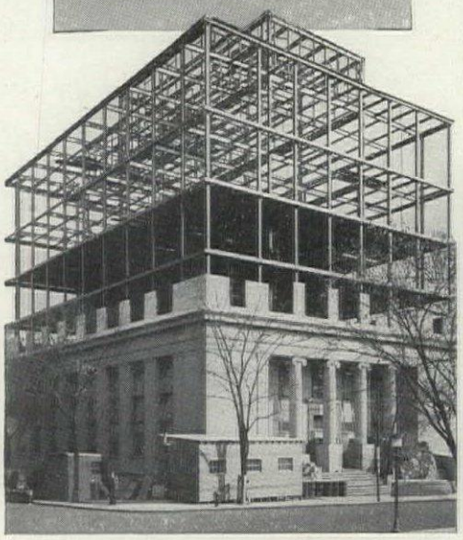
- **ROBERTSON CELLULAR STEEL FLOOR**

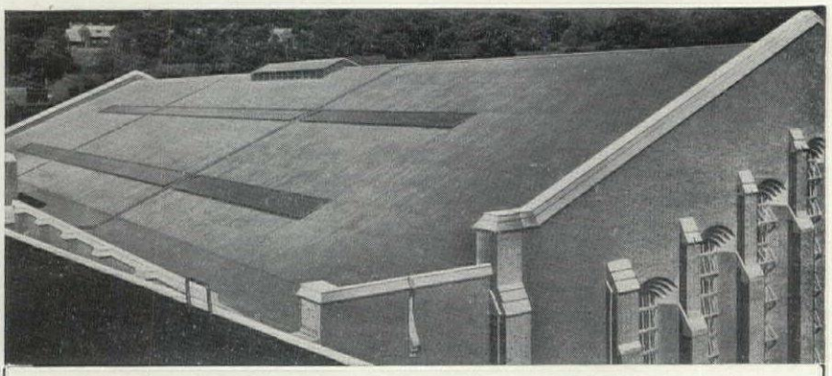
WHEN you're working to a fast-closing deadline on government jobs, top speed calls for structural products that have a proved record of performance in government service. Products of the H. H. Robertson Company have been meeting the government's most exacting demands—in actual service—for more than twenty-five years.

Whatever type of building you are designing, you owe it to yourself to at least get the facts about Robertson Asbestos Protected Metal Roofing and Siding, Robertson Ventilators, Robertson Weatherproof Skylights and Sash and the Robertson Cellular Steel Floor. Specify one or all wherever they are applicable . . . safe in the knowledge that they are now in use in buildings of all government departments throughout the country and thoroughly tried and tested throughout industry.



FROM ONE STORY AND MEZZANINE TO SIX FLOORS AND PENTHOUSE IN TEN MONTHS

Robertson Cellular Steel Floors made a structural miracle possible in this government building. Buildings go up faster . . . and installation costs come down . . . when this floor is used. Self-contained raceways for electrical wiring make possible outlets every six inches, if desired, over the entire floor area.



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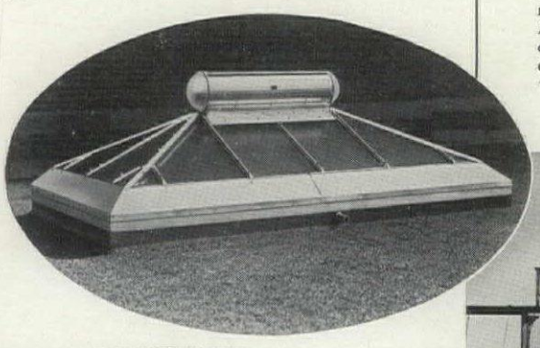
When used on hangars, armories, warehouses and barracks, Robertson Asbestos Protected Metal roofing and siding fights practically every kind of corrosion to a standstill—and in so doing, cuts maintenance costs to the bone. Protective coatings of impregnated asbestos felt and asphalt have helped A.P.M. set new low maintenance records in all types of government buildings. Recently developed forms—including A.P.M. with copper and aluminum surfaces—have found favor with government departments. *The armory shown above,* is roofed with A.P.M. having an outside surface of copper and an inside surface of aluminum. *The Coast Guard hangar below* is covered with A.P.M., aluminum-paint-finished, both for attractiveness and visibility.



A NEW VENTILATOR FOR UNCLE SAM'S BUILDINGS

This new Robertson Streamlined Ventilator is weatherproof, with high air-moving capacity. It is attractive on government buildings. It is 100% screened against insects. A simple built-in damper control facilitates operation. The sharp, smooth lines of Robertson Round and Rectangular Ventilators are seen on government buildings everywhere. *Robertson Skylights and Sash are weatherproof, puttyless type, with structural steel supports, single and double glazed.*

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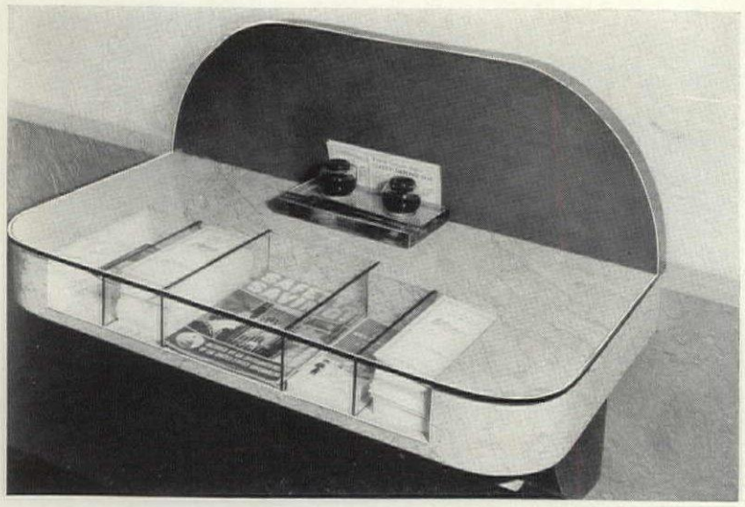
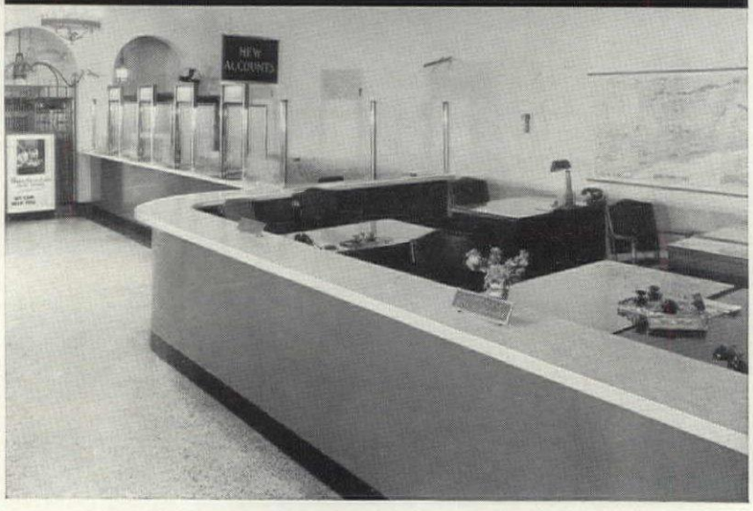


Modern Bank and Office Counters with FORMICA!



Formica counter tops, counter paneling and desks are modern equipment for modern banks. This durable but warm organic material is preferred to marble, glass and metal grilles by many designers of modern banks. The pictures show the new Home Federal Savings and Loan offices in Chicago designed by Wesley & Jones, Chicago.

Formica in the cigarette-proof grade will stand up and maintain its original appearance for many years for purposes such as this. There is the widest range of colors and shades so that any effect is possible. The new Realwood Formica, in which actual wood veneers are incorporated in the Formica sheet and given all the qualities of regular Formica, are also well adapted to this use.

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FORMICA

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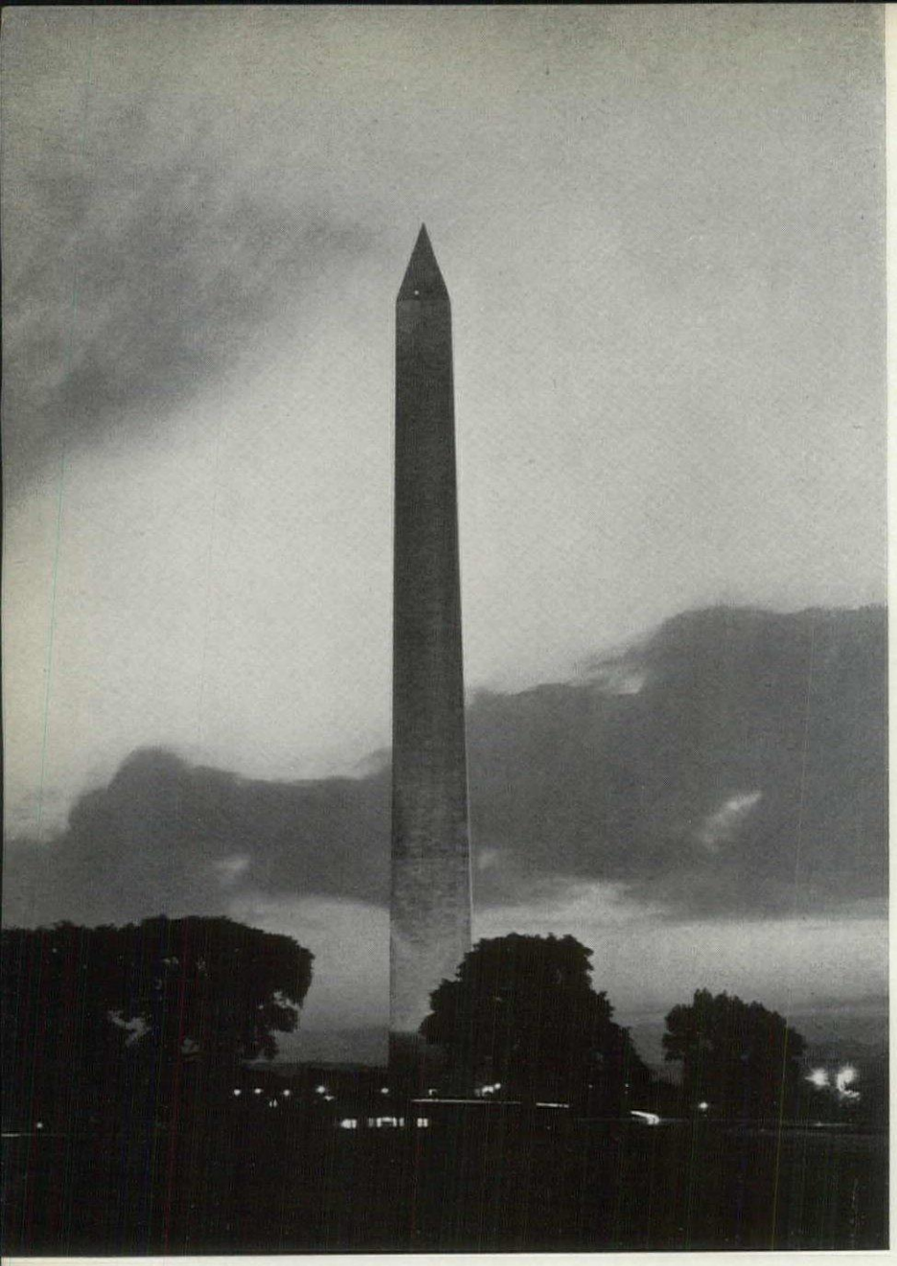

YOU can get a kick out of a lot of things—a guaranteed kick because you pay for it. You can float up to the roof of one of the hotels and dance to a smart band. You can dine at many a choice spot, overlooking the river, in the open between high buildings, in stately old houses. There are music, movies, plays. For the young there is a free moon or free stars as the case may be, light conversation, gestures in the dark, romance without cover-charge. In other words, life goes on and one gets a thrill here and a thrill there.

One of the pleasant things, however, which makes one at home with his soul, is to walk in the mall in the twilight of a young night.

It is pleasant for one thing because so few are there and there is delivered over into one's hands a large portion of the world—a quiet and friendly world not anxious to argue with you but agreeing with your thoughts about ways and means and world economics.

One sees the flood lights against the monument, building up candle power as the twilight withdraws and the clouds and faint light in the west become fainter. The monument grows higher and near its top glows the red aviators' light like a gigantic garnet.

One turns and runs his eye along the uneventful stillness of the dark turf and dark trees that lead up to the theatric brightness of the Capitol dome—a silver thing, big and powerful; and then back again to the monument which is emphasizing its divided allegiance to earth and sky.

Joannini's photograph herewith records this nocturnal charm. It would be nice to show old Daddy L'Enfant this picture or take him for a walk on his wide alley of green. He'd like it.

THE FEDERAL ARCHITECT

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1700 Eye St., Washington, D. C.

■ IN April issue we announced that the July issue would be a post office number. Our clientele have been, obviously, holding their breath in expectation and we are chagrined that this issue dashes their hopes into the dust. But, right after we made the announcement of a post office number for July, the Government (without, sooth to say, consulting us or inquiring whether it was convenient to us) announced a pair of competitions for post offices.

Well, we weren't going to be caught flat-footed off first base like that. Quick as a flash we withdrew the post office number from the schedule. If the Government and the architectural profession wanted to take our idea that we thought up in our smart little way and go to the bat with it, that's all right with us. Let them have the publicity.

We take this occasion however to point out (modestly, of course) how advanced in its thinking this publication is. We arrived at the conclusion that the summer of 1938 was the proper time to front-page post offices and so announced it. Instantly the prairies were afire with enthusiasm for the subject.

The Government immediately, sensing the wide public ripple we had made, stepped in and announced its competitions. We feel flattered, very much flattered indeed, at this mark of attention, and have been wearing a fuschia in our button hole ever since as a mark of self-esteem.

But, be all that as it may, it did not appear polite to come to the surface with a whole lot of data on the plan and arrangement of post offices at the same time the powers-that-be were taking in competition drawings on post offices.

Everybody that made a bad showing in the competitions would blame us.

■ AND speaking of competitions, we find them, and so, we believe, does the rest of the architectural world, very exciting. Economically they set the whole profession scandalously in the red.

An architectural competition is very much like the International Yacht Races, where the entrance fee is intrinsic and plenty of it and the award is mostly sentimental.

But in competitions lies the profession's only opportunity for advertisement—advertisement for architectural business as a whole and advertisement for individuals.

The current competitions, therefore, for designs of type small post offices and for the larger Federal Building at Covington, Kentucky will serve to place a larger capital letter before the word Architecture and will without doubt bring into the limelight several hitherto obscure architects whose prospects for future fame will be thereby greatly advanced.

■ THERE is a new sort of philosophy in art centres, we think. We think works of art are done nowadays not to be works of art so much as to make the public (and, hopefully, the press) discuss the question as to whether they are Works of Art. It is the Cold-Shower Technique.

The strategy of the Cold-Shower Technique is to shock, surprise and confound the obser-

ver. The beginning-of-the-century art technique was a warm-tub idea which sought to comfort and soothe those who gazed upon it. This produced pleasant dreams but no publicity, and never made the first page.

But of late the artist discovers that he can appear on page one if he manages to irritate the dear public. So he very skillfully puts the cockeyed stuff into his picture or mural or sculpturosity, with just enough seriousness to keep the said dear public from catching on.

So the public rushes out into the open, red in the face, and screams "That woman ought not to have been in the nude" or "The man's hands ought not to be twice as big as his head" or "You can't put a cow in a privy," and the reporters take it up, and the Japanese war moves over into page two.

The devil murmurs beneath the leaves "It's pretty but is it Art?" Yes, it's art. Not painting, perhaps, or sculpture, but stuff.

We enjoy it. We could do a mural if we just had a high-grade artist to tell us exactly when we could go into bad drawing and reverse perspective without tipping our hand. Left to ourselves we'd make it bad, but the public would catch on. In a high-grade publicity-arresting mural, the subtle effect must be that the artist thought it was good and the public knows it is rotten.

That reassures the public that they know enough about art to get good and mad about it. Which is news.

Clever little people, these mural painters.

■ ONE of our most valued architects in the Government service—we hasten to add he is a deacon in the church and a highly standard citizen—returned to his home very late a while ago.

He had been on an official trip of some two weeks' duration and let himself into the house with discreet silence so as not to wake the slumbering family, tip-toeing softly up the stair and placing his hand at length upon the door knob of his room.

It was a split-second sort of thing. His wife, during his absence, had been persuaded to take in half a dozen or so sisters and cousins and dates for the farewell dance of a near-by boys' school, so that for the moment his room was no longer his room, if you see what we mean.

And there he stood with his hand on the knob—finish U. S. 10, Corbin or equal—and was about to give it the fatal turn, so thin is the veil that, for deacons, separates them from danger.

But his wife was alert, at the dramatic moment fluttering into the hall, sh-sh-ing and distractedly translating the idea don't-turn-it into desperate pantomime.

The knob therefore remained unturned, the deacon slept on or under the piano, the cousin or sweetheart continued to dream undisturbed, nor knew the surprise that had been averted.

Life is full of its little excitements, escapes from eternal damnation and so on. Perhaps it's all for the best.

■ WE were considerably taken aback, not to say irritated, the other day when someone offered us a blotter to blot our signature. We began to think about it later and we wondered if other architects felt the same way about blotting. Our first instruction in an architect's office was, naturally, never to use a blotter on an ink drawing if we wanted the lines to be strong and black. It got to be so ingrained in us that we don't like to see a blotter put on any ink, whether writing or drawing (except of course when a gob or pool lands in a wrong place). Do other architects feel like that? Or is this a phobia peculiar to us alone?

■ THE other day we heard William Dewey Foster shouting "I want some photographs and examples of *auditoriums.*" Perfectly good English that, but we were carried back to the days of dear old Frank Miles Day. Mr. Day would have said *auditoria.* Not so good, but awfully meticulous. We remember the great exponent of precision lecturing to an eager senior class on gymnasiums, he having just completed the University of Pennsylvania gym. But not

once did the word "gymnasiums" cross his lips. Rather, he said on each occasion when the word was required—"*Gymnasia.*" That was something.

■ AWHILE ago we had a letter from Frank Sullivan at eight-o-eight seventeenth street, Washington. It occurred to us that there must be something about a symmetrical number like that which makes a structure particularly adaptable for architectural purposes. Witness one-o-one Park Avenue, New York, the abode of architects.

Eight-o-eight Seventeenth has an ancient and honorable claim to architectural distinction. A long narrow structure with an accidental vacant lot beside it to the north, it was an ideal place for architectural offices, unpretentious, without elevator, underheated, having that indescribable fragrance that lurks in buildings erected in the nineties. There was just that little touch of shabbiness that gives rise to good architecture.

And many an important bit of architecture was conceived therein. Wood, Donn and Deming for years occupied the second-floor and at their tables all the valued architectural draftsmen in the capital worked at one time or another.

Above the W, D and D offices ran those of George Oakley Totten, who for years would not have electricity put in because he thought oil lamps gave such a soft light.

Later Donn and Deming held forth on the second floor, and that grand draftsman Tox Everman. Waddy Wood had meantime gone office-building and rode up and down in elevators on Jackson Place.

The old building has been modernized now a little. There is a bit of ritziness in the Studio Building, which is the title by which it is now known. The Tally-ho restaurant, adjoining, uses the vacant lot for very pleasant outdoor service, and one looks down from the old windows upon a scene of gaudy awnings, nice clothes and festive foods.

Washington changes a good deal, but it is rather pleasant to find good old eight-o-eight still there, a little more dignified, a little more frilled up perhaps, but still the same old spot.

■ WE were entertained a while ago by an incident retailed to us concerning the Veterans Administration. The Veterans Administration, as is generally known, likes to keep close tab on its personnel and to be certain that they tag and leave base with exceeding precision at the appointed hours for arrival and departure.

A girl employee of the Administration had a friend with a new baby at the Columbia Hospital. She was very anxious to see them and made the decision to try to do it within the prescribed thirty minutes lunch hour.

Therefore the moment she was released she dashed to the street, hailed a taxi and shouted breathlessly "Maternity ward, Columbia Hospital." The driver, with drawn face, nodded, slammed the door and went round the corner on two wheels. He dashed outrageously through traffic until a policeman motioned him to the curb.

"What's the hurry, buddy."

The driver whispered. The officer nodded, mounted the running board and they plunged fearsomely forward like War Admiral in the stretch. A motor cop pursued, blew them down.

"What the—" he began.

The foot officer whispered. The motor cop nodded and lost no time. "Follow me!" he exclaimed. Opening up his siren, a clear way like the waters of the proverbial Red Sea cleared itself before them and they shot, a shrieking cavalcade, through the respectfully motionless populace until they came to a skidding stop at the hospital's receiving entrance.

The overwrought young lady promptly fainted.

When she came to it was to an embarrassing situation. The hospital personnel were gathered around her in the delivery room and on their faces were mingled expressions of surprise, incredulity and professional frustration.

■ SOMETIMES we get to thinking about things that happened quite a while ago—that is as far back as we can remember. We concentrated the other day upon the remark that Mechanical Engineer Mayo made several years ago.

It seems that several mechanical engineers had been discussing copper tubing and particularly the maximum lengths in which it was manufactured. As no definite information developed, the matter was taken to Mayo. "Mr. Mayo," they asked, "how long can you get copper tubing." Mayo retained his judicial demeanor. "Oh," he replied "for the balance of the year at least."

C. A. WARTHER, construction engineer at the Pocomoke City, Maryland post office sent us a copy of a recent issue of the *Worcester Democrat and the Ledger-Enterprise* local newspaper in which comment on the new post office is made, a portion of which is quoted:

Well, Sir, I see by the papers that some thirteen or a dozen post office buildings are to be erected in and around sundry and several locations. I think I'm safe in saying that Pocomoke has one to sell at a bargain price, small payments and long time notes. There will be no extra charge for the pip-jimmie (spelling not guaranteed) on the roof nor for the large supply of water still on hand in the cellar. They can have the flag pole and I'll advise 'em to hitch the ropes to the building, haul it up a little further out of the ground, and block it up with mine props before throwing it open for the rush of mail. If Pocomoke should be so unfortunate as not to get another one, in case of a sale, why, Mr. Ellwood can move around to the top floor of the Municipal building. There would be, at least, an attractive exterior.

I see that our sister town, Snow Hill, wants one and seems in a fair way to get it. You know, in some localities where tragedies have been caused by collisions of automobiles and railway trains, the people have erected raised platforms and placed the smashed-up cars on top of 'em, as a warning for other motorists who might come that way.

Now, before the good people of our county seat allow the first stone to be laid in their proposed structure, I'd advise 'em to drive solemnly by the Pocomoke pile and—take warning. If they want something that resembles a goods box, turned upside down, and a joint of stove pipe looking toward the skies, why all O. K., get our blue prints. But, otherwise, get something else."

There is more, all in the same light entertaining vein. The writer is a journalist who knows how to express himself in a point-scoring way.

And what an opportunity! In a matter of taste, the fellow attacking holds all the aces. For instance a person who likes Roquefort cheese has a hard time explaining why; but the one who doesn't has a swell lot of telling comparisons at his disposal.

Most architects would agree that the Pocomoke City post office is a simple, straight-forward dignified building in very excellent taste. We think that after the alert gentleman who wrote the words quoted above has lived with this building for a year, he will give thanks for its restraint and lack of frills. In 1939, when it won't be any fun anyway to crack wise about it, probably he'll lean back in his chair and say he likes it.

I never knew anyone to take as much interest in the public buildings of the neighborhood as my husband. He has watched every step of the Poughkeepsie post office building and now that they are starting a post office building in Rhinebeck, he is off this morning to discuss that. I find only one fault with the Poughkeepsie post office and that is that as you drive up Market St. from the south, the road is not absolutely straight and, therefore, the cupola looks a little bit out of line. However, I don't suppose anyone else will ever be bothered by such a detail, tho I'd like the road changed!

Mrs. Roosevelt's "My Day."

WATER COLOR OF FEDERAL RESERVE BANK BY H. S. CHANDELER

Awarded First Prize for Water Colors at the annual Architectural Exhibit of the Association of Federal Architects.

Photograph by Lewis

"It may be a palace, it may be a cot,
It matters not which, it matters not what."

■ *MR. Hubert Ripley wrote Francis Sullivan saying:*
"Daland Chandler sends me the following lyric which he found in the April 13, 1850 number of the New England Farmer, published at Quincy Hall, Boston, while on an anniversary excursion to Francestown, New Hampshire. He said it was printed just after an article entitled 'Mildew on Gooseberries.'

"If you think well enough of it and if you have any influence with the editor of the FEDERAL ARCHITECT, *they might like to print it in connection with their housing scenes."*

Francis Sullivan sent it to us with the quaint endorsement "I do not flatter myself that I have any influence with the editor that would be nearly as effective as the name Hubert G. Ripley."

The poem has such a naive spirit, in tune with the Greek Revival age, that we cannot but think all architects will be diverted by it and print it on the adjoining page. It also is a good vehicle for Lewis's studied photograph, the result of months of patient waiting for nature to be good. Its composition of lights and darks will be of interest and maybe profit to our better renderers.

HOUSE and HOME

I

What's a "House"? You may buy it or build it, or rent;
It may be a cottage, a mansion, a tent;
Its furniture costly, or humble or mean;
High walls may surround it, or meadows of green.

II

Tall servants in livery stand in the hall,
Or but one little maiden may wait on you all;
The tables may groan with rich viands and rare,
Or potatoes and bread be its costliest fare.

III

The inmates may glitter in purple and gold,
Or the raiment be homely, and tattered, and old;
'Tis a house, and no more, which vile money may buy;
It may ring with a laugh, or but echo a sigh.

IV

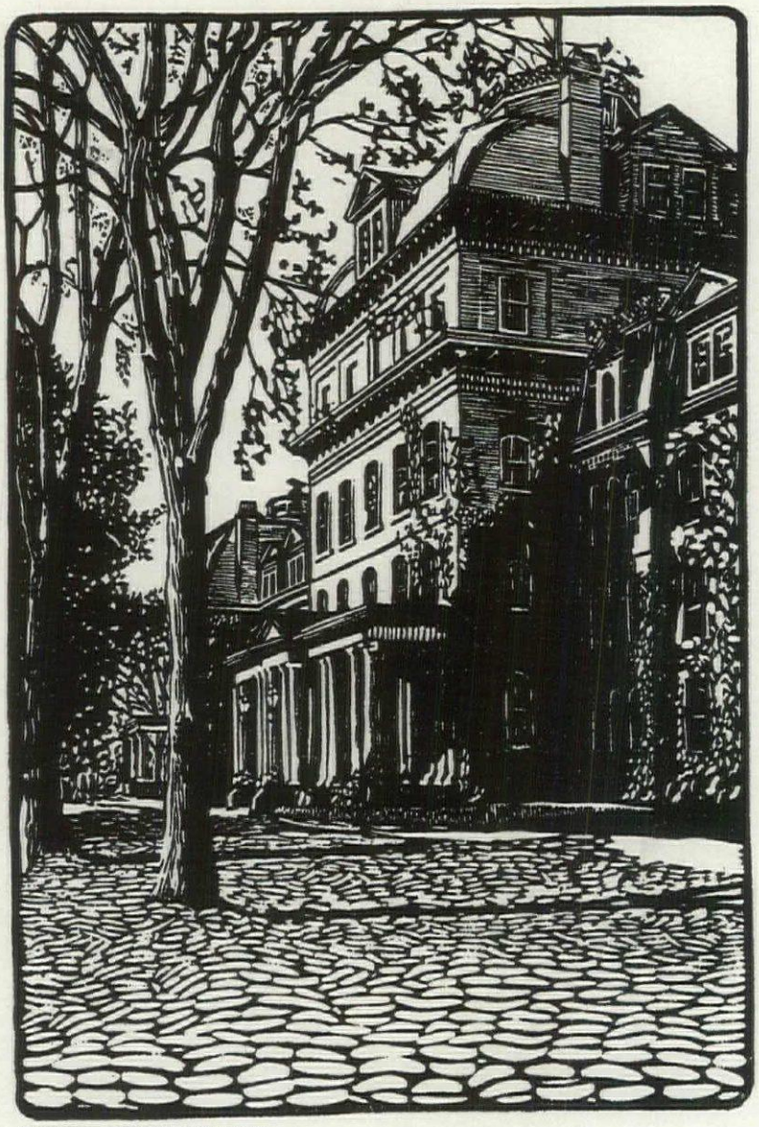
But a "Home" must be warmed with the embers of love
Which none from its hearthstone may ever remove
And be lighted at eve with a heart-kindled smile
Which a breast, though in sorrow of woe, may beguile.

V

A home must be "Home" for no word can express it,
Unless you have known it, you never can guess it,
'Tis vain to describe what it means to a heart
Which can live out its life on the bubbles of art.

VI

It may be a palace, it may be a cot;
It matters not which, and it matters not what;
'Tis a dwelling perfumed with the incense of love
From which, to its owner, 'tis death to remove!



Linoleum cut by Norris Jones

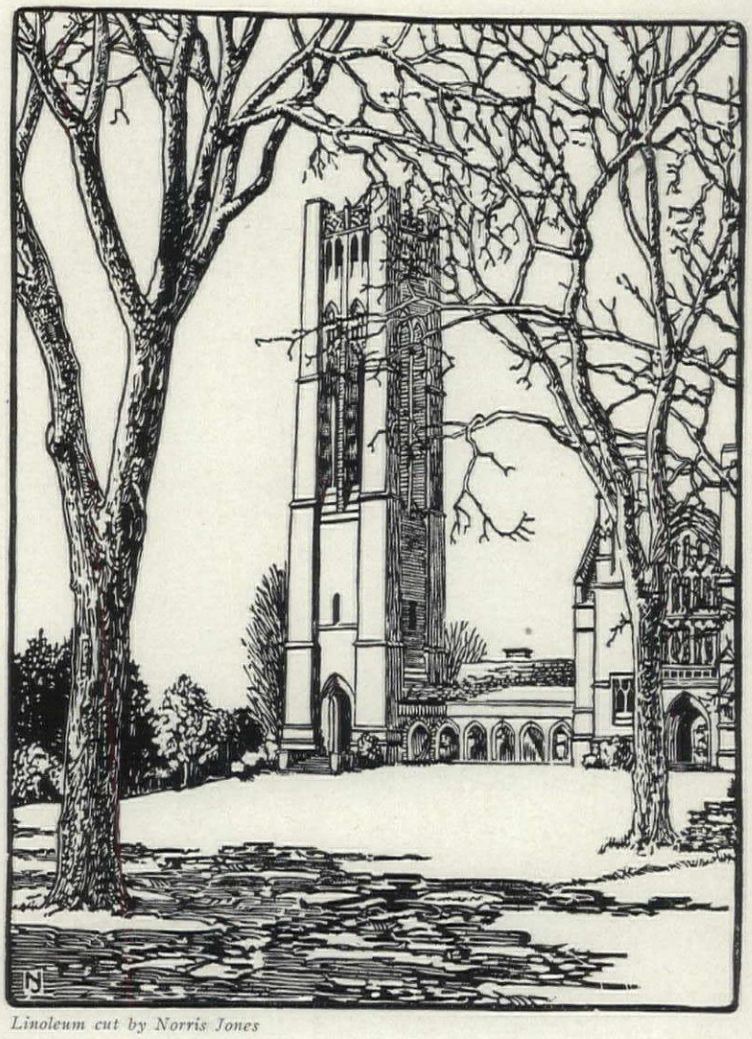
Swarthmore College, an Architectural Development

"Parrish"
the original building

THIS cut shows the beginnings of a college, erected in the post Civil War period, a building replete with Mansard roofs and gay thoughts in the way of decorative effect, resulting in the glum sobriety which is characteristic of the Pre-Centennial Renaissance.

Swarthmore College was founded by Hicksite Friends some sixty-five years ago. The tenets of a faith devoted to plain speech and plain living did not, however, apply to culture and education, which it was held must be as elaborate and highly developed as possible.

The ground surrounding this first building was added to and grew to be a large and well-shaded campus. The college, originally modestly



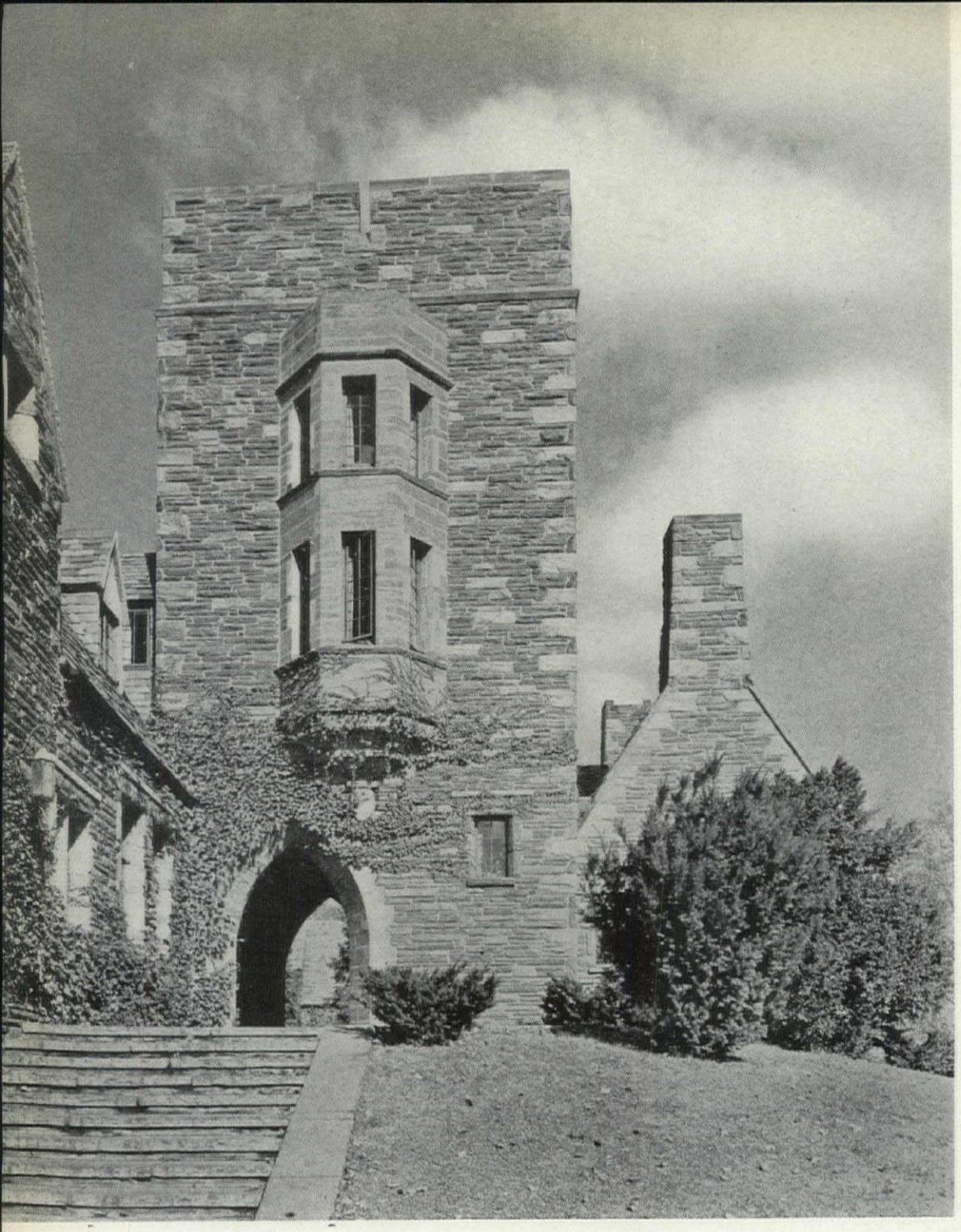
"Clothier"
the Assembly Hall

Linoleum cut by Norris Jones

financed by the sale of stock to members of the Society of Friends became one of the most generously endowed of the institutions of higher education. Its present system of reading for honors is held to be one of the best manifestations of college method and result.

As the college grew in size, the canny Friends realized that a proper architectural expression was the needed outward and visible sign for its inward and spiritual grace.

The newer buildings are carefully conceived and studied. Karcher and Smith, architects for the work, have used every device to obtain picturesqueness, charm, color and flowing line. Ivy will probably never adequately cover the mediocrity of the beloved first building; but the later



The Tower of "Bond"

Note the beautiful rubble stone-work which in pattern and color range is a surpassing accomplishment

structures, struggling against the handicap of such a beginning, have by their picturesqueness, raised the group to a level of great architectural distinction.

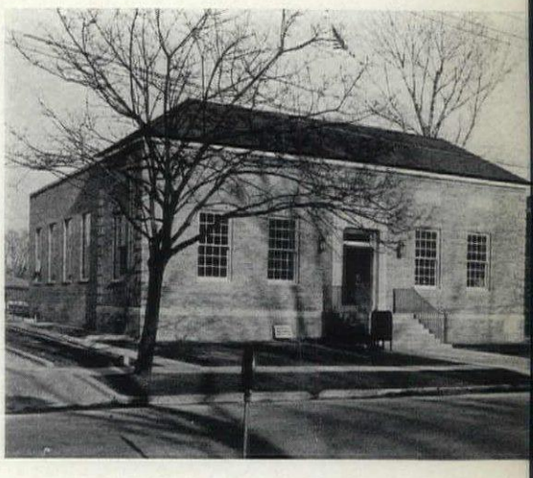
There is considerable in the way of a moral here. A high standard of architectural excellence having been obtained in the later buildings, it is still impossible to go back and spray architecture into and upon the first one.

In these enlightened architectural times, therefore, colleges and other building groups, in which expansion is an inherent factor should be designed with an eye to the ultimate. Few groups can be erected in the complete perfection of Duke University, but such a development can be planned, so that no matter how humble the beginning, it will be a proper part of the final scheme.

Above: "Worth" the Women's Dormitories. Below: U. S. P. O. at Swarthmore. Office of the Supervising Architect Architects.

But it is not always easy for colleges and other organizations, eager for a beginning at any cost, to plan into the future which seems so distant. To them architecture is apt to be a thing to be looked back upon with regret rather than forward to with hope.

Even a certain very old university of high standing, planning a subsidiary group near Philadelphia, does not architecturally develop an ultimate scheme but leans heavily on prayer and a hopeful scholastic attitude.



MR. RICHARD NEUTRA PHILOSOPHIZES

Remarks before the Association of Federal Architects

MR. Richard Neutra of California addressed the Association of Federal Architects on the evening of June 8 at the Mayflower Hotel. He had come East to be one of a jury of seven architects who judged the huge competition for type designs for small post offices, in which more than a thousand drawings were submitted.

Upon being introduced, Mr. Neutra launched, in his inimitable manner, into an absorbing discourse which was a blend of architectural history, architectural prophecy, and present-day philosophy, seasoned with keenest humor.

The speaker, with swift certain strokes, traced the history of the architectural profession, building up from a very exact knowledge of the past an absorbing and illuminating picture of the trends of the present day.

He brought forth the fact, to which few architects have given much consideration, that architecture as an independent profession, did not exist prior to the Renaissance.

Until that time, it was a governmental function. In fact in early Greek days architects and architectural draftsmen were actually slaves, working under the rule of the emperor or governor who had control of the construction funds.

There was then no differentiation between architect and contractor. What the architect designed he held responsibility for until it was placed in the building and had received its final finish.

Therefore full-size details were apt to be worked out at the job in the materials. As a matter of fact, as Mr. Neutra pointed out, the ornament and detail were traditional, in somewhat the same manner as the later ritual of the church became fixed and traditional.

As such its appeal was sentimental as well as aesthetic. By inheritance the Greek and later the Roman loved the column and the classic forms generally.

In addition the Greek was naturally a sculptor and the perfection of the detail was due not only to the inspiration and direction of the architect but as well to the individual skill of the carver.

Mr. Neutra called attention to the extreme simplicity of the early architectural problem, observing that the specifications need only have contained the one word "marble."

When the Renaissance came the problems of plan and design became more complicated and the architect by virtue thereof emerged from the multitude to appear as a specialist. The matter of charges and fees was not crystallized and the architect, like others of his artistic world had to be supported by the bounty of a rich patron.

That was the birth of the architect, as a member of an independent profession. It was historic fact. Mr. Neutra went on to turn it into prophecy. He said that the architect was now heading back into the earlier condition where he would again be a part of the civic set-up and work through Federal or State organization channels rather than as an independent agency.

In the totalitarian states he showed that this had already come about. There, he said, the title architect was a "formality."

It was the dust-thou-art-to-dust-returnist theory. Whether it is a prophecy that will be fulfilled is uncertain. Mr. Neutra's interest was in the fact that such was the tendency.

Its fulfillment naturally must depend upon the future course of American governmental development. If America should follow the world and revert to the ancient Greek benevolent (or malevolent) despotism, architecture will resume its original submerged position, as in the ancient days.

Should America retain its individualism, architects will of course retain theirs.

Mr. Neutra pointed out however the increased understanding of and the increased necessity for Government architectural units. The Government, due to the increased complication and interlocking of modern conditions has been compelled more and more to assume control where in simpler times no control was necessary. That control carries with it the necessity for construction and the necessity for control of its construction design by the Government.

The free hand of the architect of the early 1900's will never again be realized. Public construction problems require control, which points to a segregation of a certain portion of the profession under Federal or State financial support.

Naturally unified control in the past tended toward more stabilized architectural style. The coming of the

(*Continued on page* 35)

A NEW TYPE OF RESIDENTIAL HEATING SYSTEM

by

E. S. CORNELL

American Radiator Corporation

UP till now there has been an urgent need for a heating system to provide all the benefits of circulating warm air without the disadvantages of ducts. Today that need has been filled by the new Arco Thermo System that has taken five years to develop, test and perfect.

Although it is entirely different from any other method of home heating now in use, the Arco Thermo System is based on the tried and proved principles of a circulating warm water radiator heating system; principles well understood by the heating trade, and preserving the trade's craft traditions. It presents no new nor difficult problems either for the architect, the man who figures heating requirements, or the installer, since its keynote is extreme simplicity. And yet its benefits are many.

The Arco Thermo System utilizes the usual type of warm water boiler as the central heat source. From the boiler, warm water is circulated through exceptionally small sized copper tubing to the new Arco Thermo Units which are recessed within and flush with the walls of rooms and concealed by a decorative grille.

The Arco Thermo Units are a unique development in home heating, achieving heat distribution in rooms by a new and different method. A fan mounted behind a small quick-heating copper radiator forces air across the fins of the radiator out into the room. The fan behind the radiator is operated by a simple air motor. The air which runs this motor is supplied from a *central air supply unit* in the basement, and is sent through small sized copper tubing to the Arco Thermo Room Units.

Radiator, fan and fan motor are contained in a galvanized steel "container" box with control for turning on and off or varying output.

Because of their small size, Arco Thermo Room Units may be placed wherever desired for best results. Being only 14½" high x 10" wide x 4¾" deep, they require no studding in, need no insulation and obviously take no floor space, fitting flush to the wall. When located under windows they warm cold drafts that drop to the floor. Units are available in two standard sizes: The equivalent of 25 sq. ft. and 50 sq. ft. of warm water radiation. Overall dimension of each size unit is the same, the only difference being in the fan motor.

Operation of the entire system is automatic. A new fast acting thermostat relays quick calls for heat when it is needed. This, combined with the forced air circulation of each room unit, cuts to a minimum the usual lag between the thermostat's call for heat and its delivery.

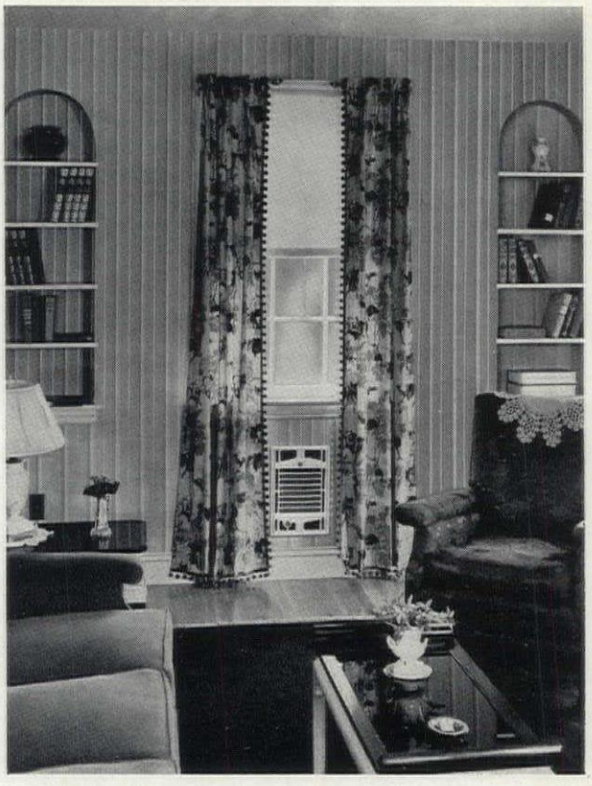
Arco Thermo Units provide an actual heat source in every room, and the fan behind these units provides a definite directional flow of heat. The straight beams of heat Arco Thermo Units shoot across the floor will warm a room in from 4 to 5 minutes. These units bring to rooms beneficial, desired air circulation and at the same time prevent stratification. In fact, tests show that the Arco Thermo System keeps room temperatures from varying more than 3 degrees from floor to ceiling, assuring complete comfort in every room.

Another reason for quick heat is found in the fact that the Arco Thermo System requires the boiler to warm only about ⅓ as much water as the average warm water system, due to the small sized copper tubing and the small copper radiators which are quickly heated. This means economy of fuel consumption as well, which has been demonstrated by installations operating the last few years.

A report of a system installed in Massachusetts revealed these figures on fast heat:

> During a 2-hour period on a raw, sleety day, with the temperature about 30°, the air supply unit and the circulator started 3 times. On the first cycle they were off 26 minutes and on 54 seconds before the thermostat was satisfied. On the second cycle they were off for 25 minutes and on

(*Continued on page 27*)



THE ST. AUGUSTINE, FLORIDA FEDERAL BUILDING

Mellon C. Greely
Supervising Architects Office
Architect

THE ST. AUGUSTINE, FLORIDA
FEDERAL BUILDING

This is an extension to the old St. Augustine Post Office which was the Governor's Palace when Florida was a Spanish possession. The stone portion showing at the street front is the old building, which dates back to about 1695 and is doubtless the oldest government building. The old stone work is "coquina," a rock of coral formation. The building as now completed was designed from sketches showing what was planned in colonial days as the ultimate size of them.

A RECENT ASPECT OF AN OLD CONFLICT

By PAUL P. CRET

(Condensed from the Pennsylvania General Magazine)

IN the course of years given to educational work, we are at times compelled to question the value of our methods. They may carry the authority of tradition, the warrant of famous teachers,—even those more tangible proofs, successful students (insofar as we can credit ourselves for their achievements). Still we wonder if results could not have been achieved otherwise, and if prize students, under another rule or left to themselves, might not have found their way ultimately to the top. In other words—are our methods efficient?

There is no universally accepted principle in the art world, and no demonstration without its weak point. How could the educator escape questioning his own faith, wondering if it has a stronger foundation than personal prejudice? Is it the reflected image of his own temperament, he asks, or merely the dregs of his youthful enthusiasm for contemporary trends uncritically accepted originally and since retained through indolence. This uneasiness of mind, unpleasant as it may be to self-esteem, has its advantages. It helps us to get our bearings, to gauge our beliefs through comparison, to probe more carefully into what was taken for granted. Theologians condemn doubt, but they rank mental sloth a mortal sin: so we ought to be over-confidence in our artistic creeds. Any complacency of the kind we might have once entertained about standards and theories of Architecture have been rudely shaken during the last ten years. Not that a sudden revelation was granted to the elect upsetting the established order. What took place was more in the nature of a return swing of the pendulum, bringing to the fore problems and views refreshed through their temporary eclipse. If not fully sharing in the enthusiasm, we had nevertheless to take notice of the chorus lustily hailing the new era. It held the usual proportion of notoriety seekers or professional advanced thinkers: its real strength came from those architects who had constantly disagreed with the doctrines in vogue and felt that a much needed revolution was at last underway.

Schools could not ignore the conflict thus rending the profession. Until two or three years ago, all the schools followed the methods of architectural training developed in France in the last century and adopted in this country about fifty years ago. Previously, but for a few exceptions, architectural education (as we understand the term), was practically nonexistent. The most important element of this education was the development of taste along the standards of Classic and Renaissance architecture. Had this method failed? The simplest way to answer this question is to see how the present generation of architects, (a large portion of them former students of the schools), compares with the preceding one; or to find out if the architecture of the United States shows progress or regress over that of the Nineties. Such a survey cannot fail to reveal that during the XXth century, American architecture gained a world-wide recognition which it did not have in the second half of the XIXth, and this corresponds in time to the spreading influence of the Schools.

Now it may seem strange suddenly to find under suspicion (when not denounced as nefarious), a system which undoubtedly raised the level of professional ability. Looking more closely into the matter though, we discover that it is not actually educational methods which are under fire. Waged by a minority of architects, supported by those who talk and write about Architecture with a superficial knowledge, the battle is essentially against classical tradition and for the triumph of the "modernistic" creed. Educational reform is merely a consequence, although there is probably no more justification for it than for revising the teaching of piano scales when Debussy instead of Mozart is to be played. It is advanced that the change of methods will turn our students into "creative artists"—creative of new forms, of course —which is obviously absurd. Students do not possess the maturity required for originality, which is an attribute of full-fledged artists—and mighty few of them at that! The student cannot be expected to reach beyond imitating what appeals to him in contemporary production.

A school teaches how to use the tools needed later on by the artist, and no more. With such a definite aim in view, the educator's creed ought to be (in the words of Plato) . . .

The Schools were taken to task anyway, and being

(*Continued on page* 36)

NEW TYPE HEATING SYSTEM

(*Continued from page* 23)

for 57 seconds. On the third cycle they were off for 25 minutes and on for 59 seconds. This means less than three minutes of actual mechanical operation of the system was required to satisfy the thermostat and keep this house comfortable for 2 hours.

The Arco Thermo System requires little maintenance from any angle. The wrinkles have been taken out of it in five years of testing and perfecting—in the laboratory and in the field. Ideal Cast Iron Boilers have proved their long, efficient life over the years. The piping and the radiators are made of copper, therefore, they can never rust and they resist corrosion—the cause of many costly repairs. The small air motor which drives the fan in the Arco Thermo Room Units has been proved to be longer lasting than motors of other types. A comprehensive study of "prime movers" indicated that an air or vacuum motor, due to its simple construction, was most efficient, especially in resistance to deterioration and wear. It never needs oiling. In addition, an air or vacuum motor could be made acceptably quiet.

The thermostat and the electrical relay switch which operates in conjunction with it to control warm water circulation and air supply unit, are of the most advanced design that engineering has produced.

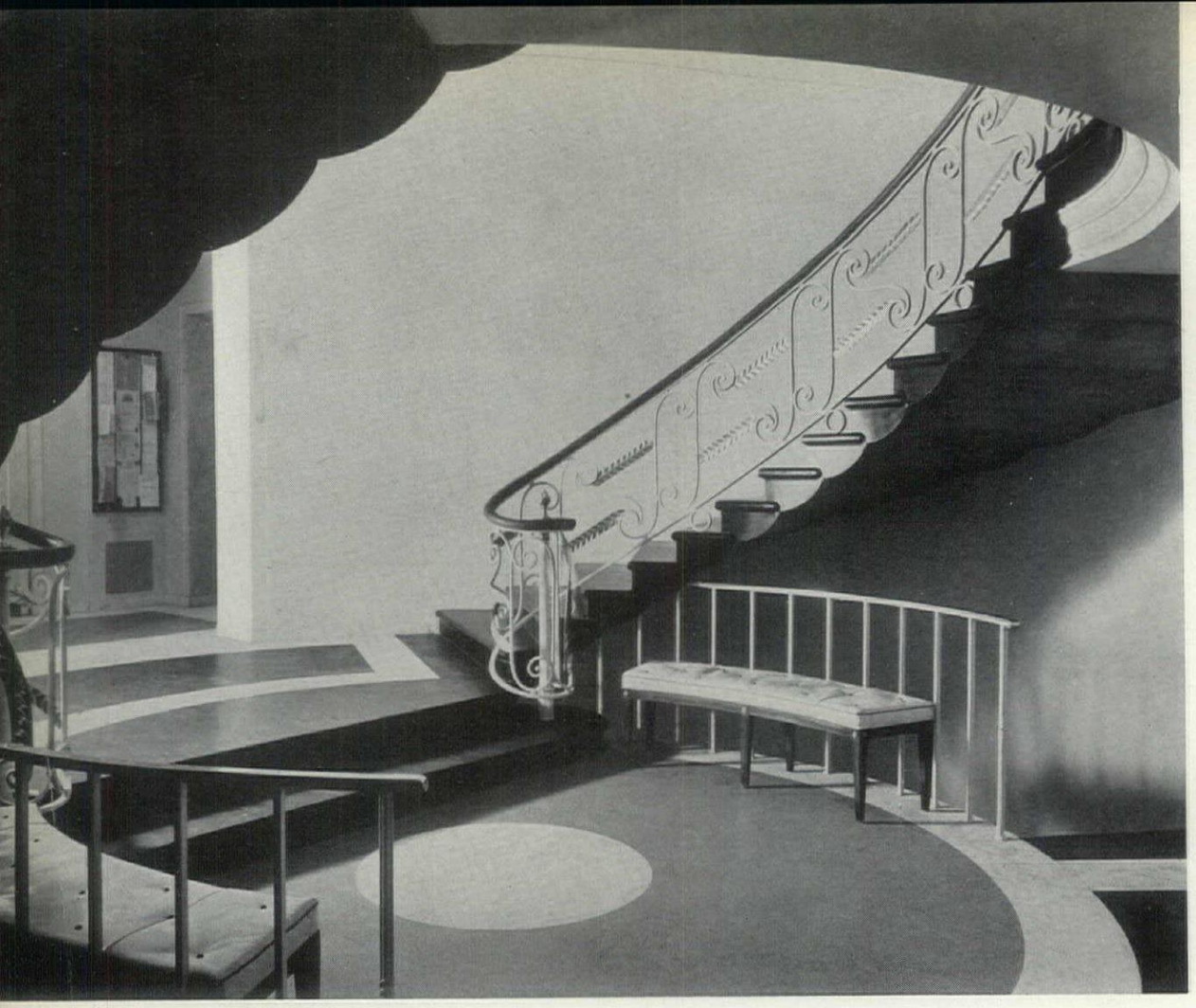
Another distinct advantage of the Arco Thermo System is the latitude it allows for planning beauty in the homes. The grilles can be decorated to harmonize perfectly with the color schemes of rooms.

The absence of ducts provides more headroom in the basement and at basement stairs, permits unbroken wall space without jogs, and more closet space. This factor, too, with the automatic firing of the boiler (coal, oil or gas) enables the basement to be planned as another useful room. The Arco Thermo System is also practical for installation in homes that have no cellar.

The new Arco Thermo System has taken years to develop and perfect. It has been thoroughly tested in competition with every other type of heating system. Obviously it provides advantages not found in many other systems, yet its cost is comparable to other low cost heating systems that cannot offer similar advantages.

In summarizing the benefits of the new Arco Thermo System it will be concluded that its main advantages are:

1. Air Circulation without the disadvantages of ducts.
2. Simplicity—requires no new methods of figuring an installation—no alteration to sound building construction.
3. A directional flow of heat from a positive heat source in every room.
4. Quick heat—no lag between thermostat's call and heat delivery.
5. Even heat—keeps floor and ceiling temperature from varying more than 3 degrees.
6. Air circulation—but not from room to room.
7. Full use may be made of every room because the Arco Thermo Units are placed within the wall.
8. More headroom in the basement.
9. Exceptionally low cost operation.



Cosmopolitan Club
New York City

Thomas H. Ellett
Architect

THE use of black is a distinctive design feature of modern architecture. Former days gave little opportunity for strong tone and color variation in materials. Buildings were completely in limestone, or marble or granite—monotones with accents obtained by ornamentation.

With the cracking down on and elimination of ornament, the contemporary architect feels the necessity for obtaining punch and wallop in another manner; and resorts to a strong, accenting change of materials. We are confronted with plain entrance of strong black, spandrels of black, floor borders, stair treads and so on.

Side View
Federal Reserve Bank
Washington, D. C.

Paul P. Cret
Architect

The spandrels and the stair and black floor material on the opposite page are Virginia Black Serpentine.

Whacking white tones having been obtained by stainless steel, aluminum, and glass bricks, it became essential to balance things with blacks equally brilliant. Hence the demand for black material which will retain its color and not sink back into grey when the polish weathers off. Some of the granites, some of the marbles and some of the Virginia stones provide this.

The Cosmopolitan Club reproduced on these pages shows a fine use of black material on the interior. The Federal Reserve shows its use for exterior spandrel. The latter material is Virginia serpentine.

BRICKWORK

PART I

Introductory

Brick has been used as a building material probably longer than any other product that man has fashioned from raw materials provided by nature. Undoubtedly, it was the first prefabricated building product. Remains of brick structures have been unearthed by archeological expeditions in Babylonia and in other centers of ancient culture in the Tigris and Euphrates valleys. From the ruins of Ur of the Chaldees, bricks have been recovered which range in age from 2,400 to 5,400 years.

The permanence of bricks as a building material is further attested by the statement of Professor Edgar I. Hanks, Field Director of the University of Chicago Babylonian Expedition in the words—"At Bismya we found bricks from 5,000 B. C. as perfect as upon the day they were made."

Sizes of Bricks

During the ages, the general sizes of bricks have tended to approximate the dimensions currently in use for modern construction. Always the dimensions have been determined by the size of the human hand and the strength of the human arm. Until recent years, little, if any, attempt has been made to standardize the dimensions of the individual bricks in the United States. Prior to the recent attempts at standardization, individual manufacturers turned out products of such dimensions as met the general requirements of size imposed by the human element and conforming to local demands. Obviously such procedure led to the manufacture of bricks which, though approximating a standard size, varied in the products of different manufacturers to such an extent that bricks made by one manufacturer were often combined with those made by another only with difficulty and consequent expense. Consequently, the difficulty of designing structures which were to be constructed of brick was complicated by lack of knowledge on the part of the architect concerning the dimensions of the particular brick that the owner or builder would subsequently elect to use in the building.

In 1923, the Department of Commerce attempted to standardize practice in the manufacture of brick in the United States. Through the Committee on Simplified Practice, the Department of Commerce recommended standard dimensions of 2¼" x 3¾" x 8" for common and rough surfaced face brick, and of 2¼" x 3⅞" for smooth surfaced face brick. Since the recommendation of the Department of Commerce, much progress has been made throughout the United States toward the adoption of its standards. Notwithstanding such progress, there remain many plants throughout the country which have not yet adopted the recommended sizes and which furnish brick that vary from the standardized dimensions.

In the construction of Government buildings, selection of brick of a particular brand or manufacturer is not permissible. The contractor selects the particular brand or brands of brick of the several grades required and submits samples to the Governmental agency for approval. The Federal specifications, subject to conformity with requirements for grade and other characteristics, permit variations from specified dimensions of one-eighth inch in breadth or depth and of one-quarter inch in length. Under these circumstances, the actual sizes of the approved bricks may be such that considerable difficulty may be encountered in laying out the brickwork to fit the openings in the walls and in maintaining the bond. Such difficulties are usually restricted to face brick in outside walls; common brick in backup work and interior walls usually can be adapted to compensatory adjustments without great difficulty with the possible exception that greater attention to the manner of making such adjustments must be exercised for such walls or backup, the inside faces of which may be exposed in the completed work.

Manufacture of Brick

The processes of manufacture of brick are fundamentally unchanged from those employed in ancient times. The raw material most generally utilized has always been and still remains clay. More latterly, shale, which is fundamentally a compacted form of clay, has been used very extensively. The most primitive processes relied upon the heat of the sun to dry out and harden the moulded clay until it attained the hardness which was characteristic of the thoroughly dried raw material. The adobe brick currently made and used to some extent in the desert areas of the Southwestern States is a modern survivor of the primitive processes. Following a demand for a stronger and more uniform material, the processes of drying and hardening were expedited and improved upon by burning the moulded units in kilns. During the passing ages, these processes have been improved and expedited through the development of highly specialized machinery and the adoption of mass production methods.

A detailed description of the several steps in the manufacture of brick is unnecessary for present purposes. The literature dealing with the manufacture of brick in all its details is extensive and comprehensive. A brief outline will serve immediate needs.

Briefly, the clay or shale is mined, then ground and blended with appropriate admixture of such other clays as the manufacturer may introduce for purposes of procuring the particular sort or color of brick desired. The mixture is then tempered with water to produce a workable mud which is fashioned into blocks of the shape of the desired brick. Three methods of accomplishing this moulding are in general use in the United States, namely: first, the soft-mud process in which the very soft mixture is pressed into moulds by hand or machine; second, the stiff-mud process in which a stiff mixture is extruded from a machine in the form of a bar having a rectangular cross-section of such dimensions as are consistent with the desired dimensions of the finished brick, the bar is immediately cut into blocks at such intervals as are required to yield bricks of the desired sizes; and, third, the dry press process in which a nearly dry mixture is forced into appropriate sized moulds under great pressure. After moulding, by whatever method, the green bricks, called the ware, are dried until they contain the proper amount of moisture for burning and can be handled. Following drying, the ware is placed in a kiln for burning. During the early stages of burning the temperature is kept at a relatively low figure approximating 200 degrees F to 300 degrees F in order that free water may be driven out of the ware. Then follows a period of heating during which the temperature is gradually raised to a figure approximating 850 degrees F to 1250 degrees F, which disposes of the chemically combined water in the constituent materials followed by the oxidation of impurities in the clay. Finally follows a period of burning during which temperatures are raised by stages to those at which vitrification of the clay is incipient. The manufacture is concluded with the gradual cooling of the kiln and of the product after the fires are drawn.

The color of the brick is determined fundamentally by that of the material predominantly utilized in its manufacture. Variations in color within limits of the material are obtained by the maximum temperatures used in burning and modifications of natural color by mixtures of different clays and by the addition of coloring ores or agents. Special effects and variations in color bricks of the same composition are obtained by placing those for which special treatment is desired in such positions in the kiln that they are subjected to the necessary action of the kiln gases.

In order to obtain bricks of more uniform shape, greater density and higher strength, partially dried mud units are compressed in special moulds under great pressure prior to burning. The resultant product is a higher grade face brick

than is productible by the utilization of the primary processes of manufacture.

Quality of Brick

The qualities of common and face bricks utilized in the construction of Government buildings are graded in conformity with Federal specifications. Specifications are currently effective for common brick (SS-B-656). For face brick no special specification is currently effective although the preparation of such a specification is under consideration.

The Standard Specification classifies brick in three categories as determined by their physical properties, namely: hard brick (Class H), medium brick (Class M), and soft brick (Class S). In practice, brick falling into any harder class is considered acceptable for use where a brick of a softer class is specified. The physical requirements for the several classes are summarized:

CLASS H

Maximum absorption; an average of 10% or less for 5 bricks with a maximum of 12% for a single specimen.
Modules of rupture; an average of 600 or more pounds per sq. in. for 5 bricks with a minimum of 400 pounds per sq. in. for a single specimen.

CLASS M

Maximum absorption; an average of 16% or less for 5 bricks with a maximum of 20% for a single specimen.
Modules of rupture; an average of 450 to 600 pounds per sq. in. for 5 bricks with a minimum of 300 pounds per sq. in. for a single specimen.

CLASS S

Maximum absorption; no limit.
Modules of rupture; an average of 300 to 450 pounds per sq. in. for 5 bricks with a minimum of 200 pounds per sq. in. for a single specimen.

Generally, Government specifications prohibit the use of Class S bricks.

Face brick, in addition to fulfilling the physical requirements usually specified for Class H brick, must also be acceptable for color and texture. Incidental to the examination of samples submitted for approval of particular projects, the approving agency will usually test the samples for physical characteristics as well as texture and color. Approval, however, may issue only for color and texture. Such a procedure is employed for the protection of the field engineer who may find that the samples submitted for approval by the contractor were carefully selected for strength as well as for color and texture. Should brick that meet the architectural requirements but are deficient in physical characteristics be delivered to the job, means are then available to the field engineer to reject unsuitable materials without possible embarrassment by unscrupulous manufacturers who might have sought to supply unsatisfactory material which conformed to the requirements for color and texture but were deficient in strength.

The presence of soluble chemical salts is particularly objectionable in face brick for the reason that the action of rain and absorbed atmospheric moisture upon the brickwork will produce efflorescence. Usually, the existence of those salts will be revealed by a seven day wick test, by means of which the sample bricks are set on end in a pan in which distilled water is maintained to a depth of one inch at all times. As the water is absorbed by the brick and travels through it by capillary attraction, a portion of it reaches the exposed surfaces from which it evaporates. If soluble salts are present in the brick, they will be dissolved by the water passing through the brick and will appear as a deposit upon the exposed surfaces. If any deposit appears within seven days, the brick represented by the samples tested will be questionable for face brick usages.

The wick test, however, is not infallible and cannot be accepted as conclusive evidence either that brickwork laid up with brick that showed satisfactory results in the test will not show efflorescence in the work or that work laid up with brick that showed unsatisfactory results in the test will invariably show efflorescence in the work. The probabilities of the appearance of efflorescence in the completed work will be greatly reduced if adequate protection is provided against

the infiltration of water through the exposed tops of the brickwork. This subject is more exhaustively treated under a subsequent heading of this article.

Structural Building Units of Brick

Structural building uses to which brickwork is applicable embrace principally walls and columns and, to a more limited extent, sewers and special structures. In such units the fundamental structural requirement is that the completed units shall be constructed in such manner that the respective portions shall form integrated and homogeneous wholes possessing the stability and strength required to perform their functions in the respective structures of which they are a part. These characteristics are obtained by laying up the bricks in mortar which serves to fill the spaces between adjacent bricks and provides full and even bearings for the individual bricks and by arranging the bricks so that there is an interlocking action set up between adjacent elements of the unit.

Structurally, brickwork possesses no appreciable tensile strength. On the other hand, the materials employed and the manner of their incorporation into the work are ideal for the resistance of compressive stresses. Ability to resist tensile stresses, whether induced by direct tension or by bending of the member, is limited by the adhesion of the mortar to the bricks or the cohesion within the weakest brick or within the mortar.

Building designs for which brickwork is utilized for exterior walls fall within two general classes—wall-bearing or structural frame types. In the former, the walls carry their own weights together with other weights of the building and of live loads therein, to the foundations in such manner that collapse of the walls will cause collapse of the building. In the latter type, the walls carry only their own weights and serve solely as curtains separating the inside of the building from the outside. Such walls are supported at each floor level by the structural frame which may be either steel or reinforced concrete. In either case, the walls act as columns having least dimensions equal to the thickness of the wall. Resistance to lateral bending produced by wind pressures or similar phenomena is provided by the weight carried by the wall in combination with support provided at floor levels and at columns, intersecting walls and buttresses. The minimum thicknesses of brick walls that may be used for different types of construction are determined by good practice and are generally set out in the building codes effective in the principal cities.

Brick columns must be designed to have such cross-sectional dimensions that the ratio between the respective least radii of gyration and the lengths of the columns must be consistent with the limits of good design.

Bond in Brickwork

The primary designations of brick as laid up in a wall are "stretchers" and "headers." Stretchers are those bricks which are laid with their greatest dimension parallel to the length of the wall. Headers are those bricks which are laid with the greatest dimension normal to the length of the wall, except in some special types of bonds in which diagonal headers are set at an angle with the face different than ninety degrees. The arrangement of stretchers and headers in a wall is designated as the bond.

In brickwork, bond serves two principal purposes. Structurally, it serves as the means by which the elements of the work are converted into an integrated unit; architecturally, it serves in combination with the color of the bricks and the type of joint employed, as the means of expressing the feeling or atmosphere which the designer hopes to convey through the medium of the exterior appearance of the completed building. The exception to the utilization of bond for structural purposes is the use of four inch exterior curtains of veneer. In this case, it is necessary to obtain stability of the resulting wall by means of anchorages to the frame or construction which comprises the unexposed portion of the wall.

There are innumerable designs of bond utilized in brickwork, some of which are standard, others especially designed. The architect selects and designates the pattern which he wishes in order to convey the feeling and texture desired in the appearance of each particular structure. Regardless of the design of bond employed, the structural strength of the resulting wall may be expected to be adequate for all ordinary purposes provided that the ratio of headers to stretchers is not less than two to seven; the approximate proportion employed in common or American bond. The number and designs of bonds in most general use have been designated by identifying names. The simplest and most widely used is common or American bond. Others commonly encountered are the English, the English cross, Flemish, garden wall and garden wall cross.

Of all the types of bond that may be utilized for walls, common or American bond is the cheapest in labor cost and the most rapidly constructed, due to the fact that it entails the minimum amount of attention to the placing of headers and permits the laying of the stretcher courses between successive header courses largely as single operations. The introduction of headers not laid in solid courses requires more time and closer attention on the part of bricklayers generally proportional to the extent to which isolated headers are utilized. The degree by which the rate of production of the finished wall is reduced is directly reflected in the cost of labor required to secure the production.

Whether or not the cost of incorporating expensive bond patterns in exposed building walls is justified falls within the province of the designing agency. The field engineer is charged with the translation of the design into a physical structure. The fact that the completed building will be just one more brick building to a great majority of the persons who pass by or enter it, or that dust, soot and the elements may shortly discolor and largely obliterate the effects that the designer hoped to procure, are of little concern to the field man except as it may offend his personal sense of fitness as to the propriety of incurring what appears to him to be unnecessary expense.

Elements of cost in the production of a pattern of brick bond include, among others, the cost of breaking bricks to sizes required to make closures, the cost of laying parts of bricks which is fully as great as and may be greater than the cost of laying whole bricks, the increase in cost of maintaining additional vertical joints in plumb lines and the greater time required to lay patterns which restrict to small amounts the increments of work that can be reduced to a production basis.

Laying Out the Bond

There is probably no more fundamental consideration affecting both the cost and the appearance of the completed brickwork than the laying out of the bond. In the absence of detailed studies of the bonding furnished by the designing agency, this responsibility rests primarily with the contractor, the construction engineer is charged with the duty of approving the arrangements proposed to be made in order to obtain the desired results. The discharge of that duty requires that the engineer shall examine into the various means and arrangements that might fulfill the requirements of the specifications and select that one which best meets the requirements for the particular case.

The problem presented in the laying out of the bond requires the fitting to the building of the particular bricks that are to be used in the exposed faces with the thickness of mortar joints specified to be used in conformity with the specified bond pattern. Upon the proper solution of this problem hinges much of the perfection in the appearance of the completed brickwork.

The first step in the solution involves the determination of the arrangement of bricks and joints in the horizontal courses. This should be done upon the top of the foundation wall either entirely or in conjunction with layouts drawn accurately to scale. In either event, the full perimeter of the brickwork should be considered at one time. The limits of openings, pilasters, mullions and other governing features must be accurately located. With all these data available, the arrangement of bricks and the precise thicknesses of vertical mortar joints for each type of horizontal course—including both those with and without openings—should be determined so that the number of clipped bricks will be reduced to a minimum.

The second step in the solution involves the determination of the spacing of horizontal joints. This involves a study of

the location and dimensions of openings and governing features and the determination of the thicknesses of joints to be used with the particular bricks furnished on the job so that courses immediately above and below openings and features will finish at proper elevations with the whole thickness of the bricks. This step will usually be best accomplished by means of large scale layouts the final results of which are transferred to a full size story pole which should be used continuously during the bricklaying as the absolute measure by which the work is laid up.

The problems presented in laying out bond are often aggravated by the fact that the designing agency must necessarily locate openings and details by means of specific dimensions. It must show dimensions upon the drawings for pilasters, mullions and other details. At the time the drawings are made, the precise dimensions of the bricks that will be used in the construction are generally not available. As a consequence of these limitations and the importance of maintaining the dimensions shown upon the drawings and the limits of thickness specified for joints, the construction engineer is faced with the necessity of working out the horizontal courses, in particular, so as to avoid as much as possible the use of small closures. In unimportant cases, the construction engineer may greatly improve the perfection of the brickwork by moving openings small distances or varying slightly the dimensions of mullions, pilasters or other details. When, however, the number or magnitude of changes becomes considerable or the affected features are conspicuous, the field engineer should refer the matter to the designing agency with a full statement of the prevailing conditions and his suggestions as to the means to be employed in order that the most satisfactory finished structure could be expected to result. The utmost caution must be exercised in approving such modifications in order that subsequent operations, such as interior trim, be not adversely affected.

The complete elimination of clipped bricks from the face courses of any building can rarely be accomplished. Their use, however, entails special care in cutting the affected bricks to size in order to preserve the uniform thickness of joints and the maintenance of truly vertical lines of joints.

The layout of the bond should avoid the use of closures, the exposed faces of which are less than about four inches wide. Where smaller closures in stretcher courses are to be made, a preferred practice dictates the clipping of the next adjacent bricks in the several courses. This, in turn, involves corresponding adjustments in the arrangement of bricks in header courses. Such clipped bricks as are used should be located at places which are the most inconspicuous and are least liable to detract from the appearance of the building. In some types of bond, the use of closures approximating two inches in width is necessary in order to initiate the courses at corners and at reveals. In construction parlance, a queen closure is less than a full header but not less than two inches and a king closure is more than a full header but less than a full brick.

Care of Brick at the Site

Common brick intended for back-up of exterior masonry or brickwork requires little special attention at the site unless the interior face of the finished wall is to be exposed in a present or future usable space. In the latter event, care should be taken to prevent unduly rough handling which will break off edges or corners and otherwise disfigure the exposed area of the wall. There is no objection to dumping common brick for unexposed back-up directly from vehicles. If the ground upon which the brick is piled is well drained and firm, such brick may be piled directly upon it. If, on the other hand, the area is muddy or affords a space in which water can stand, the practice is undesirable on account of the adhesion of foreign matter to the surfaces of the lowest bricks in the pile and the complete saturation of those bricks which impairs the suction which must be exerted upon the mortar in which the bricks are laid.

Brick intended for uses in the face work, whether they be classed as common or special face brick, require careful handling which will reduce to the minimum breakage of edges and corners and other damage. Such brick should be stored upon planked areas or platforms at such heights that discoloration by earth and absorption of surface water are prevented.

Special purpose brick such as fire brick must be carefully handled and stored under cover where full protection against water is provided.

Elements of Brickwork

In theory, the principles involved in the production of good brickwork could hardly be simpler. Prefabricated units of uniform size and shape are placed one upon the other and adjacent to each other separated by joints filled with mortar which adheres to the individual units, provides even bearings for them, seals the spaces between them and ties the assembled mass into an integral whole. In practice, however, the characteristics of the constituent elements and the quality of workmanship introduce conditions of such moment that unsatisfactory results, especially leaky walls, will ensue unless proper provisions shall have been made to meet those conditions.

The medium that binds the pile of isolated bricks into an integrated mass is the mortar in and with which the bricks are laid. The amount of mortar required to lay up brickwork constitutes a considerable portion of the completed mass. For example, mortar will comprise from 25% to 30% of the total volume of a thirteen inch brick wall laid up with joints ranging from ¼" to ⅜" in width. This condition, which is more pronounced as the permissible thickness of joints is greater, affords an opportunity for an unscrupulous contractor to attempt to effect economies in the cost of materials which leads directly to inferior results.

The fundamental conception of mortar contemplates a medium which will completely fill the spaces between adjacent bricks and adhere to them after it has set and hardened. The mortar must contain sufficient moisture to supply the needs for chemical reactions incidental to the hardening of the constituent materials and a sufficient excess to permit the residual absorption of the brick without the removal of moisture from the mortar which is essential to the chemical phenomena of hardening and setting. This promptly raises the question of water-balance between the mortar and the bricks and emphasizes the necessity for properly wetting bricks before laying them in the work without saturating them to the point where they exude water and thereby fail to exert adequate suction upon the mortar. The attainment of perfection of balance between the mortar and the bricks, however, will not guarantee satisfactory brickwork unless the workmanship incorporated in the actual laying up of the work is of high quality. As in work of other kinds, the best materials and proper relationship between them is no guarantee of satisfactory results if the workmanship employed in their installation reflects carelessness, incompetence or disinterestedness.

Mortar

The essential qualities of mortar are strength and workability: strength, to perform its functions as a compressive and cementing agent; workability, to facilitate its effective and ready incorporation into the work in such manner as to most fully utilize its strength.

Strength of mortar is dependent upon its composition. This factor is generally determined by the designing agency which incorporates its requirements in the plans and specifications for each respective project in such manner as to require the utilization of mortars of strengths and characteristics consistent with their respective uses. In Government work, standard mortars and uses for which they are generally utilized in brickwork are:

Class A: Portland cement, sand and lime putty in proportions of 1:2:¼; not generally used in brickwork.

Class B: Portland or slag cement, sand and lime putty in proportions of 1:3:¼; face brick, common brick below first floor level and in backs of parapet walls.

Class BM: Masonry cement and sand in proportions of 1:3; common brick except where Class B is required, structural tile, face brick.

Class C: Portland or slag cement, sand and lime putty in proportions of 1:6:1; common brick except where Class B is required, face brick.

Class D: *Either* white Portland cement, sand and lime putty in proportions of 1:6:1; *or* non-staining cement other than white Portland, sand and lime putty in proportions of 1:4:½; used where necessary to obtain white or light colored joints or, with the addition of an acceptable coloring agent, to obtain special color.

The constituent materials must conform with the requirements of the specifications for the respective items. Under prevailing standards of manufacture and accepted methods of handling and storage, the proper proportioning of cement introduces little difficulty in field operations after adequate measures shall have been adopted to insure the use of the proper amount of material. Precautions must be taken, however, to insure a thorough slaking of lime in the putty whether it be slaked on the job or delivered to the work in putty form. Hydrated lime, because of high speed production methods, is not always thoroughly hydrated so that its use in dry form as an addition to mortar should never be permitted. Instances are known where such a practice has caused expansion in joints amounting to an inch increase in height of walls one story high. Under all conditions, lime putty should be not less than three days old before being used in mortar. Sand introduces factors which demand close attention. In the first place, sand is produced under conditions which reflect the characteristics of the most accessible raw product which may be produced either by the highly scientific facilities of a large producer or may be dug out of a local sand bank by the contractor. Under these circumstances conformity of the material with the grading requirements of the specifications is of the utmost importance. It is axiomatic that good mortar is not productible without proper grading of small and large grains. In the second place, the bulking of damp sand greatly affects the characteristics of mortar. Proportions of mortar mixes as stated in the specifications contemplate the measurement of materials which are thoroughly dry. Sand, in the usual job condition, contains considerable moisture of which an amount of less than 6 per cent will cause loose sand to swell as much as 20 per cent in volume. The importance, therefore, of thoroughly drying a sample of about one cubic foot of sand in job condition to ascertain the amount of bulking for the purpose of determining the field measurement of job sand cannot be overemphasized both from the standpoint of the quality of the resultant work and from the effect upon the cost to the contractor.

The amount of water to be used in mortar is best determined by trial and error. It must be sufficient to yield a mass which has adequate workability to permit the filling of all joints and adherence to the bricks but which is stiff enough to sustain superimposed weights to which horizontal joints will be subjected before hardening occurs. Somewhat stiffer mortar must be used with thick bed joints than with thinner joints. Similarly, stiffer mortar may be used with bricks having low rates of absorption than with more absorbent bricks.

Good workability is of paramount importance and fundamentally essential in a good mortar. This characteristic, while improved by the use of lime putty, is closely related to the grading of the sand and to the thoroughness of mixing. Coarse grained sand with deficiencies in fines can be expected to yield a mortar which is harsh, is difficult to handle and will yield finished work that will not be watertight. The thoroughness of mixing determines the completeness and uniformity of distribution of the cementing materials throughout the mass of sand grains for which they act as lubricants during the period of plasticity.

The color of mortar in exposed brickwork is architecturally highly important. The use of different sands, of cements from different mills, of different proportions of any of the constituent materials and of irregularities in the thoroughness of mixing—any of these may result in differences in the color of the finished joints after the work shall have dried out. The differences may be real or apparent depending either upon absolute variations in tone or shade derived from the color of the constituent materials or upon the different reflective characteristics of varied surface textures. Inasmuch as inconsistencies in the color of joints may not be discernible for considerable periods after the work has been laid up and, after their appearance, will be more conspicuous from a distance than at close range, and since the designing agency habitually relies upon the color of mortar joints to express the feeling, warmth and effect which the design is intended to convey, the field engineer should weigh carefully prior to the starting of exterior brickwork, all of the relevant

factors, including the reliability and probable availability of sources of supply of materials, that contribute to the architectural and structural integrity of the project.

Preparatory Wetting of Bricks

The principal purpose for the wetting of bricks before they are laid is to control the rate and extent of absorption by them of water contained in the mortar. Due to the relationship between the quantity of excess water which mortar can carry and the facility with which it can be worked, it is impossible to provide sufficient water by this means to satisfy the requirements of absorbent bricks without impairing the proper setting and watertightness of the mortar. Bricks having coefficients of absorption greater than 5% should generally be wetted. Those having low coefficients of absorption, such as vitrified or partially vitrified bricks, should never be wet.

The extent of wetting must necessarily be somewhat commensurate with the absorptive power of the particular bricks under consideration. Common brick, which usually have greater absorption than face brick, are best wetted by sprinkling in loose piles of such size as to permit the wetting of all bricks for such periods as to dampen them to sufficient depths, depending upon their degree of perviousness, as will prevent undue drag upon the moisture in the mortar. Following sprinkling, the pile should stand undisturbed until excess water has drained away and the remaining moisture appears as dampness on the exposed surfaces. It is not the purpose of wetting to dampen the bricks throughout; rather, the dampness is desired to penetrate back from the surfaces only a sufficient distance to reduce subsequent absorption of moisture from the mortar to such an amount as will not rob the mortar but will be sufficient to insure proper and necessary adhesion of the mortar to the bricks. As a general guide, bricks that require from two to four hours to become surface dry when exposed to outside air would be expected to have been satisfactorily wetted.

When there is danger of freezing but the work, for adequate reasons, must necessarily be done, wetting of brick should be avoided, regardless of the fact that imperfect results possibly may be expected. Face brick, in general, have low coefficients of absorption so that sprinkling lightly immediately prior to laying will usually suffice. If more extensive wetting is required in order to compensate for higher absorptive power, care should be exercised to avoid excessive wetting which, upon evaporation, may result in discoloration.

Under no circumstances should fire brick, glazed brick, vitrified brick or other types of special service bricks be wetted unless the wetting shall be particularly required.

The foregoing comments to the contrary notwithstanding, there is no substitute for the exercise of sound judgment in dealing with the proper amount of wetting of bricks. There have been combinations of weather conditions and brick characteristics in which the best results ensued from the elimination of the wetting and reliance upon a mortar having high water retention qualities. In any event, exposure of the brick pile to long spells of rain should receive consideration in the determination of additional wetting of bricks prior to their incorporation into the work.

(2nd part of Brickwork to be printed in October issue)

MR. NEUTRA PHILOSOPHIZES

(*Continued from page 22*)

private architect in the Renaissance period tended to diversify the styles and make individualistic the interpretation of the styles.

Mr. Neutra was interested in the manner in which the architectural styles jumped the Atlantic to develop in the American colonies.

He spoke particularly of Mexico and referred to "Colonial" meaning Mexican Colonial.

The history of Mexican Colonial was generally the history of other Colonial architecture. Naturally the building activity of the new colonies surpassed that in the mother countries, because of the need and because the mother country's money was needed for wars.

This paradox then took place, in that the development of the styles went on in the colonies, whereas no development went on in the mother countries.

Colonial therefore came to mean not a subsidiary architecture, but an original style, more virile than the European. In fact when building activity reoccurred in the mother countries, the tendency was to turn to the colonies to find out to what point the style had progressed.

In other words style development occurs where building activity occurs. As a corollary to that theme, Mr. Neutra called attention to the Mission style, which is a phase of the Mexican Colonial, in Southern California. There extreme building activity in that style carried it to a point of perfection and finesse not before achieved.

As a result, a Mexican gentleman desiring to build a hacienda in the Mexican style now comes to Los Angeles to look about and find out how to do it.

The talk pointed to the inevitability of more and more centralized control, as time went on, of construction. And, since style develops, where construction is centralized it pointed to a more uniform architecture, in the future, due to this more uniform control. This would be merely following Greek architecture which was uniform largely because its control was uniform.

It is regrettable that a transcript of the talk was not made, as it would have been of universal architectural interest. It was so smoothly presented and with such compelling humor, and interesting phrasing that it is most unfortunate that it could not have been broadcast for all architects to hear.

Changes in Assignment

James G. Burke Boston, Mass.	Emil C. Seiz, Jr. Washington, D. C.	Lee Groner Kansas City, Mo.	J. D. Boyer Long Prairie, Minn.	Simeon M. Feinberg New York, N. Y.
Wm. J. Culbertson Washington, D. C.	James Sparks Washington, D. C.	Francis C. Allein Luray, Va.	Raymond G. Brown Stoughton, Wis.	Arthur A. Fletcher New York, N. Y.
Geo. A. Geib Washington, D. C.	Herbert Q. Valentine Washington, D. C.	Rudolph W. Anderson Nashville, Tenn.	Alfred F. Crenshaw New York, N. Y.	Frank C. French Helper, Utah
Louis E. Langille Washington, D. C.	Geo. R. Berryman Atlanta, Ga.	Geo. B. Bange Columbus, Miss.	Nicholas C. Drolenga Spencer, Ind.	Clement J. Gerber Leavenworth, Kans.
John J. Murray Washington, D. C.	Paul E. Wicklund Chicago, Ill.	James A. Barksdale Bloomfield, Ia.	Harrison R. Egge Northampton, Mass.	Nels Hansen Kalamazoo, Mich.
David M. Piatt Washington, D. C.	Percy L. Rice Kansas City, Mo.	Samuel J. Berman Lancaster, N. Y.	Joseph H. Feehan Emporia, Va.	Edwin R. Hawkins Idabel, Okla.

(*Continued on page 39*)

A RECENT ASPECT OF AN OLD CONFLICT

(*Continued from page 26*)

sensitive to criticism, they looked for a new orientation. To guide them they had a few Committee resolutions and countless magazine articles offering the mildest to the most far-reaching proposals. A large part of these suggestions came from men entirely unfamiliar with teaching, and all of whom were, of course, untried. We have all in the past witnessed hasty experiments of this kind. When a few years demonstrated their worthlessness, the only complainant could have been the student who played the guinea pig's role. Striving to give satisfaction to whatever they could make out of these hazy notions, the schools resorted either to a modernization of the faculty or to the introduction of a few new courses.

What is the aim pursued? On the one hand, we are told a more "practical preparation" to professional duties; on the other, the upholding of a new aesthetic creed involving the repudiation of the rules of classic art and the promotion of those forms which have been called (among other names) the International Architecture. As "practical preparation," a few new courses in subjects of burning actuality—sociology, housing, or those concerning the economics of an office—were introduced. These additions to an already overburdened program meant the pruning of the existing curriculum, and merely increased the number of superficially taught subjects. Were they necessary to the cultural aims of university education? The object of culture, it has been said, is "to learn how to learn." Real education consists in mastering a few subjects thoroughly and not in getting a smattering of many; it is a discipline of the judgment. The oldest writer on Architecture, while recognizing the multiplicity of sciences or techniques needed in our profession—(he listed among them—geometry, history, philosophy, music, law, astronomy, etc.), was careful to note that it is not possible for the architect to become an expert in all of these . . . "He cannot be a grammarian like Aristarchus, but must know something of grammar; nor a musician like Aristoxenes, but know something of music; nor a painter like Appelles, but have the skill needed to graphic delineation, etc." If in Vitruvius' time the branches of knowledge required were many, they are still more numerous today. No school can hope to teach them all in a five-year course, and a selection must be made. This selection corresponds to the average opinion as to their relative value at a given time and may be revised; room for the new is to be found by discarding something else. In making changes we must be careful to see that the new is more valuable than the discarded. In an address to the Royal Institute of British Architects, Sir Reginald Blomfield said . . . "Applied science has developed so fast and in so many directions that it is impossible for an architect to keep pace with every branch of it; and besides all this, he has his own art to master. For when all is said and done, the first business of an architect, that which differentiates him from other men, is his power and knowledge of design . . ."

The interpretation of the subject matter taught may also change. If, as in some quarters, it is thought that construction methods are generating the forms without the intervention of aesthetic selection, there will be a tendency to increase the construction courses over those dealing with plastics and history. This is by no means a novelty. Functionalism (as we call it today) was the subject of the course given by Viollet le Duc to his students around 1865, and later summed up in his "Entretiens." In the same way, the return to simple geometric forms and volumes, the elimination of decoration, are a revival of the theories of Durand around 1803. Even the patronizing tone, when speaking of non-conformist works, is as old as architecture. It would seem somewhat presumptuous, therefore, to think of the recent upheaval as of a brand new viewpoint, and seriocomic statements such as . . . "The moment an architect lines up with the moderns, he becomes a man apart . . ." can only bring a smile. The before-the-war (of the styles)-generation was familiar with making a building an efficient organism, able to withstand the elements, and to give pleasure to its occupants. Finding appropriate planning for a new program and using materials intelligently was a matter-of-fact duty. The Classicist was as ready to experiment with new materials as the Modernist, and if these experiments (terra cotta, for instance) did not always fulfill all expectations, some experiments with today's materials are, in the same way, bound to bring disappointments. Of the new courses, highly ornamental in the catalogues, many will probably disappear. As Dr. Schelling wrote . . . "Quantitative education is built upon this extraordinary fallacy that we ought to know something about as many things as possible . . . quantitative education gives us confident ignorance." The new crop of courses attempts to give satisfaction to those who believe that university training ought to be of the encyclopaedia type. The heads of several of our universities have of late called attention to this error: may the schools of architecture heed the warning.

Coming to the changes in the teaching personnel, they show an effort to enroll to teach Design—the keystone of architectural education—men unsullied by the classic disciplines, or having at least rejected them. The teaching of design is the direct continuation of the age-old process of training, anterior to schools and theories—the apprenticeship system. It was through this ancient method that the architects of Greece, Rheims, Florence, or the XVIIIth Century were educated, for all that is really fundamental varies but little. What changes most is the gadget. The apprenticeship, however good its results, is no longer available, as pointed out by a judicious critic, Egerton Swartwout:

> "We have always had a strong predilection ourselves for the old system of apprenticeship, the master and the pupil idea. It apparently worked well enough in the old days; in fact, it was the only way; but under modern conditions it is questionable if it would, or does, work at all. It could never be universal. It is conceivable that an earnest young man entering a small office which turned out really good work might learn more there in four years than he would learn in any school; that is, he would learn

more than would be of direct use to him in his future work, but he would only learn it if the head of the office were able and willing to teach him. If he became a mere draftsman he might learn a little, but it would be slow work, and he would have to pick it up himself . . . In a large office the thing is absolutely impossible, that is any definite system of instruction."

This system of master and pupil working together on the same problem is still the best method we know and was in use in all our schools. Composition is not a matter of codified rules or magic formulae. All the instructor can do is take the sketch prepared by the student and say . . . "Were I in your place, I would try to eliminate these faults and to improve what seems to me promising in these features." It is a sort of collaboration which takes place; by trial and error the project little by little takes its final shape. Only Freshmen or dilettanti believe that recipes can do away with this laborious process.

The instructor must first of all be a designer and be able to have some insight into the various types of students. He must be careful to guide them without imposing too rigidly his own preferences and mannerisms. All minds ought not to be cast from the same mould. Which amounts to selecting for this teaching, a good architect not too pedantic, and able to see someone else's point of view. If we discard the claptrap, what then is new in this revolution in teaching methods? Is it to place greater emphasis on the construction features of the school projects? As noted by Dean Edgell of Harvard, all the instructors worth their salt, long ago made this the foundation of their teaching, and if the writer may be permitted to quote from an old paper published in the *Towne Scientific School Journal*, here is the advice he gave twenty years ago to architectural students of this University:

"Your time is then to be divided among three main groups of studies, keeping in mind that they are closely dependent each upon the others; you will never be a good designer unless your studies in descriptive geometry and perspective have trained you to see in the space what you wish to represent in a geometrical drawing. Design requires a training of the eye and of the hand that is to be acquired only through long practice in freehand drawing. *A design which has not been studied with regard to constructive requirements is a bad design . . .*"

The abandonment of classical disciplines is neither new nor without its price. Regardless of the use made later on of the forms they proposed as examples, these disciplines had an unquestionable educational value. What is to be substituted for their proved efficacy in training the eye to proportion, to rhythm, to composition, is not as yet divulged, and those who condemn them as stifling to originality forget that an originality so easily stifled must not be very robust. Of the men doing original work in this country at the present time, by far the greater number have been classically trained by our schools. Would they be better or worse off without this training? This is a question that the schools can well ponder before harkening to the sirens.

Necrology

ANNIE M. TRAVIS

It was with great sorrow that we all learned of the death of that beloved person, Annie Travis. No better nor more fitting comment could be made upon her and her life than that contained in the letter written by Judge Wetmore to her sister:

"I think that 'Miss Annie,' as we all called her, had more friends in the old office of the Supervising Architect and its field service than any other employee, no matter what his rank or station might have been. And if the motto of the Marine Corps—'Semper Fidelis'—might appropriately be applied to any person it would be to 'Miss Annie,' for truly she was always faithful. Her passing away will long be regretted by her former official associates, and no less by Mrs. Wetmore and myself."

ROBERT A. GREENFIELD

On May 16 Robert A. Greenfield, well-known among construction engineers, died in Buffalo, N. Y.

A supervising construction engineer for the U. S. treasury department for several years, Maj. Greenfield supervised construction of the U. S. Court House in Niagara Square in 1935. Previously he had built Pittsburgh's $8,000,000 post office building.

Before becoming associated with the government, Maj. Greenfield had a part in the construction of the Postal Telegraph Company Building in New York.

He served his apprenticeship in Buffalo in the office of Green & Wicks, Buffalo architects. Later he became a partner of Edward Metzger. The Richmond Avenue Methodist Episcopal Church and the Christian Science Church on Norwood Avenue are results of his work during that period.

At the outbreak of the World War, Maj. Greenfield held the rank of captain in the national guard. During active service at the front he was promoted to the rank of major. He was a past commander of his Buffalo post of the American Legion and a former state vice-commander. He was state commander of the Knights Templar in 1929.

HENRY J. KELLEY

We record with a sorrow which is shared by the whole Supervising Architect's office the death of Henry J. Kelley on Friday, July 15th.

Kelley was a beloved member of that organization. Born in Scotland and educated both in Scotland and Ireland, he was a person of wide tastes and extended knowledge.

The beautiful quality of his drawings was a thing to marvel at. There was a precision and exactitude in them and yet a charm that made one stop to look at them as things of physical beauty.

He was a connoisseur of beautiful things. He frequented the auctions and antique shops, collecting with a sure knowledge, rugs, furniture, engravings and other valued things, mainly for the joy of possessing them. He was too self-effacing to be a showman.

His friendliness is a thing that will be long remembered. He was full of a genial spirit that hid itself

behind his quizzical reserve. Persons who thought he was oblivious of the things that went on about him, were surprised at his keen dry comments when he was appealed to.

He is gone, but his smile, his crisp talk and his warm companionability will remain with us in memory for a long while. In that Valhalla where he now is, may all the things about him be beautiful.

Changes in Assignment

(*Continued from page* 35)

Fred E. Hayes, Jr.
Glasgow, Mont.

C. C. Holloway
Phoenix, Ariz.

Roy J. Janis
St. Marys, W. Va.

George W. Jevne
Los Angeles, Calif.

Raymond A. McGarry
Chicago, Ill.

Ray M. NcNairy
Abingdon, Va.

Fred Mackey
Grand Rapids, Minn.

William A. Miller
Washington, D. C.

Frank Mizell
New Orleans, La.

Jay W. Palmer
Linden, N. J.

Walter E. Perkins
St. Louis, Mo.

Wm. Rankin, Jr.
Phenix City, Ala.

John E. Rapelye
Petersburg, Va.

Geo. L. Read
Tallahassee, Fla.

Daniel H. Robertson, Jr.
Delhi, N. Y.

Horace B. Rose
Janesville, Wis.

Wm. J. Rush
Crooksville, Ohio

Alexander T. Schenck
Auburn, Calif.

Arthur P. Schulz
Providence, R. I.

John V. Shields
Virden, Ill.

Archie L. Striegl
Chicago, Ill.

Alfonso Tammaro
Washington, D. C.

L. E. Tull
Gibson City, Ill.

Geo. F. Wilcox
Abingdon, Va.

Fred H. Williams
Snohomish, Wash.

Charles R. Wilson
Tippecanoe City, Ohio

Discontinued

Joseph P. Elston
6-7-38

J. L. Foster
5-10-38

Parke W. Freark
6-16-38

Chas. Frederickson, Jr.
Resigned 6-19-38

Livingston L. Johnson
Resigned 5-16-38

Wm. A. Kennedy
Retired 7-31-38

Emil W. Kunze
5-25-38

Harold C. Orville
5-10-38

Walter C. Rankin
5-6-38

Lewis D. Yood
5-19-38

Harold D. Morrill
7-31-38

Donnell Robinson
8-17-38

JUDGE WETMORE'S LETTER

(*Continued from page 6*)

I've got something here that I want to read to you." With a look of astonishment Adams sat down. From a shelf back of his desk my father took down a copy of the Revised Statutes of Iowa, opened it and began to read. He read section after section. He read chapter after chapter. He read a long time. He read until he was hoarse. Then closing the book he said in imitation of Adams: "There, what do you think of that?" For a brief instant Adams looked at my father, hesitated, then stammered: "I don't know Judge. READ IT AGAIN."

As you may imagine this episode could not discreetly be referred to in my father's presence for some time.

Back in the days "when the memory of man runneth not to the contrary," as Blackstone says, the views and wishes of local officials were followed largely in providing and arranging space for their accommodation in new buildings. Naturally this resulted in a great diversity of lay-outs for buildings of a similar size and purpose. Experience has evolved better methods. I recall an instance where it seemed to be out of the question to harmonize the views of the Postmaster with those of the Office. He came to Washington, backed by his Congressman, to show us what must be done. He pestered James Knox Taylor, the then Supervising Architect, beyond endurance. Finally Mr. Taylor, in sheer desperation, called in Mr. Wheaton, who was the Superintendent of the Drafting Division and instructed him to arrange the post office space precisely as the Postmaster wanted it. When this had been done Mr. Wheaton and the Postmaster appeared at Mr. Taylor's desk. Mr. Taylor asked the Postmaster if the building had been designed precisely as he wanted it. Upon receiving an affirmative reply, he asked Mr. Wheaton if the building would be all right as designed. "Yes," said Mr. Wheaton, "with one exception. It won't stand up if it is built that way."

I can't let this opportunity go by without expressing my pleasure at the publication in the April, 1938 number of the FEDERAL ARCHITECT of the article concerning our late official associate and friend, George O. Von Nerta. I am fascinated with the two pictures showing him in his uniform as a young Prussian lieutenant. A comparison of those pictures with the features of Mr. Von Nerta as we knew him in his later days shows many traces of manly beauty that he had retained throughout a long and useful life, and that age had not obliterated but only softened them like the patina on a fine piece of bronze.

Mr. Von Nerta was a remarkable man; a many-sided man, exceptionally capable, helpful, reliable, resourceful, the soul of honor, and an uncompromising adversary against any suggestion that would put the government's interests at stake. Withal he was approachable, courteous and sympathetic. He had, in the widest sense, the confidence of his official superiors; the respect and affection of his associates, and the esteem of those who had business relations with the office.

Again my affectionate regards to all who contributed their bit to help the old office to carry on, or who are helping to uphold its traditions in the new office, I am,

Sincerely,

"THE JUDGE."

LETTERS

El Campo, Texas,
June 3, 1938.

THE FEDERAL ARCHITECT,
Washington, D. C.
Gentlemen:

You must be true gentlemen for I have not been dunned and I'm sure I owe for at least 2 numbers that I've received and maybe more. Please apply this year's subscription price, check attached, to carry on from where my last payment left off and advise me when I'll owe you some more.

I'm looking forward with great interest to that July number which just may be "devoted to Post Offices" since I have been devoted to them for the past 7 years and hope to continue to be.

Very truly yours,
DONALD T. SMITH.

Englewood, Colo.,
June 30, 1938.

My dear Mr. Morris:

Recently the Crane Company sent me a very delightful little booklet about kitchens. I had always supposed that a kitchen was a place for the proper performance of certain pleasant gastronomic preliminaries, together with other less attractive aftermaths. But now it seems that the kitchen is preeminently suitable for

Sewing	Resting
Ironing	Eating
Studying	Playing
Entertaining	

This seems to be about all we ever do in our house, and my wife and I have decided that if we ever build another house, we shall go modern in a really big way, and eliminate everything but the kitchen. Personally, I'm still holding out for a bath room or so, but weakening.

All hail to the F. A. Long may it wave. Or does it?

Faithfully,
L. McQUILKIN.

May 23, 1938.

To Mr. Edwin Morris,
Washington, D. C.
Dear Morris:

I send a check and with it recommendations that Our Architects and others of so very liberal interpretations of plans and specifications (when same are behind the scenes in the drafting room), study the Gems Of Thot contained in the very airy bit of humor submitted by our much beloved Mr. Richey, on page 45-F.A. of April number. It should be printed in across-the-room type and posted in all the drafting rooms as No. 1 Law of the Office.

Very sincerely,
F. R. WEEKS.
Hyannis, Mass.

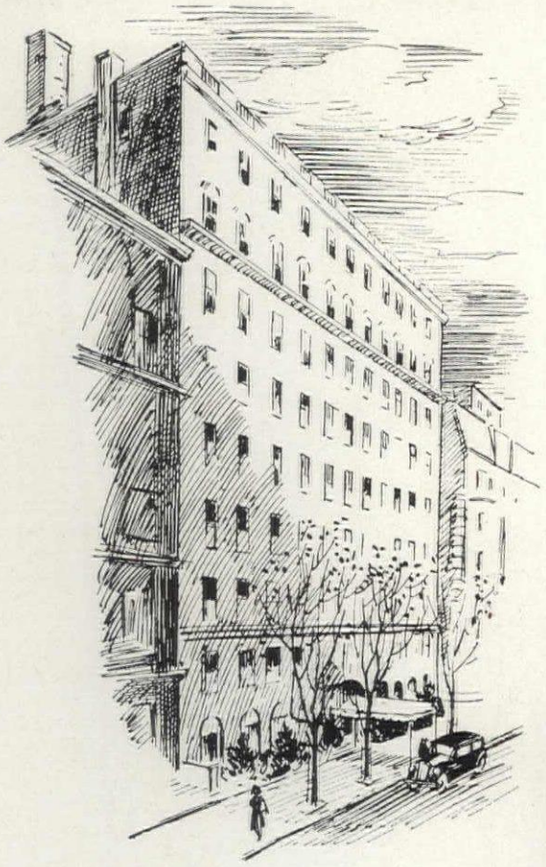
May 19, 1938.

THE FEDERAL ARCHITECT,
Washington, D. C.
Gentlemen:

Enclosed please find money order for $3.00 to pay for my subscription for the last couple of years. I enjoy your magazine very much, particularly "Recent Contracts" and "Changes in Assignments." May I suggest a complete list of C. E.'s once a year, say in December?

Very truly yours,
EARL G. BROWN.

We are taking the liberty of printing a form letter received from one of our construction engineers which he evidently sent to all magazines to which he subscribed. The list of



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of Dependable Water Supply

and not one cent for pipe repairs

IN 1922, Messrs. Litchfield & Rogers, Architects, specified Anaconda Brass Pipe for the apartment house at 4 East 88th St., New York City. It cost only $2,800 more, completely installed, than rustable piping would have cost—a small price to pay for the resulting freedom from repairs, replacements and the annoyance of rusty water.

Just recently, Mr. A. Clarke, superintendent of the building since the structure was completed, stated that the service of the brass piping had been eminently satisfactory. Not one failure or repair charge on the pipe itself. Total plumbing repair costs over the 16-year period were about $70 for replacing several fittings and the relocation of pipe lines.

Anaconda Brass Pipe is furnished in two types: the "67" (67% copper) for normally corrosive waters; the "85" (85% copper) Red Brass Pipe for highly corrosive waters. The latter offers the greatest resistance to corrosion of any water pipe commercially obtainable at moderate cost.

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Offices and Agencies in Principal Cities . . . In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.

what one construction engineer and his family reads is extremely interesting.

Box 537, Lakeview, Oregon,
May 7, 1938.

AMERICAN BOY
CALIFORNIA MONTHLY
ENGINEERING NEWS-RECORD
FEDERAL ARCHITECT
GOVERNMENT ADVERTISER
HUNTING AND FISHING
HYGEIA
LADIES HOME JOURNAL
NATIONAL GEOGRAPHIC
OPEN ROAD FOR BOYS
SUNSET
TIME

Sirs:

Please change the mailing address of the above periodical which is boxed in red

FROM
P. O. Box "J," Sitka, Alaska
TO
A. EARL PATTERSON,
Box 537,
LAKEVIEW,
OREGON.

and oblige,

Very truly yours,
A. EARL PATTERSON.

May 14, 1938.

Dear Morris:

I weaken.

Subscription enclosed.

W. Y. BRADY.

Delta, Colorado,
May 16, 1938.

THE FEDERAL ARCHITECT,
Washington, D. C.

Gentlemen:

You not only got your foot in like the Fuller brush man, but you stayed on the job; so here is my late check to assure future delivery of the one personal contact that construction engineers in the sticks have with the Office.

Very truly yours,
O. O. BRATTEBO.

May 18, 1938.

THE FEDERAL ARCHITECT,
Washington, D. C.

Gentlemen:

It's taken a long time but here it is, and may the enclosed check force the wolf to continue his retreat from your portals.

Thanks a million for a magazine of real personal interest to all of us.

Sincerely,
W. L. DOMINY.

Buffalo, New York,
April 29, 1938.

THE FEDERAL ARCHITECT,
Washington, D. C.

Dear Sirs:

Your postal calling to mind that you all, like most businesses, need financial assistance from time to time was put aside in the rush of getting out some site surveys.

Enclosed is my check for your enjoyable publication.

I feel that we men in the field are indebted to the publishers of THE FEDERAL ARCHITECT. I get a kick out of the editorial remarks; their flippancy is a happy relief from the formal official correspondence.

What a difference between the recent letters of Judge Wetmore to Ed. Morris and some that he officially wrote me some years ago. Oh well, this Government work is no joke.

Sincerely yours,
FRANK M. WEAKLY.

June 10, 1938.
Northampton, Pennsylvania,

My dear Federal Architect:

In the same vein of liberality that provides enlightening and interesting reading to rusticating engineers and others, I hereby donate two bucks for whatever purpose you Washington philanthropists may elect.

May your charity receive its just reward and your publication continue on its way to national prominence. Amen.

HALDEMAN.

P. S. The aforesaid two bucks are forwarded herewith.

TREATISE:
HOW TO EXTERMINATE COCKROACHES,
IN ONE LESSON:

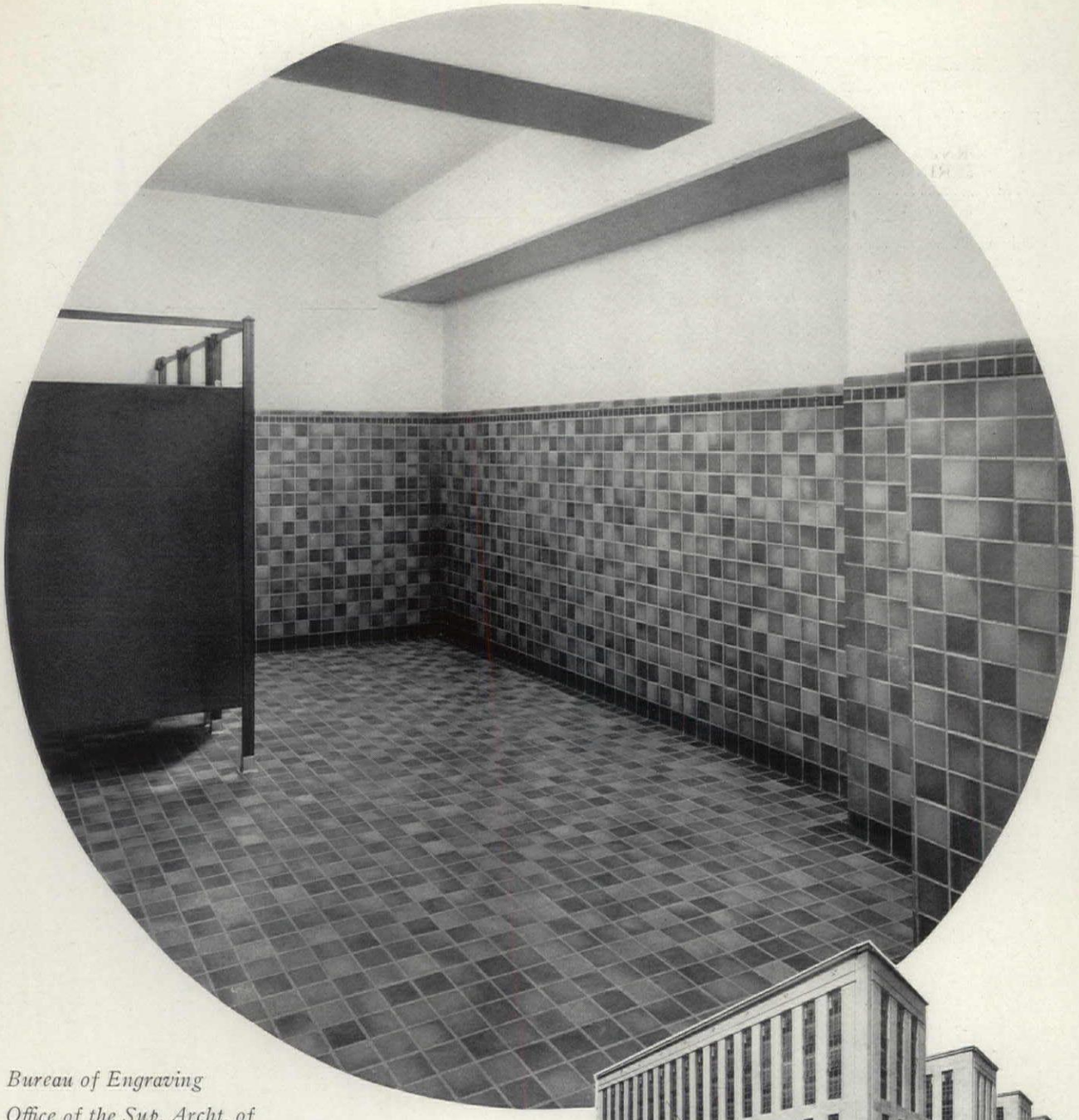
Cockroaches are funny animals; they scamper when you approach them and follow you when you leave. In exterminating these cute little pests, a very humane method should be used.

When one is sighted on a tour of inspection, which should be done at least once a year so they do not get the upper hand, tip-toe quietly when you spy one from the rear, and grab him by his hind legs, (not bothering to look whether it be a "he" or "she." If he gets peeved, acts up and struggles for his liberty (which he has a right to do in this country), stun him with a tap on the bean with a piece of lead pipe. While you have him thus cowed, send someone to the corner drug store for a few drops of ether. Should this take too much time on account of traffic conditions, look around for two blocks of wood, dressed four sides, and gently but without ceremony, place him on the block you hold in your left hand; then with all of the fury and vitality at your command, smash him with the block you have ready in your right hand. This can be reversed if you are right-handed or left-handed. Be sure your thumb is not in the path of the down stroke as you might mess up the operation a bit, giving the cockroach a chance to escape and rejoin his family while you go cussing around looking for "first aid."

Repeat operation if successful until all roaches are exterminated, taking your good old time, for this work should be done "without malice aforethought."

C. H. KAIN.

Index to Advertisers



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Office of the Sup. Archt. of
the Treasury

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RECENT CONTRACTS AWARDED BY PROCUREMENT DIVISION

Flushing Meadow Park, New York, U. S. Government Building, New York World's Fair 1939,—construction—George F. Driscoll Company, 548-550 Union Street, Brooklyn, New York	$657,400.00
Emporia, Va., P. O., — construction — C. G. Hughes, 116 N. 16th Avenue, Hopewell, Virginia	46,363.00
Kalamazoo, Michigan, P. O.—construction—Algernon Blair, 1209 First National Bank Bldg., Montgomery, Ala.	246.245.00
Nashville, Tennessee, Court House—additional remodeling, including changes and repairs—Algernon Blair, 1209 First National Bank Bldg., Montgomery, Alabama	121,792.00
Janesville, Wisconsin, P. O.—construction, including mechanical equipment, etc.—J. P. Cullen & Son, 109 South Main Street, Janesville, Wisconsin	141,904.00
Delhi, N. Y., P. O.—construction—James I. Barnes Construction Co., Greensboro, North Carolina	46,425.00
Northampton, Mass., P. O.—extension and remodeling, etc.—Tremaglio Bros., 1500 Highland Avenue, Waterbury, Connecticut	92,999.00
Tippecanoe City, Ohio, P. O.—construction—The C. R. Chappelear Construction Co., 2080 E. Fifth Avenue, Columbus, Ohio	42,800.00
Glasgow, Montana, P. O. & Ct. H.—construction—Busboom and Rauh, 153 S. Santa Fe Avenue, Salina, Kansas	170,200.00
San Francisco, California, Mint—construction of storage vault, connecting tunnel, etc.—B. A. Howkins & Co., 1182 Market Street, San Francisco, California	170,800.00
Columbus, Mississippi, P. O.—construction—Murphey Pound, 214 Hill Building, Columbus, Georgia	95,153.00
Phoenix, Arizona, Court House—remodeling, including the elevator, etc.—Thos. L. Dawson Company, 2035 Washington Street, Kansas City, Missouri	148,000.00
Washington, D. C., Additional Building for Bureau of Engraving and Printing, etc.—construction of vault shelving, etc.—Berger Manufacturing Division, Republic Steel Corporation, 1038 Belden Avenue, N. E., Canton, Ohio	47,010.00
Linden, N. J., P. O.—construction—J. L. Robinson Construction, 1100 Blk. Pierce Street, Baltimore, Maryland	66,300.00
New York, N. Y., Parcel Post Bldg.—changes and additions to the Mail Handling Equipment—Logan Company, Inc., 1115 Franklin Street, Louisville, Kentucky	42,750.00
Detroit, Michigan, P. O.—Northwestern Postal Station—construction—A. W. Kutsche & Co., 2111 Woodward Avenue, Detroit, Michigan	133,300.00

CONTRACTS AWARDED BY THE CONSTRUCTION SERVICE, VETERANS ADMINISTRATION

Murfreesboro, Tenn., Buildings and Utilities V. A. Facility. N. P. Severin Co., 222 W. Adams St., Chicago, Ill.	$1,382,530.00
Electric Elevators, V. A. Facility. The Shepard Elevator Co., 2413-31 Colerain Ave., Cincinnati, Ohio	30,875.00
Reno, Nevada—Plumbing, Heating and Electrical Works in Treatment Bldg. No. 1, V. A. Facility, H. H. Walker, Inc., 1323 Venice Blvd., Los Angeles, Calif.	31,434.00
Knoxville, Iowa, Additional Buildings and Utilities, V. A. Facility, John E. Ericsson Co., 123 W. Madison St., Chicago, Ill.	428,253.00
Lyons, N. J., Additions to Sewage Disposal Plant, V. A. Facility. Charles S. Moses, Edgewater Park, N. J.	29,840.00

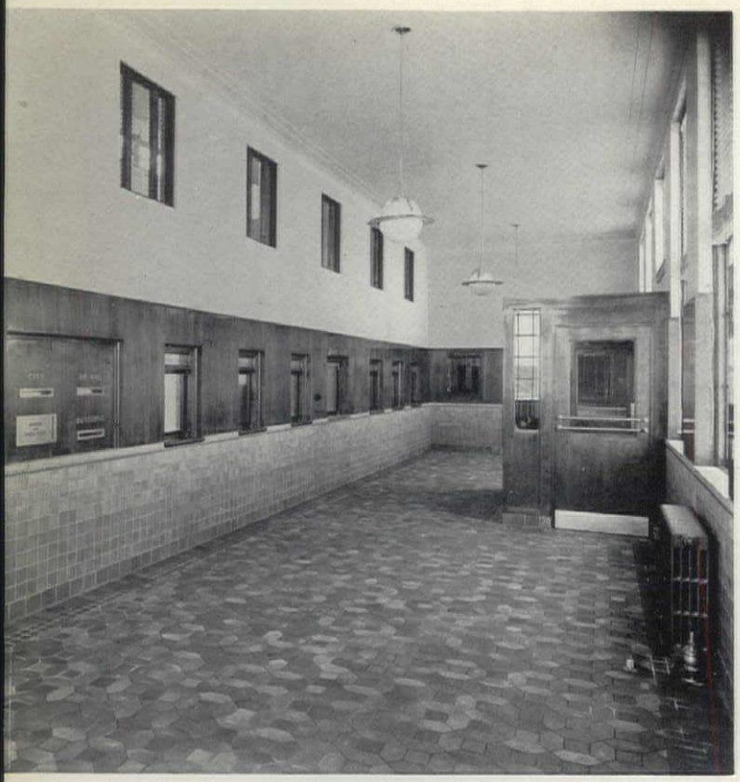
RECENT CONTRACTS AWARDED BY THE QUARTERMASTER GENERAL'S OFFICE, WAR DEPARTMENT

Hickam Field, T. H., Construction of A. C. Repair Hangars—Robert E. McKee, Los Angeles, California	$450,000.00
Hickam Field, T. H., Construction of A. C. Gasoline Fueling System—Aqua Systems, Inc., New York City	74,825.00
Langley Field, Virginia, Runways and Drainage—Atlantic Bitulithic Company, 645 Munsey Building, Washington, D. C.	208,797.50
Fort Meade, South Dakota, Alterations and Additions to Post Hospital—H. H. Hackett, Rapid City, South Dakota	25,393.00
Moffett Field, California, Construction and Completion of a 10" Water Supply Line—W. J. Tobin, Oakland, California, 3701 Balfour Avenue	87,980.00
Sacramento Air Depot, California, Radio Engine Test Building—Eaton and Smith, P. O. Box 15, Sacramento, California	218,450.00
Fort Snelling, Minnesota: Additions and Alterations to Hospital—Northwestern Construction Co., Inc., 1401 3d Ave., South, Minneapolis, Minnesota	29,588.00
Fort Snelling, Minnesota, Interceptor Sewer System—Orfei, Lametti & Lametti, 1319 Dovern Ave., St. Paul, Minnesota	168,348.00
Fort Snelling, Minnesota, Interceptor Sewer System—S. J. Groves & Sons, Co., 509 Wesley Temple Bldg., Minneapolis, Minnesota	63,752.88

CONTRACTS AWARDED BY THE BUREAU OF YARDS AND DOCKS, NAVY DEPARTMENT

April 1 through June 30, 1938

Norfolk, Va., Improvement and Surfacing Landing Field, Naval Operating Base—F. D. Cline & Leon Ellis, Greensboro, N. C.	$366,369.50
Annapolis, Md., Museum, Naval Academy—Ross Engineering Co., Washington, D. C.	170,172.00
Norfolk, Va., Dredging, Naval Operating Base—Norfolk Dredging Co., Norfolk, Va.	158,184.00
Mare Island, Calif., Pumping Plant for Dry Dock No. 3, Navy Yard—Cory & Joslin, Inc., San Francisco, Calif.	153,000.00
Pensacola, Fla., Oil Treated Runways, Naval Air Station—Smith Engineering & Construction Co., Pensacola, Fla.	118,861.83
Norfolk, Va., Improvement of Waterfront, Naval Operating Base—McLean Contracting Co., Baltimore, Md.	116,837.00
Pearl Harbor, T. H., Addition to Bachelor Officers' Quarters, Fleet Air Base—Ralph E. Woolley, Honolulu, T. H.	64,450.00
Pensacola, Fla., Turbo-Alternator and Accessories, Naval Air Station — Worthington Pump & Machinery Corp., Washington D. C.	45,000.00
Summit, C. Z., Replacement of Corona Shields and Alterations to Towers, Radio Station—Viking Construction Corp., New York, N. Y.	30,480.00
Lualualei, Oahu, T. H., Replacement of Corona Shields and Alterations to Towers, Radio Station—Viking Construction Corp., New York, N. Y.	36,580.00



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Haddon Heights, N. J.

Romany Quarry Tiles—Post Office Lobbies . . . .

Satisfactory installations in all sections of country indicate the use of Romany Tiles in various sizes, colors and designs for appropriate Architectural treatments. As the cost is low and maintenance minimized the greatest economy is assured. Romany Clay Tiles will remain attractive and unchanged for the life of the building.

United States Quarry Tile Company

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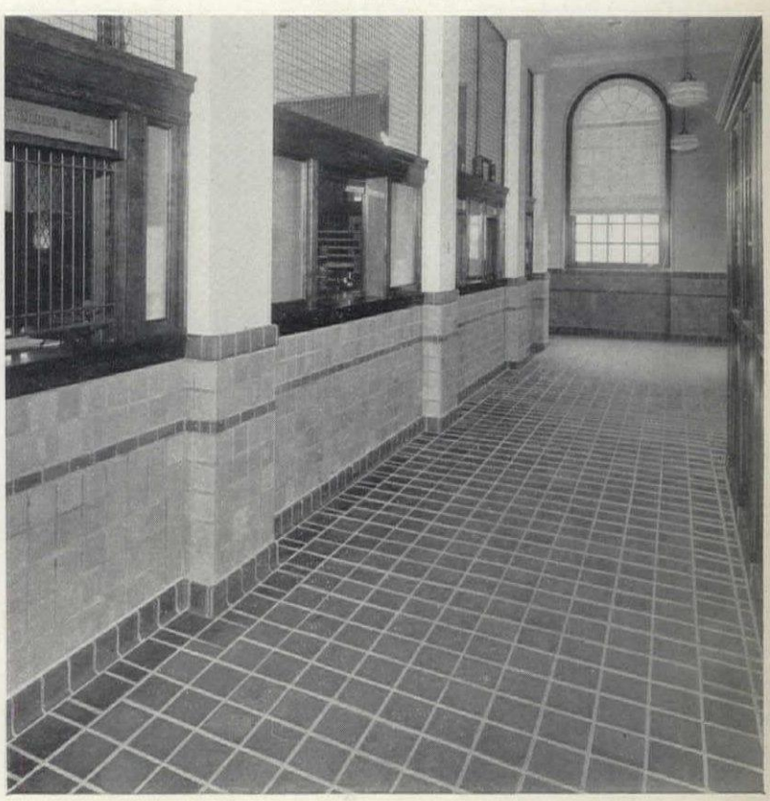


Building for F. W. Woolworth Co., N. E. Cor. 5th Ave. & 39th St., New York.

Starrett & Van Vleck, Architects. John Lowry, Inc., Builders.

ATLANTIC TERRA

MAKERS OF AMERICA'S BEST KNOWN TERRA COTTA

101 Park Avenue, New York City **Southern Branch: ATLANTA TERRA COTTA CO., East Point, Ga.**

WOOLWORTH FIFTH AVE. STORE 1000

Entire exterior is Atlantic Terra Cotta above first story of polished granite, 85 feet on Fifth Avenue and 152 feet on 39th Street.

Color tan Atlantic Abbochrome (mottled) glaze with slightly contrasting shade for parapet above offset. These colors were specially developed for this building by our laboratory.

All Terra Cotta machine extruded by latest de-airing process (except small amount carrying ornament) 4 inches thick with closed back, requiring no filling and providing improved structural stability. Atlantic Terra Cotta is always fired at 2400° F.

Ashlar units in shaft 1′ 10″ high and up to 4′ 4″ long. Every flat surface planed in dry state before firing insuring level face as shown by photograph.

Every piece machine ground on four sides, after firing, so that setting was accomplished with *uniform* ¼″ wide mortar joints.

Flush quirk joints provided at main corners to avoid vertical joints in surface of ashlar and hold 4″ bond constant.

Special 5/16″ shelf plates with expansion joints of elastic cement used at each lintel level to relieve loads. Each piece anchored to backing with two strap anchors ⅛″x⅝″.

Expansion joints provided at each vertical quirk joint corner to take care of horizontal movement.

Through wall flashings and weep holes used at deck of offset and copings.

Every piece wrapped in heavy cardboard containers for safe delivery. Not a single piece damaged in transit or in setting.

All jointing and construction details successfully worked out by our engineering staff in collaboration with the architects and builders. Due to accuracy of our fabrication methods setting proceeded rapidly and economically.

Great technological progress in the last few years has made Atlantic Terra Cotta the modern high quality building material.

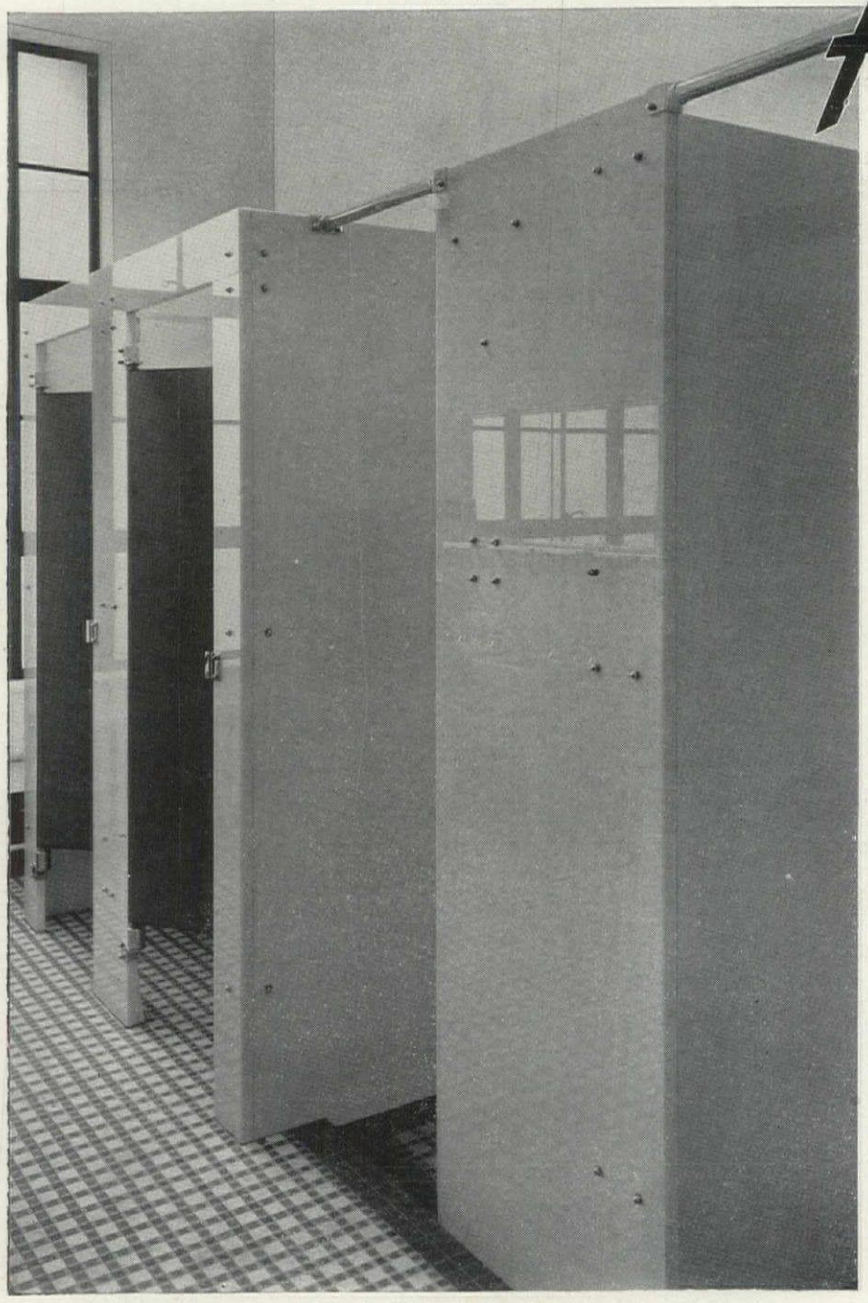
COTTA COMPANY

MAKERS OF AMERICA'S BEST KNOWN TERRA COTTA

101 Park Avenue, New York City **Southern Branch: ATLANTA TERRA COTTA CO., East Point, Ga.**

For BEST RESULTS with Structural Glass

start with a POLISHED FINISH!



TOILET ROOM WALLS *and partitions of Carrara, like these in a modern San Francisco building, are as beautiful as they are practical and permanent. Note the accurate reflectivity of the Carrara Glass, a quality which can be attained only by a mechanically ground and polished structural glass.*

CARRARA Structural Glass has but one type of finish . . . the best. Every piece produced, whatever its thickness or color, is mechanically ground and polished, like fine plate glass, to a mirror-like, reflective surface.

Just as the ground and polished surfaces of plate glass are essential for best results where you are working with large panes of transparent glass, so, in structural glass jobs, where slabs are usually quite large, a structural glass with Carrara's ground and polished finish is inevitably far superior.

Carrara's permanence, sanitation and exceptionally easy cleaning assure a long life of beauty and service with very low maintenance cost. Its polished surfaces are so true that all lippage at joints is eliminated. Whether used for toilet room walls and partitions, or for decorative purposes in the large building or the home, you will find this quality glass an effective tool to work with. We urge you to write for our free book of information entitled "Carrara, the Modern Structural Glass." Address Pittsburgh Corning Corporation, 2329A Grant Bldg., Pittsburgh, Pa., manufacturers of Carrara Structural Glass and PC Glass Blocks.

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PITTSBURGH PLATE GLASS COMPANY

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New 2" Solid Slab Architectural Terra Cotta Ashlar

for

Distinctive Store Fronts

For store fronts of outstanding individuality and maximum sales appeal owners and architects are specifying the *new* Solid Slab Terra Cotta Ashlar.

This *modern* Terra Cotta is extruded in solid slabs up to 24" by 36" in the 2" thickness (and larger in the 4" thickness), and face planed, before firing, to eliminate all surface defects and waviness.

It is available in a large range of colors and textures or can be produced in special colors and effects to your order.

Solid Slab Terra Cotta Ashlar merits the consideration and specification of those designers who are endeavoring to interpret the modern trend toward

distinctive,

colorful

Store Fronts.

Write our New York office for more detailed data on manufacture and erection.

Paterson, N. J. *Sidney Schenker, Architect.*

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