WE CAN'T STAND STILL

Hospitals and related health facilities occupy much of the attention of the design profession these days. For one thing, in volume of work on the boards and volume of anticipated construction, this type of structure ranks high, reflecting the urgent needs which must be met despite high building costs. Then, in three instances—the conduct of the V. A. hospital program, the A.H.A. “qualified architect” list, and the issuance of design and construction standards under the Hospital Survey and Construction Act—architects have been drawn into non-design, quasi-political, social considerations of hospital planning.

The principal interest of the designer, however, is still directed toward improved design of the structure. Here much remains to be done. We think that the buildings illustrated in this issue mark sharp progress—progress in study of the complicated program, in translation of that program into a plan, and in final design expression. Hospitals and health facilities in the United States are beginning to reflect the study which has resulted in an increasing literature on planning (our own PROGRESSIVE ARCHITECTURE LIBRARY volume by Isadore Rosenfield, for example), in the excellent standards of the U. S. Public Health Service, and in many national and regional seminars on hospital planning.

But standards cannot be substituted for design. In fact, standards can be dangerous; they can stultify design. If they are not to become limitations instead of suggestions, they must be minimum standards, prepared by progressive-minded researchers, subject to constant revision. (In all of these respects the “Appendix A” standards for the Hospital Survey and Construction Act qualify, incidentally.) More than that, they must be used only as a springboard by architects who aren’t satisfied with stopping where we now are. Medical science is constantly moving forward; the design of health structures must move with it. Building techniques and knowledge of lighting and heating are progressing; their application to health structures must progress at the same pace.

We can’t afford to sit back and be satisfied with our new hospitals; we can’t afford to “freeze” design, even at a new high standard. Hospital designers can’t rest; they must constantly study, inquire, discuss—and then go back to the drawing boards with new purpose. The hospitals we publish next year must show an advance over the ones in this issue, proud as we and the designers are of this group.
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NOVEMBER, 1947 3
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NOVEMBER, 1947
NO POPGUN CRITIQUE!

Dear Editor: Reference is made to the September "Critique of 5 Homes." Criticism is good if it gets down to fundamentals. My feeling is that you used a popgun when you should have employed something stronger. You apparently pussyfooted because as a host you could not be hard on your guests. This suggests that it might be better to leave the criticism to people who do not bear this kind of relationship to those whose work is being analyzed.

The purpose of criticism is to advance truth, and "popgun" criticism does justice neither to the profession as a whole nor to students in particular who are looking to the architectural press for guidance. It is my impression that in a good many schools of architecture today lip service is still being paid to function, but in their drafting rooms, students are discouraged from concentrating intensely on the old "push-me-pull-you" game for the sake of making a "wow" of an impression.

By getting down to fundamentals the following might have been said:

The Brown house facing southwest has the worst possible exposure. It is placed in the middle of the lot so that it leaves only a ribbon of ground around it. This destroys the only flat spot on the lot and it produces an expensive cellar which has no light except through a few mealy areas. If the architect had turned the house crosswise to the long axis of the island and had placed it tangent to the flat plateau, it would have faced south and an enormous, nature-made, outdoor living space would have been produced. Further, this would have definitely separated the approach and the service space from the private outdoor living space. The cellar would have been obtained with a minimum of excavation and it would have been beautifully daylighted.

The North Carolina house has no plot plan, which makes it impossible to give intelligent criticism; unless we consider the human dwelling place a mere geometric abstraction.

The Princeton house looks like a typical case of modern eclecticism where everything is pulled apart to produce an effect.

The San Francisco Bay house appears too good to be criticized, and the Quonset Cabin is damn good even if "the vertical wall" does "drop within the curve."

An easel painter has primarily the emotions to consider, but in buildings the esthetic function is only one of many which must be accounted for. The architect should not knock them around in his attempt to satisfy emotion. The trick is to satisfy emotion while in full consonance with the other functions a building must satisfy.

ISAAC REDFIELD
New York, N. Y.

PROS AND CONS

Dear Editor: The section on "A Critique of 5 Homes" in your September 1947 issue should get much praise. It is a splendid idea, very fairly and completely presented, and should be stimulating to both architects and prospective home builders. More of just such clear thinking and presentation of pros and cons in planning should produce better planned houses for the world to live in. Especially do I like the editorial introduction, setting forth such honest and sound principles as they have on domestic architecture. I am looking forward to your Homes, Selected by the editors of PROGRESSIVE ARCHITECTURE.

ELIZABETH FITTON
Princeton, N. J.

WASTING OUR TALENT

Dear Editor: Last month we advertised in your magazine, as well as in Architectural Record and in Interiors, for designers, draftsmen, and engineers who have not learned too well how things were done yesterday; and offered good working conditions, Arizona sunshine, and interesting work as inducements. Up to date, we have received over 70 applications, coming from almost every state in the Union, from Canada, and from Cuba.

Knowing real well how difficult it is to find qualified assistants, this was surprising at first, but not after analyzing the letters of application as a group.

At least two-thirds of the applicants had the background and experience which would make them an asset in the best of offices. Only two men were not employed at the time of application. Several are now working in some of the best known offices.

Practically all letters indicated a sense of frustration, and only a few have shown determination and strong belief in new ideas. Their willingness to travel from remotest places to have an opportunity to express themselves, to work freely unhampered by traditions without overbearing masters, and had confidence in the future.

Taken as a whole these letters were very depressing. Not so much as a reflection upon the applicants as upon our society and economies. The country is wasting its talents and youth on mediocre projects promoted by free enterprise boys, while the word "planning" is shunned lest the "Committee" will hear about it.

Men of 40 with education and experience gouged out by years of depression and war are still hopeful of finding employment in offices doing modern work. Their search extending far from home indicates how slowly we are emerging from stagnation. Beyond the pages of our professional magazines there is a tremendous amount of bad work going on. There are signs all over that tradition is losing ground, but the worst of it is that its place is being taken by misunderstood and misused surface applications. We get so used to seeing the best in our magazines that it takes a good cross-country trip, or these applications, to realize that represents only a very small minority.

Despite the fact that we have not asked for any information to realize that represents only a very small minority.

The cross-country lack of housing was very evident in most of the applications; however, there was some wishful thinking—hoping that there is still a city left in the U.S.A. with enough housing accommodations. In fact, some letters made us want to warn: "Can't offer any more work, housing very bad, but come out anyway—it's warmer here at least."

All in all, the results of our advertise ment are very satisfactory except for the fact that we cannot enlarge our staff to take in at least five more of the best of the crop, and it makes us wonder about this "shortage of good men" that everybody is crying about.

WILLIAM WILDE
Tucson, Ariz.

A REVIEWER CHIDED

Dear Editor: Pray consider me an enthusiastic backer of PROGRESSIVE ARCHITECTURE and all its good works. But one is occasionally at variance with a contributor's opinion—even irked to the point of rebuttal.

Surprisingly, my current annoyance stems from Mr. Henry L. Kamphef er's "frank" review of Talbot Hamlin's Architecture and Art for All Men, (August 1947 PROGRESSIVE ARCHITE CTURE). It might even be contended that "speaking frankly" is too kindly a capping for his rather unkindly and non-objective language.

To my mind, students and laymen should find Hamlin's work a really helpful guide towards understanding architecture as an art. Nobody can gainsay his amiable treatment of contemporary architecture, which loses nothing for not being the pronouncement of a clique. Perhaps we have had an overplus of doctrinaire writing that has often failed
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to spread comprehension of our work, or even to have been good advertising. Professor Hamlin has been a good "father" to many an architect of today and a sympathetic mentor of contemporary and progressive architecture. He should not be blamed for that. His recent book is indeed stimulating in its contemporaneous value of modern building (as the late C. W. Behrendt did in his book), and he has never unwittingly paid critical compliments to unworthy examples or those meaningless extravagances of our contemporary "fellow travelers."

Hamlin's explanation of a "new humanism" is, for me, a very meritorious performance. Though the chapter on "Architecture and the Community" meets with the reviewer's approval, he seems not to observe that Mr. Hamlin's inspiring appeal does not savor of the "ivory tower," but shows the professor speaking his mind openly and with a feeling for social responsibility which is so often missing with the "practical" practitioner who is selling architecture designed with and without "emotion."

Maybe Talbot Hamlin is guilty of being more in love with Goodhue than we like, for one is never pleased when historians trace his work back to some strange ancestor. But in a book devoted to the enjoyment of architecture, all these developments have to be taken into account. Intolerance, fanaticism, and hysteria have no place in our search for good architecture. If we accept Bruno Taut's definition of architecture as the art of proportion (not only in a formal sense but also as an expression of all the civic activities, and in relation to climate and topography), then we realize that contemporary architecture should not be aloof from the suggestion that it, too, is descended from a monkey; no analogic restrictions should be permitted in an honest study.

Happily, almost every young architect has branched off the old highway of classicism and period imitation by now. Of course there is little homogeneous architecture, and nothing of the sort could be expected in this chaotic society.

It is so easy to call names and claim righteousness. Mr. Kamphoefner's review did not help to clarify matters or truly inform the prospective reader of Hamlin's performance. Though the chapter on "Architecture and Art for All Men," perhaps he should ask Talbot Hamlin for an invitation to board his cruiser for a pleasant hour, to talk things over.

In fine, to quote the editor of your excellent magazine, "It's time we all grew up and stopped being hysterical about this subject."

HEINRICH H. WAECHTER
Boston, Mass.

FUNCTION DOMINANT

Dear Editor: Why the title "Logic?... Or Esthetics?"

Mr. Kirchman, too, bases his irrationalism of the so-called International school on the "outgrowth of esthetic principles which are anti-rational rather than rational in some of their fundamentals."

If architecture is utilitarian—the only major art that is an applied art—then it must be dominated by the demands of function. It seems to me that esthetics and logic or rationalism or function are inseparable. An esthetic principle of architecture if not rational surely falls without the field of esthetics.

I speak of function, not as a planning basis alone, but as a broad foundation providing that a building be suited to its culture and the best construction practices available, to its plot and climate and surroundings, and to its immediate needs.

The revolt against the "highly materialistic theory of 'functionalism'" by early modern European architects was surely sound. A completely logical or functional solution need not be esthetically good. But a sound esthetic solution would of necessity be based on logic, on function, on rationalism.

MAYNARD PEARLSTONE
Columbia, S. C.
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While maintaining their own offices in Los Angeles, California, for commercial and residential work, architects Paul R. Williams and A. Quincy Jones, Jr., have formed an association for the designing of clubs and hotels. One of the designs of this team, Palm Springs Tennis Club, is the first feature of this month's issue. Williams, a native Californian, won four consecutive competitions the year after he graduated from University of Southern California. This started him off in the field of domestic architecture; he has designed over 2,000 homes, from Canada to South America. This residential experience has now been applied to resort hotel design. His associate, Jones, was an honor student at University of Washington, and prior to opening his own office worked with architects in the Los Angeles area on various large projects, including the Fleet Operating Base at Terminal Island, California, the Naval Reserve Air Station in Los Alamitos, and housing projects and community centers.

Health facilities constitute the fifth building type discussed in our series of Critiques, continued this month. The first of two hospitals chosen for analysis is located in Greenwich, Connecticut, and comes from the New York office of Skidmore, Owings & Merrill. The principal responsible for this design is Robert W. Cutler, a partner in the firm. A graduate of Syracuse University, he has been an instructor at Mechanics Institute, New York, and prior to his present partnership, worked with several New York firms, including Schultze & Weaver; Bottomley, Wagner & White; and Eugene Schoen & Sons. While with Skidmore, Owings & Merrill he has been active in the firm's work on Sloan-Kettering Institute and James Ewing Hospital at Memorial Hospital Center for Cancer & Allied Diseases in New York, and New York University-Bellevue Medical Center.

Southern Hospital, Stockholm, Sweden, the second hospital to be treated, is in reality a huge medical center, and is the work of the Swedish architect, Hjalmar Cederstrom.

The Dormitory for Keeley Institute, Dwight, Illinois, a center for the treatment and care of alcoholics, was designed by Schweikher & Elting, architects, of Roselle, Illinois, already known to our readers. (For biographical data, see December 1946 PROGRESSIVE ARCHITECTURE.)

A PROGRESSIVE ARCHITECTURE Award Honorable Mention, Wayne County Health Center, Michigan, comes from the office of Eberle M. Smith Associates, Detroit, Michigan. (For photograph of Mr. Smith, see June 1947 PROGRESSIVE ARCHITECTURE.) Eberle M. Smith was trained at University of Michigan College of Architecture, and has worked with Albert Kahn, Malcomson & Higgenbothan, and Nathaniel O. Gould, all of Detroit. He was associated with Maynard Lyndon from 1935 to 1942, when the firm of Lyndon & Smith was dissolved and he began practice under his own name. During the war period he designed and built institutional buildings for the Federal Works Agency, Federal Public Buildings Administration, and Federal Public Housing Authority.

Also included in the group of health buildings is Naramore, Bain, Brady & Johnson's design of the King County Central Blood Bank, Seattle, Washington. An active Fellow of the A.I.A., Floyd A. Naramore is a past president of the Washington State Chapter. He is a graduate of Massachusetts Institute of Technology, and specializes in the design of schools and public buildings. William J. Bain is also a Fellow of the A.I.A., and a past president of the Washington State Chapter. Since his graduation from University of Penn-
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NOVEMBER, 1947 13
Two nurses’ homes complete the Critique study this month. The home for Memorial Hospital in Anniston, Alabama, was designed by Charles H. McCauley, of Birmingham, who is already known to our readers as the architect of Sylacauga Hospital, also in Alabama. (For biographical note, see December 1946 Progressive Architecture.)

The nurses’ home in St. Cloud, Minnesota, is one of the most recent projects of the firm of Long & Thorshov, Inc., of Minneapolis, Minnesota. The founding of their present office dates back to between 1880 and 1890, and its growth has paralleled that of the City of Minneapolis itself. With the firm since 1919, Roy Norman Thorshov has been president since 1928. He received his Bachelor of Architecture degree at University of Minnesota, and did his graduate work at Fontainebleau School of Fine Arts in France and at University of Minnesota. During 1933 and 1934 he served as director of the housing survey conducted in Minneapolis, and from 1934 to 1936 he worked with the Home Owners Loan Corporation, Reconditioning Division. He is vice president of the Minnesota Chapter, A.I.A., and a member of American Interprofessional Institute. Henry T. Shotwell has been a partner in the firm since 1945. A Bachelor of Architecture from Pratt Institute in New York, his first experience was with the New York firm of Githens and Keally. From 1938 to 1940 he was an architect with National Youth Administration in Washington, D.C., specializing in the development and execution of wood panel prefabrication for youth training centers. Before his present partnership he also worked, from 1940 to 1945, as chief architect for Rural Electrification Administration in Washington, D.C., and St. Louis, Missouri. His war service was with the Office of Scientific Research and Development, where he was assigned to the Army Air Forces as operations analyst. Robert G. Cerny, the third principal in the firm, was trained at University of Minnesota and received his M. Arch. from Harvard. He

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(Continued on page 16)
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was granted a fellowship from Harvard in 1935, and traveled through Europe for nine months studying town planning, housing, and modern architecture. His early experience was with TVA in Knoxville, Tennessee, and in 1936 he was appointed secretary of the Knoxville Housing Authority. The following year he was invited to teach architecture at University of Minnesota, where he is now an associate professor. From 1937 to 1942 he practiced architecture under the firm name of Jones & Cerny, and from 1942 to date he has been a consulting designer with Long & Thorshov. He is a member of the A.I.A., executive secretary of Minneapolis Civic Center Development Association, and chairman of the Mayor’s Emergency Housing Committee.

The residential example chosen this month by the editors is also from a Minneapolis architectural firm, Elizabeth and Winston Close. Their office was started in 1938 under the name of Close and Scheu, but they “later made the partnership more inclusive by getting married and changing the name of the firm.” Close is a graduate of University of Minnesota and M.I.T. Mrs. Close, a native of Vienna, studied for two years at Technical University of Vienna before coming to M.I.T. to complete her architectural training. From the first the Closes say they were “determined not to do any ‘stylistic’ work, and not too optimistic about our chances of staying alive on that basis. But surprisingly many people seemed to want contemporary design, and we have been busy steadily.”

Closely allied to the Health Facilities Critique is the lead article in the Materials and Methods section this month, “Don’t Be Afraid of Hospital Equipment.” The introduction to this article has been written for us by Leighton M. Arrowsmith and John Rannells. Leighton M. Arrowsmith is a past administrator of St. John’s Hospital in Brooklyn, New York, and has long been associated with the standardization of administrative methods in hospitals. He is at present with New York State Department of Mental Hygiene. John Rannells’ name will be familiar to our readers as our technical book reviewer this past year. He is an architect with the office of Shreve, Lamb & Harmon in New York, with a special interest in hospital design.

Another in the series of streamlined specifications, which have aroused great interest and enthusiasm among our readers, completes this month’s issue. The specification, on casework for hospitals, is by Ben John Small, author of the earlier article on “Specification Surgery.” Since this article and biographical information on Mr. Small appeared in the August 1945 Progressive Architecture, he has co-authored, with Clinton H. Cowgill, a book, Architectural Practice, recently published by Reinhold Publishing Corporation.
Every hardware merchant, every contractor and builder knows from experience that today's cabinet hardware must attract the eye and satisfy. A glance will show you how the new Stanley designs do exactly that!

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STANLEY
NEXT MONTH

- Newest and largest of the TVA storage dams on the headwaters of the Tennessee River, Fontana Dam, and auxiliary structures will be featured in our next issue. This is a notable example of the gravity type of uncurved dam, which relies upon the weight of the massive concrete structure to hold back the waters of the river in the narrow valley behind it.

- Several building types will be explored in the same issue. From the office of Wurster, Bernardi & Emmons, San Francisco architects, we have chosen an industrial office building at Niles, California. Design possibilities of a new kind of building are suggested by overnight cabins in South Yarmouth, Massachusetts, the work of David Fried, Boston architect. Completing this section will be a men’s wear shop in Beverly Hills, California, by Maynard Lyndon, Los Angeles architect; an arts and science building of the Ricker Classical Institute at Houlton, Maine, by Alonzo J. Harriman, Inc., of Auburn, Maine; and a house at Whitewater, Wisconsin, by William V. Kaeser, Madison architect.

- Most of the Materials and Methods section will be devoted to a discussion of “Apartment House Elevators,” by H. M. Nugent and W. H. Easton, Jr., both of Otis Elevator Company. They outline and analyze the considerations which are basic in the selection of elevator equipment for apartment buildings. There will also be the concluding pages of the typical streamlined specifications for metal casework for hospitals, by Ben John Small, started this month.

NOTICES

APPOINTMENTS

E. Michael Czaaja has been appointed associate professor on the department of architectural engineering faculty at Washington State College, Pullman, Wash.

Two new appointments to the University of Oregon School of Architecture and Allied Arts are Jean Kendall, who returns as assistant professor after a 3-year absence, and Lynn Alexander, a new instructor in Art.

North Carolina State College of Agriculture and Engineering, University of North Carolina, announces the appointment of Lawrence Albert Enersen as professor of landscape architecture.

Prof. Herbert Reeves Sinnard has been named head of the department of architecture at Oregon State College, Corvallis, Ore.

Joseph Blumenkranz has been appointed by the U. S. War Department, Corps of Engineers, as consultant on the nationwide hospital program for the Veterans Administration. Mr. Blumenkranz has acted as hospital consultant on 3 veterans' hospitals during the past year, and prior to that was Architect and Hospital Consultant to the Government of Puerto Rico and Senior Architect of Hospitals with the City of New York. His offices are at 535 Cathedral Pkway, New York 25, N. Y.

NEW ADDRESSES


Sanford W. Goin, 634 E. Church St., Gainesville, Fla.

S. Brian Baylinson, 215 E. 37th St., New York 16, N. Y.

Page & Steele, 72 St. Clair Ave. W., Toronto, Canada.

Douglas Dacre Stone & Lou B. Mulloy, 619 California St., San Francisco 8, Calif.

Charles F. Malloy, Kirby Bldg., 246 N. Main St., Herkimer, N. Y.

Harry L. Alper, 565 Fifth Ave., New York, N. Y.

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PROGRESSIVE ARCHITECTURE AWARDS

Every architect in the United States is invited to present his best work or make nominations for review by a distinguished professional jury. The Awards are intended to foster sincere, reasoned progress in architectural design in the United States by citation and recognition of those architects whose efforts to improve contemporary standards are judged the most successful.

The Awards will consist of suitable certificates to be given to the winners at a presentation dinner attended by nationally prominent speakers and leaders of the profession. It is proposed to give the dinner in or near the home town of one of the Award winners.

JURY
The buildings to be cited as the best constructed during 1947 will be selected by a jury qualified to consider all aspects of the building. Thomas H. Creighton, Editor of PROGRESSIVE ARCHITECTURE, will be the professional adviser.

PROGRAM
The only basis for selection of the buildings winning Awards in the two classifications above described will be demonstrable progress in fitness, strength, beauty, and purpose. The jury will be asked to give consideration to the appearance, plans, structure, use of materials, site arrangement, and relation to community plan and community needs.

ENTRIES
Every architect in the United States is invited to present before March 1, 1948, the best of his own work constructed during 1947—also to nominate buildings by other architects that he believes worthy of consideration by the jury.

Each submission should include at least three photographs, not smaller than 8" x 10", showing both the interior and the exterior of the building, as well as a plot plan, floor plans, and a brief description of the function of the building and its outstanding features. More detailed information may be requested by the professional adviser after preliminary examination of the work submitted.

INQUIRIES
Entries or inquiries about the Annual PROGRESSIVE ARCHITECTURE Awards should be addressed to Thomas H. Creighton, Editor, PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 18, N. Y.
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22 PROGRESSIVE ARCHITECTURE
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November, 1947 27
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NOVEMBER, 1947 33
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See Sweet's Catalog, 17 b/6

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This is an advertisement published six years ago—three years after Denison Bingham Hull, Winnetka, Ill., architect, had installed a panel heating system in his new home. He used Youngstown Steel Pipe and at that time stated that the system was performing 100% satisfactorily.

Mr. Hull has just been interviewed again. He is still enthusiastic about panel heating—says the pipe and the rest of the system are still performing to his complete satisfaction after nine years. He considers panel heating very economical—it saves him 20% in his annual heating bills, compared to other types of systems. He would certainly use this same system if he ever builds again.

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- Missouri State Capitol, Jefferson City, Mo.
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- Standard Arcade, New York, N. Y.
- Masonic Temple, Omaha, Neb.
- St. Thomas Aquinas Church, Chicago, Ill.
- Union Gas Company, Brooklyn, N. Y.
- Union Station, Toronto, Canada
- Roosevelt High School, St. Louis, Mo.
- Bank of America, New York, N. Y.
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Years before, anticipating the needs of construction progress, Lone Star Cement technicians began rearranging the chemical structure of Portland cement. And so it was that 'Incor', America's FIRST high early strength Portland cement, was available—and on time. 'Incor' concrete withstood the almost fabulous pressures... held up the mountain... has been holding it up ever since... not a dollar for maintenance.

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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 25,500,000 BARRELS ANNUAL CAPACITY
A pleasure dome of rare device, this sparkling club house is quite as much a product of its unique site as it is of the functional requirements. Literally built into a mountain of rock, it looks out to the east over a serene view of the colorful near-by community and the miles of desert valley beyond.
Palm Springs, California

Paul R. Williams
A. Quincy Jones, Jr.
Architects

Rear walls of both the ground floor snack bar and the dining room above follow the contour of the rocky mountain at the back. The concrete structure is anchored into ledges blasted from the hillside. Further exploiting the dramatic site, windows on the rear walls of these rooms look directly onto the odd rock formation of the mountainside. Toward the valley view, almost continuous walls of glass are provided. The lounge and lanai are appropriately set apart from the activity rooms.
MAIN DINING ROOM. Note glass walls, and troughs with built-in light and conditioned-air sources.

RAISED CORNER of dining room. Vertical wood strips surface the wall. At right, fireplace wall, with mountain-view windows at left.
Tennis Club.
PALM SPRINGS, CALIFORNIA

PAUL R. WILLIAMS and
A. QUINCY JONES, JR., Architects

Use of the large glass areas produced the "by-problem" of high heat transmission. Modern equipment and skillful architectural design were joined to solve this problem (see section below). In both structure and finish, natural materials such as stone and plain wood strips help integrate the out- and indoor relationship emphasized by the glass walls.

LOUNGE, looking toward lanai and dining deck beyond.

SNACK BAR, arranged on two levels, with full view of the pool and gardens.

Dining Room Section

AIR CONDITIONING was solved by a system of the reverse cycle type. Depending on exterior temperatures, heated or cooled air is forced into plenums in the roof structure from which it is let into the rooms through jets (integrated with the design of indirect light troughs) or continuous slots at the glass areas. The jets spray air across the ceiling.
Critique

HEALTH FACILITIES

The term "health facility" covers a surprising number of types of buildings. While it obviously includes hospitals and offices for doctors, it goes way beyond these. In this Critique, for instance, the range extends from a huge metropolitan medical center to a rural health center. And in between these extremes are numerous special-purpose structures, new types of buildings, planned to serve new needs that have arisen from increased medical knowledge and improvements in health-care methods. Though complete coverage is impossible in a single issue of a magazine, there are included in the group at least two buildings for which (so far as we know) no precedent whatsoever exists—a county blood bank and an institute planned from scratch for the treatment of alcoholic patients.

To look over this diverse material and give us—and you—the benefit of their invaluable knowledge, we were fortunate to enlist the help of three distinguished experts in their fields—Addison Erdman, hospital specialist with the firm of Charles Butler, Robert D. Kohn, and Addison Erdman, Architects Associated, and co-author of the recent book, "Hospital Planning"; Dr. J. J. Golub, superintendent of the New York Hospital for Joint Diseases, former associate of Dr. S. S. Goldwater, and a well known hospital consultant; and Edward D. Stone, prominent New York architect whose contemporary design work has been widely heralded.

Please notice that this is a critical analysis of several excellent buildings that serve one basic purpose—health care—rather than any attempt to conduct a survey of a single building type. As we see it, this is the appropriate function of a magazine. For a comprehensive study of a single building type—hospitals, for instance—the broader dimensions of a book are required. We have mentioned the one on which Mr. Erdman collaborated, published by F. W. Dodge. Another invaluable treatise is the recent "HOSPITALS—Integrated Design," by Isadore Rosenfield. Put out by Reinhold, it is Number 1 in our planned series of building-type books known as the PROGRESSIVE ARCHITECTURE LIBRARY.

1... GREENWICH HOSPITAL, GREENWICH, CONNECTICUT

SKIDMORE, OWINGS & MERRILL, Architects
CLAUDE W. MUNGER, M.D., Consultant

NEW HOSPITAL, left; existing plant, right.
PROBLEM: To design a 222-bed hospital to be joined with the present structure, which will become the Outpatient Department and a nursing school and residence.

SITE: Sloping ground on the present hospital site.

MAIN POINTS ADMIRE: General organization of the building, with most patients' rooms oriented for optimum sunshine and so arranged along the rear face of the structure that they are apart from sights and sounds of both the visitors' and service entrances; provisions for future expansion; the direct architectural expression of the plan and structural scheme.

CHIEF POINTS QUESTIONED: Mainly plan details, such as justification of a separate—and separately staffed—emergency department on the hospital's sub-basement floor; organization of storage space in relation to receiving office; the economy of having a nurses' station, a separate diet kitchen, etc., in each 22-bed half of the typical ward floor, etc.

SUB-BASEMENT. Emergency cases are high in the Greenwich area; hence, justification of a separate department, operated as a separate nursing unit. Recovery rooms used both with emergency suite and by Police Department for alcoholics, etc. Basic plan and relation of elements seem excellent.

BASEMENT. Receiving room, probably too far from general storeroom for precise control (this plan area currently being re-studied). Circulation near elevators, to avoid conflict with use of food refrigerators, might also be revised.
FIRST FLOOR. The jury found little to question on this floor. One minor point arose about the four elevators (to serve all functions) opening into the same lobby. The architects point out that, with this system, all elevators will be constantly maintained, whereas a scheme with separate elevators for separate services makes it easy to slight the maintenance of the strictly service units.

SECOND FLOOR. The question was raised whether, since radiology is more closely related to outpatient work (to be located in old building to the north), a more efficient plan might result if the placement of the laboratories and radiology department were reversed. This was considered, but present arrangement adopted because the clinic load is not heavy, and most private patients in radiology will use main hospital elevators.
The parti for the design is a T-shaped scheme, with most of the patients' rooms in the cross bar of the T, facing south, and administrative offices, operating suites, laboratories, etc., in the stem of the T, which is joined to the existing plant (future Outpatient Department and nurses' home and school) on the four lower levels. The typical nursing floor, consisting of twin units, is arranged symmetrically either side of the central elevator lobby, and each is a complete unit with its own nurses' station, chart room, diet service room, etc., so that no spaces have to be shared.

Because of the character of this community, a majority of the rooms are one- and two-bedrooms rather than wards. As the architects tell us: "The entire staff requested complete nursing units, and these are justifiable in Greenwich." Future expansion can be handled by additions to either the east or west ends of the nursing unit wings.

THIRD FLOOR. One question here was whether 44 patients justify two nurses' stations and (on some floors) two rooms for private duty nurses. Regarding the first point, a requirement was to make each unit complete in itself; the number of rooms for private duty nurses reflects the refined type of care which patients in this hospital demand—and can afford.

FOURTH FLOOR. What, the jury asked, is the reason for location of central sterile supply room on the floor above the operating floor? The answer: "This was placed as near as possible to inpatient activity, serving both operating and obstetrics by dumb-waiter." Space in the Resident Staff quarters for doctors' rest and bedrooms is preferable, the architects feel, to the "antiquated" scheme of isolated bedrooms adjacent to delivery rooms.
Typical pairs of nursing units occur on the second, third, and fourth floors. The entire fifth floor is given over to maternity services; the sixth floor is untypical in that it includes a third nursing unit in the wing to the north, and the seventh or roof floor is made up of lounges and sun decks for both patients and staff. Though the building is in preliminary stages of design, the plan is to use a reinforced concrete structural system, surfaced on the exterior with limestone.
PROBLEM: To develop a municipal, 1200-bed central hospital—Mr. Cederstrom refers to it as a "public health center"—including every diagnostic and therapeutic facility known to medical science, as one of the major keys in the nation's social health and welfare program. To provide for prevention and early treatment quite as much as for the more acute problems of inpatient service.

SITE: An open hilltop above Arster Bay in the Sodermalm section of Stockholm.

MAIN POINTS ADMIRE: The concept of developing this institution as an integral part of a program for the nation; the excellent separation and interrelation of outpatient and inpatient departments; the planning of the typical 32-bed nursing unit.

CHIEF POINTS QUESTIONED: The desirability of so large a unit; whether several related but smaller buildings might not be preferable to a vast single structure.
Experts from all over the world worked with Mr. Cederstrom and the other authorities in determining basic needs and the planning approach. From this research, which continued over a number of years, the decision was reached to develop the plan as a “double block” scheme, with the main, 9-story mass of the wards and nursing units (inpatient facilities) organized in a broad wing with projecting bays on the south, and the outpatient polyclinics, X-ray departments, operating theaters, etc., in a lower, parallel building toward the north.

Transverse wings that include services related to the adjacent departments join the north and south blocks, and ambulance and service entrances occur to the west, within the court formed by the main building masses. Principal entrances occur on the north and are arranged on two levels—patients and visitors for the nursing-unit block entering at the lower level, passing through the building and so, by elevator, up to ward floors; outpatients who come for examination and treatment entering via the upper-level ramp.
INPATIENT WARD BLOCK


There are two main sets of vertical transportation—one for inpatients and visitors (south wing); the other, to serve outpatients in the north wing. Horizontal communication is provided within the transverse wings at the two entrance levels and on four floors above.

Underground, blasted from solid rock is a gas- and bombproof shelter, where the hospital facilities are repeated at smaller scale. Here, in case of emergency, is space for 2,500 persons, including 1,000 bed patients. Elevators reach this level, but in case of power failure, there is also access by ramp.
One side of a 4-BED ROOM

2... SOUTHERN HOSPITAL, STOCKHOLM, SWEDEN

HJALMAR CEDERSTROM, Architect

Diagram of the Southern Hospital, Stockholm, Sweden, showing the layout of wards and clinics.
The typical L-shaped ward or nursing unit is duplicated more than 30 times in the southern inpatient wing. Thirty-two patients are cared for in each ward: 5 rooms for 4 patients; 4 rooms for 2 patients; and 4 rooms for a single patient. Convalescents use the big general solarium at the end of each southern bay. Although each floor varies in detail, the floor plan below clearly shows the basic plan organization—the clinic block, the ward block, and the connecting corridors and central services used by both nursing units and polyclinics.
Brief presentation of so vast a project can do no more than touch on the details of planning. The photographs on these two pages, however, indicate the care and thoroughness with which the design of the total institution has been handled. A typical plan refinement is the handling of food—from preparation to patient's bedside. Basic preparation takes place on the top floor of the ward block (diagrammatic plan, below).
From here, semi-prepared food goes to 11 distribution kitchens, where sauces, special-diet food, etc., are added. Thence, the dishes travel by dumb-waiter to the individual ward kitchens for distribution to the patients' rooms. Thus, a considerable degree of flexibility in diet is provided with a minimum of back-tracking and confusion. The building is of reinforced concrete construction, with walls heat-insulated by light, porous sheets of insulative material on the exterior of the walls. Where the insulation occurs below grade, it is protected from frost and water by a layer of ceramic tile.
Critique

HEALTH FACILITIES

Turning from these excellent examples of the more usual types of health-care buildings, we now look at a group of buildings which are of a highly specialized (in some cases, entirely novel) nature. While the purpose of these buildings is quite different from that of a hospital, there are common denominators that apply throughout. Since all such institutions and adjunct buildings are costly to run, great emphasis in the planning goes to efficiency of operation; and in the selection of the structural scheme and building materials, economical maintenance is a strong controlling factor. Also, the architect's imagination is consistently called upon to develop an environment that will assist the patient's sense of well-being and speed his recovery. To this extent, architecture itself becomes a significant part of the health-care procedure, and the architect's interest and service parallel those of the doctor. This fact is a good instance of the progressive approach to architectural practice, wherein buildings are far more than something beautiful to behold and are, in fact, integral parts of the society they are designed to serve.

On the page facing is one of the most exceptional new building types in the health facility category—an institution specifically developed to further the cure of those whose lives have become burdened with alcoholism. Following this—in order—are the Wayne County, Michigan, Health Center; the King County Central Blood Bank in Seattle, Washington; the Nurses' Home for Memorial Hospital, Anniston, Alabama; and another nurses' residence provided for St. Benedict's Hospital in St. Cloud, Minnesota.
PROBLEM: To design an institution for the treatment and care of alcoholic patients which would serve efficiently as a health-care facility yet would have a character that would be more residential than institutional—a factor considered important to the psychological treatment of patients.

SITE: The 20-acre site of the present Keeley Institute buildings.

MAIN POINTS ADMIRED: The general plan organization, the structural system, designed for economical maintenance; the design character which suggests a resort hotel rather than a hospital.

CHIEF POINTS QUESTIONED: Method of control and circulation within the building (points which an explanation of the Keeley system clarify); the absence of lounges on the separate patients' floors.
"EGG CRATE" STRUCTURE: Thin, reinforced concrete floor slabs, supported on partition walls (thin concrete cores surfaced both sides with brick). Exterior corridor walls are simply "curtains" of hollow cavity brick construction, joined to floor slab above by continuous, daylighting bands of glass. Roof slabs across the lounge and dining room are of lightweight perforated steel construction with interposed glass panels (see night photo of model).

3... DORMITORY, KEELEY INSTITUTE, DWIGHT, ILLINOIS

The new building will have 84 rooms, including administrative offices, a lounge, dining facilities for 130, the bedroom wings, kitchen, laundry, a laboratory, offices for doctors, and rooms for medical treatment. The critics asked whether the complete separation of the bedroom wings would not make control and supervision difficult, further questioning what facility was provided for special, continuous care, in case a patient should need it. The answer is that, after a certain hour of the evening, patients do not come and go through the building and the only "control" required is visual, from the clerk's desk in the main lounge. In fact, it is pointed out that this desk controls movements to and from all parts of the building—to the lounge and dining rooms, to the medical wing and doctors' offices, as well as to the bedrooms. Patients in most cases are entirely capable of taking care of themselves; if some one patient needs particular care, an orderly stays on a cot placed in the patient's room. Lack of recreation facilities, a library, etc., is explained by the fact that these are located in an existing nearby recreation building. As to the absence of lounges on the different floors, the architects explain that all patients are ambulatory and hence can use the general lounge, as in a hotel.
PLAN: Developed around the square as a module.

BEDROOM WINGS: Staggered floor system in single-bedroom wing provides four floors, with a maximum climb of two and a half flights from main floor.
THE HEALTH CENTER is on a rural site adjoining the County Hospital. Because of a spring flood condition, there is no basement. Dry storage is provided in the room above the main waiting room.
Critique: HEALTH FACILITIES

4... WAYNE COUNTY HEALTH CENTER, MICHIGAN

EBERLE M. SMITH ASSOCIATES, Architects

PROBLEM: To supply dental, maternal, X-ray, tuberculosis, and venereal disease treatment and control, plus a headquarters for the Wayne County Board of Health, County Sanitary Engineers, and County Nurses.

SITE: Beside a gravel country road several miles from a residential area.

MAIN POINTS ADMired: Efficient plan with centralized control; two waiting rooms that separate the TB and VD cases from the maternity-dental patients; clean over-all design.

CHIEF POINTS QUESTIONED: Why no baby-carriage room; where baby-weighing takes place; where patients rest after pneumothorax treatment; what room is used for nutritional aid program.

The jury's questions were answered in order. There is no baby-carriage room, because the rural location of the building makes this unnecessary: patients arrive either by bus or in their own cars. The demonstration room is used as a weighing room for maternal cases; the pneumothorax treatment room itself will be used for the short time some patients may require rest after treatment. For nutritional demonstration, the nutritional aid nurse uses the demonstration room, which is equipped with kitchen facilities and projection equipment. Scheduling of the various programs avoids conflict in the use of this room.

The building plan, elements of which are largely based on FWA standards, is framed with steel columns and joists, and services such as steam, water, gas, and sewer come to the structure by tunnel from the near-by Wayne County Eloise Hospital.

WAITING ROOM, looking toward roadway.
The general waiting room and information desk are so organized that the nurse stationed at the desk has control of all of the main floor. She has an immediate view of the principal entry and (down a corridor) of the exit door from the maternity-dental wing. She can also view the tuberculosis-venereal waiting room through the pharmacy at the right of the desk. For the privacy of patients, exit doors direct to parking space are provided from both wings of the building, so there is no need to return through the waiting rooms.

LABORATORY

NURSES' ROOM
STRUCTURE: Reinforced concrete frame and slabs for lower story; structural steel columns and beams for upper floor (shown above).

5...KING COUNTY CENTRAL BLOOD BANK, SEATTLE, WASHINGTON

NARAMORE, BAIN, BRADY & JOHANSON
and JOSEPH WOHLB, Architects

PROBLEM: To provide a center for the convenience and comfort of blood donors and for the efficient handling and processing of the plasma. Storage space for an ample supply, in case of emergency.

SITE: A side hill in the center of Seattle's hospital district, allowing access to both main and lower floors at grade.

MAIN POINTS ADMIRE D: The plan organization that places the several steps involved in blood-giving in logical order, with a minimum of path-crossing; the informal design character of the building that is considerably more welcoming than the usual institution; the well planned separation between public and staff-administrative space.

CHIEF POINTS QUESTIONED: Whether curtains separating the donors' cots might be an improvement in detail; what procedure is followed in case the process proves too severe for a donor; why the director's and his secretary's offices are so completely separated.

One hundred percent of the hospitals in Seattle and King County participate in the blood-bank program that this unique structure serves. The project was initiated by a group of public-spirited citizens who formed a corporation to raise funds for the construction and equipment of the building.
In answer to the jury's questions, the blood-bank director does not see any advantage to curtaining between cots. Curtains are not only a nuisance, but many people prefer to be in the same area with others while giving blood. Alongside the blood-letting room is a rest room for patients requiring it; in case of fainting, the patient is moved by wheel chair.
Although the separation of the offices of the director and his secretary seems awkward in plan, this apparently is not the case; he calls his secretary by intercommunicating phone.
6 ... NURSES' HOME, MEMORIAL HOSPITAL,
ANNISTON, ALABAMA

PROBLEM: To provide a nurses' residence and training school in a building separate from, but related to, the existing hospital. Built during the war, the building was also designed to serve an active training program for Cadet Corps nurses.

SITE: A pleasant hillside on the grounds of the Anniston Memorial Hospital.

MAIN POINTS ADMIRED: The logical separation of school and residential facilities; the studied relation of the whole building to the site and to the hospital it serves; the efficient layout of the various units, which closely follow U. S. Public Health Service recommendations.

CHIEF POINTS QUESTIONED: Choice of double rather than single student rooms; a feeling that, purely from the aesthetic viewpoint, the east elevation of the building was composed of too many diverse elements.

"We have two students to a room in this part of the country," Mr. McCauley states, "for two reasons: (1) the majority of our students come from smaller communities (usually have been accustomed to studying in a room with members of the family present) and are happier in their environment to have someone in the room with them ... (2) single rooms would have increased the cost considerably."

Although U. S. Public Health Service standards were closely followed in the design of the separate elements, the slope of the land and the desirability of separation of school and residence facilities resulted in a three-level building with two floors of dormitory rooms in the south wing and two floors of school facilities in the north (downhill) wing.
Critique: HEALTH FACILITIES

Second Floor

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MAIN ENTRANCE toward the west.

Ground Floor

- MECH. EQUIPMENT
- UNEXCAVATED
- LECTURES
- STORAGE

First Floor

OFFICE

OFFICE

NURSING ARTS

LECTURE

LIBRARY

MAIN ENTRANCE toward the west.

Dormitory

HOUSE-MOTHER 2- STUDENT B.R. 2- STUDENT B.R.

MENT'S COATS

2- STUDENT B.R.

PHONES

LIVING RM

RECEPTION

ROOF

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While the residence is connected with the hospital on the east, a main entrance, plus doors to the general living room, enables nurses to enter or leave the home without passing through the hospital. The home portion of the building is planned to keep social activities quite separate from sleeping rooms. In addition to the big main living rooms, a small lounge and sitting porch are provided on each floor for the use of nurses who live on that floor. Floors and roof are concrete slabs; walls are load-bearing tile, with brick exterior veneer.
DIETETICS LABORATORY

NURSES' HOME, ANNISTON, ALABAMA

CHARLES H. McCUTCHEON, Architect
GENERAL VIEW. New classroom wing will be built out from corner at left.

7...NURSES’ HOME, ST. BENEDICT’S HOSPITAL
ST. CLOUD, MINNESOTA
LONG & THORSHOV, INC., Architects

PROBLEM: To provide a nurses' residence and training school (later to be considerably more than doubled in size) which, when expanded, will require a minimum of structural or plan revision.

SITE: Grounds of St. Benedict's Hospital, a short distance from the main buildings.

MAIN POINTS ADMIRE: Simple, straightforward arrangement of plan elements, with individual rooms balanced around central services; light and spacious typical bedrooms.

CHIEF POINTS QUESTIONED: Whether four lavatories are sufficient for use by 30 persons; why no lecture room; an apparent confusion between service and school areas at the basement level. One juror wondered whether a nurses' "home" should have a more residential character.

In answering questioned points, the architects say: the eventual building will include addition of four bedroom floors; a large auditorium at the south end of the present structure; and a classroom wing, extending from the northwest corner of the building out toward the street. This last explains the present somewhat makeshift arrangement of classrooms in the basement; when the building is complete, the basement will be entirely used for storage, trunk rooms, laundry, etc. The nurses who live here work on staggered shifts; hence four lavatories in washrooms are considered sufficient.
The building is a reinforced concrete frame structure with floor slabs of the same material; filler walls are surfaced outside with brick and (in general) plastered inside. Most floor surfaces are asphalt tile; terrazzo is used for corridors and stairs; and ceramic tile occurs in bathrooms. Partitions between rooms are of clay tile. When the auditorium is added at the south of the building, a portion of the present lounge will be used as corridor to the new unit, and the lounge will be extended toward the east, to include alcoves for visiting friends and relatives.
This house, built on two levels on a wooded hillside site, is the home of a professor of psychology and his wife. Main living rooms all occur on the upper level, with the entrance hall, garage, heater room, storage space, and one bedroom (for guest or student) on the lower floor. This not only places main rooms so as to take best advantage of the view, but it provides at ground-floor level a "weatherproof" entrance hall that is entered directly from both the front door and the garage (see plans, next page). The house is of standard frame construction, with exterior finish of plain 6-inch redwood siding, and trim painted light yellow. The concrete block of the ground story is painted light ochre and planted with vines. The house is thoroughly insulated.
VIEW FROM SOUTH

FRONT DOOR. Sitting deck, above.
Specific needs were an entrance area of generous size and sufficiently apart from main living rooms so that rain and wintry winds would not penetrate; a combined living-dining space; a study opening off the living room; master bedroom, preferably adjoining the study, a compact kitchen, and an oversized garage to allow space for metalworking tools and equipment. A study of the plans shows how these elements were incorporated in an economical scheme. The kitchen door is at ground level on the uphill side of the house, thus avoiding much stair climbing.
One technical aspect of hospital planning—the provision for the many items of specialized equipment—remains a closed book to designers new to the field. The mention of sterilizers, fume hoods, mangle, or steam kettles gives even many experienced hospital architects a cold chill. The following outline is intended to dispel some of the fog that obscures this subject. It is not a check list or an exhaustive study—it is simply an introduction to the subject, to allow the architect to study further with some feeling of background knowledge.

The more specific discussions that follow the introduction by Mr. Arrowsmith and Mr. Rannells are based in part on data supplied by Mr. Leo E. Oakey, American Sterilizer Co.; Mr. L. W. Smack, E. H. Sheldon & Co.; Mr. F. J. Knauf, John Van Range Co.; Mr. Howard L. Post, food service consultant; Mr. Paul J. Abrams, American Laundry Machinery Co.; and Mr. W. Bruning, Picker X-Ray Corp.

Don’t Be Afraid of HOSPITAL

INTRODUCTION

By LEIGHTON M. ARROWSMITH and JOHN RANNELS

It is quite understandable that an architect who has received a commission to plan a hospital approaches the project with some trepidation when he finds that the contract includes provision for many items of fixed equipment with which he is not familiar. He has on his staff or associated with him experts in construction, steel, heating and ventilating, electricity, color, and finish. But when it comes to technical equipment which in turn involves medical procedures, he realizes that no one on his staff has made the type of study which is necessary for a really finished job. He finds himself faced with a line of research well removed from his main function. He may feel that it is an imposition and not quite fair.

A second strike against the architect is the lack of hospital standards—standards in procedures and standards of equipment. Some years back it was found that there were 900 different sizes of ward beds in 1900 hospitals, and only three measurements were involved. There is now a standard which allows one length, one height, and three widths. Again, there were over 6,000 sizes and types of surgical dressings—which have now been reduced to less than 30 through the cooperation of several organizations. These examples show what can be done, but it must be acknowledged that there are far too few items of equipment that have gone through the mill, while medical procedures are always subject to developments which in turn affect equipment and layout.

The American Hospital Association has recognized the difficulties inherent in the lack of concerted thinking and has published a Manual of Standards of hospital equipment and supplies, which is a compilation of standards taken from various governmental agencies together with some developed by the Association. The Division of Hospital Facilities of the United States Public Health Service has published a wealth of detailed material on layout and equipment. Its type plans show everything required in each room of hospitals and health centers of certain types and sizes. Of course, all such standards have to be evaluated in terms of the project at hand, and it’s up to the architect to include what is required in his plans and specifications for each particular job.

There is possibly no function in the operation of a hospital that needs more careful study of equipment than the service of food to patients. To some extent this is a hotel function. It is such through the preparation and cooking periods; but after that it becomes a matter of getting the food to the patient in a way which will not detract from qualities that a patient looks for, such as appearance, taste, heat, and cleanliness.

The dietitian who will operate the food service should certainly be called in to help plan not only for the equipment to be used but also the method of transportation and the layout of the serving pantries. She will probably suggest the methods most familiar to her, which may or may not fit in with the building plans. Her cooperation is needed, but her advice is not necessarily the result of wide experience. A specialist in kitchen layout and equipment should also be consulted.

Food service specialists are usually employed by kitchen equipment manufacturers, and they are willing to advise and consult with the architect, the superintendent, and the dietitian. There are also available free-lance specialists, “food service consultants,” who are free to think beyond the policies of a particular manufacturer. Consulting fees are usually reasonable and may be based on a daily or hourly rate. Frequently the consultant’s fee is agreed upon and included in the architect’s fee as a lump sum or outside price. If the consultant is retained for the very preliminary stages of planning, his advice may save much more than his fee.

The laundry is also a hotel function; most architectural firms have ready access to advice on layout and equipment. However, the hospital laundry must be geared to handle not only bed and table linen but also a large amount of personal clothing and uniforms. A detailed study may show that the wear and tear on linen and clothing, run countless times through washers and extractors which are not “self-dump-
THE VETERANS HOSPITAL PROGRAM continues to account for much of the activity in architectural offices. Above is a rendering of the veterans’ hospital for Fresno, Calif., for which Masten & Hurd, Huber & Knapik are architects-engineers. In addition to the usual local structural requirements—earthquake resistance—there were several equipment problems. For instance, because the local climate is seasonally hot, the entire building is air conditioned. Again, storage had to be provided for three months’ food supply at a time.

In laboratory and research spaces the selection of equipment depends largely upon the basis on which the hospital is going to be operated. If it is a small institution with the laboratory in charge of a technician and with only occasional visits from a pathologist, no research work will be done and the equipment will center around tables, sinks, and electrical connections for such aids as the technician is able to use. If there is a full-time pathologist, he will list in no uncertain terms the things that will make him happy. The list will be long, but his ideas are important.

The same principle applies to the equipment needed for anaesthesia. A nurse anaesthetist must stick to prescribed routines, but if the anaesthetist is a doctor, he will need additional items to carry on his research projects and his voice should be heard.

The architect cannot go wrong in the selection of X-ray machines if he sticks to recognized manufacturers. The radiologist will probably indicate the make he has been used to, and with any of the top-flight machines the grade of his work will be in line with his ability. It would be well in any case to decide on the manufacturer before the building plans are set. Not all machines are interchangeable and failure to decide on one make beforehand may mean ripping up the floors, or at least changing the plans, to reset conduits and junction boxes.

The medical board of a hospital is composed of busy men, but it is difficult to see how they could fail to be of help in planning the equipment in those departments where they do their work. Responsibility for the life of the patient is in their hands, and they surely should have and will want a voice in the selection of the equipment they will have to use. Here will be found a lack of collective agreement; if the architect is to make the final decision, he will need a thorough understanding of what aseptic techniques and surgical cleanliness imply. Without such an understanding it is not easy to see how he can even plan the arrangement of rooms needed in the operating suite, or the layout of a central supply department. Good techniques can be followed only if the layout of space is done with thorough knowledge. The most carefully considered equipment located badly might well be of little use. Men such as Walter and Underwood* have done much for the art of sterilization. A study of their findings will obviate a good deal that might otherwise prove unfortunate.

What does this boil down to? It has been suggested that the architect secure the services of a food service consultant and possibly a laundry consultant, and also that he call in from the hospital the dietitian, the pathologist, the anaesthetist, the radiologist, and finally the medical board. There is no doubt that a hospital can be equipped, and well equipped, by an architect who will take the time to study needs, types, uses, and procedures, and finally to sort out from the welter of conflicting opinions what he believes will give the best results. Has he the time, the patience, and the understanding to bring together the opinions of so many to form a cohesive whole? To be frank, it does not seem that all this necessary study is justified when there are available as hospital planning consultants those who have had a medical background and training in the operation of a hospital, and who are in a position to balance conflicting medical opinion. However, even if a consultant is retained, the architect cannot avoid final responsibility, which implies a fairly intimate knowledge of the uses and functions of the various items of equipment.

*Carl W. Walter, M.D., Director, Laboratory for Surgical Research, Harvard Medical School, well known for his basic work in evaluating sterilizing techniques; and Weeden B. Underwood, who before his death in December 1946 was Research Engineer, American Sterilizer Co., and author of Manual of Sterilization, an authoritative work which has gone through two editions.
HOSPITAL EQUIPMENT

STERILIZING EQUIPMENT

Sterilization is a heat process by which all pathogenic (disease-producing) organisms, including spores, can be completely destroyed. A sterilizer is an instrument effecting this process.

There are several methods of sterilization usually employed in hospitals. Since sterilization can be accomplished by various combinations of time and heat, one method uses direct exposure to steam under pressure; another uses immersion in water at atmospheric pressure. Hot air at a temperature of about 350°F, and chemicals, are also used for some articles that could not satisfactorily be sterilized. However, the most commonly used sterilizers fall into two general classifications: the non-pressure boiling water type, commonly called instrument sterilizers, utensil, or dish sterilizers; and the pressure type, known as autoclaves, dressing, solution, or water sterilizers.

There is no such condition as "partly" sterile. An article is either sterile or contaminated. A commonly quoted authority has published the following thermal death points for resistant pathogenic spore-bearing organisms in direct contact with saturated steam:

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<tr>
<th>Steam Pressure</th>
<th>Temp.</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>15 lb</td>
<td>250°F</td>
<td>1 min</td>
</tr>
<tr>
<td>10 lb</td>
<td>240°F</td>
<td>4 min</td>
</tr>
<tr>
<td>6 lb</td>
<td>230°F</td>
<td>10 min</td>
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From this table it is readily apparent that the time required for sterilization increases rapidly as the temperature is reduced. Also, it is clear why most steam pressure sterilizers are operated at about 18-lb steam pressure (255°F).

Pressure Sterilizers. The time-temperature table shows the advantage of using pressure sterilizers for most purposes. The type of autoclave (a container designed for sterilization by steam pressure) commonly known as a dressing sterilizer, being 16" in diameter by 24" inside length.

STERILIZING EQUIPMENT —

Steam Pressure

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</table>

Pressure sterilizers for most purposes. The type of autoclave (a container designed for sterilization by steam pressure) commonly known as a dressing sterilizer, being 16" in inside diameter by 24" inside length.

Boiling Water Sterilizers. Boiling water sterilizers are usually made of Monel, suitably fitted with cover and trays and mounted on a stand, are filled with water; the water is boiled and sterilized expeditiously. Fitted with a set of trays, the autoclave becomes an instrument sterilizer.

LABORATORY EQUIPMENT AND FURNITURE

Hospital laboratories cannot be standardized, but their furniture can. A small hospital may concentrate all of its laboratory work in one room; a large institution may have separate departments for pathology, chemistry, bacteriology, serology, etc., each requiring special equipment. Adjacent spaces may include morgue and autopsy rooms, glass washing and sterilizing room, and animal rooms. The spaces required and equipment needed in them must be worked out with the proper hospital authorities.

Laboratory furniture has been well standardized by the manufacturing industry. While many types of tables, cabinets, and special work counters are available (with sinks or without, with or without compartments under them, with, titration stands, etc.), they are largely interchangeable, and should be planned for flexible use. The greatest distinction is in height of work counter; determinations should be made with the work to be done requiring standing or sitting.

Furniture is available in both wood and steel. While the choice is often a matter of technician's preference, and while wood furniture is somewhat cheaper, steel furniture is usually preferable. Specification (see typical specification following) is extremely important.

Careful consideration should be given to selection of top materials, location and the type of plumbing and electrical services. Various top materials are available, all of which have their own special merits and should be used accordingly. In general there are six types of material available: soapstone, various black carbonized birch, treated wood fiber, linoleum, and stainless steel. It is poor policy to use one material indiscriminately, because each has its own application. The technicians should be consulted for their personal preferences and a study of the use should be made. Soapstone is probably the most durable, but it affords a cold working surface and due to its hardness increases glass breakage. There are various types of improved medium size being 16" diameter by 1" thick, which afford a high acid and alkaline resistance. Black carbonized birch has been a standard top material used in areas where acids will be used, particularly hydrochloric acid. Linoleum affords a pleasing resilient surface but is very subject to damage from heat. Stainless steel is the most expensive of the top materials available and should not be used in areas where acids will be used, particularly hydrochloric acid. It does make a fine top for sterile areas.

The laboratory industry has developed specialized types of washing and electrical fixtures which are not generally available to the general plumbing trade. For this reason it is particularly important that these fixtures be included as part of the laboratory. Generally, drainage plumbing can be of lead. The alternative is silicon, which is considerably more expensive. Special requirements for gas, electric, and air outlets must be carefully considered.

Although the smaller hospital will not require chemical fume hoods, larger ones will. These hoods can be constructed of soapstone, plain asbestos finished to increase its corrosion resistance. In providing for ventilating the hoods, it will be necessary to provide a separate ventilating system. In determining the size of blowers, it will be necessary to provide a fan of sufficient capacity to evacuate 70 cu ft per minute for each sq ft of hood space opening. In air-conditioned laboratories it is important that this be considered in computing the amount of air to be supplied to the laboratories. Obviously, if this is not done, the fume hood will not work.

Boiling Water Sterilizers. Boiling water sterilizers are usually made of Monel, suitably fitted with cover and trayed mounted on a stand, are filled with water; the water is boiled and sterilized expeditiously. Fitted with a set of trays, the autoclave becomes an instrument sterilizer.

Autopsy tables, mortuary refrigerators, animal autopsy tables, animal cages, etc., are items which require careful specification. (Many of these items appear in the two installments of the technical articles)
Cost is less than that of pressure sterilizers; possibility of misuse due to haste may be greater.

Water Sterilizers. Tanks, usually about 15-gal capacity each, mounted in pairs, are used to sterilize water at 18-lb pressure (255°F). Water is readily sterilized by heat but is difficult to retain in a sterile condition, due to possible contamination as air enters a tank to replace sterile water being withdrawn. For that reason, it is better practice to use tanks of small capacity and plan to sterilize the water two or three times a day, instead of using large-capacity tanks which would be operated only once a day.

Sterilizers are used principally in connection with operating and delivery rooms (where pressure sterilizers are mandatory), in the central sterile supply room, and in treatment and utility rooms. Laboratory spaces will have special sterilizing requirements.
X-RAY EQUIPMENT

X-ray equipment may be used for diagnosis or for treatment (therapy). Small hospitals are usually concerned only with diagnostic equipment; in larger institutions additional space and equipment may be required for deep or superficial therapy, or both. Diagnosis may be by means of radiography (the taking of pictures) or fluoroscopy (direct visualization). Radiographic and fluoroscopic machines operate usually on 208-220 v, AC, single-phase service, though some types require three-phase service. Current for X-ray purposes should be of various types, with capacity to handle 100% of the laundry poundage.

FOOD SERVICE EQUIPMENT

The handling of food for patients and personnel in a hospital is a continuous operation, seven days a week the year round. Food is the one medicine that all patients must have. Proper allocation of space (for storage, for work, for equipment, and for traffic) is important in preliminary planning. No rule-of-thumb calculation can be safely used for space requirements—an actual layout must be made. (Queried on this point, one authority said 15 sq ft per person, another, 30.)

Many factors determine the area and type of equipment needed: whether the institution is a general hospital, or specializes in tuberculosis, psychiatry, etc.; whether it is located near a good source of constant food supply, or whether deliveries will be so infrequent that meat must be purchased in large quantities and cut and trimmed at the hospital, and dry stores must be purchased in bulk.

A hospital kitchen is a production line; proper flow is important. Main spaces, with the basic equipment requirements, are as follows:

Receiving, sorting, storage, etc. Scale, bins, racks, shelves, refrigerators (for meat, fruit, vegetables, dairy products), garbage refrigerators, can washer, truck washing equipment.

Preparation. Vegetable preparation requires peeler (with peel trap), two-compartment sink, work table. Meat preparation needs meat block, bench, and sink; perhaps poultry block, bench, and sink, as well as food cutter, fish bench, extra sink, fish refrigerator.

Main kitchen. Main cooking equipment includes ranges, fryers, steam kettles, vegetable steamers (all with vent hood above). Work tables are needed in front of ranges and kettles, in which should be set steam table and bainmarie for serving meats, vegetables, and soups. Perhaps this serving area will have toasters, coffee urns, egg boilers, etc. Food trucks will go from here to elevator. Adjuncts to main kitchen may include bakery (oven, proof box, mixer, sink table), and salad preparation (table, sink, peeler, cutter).

Special diet kitchen. Usually requires its own range, broiler, refrigerator, sinks, work table, etc.

Dishwashing. Dishwasher, glass washers, soiled and clean tables, storage units. Some hospitals prefer decentralized dishwashing in ward serving pantries.

Ward serving pantries. Sizes and equipment will depend on whether trays are loaded on heated trucks in main kitchen, whether food is taken in bulk to floor serving pantries and set up in trays there, or whether food is dished on trays at the bedside, from a food cart. This room may include dishwashing for its nursing unit. Minimum requirements are sink, refrigerator, work counters, cabinets. Allow space for...

LAUNDRY EQUIPMENT

A hospital laundry consists of four functional parts, with the following major items of equipment:

Washing and extracting. Washers may be of various types, with capacity to handle 100% of the laundry poundage. Extractors take out the excess moisture.

Tumbling. Drying tumblers are designed to render bone dry such material as bath towels, underwear, etc. (about 30%, generally, of the hospital laundry in pounds).

Flatwork. Flatwork ironers iron sheets, pillow cases, hand towels, etc.—65%, generally, of the hospital laundry poundage.

Pressing. Presses are required for ironing uniforms and personal wearing apparel. In most hospitals, this is only 5% of the load.

These major equipment items require hot water at 180°F, cold water, steam at 100 lbs, and electric service for motor operation. Adjunct equipment usually includes sinks, ironing boards, soap dispensers, laundry trays, work tables.

The arrangement of the equipment requires such an intimate knowledge of capacities and special requirements that expert advice (which the architect can check) should be secured. For average installations it is wise to allow 12 sq ft...
Adjunct spaces and their basic requirements are: darkroom, with loading bench, special storage units, developing tank and sink, film dryer, pass box to radiographic room, etc.; and viewing room, containing stereoscopic, built-in, or fixed illuminators.

There are many possible pitfalls in planning an X-ray department to provide proper protection for patient and staff. Standards should be studied carefully, the process should be understood, and equipment must be satisfactory and properly placed.

trucks.

The foregoing is not a check list, but indicates principal divisions of equipment needed. Other spaces may need fixed equipment—offices, cafeterias for help and staff, locker rooms, toilets, etc.

There are, of course, hundreds of items of food handling equipment. Most of them are standard in manufacture and can be specified directly. Others may be specially designed to meet particular requirements. The advantage of one manufacturer's product over another's must be weighed and discussed with the dietitian and whatever consultant is used.

For most items, stainless steel is the best material available to withstand hard wear, rust, and food juices. Tables, counter tops, and sinks should be not less than 14-gage. Ranges may be gas or electric. Kettles and steamers operate on high pressure steam. Warmers, urns, and dishwashers can be heated by electricity, or may use the steam service which a hospital needs in any event for sterilizers and laundry equipment.

in the laundry room for each patient bed in the hospital. For rough estimating a figure of $15.00 per bed may be used for laundry equipment. Surgical, neuropsychiatric, and tuberculosis hospitals have greater loads than the average.

Laundry equipment requires door openings at least 6'-6" by 7'-6", and clear ceiling heights of 12'-0" for individually powered equipment, 14'-0" for line shafted motors. Flatwork ironers should be vented by hoods.

X-RAY ROOM, Tri­borough Hospital, New York; Eggers & Hig­gins, Architects.

KITCHEN, Midland Hospital, Midland, Mich.; Alden B. Dow, Architect.

LAUNDRY, O'Connor Hospital, San Jose, Calif., showing auto­matic unloading washer.
Typical Streamlined Specifications for METAL CASework FOR HOSPITALS - PART I

By BEN JOHN SMALL, A.I.A. Associate, Alfred Hopkins & Associates, Architects; and co-author (with C. H. Cowgill) of the new book, "Architectural Practice"

The editors of PROGRESSIVE ARCHITECTURE present another in the series of streamlined specifications. This example, concerned with the type of hospital equipment loosely called "furniture," has been developed from actual job specifications to the point where it includes nearly every casework item and condition encountered in any hospital building. Casework is a particularly tricky subject: substitutions, skimping, or mistakes are easy to make though difficult to detect. A reliable base specification should prove invaluable. The second and concluding portion of this Specification will appear next month.

GENERAL REQUIREMENTS

1. GENERAL:
   A) Applicable provisions of "General Conditions" govern work under this Section.
   B) These Specifications are of the abbreviated or 'streamlined' type and include incomplete sentences or words or phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "according to the plans," etc., and "all" are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings.
   C) The Contractor shall provide all items, articles, materials, operations or methods listed, mentioned or scheduled on the Drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.

2. WORK INCLUDED:
   A) Metal casework and miscellaneous equipment indicated, specified or both.
   B) Items required under this contract are indicated M-1, M-2, M-3 and so forth.

3. RELATED WORK NOT INCLUDED:
   A) Furring and lathing.
   B) Hollow metal.
   C) Mixed panels or other required shapes: cold rolled, die-formed, drawn or pressed.
   D) Rubber bases on equipment items.
   E) Electrical work of every nature unless otherwise specified.
   F) Steam valves, fittings, rough and finished piping, steam and ventilation work of every nature unless otherwise specified.
   G) Electrical equipment, appurtenances, motors, fitters, conduits, cables, wiring outlet boxes, switches, lights, receptacles and electrical work of every nature unless otherwise specified.
   H) Sterilizing equipment.
   I) Metal cabinets and miscellaneous equipment indicated as "N.I.C." (Not in contract).
   J) Wood cabinets.
   K) Equipment, counters, hoods, tables and sinks in connection with kitchens, pantries, 
calculators and food preparation areas.

4. MANUFACTURER'S QUALIFICATIONS AND APPROVAL:
   A) Work described herein: by manufacturer who has in operation sufficient size plant with necessary tools, dies, equipment, engineering personnel to make required equipment without sub-letting fabrication of any part.
   B) Submit proof that (1) manufacturer has equipment, skill, experience, financial resources to handle work in satisfactory manner (2) can deliver material in such quantities and on time to permit building progress.
   C) Submit manufacturer's name before awarding contract. Architect's decision: final; make no award without his consent.
   D) Equipment: equal to quality as made by Herring-Hall-Marvin Safe Company, Art Metal Company or The General Fireproofing Company.

5. WORKMANSHIP SAMPLE:
   A) As condition precedent to contract award, and to determine work quality and character, submit within 15 days after notification such full size samples of any part of work which in Architect's opinion is required to adequately judge work quality and character.
   B) If samples do not conform to contract intent they will be rejected. Upon notification, remove rejected samples.
   C) If samples are approved, they may be used as part of required equipment.

6. MEASUREMENTS:
   A) Within 30 days after contract award, submit, in triplicate, large scale shop drawings of each item indicating construction details, metal gages, adjacent wall and floor conditions, building base dimensions, roughing-in requirements for mechanical and electrical work and the like.
   B) Prepare schedule indicating numbers of items, floors, rooms, spaces, also Architect's drawing number on which affected items appear.

7. SUPERVISION:
   A) Place competent, experienced representative in charge to supervise, coordinate, expedite work.
   B) Representative: devote his time exclusively to field work until completion and acceptance thereof.

8. INSTALLATION:
   A) Deliver, position, install equipment at times when construction, finish, mechanical and electrical work have advanced to state ready to permit equipment installation.
   B) Cut, fit, drill, tap to accommodate mechanical, electrical and other contiguous work. Obtain from those requiring same and be responsible for exact locations of required penetrations. Patch, scribe to fit to adjacent surfaces. Furnish tap screws, bolts, metal fillers, fittings, apparatus necessary to complete and finish work in every detail as approved.
   C) Remove, dispose of crating, protective coverings. Keep premises clean, free from waste materials, rubbish of every nature arising from work. Do not permit accumulation of waste materials, rubbish.
   D) During work installation and until completion and acceptance thereof, adequately protect work from injury or damage to finish. Remove damaged or defective work; replace with new.
   E) After completion and before Architect's final inspection to prove protective material, clean items free of defects, blemishes.

MATERIALS AND FINISHES

1. METALS - IN GENERAL:
   A) Metals: free from defects impairing strength, durability, appearance. Sections, shapes, rolled, die-formed, drawn or pressed as required. Molded work: sharply defined profiles, clean, straight, true. Plain work: level, straight, true, smooth. Edges, angles, corners: square, sharp.

2. SHEET STEEL:
   A) Sheet steel: prime grade cold rolled furniture steel, known to trade as metal furniture steel. Sheets: free from dents, buckles, deep scratches or other injurious defects. Angles, flats, tees, channels, leg moldings other required shapes: cold rolled, formed sheet steel.
   B) Finish: steel with acid, alkali, solvent, water and abrasion resistant baked enamel paint of approved color. Steel parts to be enamelled: thoroughly cleaned before finishing; framing parts: made smooth; plate surfaces: well sanded, give entire item benzine bath to remove oil, dirt, follow with well baked mineral filler coat, applied by dipping or spraying to insure covering all surfaces; this to be thoroly rubbed down to smooth even surface, coated with best baking varnish, baked at temperature of 150 to 300 degrees F dependent on color. Number of coats: determined by color. Paints certified by approved laboratory to affect that enamel finish on steel steels following tests. Coats are by volume.

1) Immersed in solution 18 hours at 70 to 80 degrees F.
   Cold Water: No effect.
   Nitric acid C.P.: Effect beyond slight concentrated; one softening, slight discoloration.
   Phosphoric acid, No effect.
   C.P. concentrated: one part water; two parts water.
   Sulphuric acid, No effect.
   C.P. concentrated: one part water; two parts water.
   Sodium chloride, No effect.
   Concentrated: one part water; seven parts water.
   Sodium Hydroxide, No effect beyond slight discoloration, slight solution.
   Concentrated: seven parts water; one part water.
   Acetone: Some loss of gloss.

2) Immersed in solution 15 minutes at 70 to 80 degrees F.
3) Immer sed in boi ling s o luti on.

3. STAINLESS STEEL:
C) Option: Where stainless steel is required,

A) Bronze: best grade commercial stock, suit·

5. BRONZE:
B)

A)
C)

7. SOAPSTONE:
D) Soapstone: type that has demonstrated, in actual use, successful resistance to action of chem·

3) Maximum water absorption by weight: net

8. SOAPSTONE:

1) Moment of rupture in any direction: 2000 lbs. per square inch minimum.
2) Albrez hardness (ba) as determined by Na·

3) Immer sed in boi ling s o luti on.

Water: two hours No effect.

C) Give angle type sheeking one boxed enamel coat unless required to be galvanized.

3. GALVANIZED IRON:

A) Galvanized iron: American Rolling Mill Co.'s "Armco Ingot Iron" or Republic Steel Co.'s galvanized "Tacon Iron."

5. BRONZE:

B) Bronze: best grade commercial stock, suit·

A) Metal s, including finish: 6" square.

F) Hardware: each kind.

C) Sheet
e)

6. LEAD:

B) Lead: A.S.T.M., E89.

B) Soap stone manifolds: 1/4" and 3/8" thick ,

4. DRAIN TROUGHS AND COVERS :

DRAINBOARDS:

A) DRAINBOARDS: 1/4" thick, flush, with pitched grooving.

5. DRAIN TROUGHS AND COVERS:

A) Drain troughs: 1/4" thick soapstone, rebated joints, bolt and nut construction, set in cement in watertight manner. Trough bottoms: pitch approximately 1" in 5'0" by rebat·

4) Carbonised birch: acid-proofed carbonized finish as follows (by weight):

C) Carbonised birch: acid-proofed carbonized finish as follows (by weight):

5. BONZ:

A) Maple: clear, best quality, straight grained, hard, free from imperfections; amn smooth.

B) Birch: selected, close grain, northern yel·

C) Finish on maple and birch: linseed oil, oil·

5. LINOLEUM:

A) Linoleum: 1/4" thick, approved color, satin smooth desk finish, as made by Armstrong Cork Co. or Congoleum Nairn Co.

C) Cemnent linoleum to steel top plates.

3. REAGENT SHELVES, SUPPORTS, MAN·


B) Soapstone: 1/4" and 1/8" thick, assembled in units as indicated, made structurally secure in every respect.

CURBS:

A) Wall type curbs and returns: 1/4" thick by indicated heights. Abut curbs in flush manner to plastered or concrete blocks, tile and units. Where tile or glazed unit walls occur, curbs have 1/4"
Specifications for METAL CASEWORK FOR HOSPITALS

1. TOPS:
   - Carbonized birch tops: 1½" thick, unless otherwise specified, built of 1½" wide strips with edge strips 4½" wide, located at top perimeter and at all cutouts therein; glued under 200° pressure with casein glue. Reinforce top by means of 1½" thick birch plywood table tops, curbs, drain troughs are required other than in cabinet work specified. Wall angles: 2" by 2" 14 gauge steel attached with toggle bolts or expansion shields as conditions require. Brackets: ½" by 1½" 14 gauge steel, formed up posts with cross members of same material. Equip legs with flanges for solid vermin proof floor and scapolite.
   - Under sinks, tables, and the like, whether supported by brackets or posts, furnish 4 sided ties, such joints being notched and rounded. Posts: secured to angle frames with sleeves of ½" steel, bolted to angles.

2. DRAINBOARDS:
   - Drainboards: have natural finish, 1½" thick, grooved as specified for soapstone drainboards; secured to soapstone sinks in approved watertight manner.

3. SHELVES AND BRACKETS:
   - Shelves: as hereinbefore specified for similar work, and shall be finished with similar dimensions, as in long lengths as practicable, 1½" thick polished white Carrara glass top, with ¾" or more than 7½" thick. Joints: reinforce on back with double vertical fold and return flange.
   - Brackets for wood shelves: 14 gauge steel with flange 2" wide to properly cover holes drilled in walls for their support. Where shelves are indicated to stand out from wall: have angle stop properly reinforced for vertical member of specified depth. These brackets have been turned up flange at front to act as stop for shell. Where there are more shelves over height, brackets: welded to 14 gauge channel, 2" wide by 1" deep. Mount these channels on wall: 1" depth of channel shall serve as stop for keeping shell away from wall. Join angles over height specified above for single brackets.

4. CURBS:
   - Projected type curbs: ¾" thick for horizontal members, 1½" thick for vertical members by indicated heights. Joints: assembled in approved manner; curbs: bolted to supports as hereinbefore specified. Edges of curbs and return s: J½' thick abut projected type curbs: both: of same total height.

5. GRADUATE RACKS:
   - Graduate racks: 1½" thick, cut to dimensional sizes, chamfered edges as indicated. Support in proper in approved manner.

6. SHELVES AND BRACKETS:
   - Shelves: 1½" thick, polished white Carrara glass top, with ¾" thick felt cushion under entire glass. Slope top at its rear edge. Defective work of any nature will be rejected. Remove rejected work from premises, replace with new.
   - Overhead cabinets: Where casework overtop wall finish, equip cabinets with overtopping areas electrically swepted. Electrically arc-welded joint additional, no metal bonds, light filling: form rigid mechanical interlocking joint construction.
   - Where unit tops are indicated or specified, said depth from inside surface of metal back to outside face.
   - Defective work of any nature will be rejected. Remove rejected work from premises, replace with new.

CARBONIZED BIRCH CONSTRUCTION

1. TOPS:
   - Carbonized birch tops: 1½" thick, unless otherwise specified. Built of 1½" wide strips with edge strips 4½" wide, located at top perimeter and all cutouts therein; glued under 200° pressure with casein glue. Reinforce top by means of 1½" thick birch plywood table tops, curbs, drain troughs are required other than in cabinet work specified. Wall angles: 2" by 2" 14 gauge steel attached with toggle bolts or expansion shields as conditions require. Brackets: ½" by 1½" 14 gauge steel, formed up posts with cross members of same material. Equip legs with flanges for solid vermin proof floor and scapolite.
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**Air and Temperature Control**

1-136. Dunkirk Boilers and Radiators, 4-p. price list for boilers and radiators; gives prices, ratings for both. Dunkirk Radiator Corp.

1-130. Refrigerating, Ice-Making and Air Conditioning Equipment (Bul. 80-B), 32-p. illus. booklet on various refrigeration methods. Principles of refrigeration. Specifications on machinery and systems; data on control equipment, valves, and fittings. Tables on storage temperatures and properties. Frick Co.

1-137. Kewanee Type-C Steel Boiler (Bul. 87), AIA 30 Cl, 7-p. illus. booklet on oil-, gas-, or hand-fired coal stoker for large buildings. Characteristics; details and typical installation. Kewanee Boiler Corp.


Two booklets on gas-fired gravity warm air heating and winter conditioning.

General features and principles. Details; suggested specifications. Surface Combustion Corp.:

1-139. Gravity Warm Air Heating System (Form QGP 46-5-A), AIA 30-B.

1-140. Winter Air Conditioning (Form QGP 46-5-B), AIA 30-B.

1-141. The Van Packer Chimney, 5-p. illus. folder on a lightweight, sectional, precast chimney shipped ready to install; can be hung from floor or ceiling, eliminating foundations. Underwriter-approved for all fuels. For 1- and 2-story houses. Van Packer Corp.

1-142. Webster System Radiation, 16-p. illus. booklet on Webster convectors for building in; also exposed models. Descriptions, selection data, suggested specifications, guarantees, capacities, where to buy, on plastic and metal front types, floor and wall-hung models. Warren Webster & Co.

**Doors and Windows**

4-105. Ceco Residence Casements, Types, Sizes, and Suggested Details (Bul. 1006), Ceco Steel Products Corp. Reviewed October.

4-107. Electronic Serviceman, 6-p. illus. (3½"x8½") folder on electronic garage door operator controlled from within the automobile. Overhead type now in production. Federal Industries.


4-108. "Mecco" Doors, 8-p. illus. catalog of metal doors of all types—rolling, swing, slide; motor-driven or hand-operated; industrial, commercial; Underwriters' labeled, non-labeled. Types, sizes, descriptions. The Moechsl-Edwards Corrugating Co., Inc.

4-109. Truscon Steel Windows and Industrial Doors, 72-p. illus. booklet on complete selection of doors and windows in modular sizes for various building needs. Tables of types and sizes. Construction features; specifications and installation details. Truscon Steel Co.

**Electrical Equipment and Lighting**


5-98. G. E. Lamp Bulletin (LD-1), 76-p. illus. booklet by C. E. Weitz of the Nela Park headquarters of General Electric. Complete data on all types of lamps or "bulbs" manufactured, including their history, design, manufacture, use, characteristics, shapes, sizes, dimensions, ratings. Valuable reference to anyone who designs with lighting. (Price 40 cents per copy; make check or money order payable to Lamp Dept., General Electric Co.) Lamp Dept., Engineering Div., General Electric Co.

5-94. The "General" Idea is Simple, General Lighting Co. Reviewed October.


5-101. Superior Voltage Control (Bul. 547), 12-p. illus. booklet on Powerstat, a variable transformer, for obtaining continuous adjustable voltage from AC power line; and Stabiline, a voltage regulator, maintaining constant output from fluctuating lines. Types, performance data. Details, ratings. Specifications, price list included. Superior Electric Co.
MANUFACTURERS’ LITERATURE

5-97. Swivelier Lighting Units (Bul. 105-A), Swivelier Co., Inc. Reviewed October.

Finishers and Protectors
6-103. Cut-To-Length Floor, Behr-Man- ning Corp. Reviewed October.
6-606. Floor Finishes, AIA 250, 11 data sheets (6 1/2" "x 11"), cardstock, bound for filing, on floor finishing for most of the common materials and purposes. Condensed data, specifications; estimates on coverage; maintenance information. The Hilyard Co.
6-105. Aquella and Concrete Masonry Construction, Prima Products, Inc. Reviewed October.

Insulation (Thermal, Acoustic)
9-79. The Contribution of Vermiculite to Fire Protective Construction, summary, compiled by the Vermiculite Research Institute, of recent tests on vermiculite plaster used for fireproofing on steel framing. Ratings substantially increased. Universal Zonolite Insulation Co.
9-80. Zonolite Insulating Concrete Floors, AIA 37A, 4-p. illus. booklet on a type of concrete floor designed to eliminate cold and dampness. Details, recommendations, specifications. Universal Zonolite Insulation Co.

Load-Bearing Structural Materials
12-134. Nickel Alloys on Cast Irons; Engineering Properties and Applications of Ni-Resist, 30-p. illus. booklet on physical and mechanical properties of cast nickel alloy. Tables show performance under 400 different conditions. International Nickel Co., Inc.
12-137. Modern Homes by Modern Methods, 24-p. 6" x 9" illus. booklet on prefabricated houses. Construction and erection; advantages. List of distribu­tors. Prefabricated Home Manufacturers' Institute.

Materials of Installation

Non-Load-Bearing Structural Materials
14-41. Magnesium (Form DM 102-50M-746), The Dow Chemical Co. Reviewed October.
3 books on Johns-Manville System of Unit Construction (Form BM 312A), Johns-Manville. Reviewed October:
14-45. Wall Units.
14-46. Ceiling Units.
14-47. Floor Units.

Sanitary Equipment, Water Supply, and Drainage
19-169. Duriron (Bul. 702), AIA 29-B-81, 12-p. illus. booklet on corrosion-resistant sanitary sinks, sink strainers, traps, floor drains, pipe, and fittings for industrial and institu­tional use. Physical characteristics and properties. Installation details. Comparison of acid and impact test results. Applications; also price list and data bulletin. Duriron Co., Inc.

19-170. Thork Automatic Sink (Form 47-39), 4-p. illus. leaflet on new 2-compartment sink into one compartment of which may be inset a clothed grate (and dryer) or dish washer unit. Change requires 1 1/2 minutes, may be made by the housewife. Description, roughing details, photos. Electritic Houseware Utilities Corp.
19-171. Plibrico Portable Incinerator, 4-p. illus. brochure on a "packaged" in­cinerator for use in institutions, industrial plants, hotels, stores, etc. Details, construction. Table of sizes. Plibrico Jointless Firebrick Co.


Specialized Equipment
19-164. Pentrate For Making Water Water (AD 9010), 4-p. illus. folder on "Pentrate" which, when added to water, greatly speeds up the penetrating and spreading qualities. Application as a fire fighter. Test reports. American-La France-Foamite Corp.
5-100. Hansen & Waldron, Furniture & Lamps, Hansen & Waldron. (See No. 5-100 under "Electrical Equipment and Lighting").

Surfacing Materials
9-79. The Contribution of Vermiculite to Fire Protective Construction, Universal Zonolite Insulation Co. (See No. 9-79 under "Insulation").
19-176. Mu-Ti-Co Asphalt Flooring Tile, 4-p. illus. folder on grease-resistant floor tiling for use where oil and grease are a problem. Advantages and data. Mastic Tile Corp. of America.

Traffic Equipment
REVERE COPPER SELECTED
For Roofs of Modern Industrial Buildings

Every pitched roof on this group of modern industrial buildings is a batten seam roof of Revere Copper. Copper was selected for (1) longevity and freedom from maintenance, (2) color harmony of the green patina with the buff brick of the buildings, and (3) protection from lightning—all copper surfaces being thoroughly grounded.

COPPER and COMMON SENSE

Revere's manual of sheet copper construction, "Research Solves Problems of Stress Failures in Sheet Copper Construction," contains 96 pages of important new facts which enable you to design or install copper roofs, gutter linings and flashings that give extra years of service. It has been widely distributed to architects and sheet metal contractors and should be in your office files. In all matters of sheet copper construction, it will pay to turn to this manual first.

Revere materials are available from leading distributors throughout the United States. A Revere Technical Advisor, Architectural, will always be glad to consult with you without obligation.
Alcoa Aluminum INDUSTRIAL

Get bids! They'll be LOW...and the roof, BETTER

LONGER LASTING
NO PAINTING
FASTER CONSTRUCTION
LIGHTER DEAD LOAD

Aluminum, a topflight roofing material that has been used on monumental buildings for many years, is now economical for industrial applications. Alcoa Industrial Roofing and Siding is made of a tough Alcoa Alloy that is unexcelled in resistance to atmospheric corrosion by any aluminum alloy now made. It is easy and inexpensive to put on...attractive in appearance.

Alcoa Industrial Roofing and Siding gives you, and your clients, that almost unbelievable combination...a better material at lower price. A material that will withstand common industrial atmospheres...smoke and fume...for years on end. A material that won't rust, streak or stain.

Figure it in aluminum, any job on your boards that can use sheet roofing or siding. Calculate not only the savings but also the client satisfaction, which will be plenty.

WRITE FOR PRICES

ALCOA
ROOFING and SIDING

HERE ARE THE DETAILS
Thickness: .032 inches.
Lengths: 5, 6, 7, 8, 9, 10, 11 and 12 feet.
Widths: Roofing sheet, 35 inches; Siding sheet, 33½ inches; Coverage: 32 inches.
Corrugation: ⅜ inch deep, 2.67 inches.
Weight: 56 lbs. per 100 sq. ft.

LOAD CARRYING CAPACITY

<table>
<thead>
<tr>
<th>PURLIN SPACING</th>
<th>CLEAR SPAN</th>
<th>UNIFORM LOAD p. s. f. (Safety factor 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6'0”</td>
<td>76”</td>
<td>29</td>
</tr>
<tr>
<td>6'6”</td>
<td>70”</td>
<td>35</td>
</tr>
<tr>
<td>5'6”</td>
<td>64”</td>
<td>41</td>
</tr>
<tr>
<td>5'0”</td>
<td>58”</td>
<td>50</td>
</tr>
<tr>
<td>4'6”</td>
<td>52”</td>
<td>63</td>
</tr>
<tr>
<td>4'0”</td>
<td>46”</td>
<td>80</td>
</tr>
</tbody>
</table>

WITHSTANDS INDUSTRIAL SMOKE AND FUME

Alcoa Aluminum has been used for many years on coal mines, railroad terminals, warehouses, factory buildings and locomotive roundhouses. The protective qualities of Alcoa Roofing and Siding have been virtually unaffected by these severe conditions.

QUICK APPLICATION

Illustrated here are two of the many ways of installing Alcoa Industrial Roofing Sheet.

STRAP FASTENERS CAN BE ADAPTED TO PRACTICALLY ANY TYPE OR ARRANGEMENT OF PURLINS.

FOR SIDING THAT GOES UP FAST

Alcoa Industrial Siding has the same corrugation dimensions and lengths as Industrial Roofing. Over-all width is 33½ inches covering 32 inches and providing extra economy for siding applications. Properly applied and with girt spacings up to 7'9" it will withstand 20 p.s.f. wind load.

ASK FOR COMPLETE INFORMATION

Pick up your telephone now and call your local Alcoa sales office. Ask for a sample and complete information on Alcoa Industrial Roofing and Siding Sheet. Or write to ALUMINUM COMPANY OF AMERICA, 1452 Gulf Bldg., Pittsburgh 19, Pa.

INDUSTRIAL ROOFING AND SIDING

NOVEMBER, 1947

103
An Added Advantage:

FABRON INCREASES FIRE SAFETY

Because part of the standard equipment of an institutional building is combustible and conducive to the rapid spread of a conflagration, the building, even if it be of fireproof construction, cannot be considered fire safe.

To minimize a potential danger, fire authorities recommend, among other things, the use of materials that are non-combustible or that prevent the spread of fire and thereby help to confine flames to the area in which they originate.

FABRON—although primarily a decorative wall treatment—considerably increases fire safety in any building. The Underwriters' Laboratories, Inc., in its report on the results of recent tests, state that, when applied to plaster walls and ceilings, FABRON prevents fire spread—that when exposed to fire, it does not materially contribute smoke or fumes, either or both of which are often responsible for many casualties or cause panic and personal injury during a conflagration—that FABRON offers maximum fire safety when applied directly to bare plaster.*

FABRON is the ONLY decorative wall treatment tested and listed by the Underwriters' Laboratories, Inc., carrying their label of approval on each roll. It combines structural and practical advantages with durability and economy—due to its washability, its wall protective features and its easy maintenance. FABRON represents a fundamental departure from traditional methods of treating walls.

*"Increased flame spread can be anticipated if Fabron is applied to paint coatings in excess of 0.01 inches thickness" - Underwriters' Laboratories, Inc.
The next time you settle down in your seat to enjoy a swell show, spare a few seconds of professional thought to the stage lighting installation. You may or may not realize how much of an engineering job it is to achieve that smooth interlocking of house and stage lighting and the perfection of color harmony and intensity in “painting with light” as the play goes on. Some of the finest switchboard and control jobs in the country are in our big theatres . . . and a great many of them bear the Trumbull Electric Controlite nameplate . . . typical of the advanced precision electrical engineering that characterizes all Trumbull Electric products.

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CONTROLITE Stage Lighting Control Boards are, like all Trumbull Electric Products, sold through Electrical Wholesalers and installed by Electrical Contractors. Trumbull Engineering services contribute a wealth of specialized experience in this highly technical field.
FROM THE TECHNICAL PRESS

MODULAR COORDINATION


The Modular Service Association is really getting down to business and is now seeking to put its objectives into practice in the broadest possible way. Their proposed data service promises to demonstrate fully to architects and builders the great advantages of modular products and modular coordination. The sheets will be $\frac{8}{2} \times 11$", loose-leaf, systematically indexed. They will present standard details in the most usable form.

The Association should especially be commended for its realization that "some confusion may arise from the inexactness of our own terminology." Probably the A62 method is better described as Dimensional Coordination.

They are evidently awakening to the inexactness of our own terminology. "Some confusion may arise from the modulus" (or "dimensional") coordination has yet to make its way into general practice.

MODULAR FACING TILE HANDBOOK

Facing Tile Institute & Structural Clay Products Institute, 1756 K St., N. W., Washington 6, D. C. 90 pp., $\frac{8}{2} \times 11$", spiral binder. Free to architects, draftsmen, builders, etc.

"This catalog supersedes all catalogs heretofore published by the Facing Tile Institute." With only slight changes in the old dimensions, the entire range of facing tile and structural tile sizes is brought into the system of modular coordination. All of the various shapes are illustrated, as well as combinations for building up double-glazed partitions.

The new material in this catalog (more than half of its bulk) consists of layout diagrams, plans, and elevations. These are very well presented—better, in fact, than in the A62 Guide itself. The printing job (by photo offset) is beautifully done. The entire book is so well made that it is a pleasure to work with.

Besser Modular Standard Building Units, Besser Manufacturing Co., Alpena, Mich. 24 pp., $\frac{8}{2} \times 11$", $3.00

This rather awkward pamphlet is notable chiefly for presenting modular sizes in concrete block by the prime manufacturer of concrete block machinery. The center spread shows 50 standard block and other pages show many more. This is not the way to economy, which requires close adherence to a few basic shapes.

Truscon Steel Windows and Industrial Doors. Truscon Steel Co., 1315 Albert St., Youngstown, Ohio. 72 pp., $\frac{8}{2} \times 11$".

A more complete presentation than former catalogs, of the entire Truscon line. Sizes (like those of other metal window manufacturers) are modular—varying by 4" or 8" increments and with over-all window dimensions such as to detail properly with masonry laid up on the 4" grid. Many well drawn installation details are given, with grid dimensions overprinted in orange.

HANDBOOKS, MANUALS, PAMPHLETS


A study of several presently available lighting units and their placement at the bathroom mirror to obtain illumination data which would be representative of nearly all lighting methods for this purpose. Two side brackets, set somewhat lower than the customary height (5'-1" or 5'-2" instead of 5'-6") appear most satisfactory. A ceiling fixture for general illumination should be used regardless.

Certigrade Handbook of Red Cedar Shingles. Bror L. Grondal and W. W. Woodbridge. Red Cedar Shingle Bureau, 5508 White Blvd., Seattle, Washington, 1942. 100 pp., 5" x 8". 50 cents

All there is to know about red cedar shingles and how to use them. Many interesting facts about the material and its properties in use enliven the text; for example, its durability is not due so much to structure as to the presence of certain phenols which are highly toxic to wood-attacking fungi. However, like so much advertising literature, the writing is diffuse and repetitive; specific information would be hard to find if it weren't for a good index.

Fundamentals of Land Design. Small Homes Council, University of Illinois Bulletin, Urbana, Ill. 8 pp., illus.

Another lively pamphlet giving the homeowner good advice on landscaping and site planning. Could be read to advantage by architects for it covers all the factors related to outdoors that should be taken into account (and frequently aren't) in designing small houses.


Complete and concise information on sewage disposal from houses, rural public buildings, camps, schools, etc.

Planning the X-Ray Processing Facilities and Equipment. Eastman Kodak Co., 845 State St., Rochester 4, N. Y. $\frac{8}{2} \times 11$", illus. Free to hospital architects.

A very thorough report on planning, services, equipment, etc., of the darkroom end of the X-ray department by Eastman's Medical Service Division. Printed on one side of the paper in double-spaced typing, reproduced full size, the three pamphlets are bulky (and impressive). Eastman has here made available to the architect precisely the background material he needs to work intelligently on any problem involving X-ray processing. Would that more manufacturers would be so effectively helpful!

BOOKS

APPLIED ARCHITECTURAL ACOUSTICS

Michael Rettinger. Chemical Publishing Co., 26 Court St., Brooklyn, N. Y., 1947. 189 pp., illus. $3.50

It has been freely predicted that acoustics would fill as large a place in the public consciousness during the next ten years as did various methods of circulating and cooling air, loosely called air conditioning, in the decade prior to the war. A considerable body of literature may be expected to accompany such a rise in public interest. It has already become apparent in periodicals. Applied Architectural Acoustics may well be a forerunner of a shelf of books on the subject.

Applied Architectural Acoustics sets forth some of the terminology and basic physical principles of acoustics. There follow sections on geometric acoustics, reverberation, architectural acoustics (principal factors affecting hearing conditions), sound insulation, and acoustical materials. Specific employment of the phenomena and application of the techniques treated up to this point are

(Continued on page 108)
OPERATING on a simple principle uniquely applied to the safe installation of show window glass, Finger-tip Setting marks a notable advance in glass safety. In conjunction with Brasco's deeper grip, the glass is held firmly and uniformly, without pressure, without springs and without set screws.

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then described with respect to motion picture theaters, scoring stages, reverberation chambers, vocal rooms, sound stages, broadcasting studios, television studios, hospitals, churches, and auditoria. There is a section on acoustic measurements and numerous absorptivity tables for building materials variously mounted.

The body of material presented by Mr. Rettinger in the small compass of this volume is considerable. The work is especially notable in the degree of particularization with respect to the nature of various types of sound absorbent materials and the manner of their employment. This material, the distillation of much experience in acoustic planning, is as authoritative as it is detailed. Along with the citing of the considerations which enter into the acoustic planning of the types of buildings listed are mathematical derivations of the principles employed. Graphs are used profusely to illustrate relationships between variables and to set forth optimal shapes and dimensions. It is probable that Mr. Rettinger has assembled more up-to-the-minute, practical information, useful to the builder, than is to be found elsewhere in such small compass.

Despite the virtues listed, Applied Architectural Acoustics falls short in several respects of the promise of the introduction. The book is directed to “architects, engineers, contractors, and all those connected with the planning and the construction of buildings in which acoustics has been given preference.” The mathematical derivations and demonstrations which constitute a significant portion of the work will have little value for any of those people except a few engineers with special training or experience in acoustics, and may frighten off some who should use the book.

The reader will in many cases need a step-by-step outline of procedure for the acoustic design of the structures cited. The considerations which govern acoustic planning are adduced, but the planner is given little guidance in the order in which he can best undertake the various phases of his problem, the relative importance he must give to discrete portions thereof, and the place or extent of tolerable compromise. Comparatives left hanging in the air, i.e., “larger,” “smaller,” “too much,” “too little,” with no reference point or tolerance limits, may baffle the builder who needs to know how much.

This reviewer misses particularly reference to or provision for the changes to be anticipated in technical equipment for the reproduction of sound and the manner of its use in the arts. The introduction of binaural or stereophonic recording will bring about considerable revision in all of the technical processes and practices involved in the making of the sound motion picture. Current changes in recording practice which involve no new equipment may make new demands upon sound stages, scoring stages, or motion picture theaters. The separate control of acoustic conditions on the stage and in the audience area has been demonstrated as desirable in concert and opera. The control of sound becomes more flexible and artistically potent day to day and carries with it changing demands upon structures. Any building that is worth building will outlast most of the current techniques for the presentation of sound, except the traditional mechanical system.

It is to be hoped that when Dr. Knudsen brings out a sequel to his monumental Architectural Acoustics, he will take care of some of these problems. In the meantime, Mr. Rettinger’s book is up to date on current problems.

HAROLD BURRIS-MEYER

(Continued on page 110)
Choose **American-Standard**

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Beneath the smart jacket of the **Westmoreland Oil Fired Winter Air Conditioner** in this attractive basement recreation room is one of the sturdiest, most superbly engineered heating units money can buy! Available as a completely coordinated unit with American-Standard's own Arcoflame Burner, or for use with any other good burner. Made in sizes ranging from 105,000 to 330,000 Btu., the **Westmoreland** is ideal for homes of practically any size.

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LUMBER


A textbook on the manufacture, conditioning, grading, distribution, and use of lumber in this country with special emphasis on sawmill operation. The history of the lumber industry is traced, beginning with its center in Maine where it flourished for 200 years before 1850. Then its center shifted to New York, then Pennsylvania (1860), then the Lake States (1870-95); then Southern pine with its peak in 1909 (but still going strong), and the northwestern softwoods which still dominate the industry.

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PORTRAITS OF WESTERN AMERICA

Three recent books from one publishing house provide an interesting close-up view of the face of America as it appears in the West. No one of these books lays any emphasis on architecture, though the architecturally alert will find considerably more to read in the books than the merely travel-minded. For, any book picturing a place or a region inevitably contains numerous photographs of buildings; just as inevitably, the buildings reveal the ambitions, desperations, pretensions, or sincerities of the individuals or groups who sponsored them.


The trials of the early, money-hungry prospectors; the rocketing fortunes, first from gold, then silver, then gold again, that came out of the valleys, creeks, and pastures of Colorado; the exploits and extravagances of the Bonanza and Carbonate Kings; the frenzied growth of towns in the wake of new discoveries, and the collapse and frustration of many of these, are told in a lively, running narrative. Photographs and a revealing selection of old drawings show the environment in which this bold life erupted. With few exceptions (Central City is the most notable) the towns had a lean and hungry look,

The best lumber is nearest the bark, so the sawyer turns the log frequently, "following the grade around the log," to get the most value out of it. Except in small mills the main saw (head saw) is used chiefly to break down the log into pieces which can be further reduced to finished sizes by the more accurate edgers, gang saws, etc.

Finishing all lumber four sides, now the general practice, and kiln drying, are done mainly to save shipping costs—in the South, commonly in concentration yards which handle the rough lumber from several small mills, thus achieving standard products as readily as in the huge mechanized western mills.

The book is particularly rich in figures on various phases of lumbering: sizes, percentages of waste due to various causes, variations in practices in hardwood and softwood industries, distribution of costs, etc.

Small mills are on the increase. This book gives so thorough a treatment of the subject that anyone concerned with forest products on a local scale could learn a great deal from it.

J. R.
FLASH A CORNER QUICKLY...

The corner flashing is put on last, lapping the straight flashings by two corrugations. Note the bent-down weather lip which makes the completed assembly water-tight.

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quite apart from the fact that so many of them are today simply the decaying remains of once booming communities. One suspects that in their towns, the builders and designers (if any) reflected the lean and hungry light in the eye of many of the citizenry of the day. The town names have the same rude quality: Leadville, Cripple Creek, Buckskin Joe, Delaware Flats, Telluride, Ouray, Silverton, Placerville, Crago Creek, Russell Gulch, etc.

Salt Lake City, A Pictorial Study by Joseph Muench. Hastings House, 67 W. 44th St., New York 18, N. Y., 1947. 58 pp., illus. $1.50

A city that grew out of a desert, a city newly founded by a group of people seeking freedom from religious persecution, appears architecturally to be about what you might expect. There are noble things about it that reflect the determination and faith of the pioneers—132-foot-wide streets, splendid vistas. Then, typical of any new, fast-growing U. S. community, there is the crazy-quilt pattern of every architectural style known to man from General Grant Gothic to the columns and dome of the State Capitol's Federal architecture, to a church "reminiscent of a New England Meeting House."

Most difficult of all to assay architecturally is the strange flowering that occurred under the auspices of the Church of Jesus Christ of Latter-day Saints. In the main Temple in Salt Lake City itself, as well as in three other Temples shown in the book, one sees a firm resolve to create something new as a proper house for the faith. Yet, in spite of a certain sureness and confidence in the design, the many-tiered side walls, the odd (no doubt symbolic) detailing, and the ordering of the spires strike this reviewer as rather ponderous overtones echoing architectural cultures of other places and times—sometimes vaguely Saracenic, sometimes Dresden Baroque or Medieval Spanish. From the designer's point of view, then, Salt Lake City appears to be a handsome modern city with wide boulevards, set on a broad plain at the foot of the Wasatch Mountains, just above the great inland sea: a proud city and an amazing one, considering its desert origin. Beyond that, it has the typical American architectural gumbo flavor, with unique Mormon seasoning.

West Coast Portrait. Edited by Joyce E. Muench. Hastings House, 67 W. 44th St., New York 18, N. Y., 1946. 188 pp., illus. $5.00

Here, 250 illustrations in photography, lithography, wood engraving, and etching, present a panoramic impression of the glories of the West Coast. This rich material is freshly organized on the bases of "impressions of the shoreline"; "cities and towns"; "valleys and foothills"; "architecture of bygone days"; "the lure of the desert"; "in the mountains"; and "glimpses of the Northland." For the most part, of course, these constitute simply a stunning series of illustrations of the natural beauty of the region. In the "Cities and Towns" section and in the one called "Architecture of Bygone Days," however, the designer is given a broad cross-sectional view of the environment that man has built for himself. Mountaintop and aerial views show the clean, burgeoning quality of the major West Coast cities; the individual buildings selected for highlighting reflect the eclecticism of the architectural work that occurs here as elsewhere in America. The familiar things are included: the University of California at Los Angeles; the Berkeley campus; the elegant pomposities of San Francisco's famous Civic Center; the
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incredible Spanish concoction of Santa Barbara's County Courthouse; the rather dour smokestack-like Coit Memorial Tower at the top of Telegraph Hill in San Francisco; and a few examples of more contemporary work. But it is rather surprising that there is so little of the really vital architecture of today which has prospered in the West as in no other quarter of the U. S. Among the older buildings are the simple sincerities of the familiar Missions, the unpretentiousness of an old Gold Country town, some of the excellent contemporary (of its time) work around Monterey, and a surprisingly Colonial New England house that was built in Oregon in 1846. While the arbitrary division of the book has something to recommend it, allowing one to concentrate on a single facet of the West Coast at a time, the captioning could well mislead the uninformed. Where is "Happy Valley-Santa Ynez," for instance—California, Oregon, or Washington? Or Eureka? If one is not a native son, these things are not apparent, and one can never be quite sure whether there are palm trees all up and down the West Coast, covered bridges only in Oregon, or just how it works. This is a minor fault, however; it's a beautiful book, and the use of etchings and wood engravings and lithographs adds not a little to the more usual photographic approach to such a subject. G. A. S.

CHURCHES OF OLD NEW ENGLAND

Their Architecture and Their Architects, Their Pastors and Their People.

This is a book of antiquarian lore. Any chapter to which one may open will hold the reader's interest with its anecdotes of Puritan frailty, village eccentricities, and energetic parsons. Mr. Marlowe has steeped himself in old parish records and relates choice bits with wit and humor. However, after reading several such chapters one longs for a connecting thread, references back and forth, an orderly treatment of the material. Of the many pages on a given parish, the majority deal at considerable length with episodes connected with buildings antedating the existing edifice, which is treated somewhat summarily with praise for its charm and enthusiasm for its proportions. One becomes surfeited with anecdotes. The book cannot be used easily for reference, nor is it a history of meeting house architecture. There are no plans, no measured drawings. The subtitle gives an accurate description of this miscellany.

Evidently the author has written these chapters as independent articles, which unfortunately do not make a readable book. The material could have been grouped chronologically, or under headings such as "Finance," "Methods of Construction," "17th Century Meeting Houses," "Early 18th Century Types," "Church of England Edifices." The present arrangement can only serve as a chatty guidebook for the layman's summer tour of New England churches. Mr. Chamberlain's photographs have suffered in reproduction; they are gray and lack sharpness and contrast. There is a startling lack of detail. They have been taken with an eye to romantic charm and not as documents. They have been badly cropped; too much foreground in some, tips of spires cut.
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REVIEWS

(Continued from page 114)

off in others. Admitting that it is not always possible to get clear unobstructed views, in many cases there seems to be an indifference to the architectural material which has been sacrificed for the sake of a pictorial composition. In too many instances a tree, an adjoining building, or the foreground or even the background is more striking than the ostensible subject of the photograph.

One feels that neither Mr. Marlowe nor Mr. Chamberlain has put his best foot forward in this book.

C. L. V. MEEMS

AIR CONDITIONING

Herbert and Harold Horkimer. Chemical Publishing Co., Inc., 26 Court St., Brooklyn, N. Y., 1947. 692 pp., 6" x 9", illus., index. $12.00

A good fat book, well stuffed with material collected by the senior author during his 35 years' experience in the air conditioning industry and with technical tables from the ASHVE Guide. It seems to cover the ground pretty thoroughly, in easily readable form. After all, it is a big book.

J. R.

HEAT PUMPS


A technical treatment of the problems involved in adapting the heat pump not only to building heating and cooling but also to applications in industry: evaporation and purification of liquids, simultaneous chilling and heating of process fluids, etc. Written by men of authority, rich in bibliographical references, the book seeks to increase the knowledge of men working in this growing field.

J. R.

NOTICES

NEW PRACTICES. PARTNERSHIPS

HAROLD S. PAWLAN has associated with the office of SIDNEY C. FINCK at 154 N. LaSalle St., Chicago 2, Ill.

LYMAN C. GROSS has opened engineering offices at 432 Sexton Bldg., Minneapolis 15, Minn.

PRES COTT & ERICKSON have opened a new practice at 507 Main St., Laconia, N. H.

ALBERT F. LARSON has renewed his practice with offices at 704 Graham Ave., Eau Claire, Wis.

(Continued on page 118)
Now you can free your doorways of bulkitis in the “door closer corner!”
NEW YALE COMPACT DOOR CLOSER has been voted the world’s most beautiful closer

You’ve always hated the door closer corner — for there has never been an attractive door closer. They’ve all had bulkitis — which means too big, too bulgy, too clumsy — ugly!

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NOVEMBER, 1947 117
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For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Sections 12B/7 and 13B/7, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, New York.

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NOTICES

(Continued from page 116)

BAMBERGER & REID, whose offices are at 417 Market St., San Francisco 5, Calif., have announced the association of WILLIAM HOWARD EDIE.

DAVID WILLIAM CECIL has opened an office at Spartanburg, S. C.

FRANK MONTAIO and SUREN PILAFIAN have announced the consolidation of their practices in offices at 112 Madison Ave., Detroit 26, Mich.

ELIOT NOYES has opened an industrial design office at 438 E. 88th St., New York, N. Y., where he and MARCEL BREUER, architect, will act as consultants for each other in their fields.

CALLIX E. MILLER has resumed his practice at 234 Chestnut Bldg., South Bend 7, Ind.

JULIAN K. JASTREMSKY has announced a new practice at 19 W. 44th St., New York, N. Y.

NEW ADDRESSES

GORDON DRAKE, 4201 Sunset Blvd., Los Angeles 27, Calif.

JOHN CARROLL DUNN, 717 Washington Pl., Baltimore, Md.

CARL FREDERIK BRAUER, 120 E. 65th St., New York 21, N. Y.

WILLIAM H. MACKAY, 30 Colony St., Meriden, Conn.

CHARLES WELLINGTON WALKER, Cilco Bldg., 114 State St., Bridgeport, Conn.

FRANCIS J. HEUSEL & EDWARD H. FICKETT, 5678 Wilshire Blvd., Los Angeles, Calif.

COMPETITIONS

The Jefferson Memorial National Expansion Competition has selected the five anonymous winners of the first stage, each to be awarded a prize of $10,000. The final winner, to be announced in February, 1948, will receive the grand prize of $40,000 for the design which will set up a $30,000,000 memorial to commemorate national expansion after the Louisiana Purchase. Site of the memorial is a 35-block riverfront in the city of St. Louis, Mo.

American Institute of Decorators has announced its annual awards competition for 1947, open to designers of fabrics, furniture, floor coverings, wall coverings, and lighting. Best designs of products on the consumer market since January 1947 will receive Citations of Merit. On the Jury of Award will be W. E. S. Griswold, Jr., Carl Koch, Max Abramovitz, Samuel A. Marx, Michelle Murphy, Jack Per-Lee, and Andrew C. Ritchie. For entry forms (which must be filed by November 21, 1947) write to American Institute of Decorators, 41 E. 57th St., New York 22, N. Y.
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ARCHITECTURAL DESIGNERS AND DRAFTSMEN — wanted for work of long duration in southwestern United States. Give details of experience, salary requirements, and date available. Box 69, Project Architecture, 330 West 42nd St., New York 18, N. Y. Legible copy, accompanied by check or money order for $3.00, will be accepted not later than the 5th of month preceding publication. Insertions may not exceed 50 words.

NOTICE: Advertisements for this section must be addressed to Jobs and Men, C/O PROGRESSIVE ARCHITECTURE, 330 West 42nd St., New York 18, N. Y. Legible copy, accompanied by check or money order for $3.00, will be accepted not later than the 5th of month preceding publication. Insertions may not exceed 50 words.

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JOBS AND MEN
(Continued from page 120)

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"In the spring of 1944 a series of lectures on hospital planning was given by Isadore Rosenfield under the joint sponsorship of New York Chapter of the A. I. A. and the Department of Public Works of New York City. Attended by architects, members of the medical and nursing professions and hospital officials, the lectures proved so popular that Mr. Rosenfield has now expanded them to book form. His decision to include the discussions following the lectures was a good one: these discussions not only heighten the interest of the volume (the reason given for their inclusion), but also answer a number of questions not dealt with in the main body of the text, and add valuable comment by doctors, nurses and hospital authorities."

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PROGRESSIVE ARCHITECTURE
May 1947
3 Trap Replacements in 7 Heating Seasons

When a hospital spends in the neighborhood of $30,000 annually for fuel oil, that's big business. It calls for a "controllable" steam heating system and careful heating plant operation to effect maximum economies.

The outstanding heating record of the new Delaware Hospital began with a Webster Moderator System designed by the well known New York engineering firm of Jaros, Baum and Bolles. It included installation by a competent heating contractor.

Continuity of operating experience is provided by Chief Engineer Carl A. Baehr, who has been with the new Delaware Hospital from the beginning. Let Mr. Baehr tell you about some of the heating economies.

"Out of 1,981 Webster Radiator Traps in use, only three have required new thermostatic interiors in seven years of service. The Webster Radiator Supply Valves have been completely satisfactory.

"We receive no more than six legitimate heating complaints a year, and correction is always promptly made.

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The Delaware Hospital was only partially completed at the time fuel rationing went into effect. It was estimated that the completed Hospital would require 620,000 gallons of fuel oil per year. Based on this estimate, the fuel rationing board allotted 500,000 gallons of oil per year for all purposes—heating, sterilizers, laundry, kitchen equipment.

Fuel consumption records show that the Hospital did not require a supplementary ration at any time during fuel rationing. The Webster Moderator System saves fuel by keeping radiators comfortably warm. Instead of 212 degrees, the average surface temperature of radiators is 185 degrees, 150 degrees or even as low as 90 degrees, depending on the need for heat.

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DELTA HOSPITAL, Wilmington, Delaware
The death of Howard Myers, publisher of the Forum, was a great shock to the profession as a whole, and meant a distinct personal loss to many individual architects. Not only was Howard friend and adviser to many designers; as a professional journalist he was a figure that all of us in that profession looked up to and admired.

I HAVE AT HAND THE REPORT FOR 1947 OF THE NATIONAL ARCHITECTURAL ACCREDITING BOARD. This year the Board visited 16 schools for the purpose of appraising or reappraising. While we all know that the schools are crowded and in need of teachers, the seriousness of the situation is strikingly brought home by statistics regarding 13 of the schools visited. The Board in its report states its belief that the facts are "representative of the changes that have taken place in all of the schools."

In these 13 schools the teaching experience of the teachers has declined since 1939, the salary level has risen some 30%, the size of the faculty has increased by half, but the number of entering and enrolled students has almost tripled.

The statistics (1947 compared with 1939) are as follows:

- Teaching Budgets . . . .104% Increase
- Average Teachers' Salaries . . . .36% "
- Drafting Space . . . .23% "
- Entering Students . . . .168% "
- Enrolled Students . . . .136% "
- Graduated Students . . . .23% "
- Teachers . . . .47% "
- Teachers' Practice Experience . . . .25% "
- Teachers' Teaching Experience . . . .26% Decrease

Incidentally, this important Board carries on its work with an inadequate budget, expanding its own membership by drawing on the time and effort of a number of other teachers and practitioners. A three-man team visits each school appraised.

ST. LOUIS WAS HOST TO A GREAT MANY ARCHITECTS IN THE LATTER PART OF SEPTEMBER. The American Hospital Association held its convention there, and at the same time the jury for the Jefferson National Expansion Memorial competition gathered for its first-stage judgment. I went out there calmly intending to visit several local architects and found more to do in a few days that I ever want to encounter again.

The A.H.A. PRESENTED A PROGRAM ON HOSPITAL DESIGN which justified the trips many architects had made from all over the country. Only one mistake in planning was made: the all-day architects' meeting was on a Sunday, which is a dry day in St. Louis. The traveling show featuring Skidmore, Owings & Merrill vs. Carl Erikson on the subject of southern orientation and maximum glass areas (former one-night stands in Ann Arbor and Grand Rapids) was as enjoyable as usual, even with Bob Cutler standing in for Nat Owings. A number of us got drawn into the discussion, which proved principally that (a) not enough technical material has been published on the value, the control, and the limitations of sunlight, and (b) what technical data has been published has not been read.

This question of the value to the profession of publishing technical information (of the sort which is more than a report on new products) concerns us on P.A. very much. At the Princeton conference in the spring John Burchard had some mean things to say about the architectural journals on this score. He spoke scathingly of the "pseudo-scientific" material which the profession is fed. I don't quite know what he means by that. I do know that not one of the people in St. Louis who were discussing solar orientation had read the factual report (May 1947 PROGRESSIVE ARCHITECTURE) of the research on this subject being conducted at Purdue University. There's not much point in publishing material which isn't going to be read. That is a point except the printer and the paper manufacturer any good. I don't mean to imply that we shall therefore stop publishing factual research data when it is available. We'll publish it, and make it as readable as possible. Then it's up to you people. We can't read it for you.

The nicest story I got out of the convention was a true one about the architect who was designing a hospital for the first time. The hospital superintendant impressed him with the fact that all facilities must provide for a balanced distribution of sexes. Wards, etc., would be required in equal numbers for men and women. The architect took his lecture seriously, and when plans were completed they indicated two morgues.

THE JEFFERSON MEMORIAL JURY UNDER THE GENIAL GUIDANCE OF GEORGE HOWE worked hard at its task of selecting from the 172 entries five winners to compete for the final stage. No announcement of the five names will be made until the entire competition is completed in February. Of course, rumors are rife, and we've heard our share of them, but we're not allowed to speculate in print.

This particular competition, because of its national importance, has caused much discussion within the profession of various aspects of the competition principle. There is, for instance, the great financial contribution that the designers make toward the success of such a venture. St. Louis citizens put up handsome prizes (a total of $175,000), but the competitors put up at least a thousand dollars each in time and office costs, which makes the total contribution of the profession considerably greater than that of the sponsors.

There has been some discussion of the value of anonymity in such competitions. The jury is composed of honor­able objective people. Why must the names of the competitors be hidden from them? The usual answer is that they might, even subconsciously, be influenced by great names. Our experience in the P.A. Awards judgment last year didn't bear this out. Obviously, in judging completed work, some of which members of the jury had seen, some of which had been published, it would have been futile to try to hide the architects' names. Yet two unknown firms won Awards in a field which included a number of internationally known and very able designers.

Another question being kicked around is the influence on the jurors of hand­some presentations. It is an obvious fact that a wonderful idea may not receive the attention it deserves if it is presented simply and factually; it may be overshadowed by a mediocre solution, dolled up by means of fancy presentation techniques. Jurors are human, and no matter how hard they try, they can't help but be influenced by such matters. It is my impression, after talking to a number of people who have served on important juries recently, that they are much more apt to be influenced by presentation than by names. We have made great advances in the conduct of competitions, and the "ethics" are well protected by the A.I.A. standards. No important competition could now become the fiasco that the League of Nations business was. Perhaps, in addition to that, some of the basic concepts of the principle of competitive solutions should now be re­examined.