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MODERN REINFORCED MASONRY

By Harry C. Plummer, Director, Engineering & Research—Structural Clay Products Institute

Description

Reinforced brick masonry, as the name implies, consists of brick masonry in which steel reinforcing rods have been embedded and are so placed that they will resist the tensile stresses developed in the structure. The principles of reinforced brick masonry design are the same as those commonly accepted for reinforced concrete and identical formulas may be used. Since reinforced masonry is designed to resist bending as well as compressive forces, it is essential that all joints in the masonry be completely filled. The method recommended for accomplishing this is to fill all interior joints with grout which is obtained by adding sufficient water to the mortar to give it a fluid consistency.

Since strength usually is of primary importance in reinforced masonry structures, only high strength mortars are recommended. ASTM specifications for mortar for reinforced brick masonry require a mixture of one part Portland cement, one-quarter part hydrated lime, and three parts sand by volume. This mortar has been used extensively in the construction of reinforced brick masonry structures with satisfactory results.

The strength of reinforced brick masonry is related to the strength of the mortar and the strength of the brick. Working stresses are best obtained by determining the compressive stress of prisms of masonry built of the same brick and mortar that will be used in the construction, and then basing working stresses in flexure and bearing on the ultimate compressive strength of the masonry. Working stresses of from 25 percent to 33 percent of the ultimate strength may be safely used. Working stresses for shear and bond are based on tests of full size walls or beams. The Uniform Building Code of the Pacific Coast Building Officials Conference, 1940 Edition, includes the following working stresses for grouted masonry:

Shear (No web reinforcement)	30 psi.
Shear (With web reinforcement taking entire shear)	60 psi.
Bond (Deformed horizontal bars)	80 psi.

History

Marc Isambard Brunel, once Chief Engineer of the City of New York and later knighted by Queen Victoria, is credited with the discovery of the principle of reinforced masonry over 130 years ago, antedating reinforced concrete.

Although Sir Marc first proposed the use of reinforced brick masonry as early as 1813, as a means of strengthening a chimney then under construction, it was in connection with the building of the Thames Tunnel in 1825 that he made his first major application of its principles. As a part of the construction of this tunnel, two brick shafts were built, each 30 inches thick and 50 feet in diameter, and 42 feet and 70 feet deep.

The shafts were reinforced vertically with wrought iron bolts, 1 inch in diameter, built in the brickwork and attached to wooden curbs at the bottom and top with nuts and screws. Iron hoops, 9 inches wide and ½ inch in thickness were also laid into the brickwork as the building progressed. The shafts were built to their entire height and then caused to sink by excavating the earth from their interiors, using what is now commonly known as the open method of cassion construction. The reinforcing of the shafts was so successful that no injury resulted.

During the period from 1825 to about 1920, frequent use was made of reinforced brick masonry in several European countries and to a lesser degree in the United States. However, there was little if any exchange of ideas among the users of reinforced masonry and consequently little coordination of the information developed.

The present active interest in reinforced brick masonry, however, appears to date from the year 1922, when Mr. A. Brebner, Under Secretary, Government of India, Public Works Department, published in two volumes a classic report entitled "Notes on Reinforced Brickwork," in which it is reported that reinforced brick masonry has had wide use in India, several of the local Indian Governments have adopted it in the construction of public buildings, as well as in private dwellings for officials. In all, nearly three million square feet of reinforced brick masonry construction are said to have been built in India during the three years prior to 1922.

Research sponsored by the Brick Manufacturers Association of America and continued by the Structural Clay Products Institute has contributed much valuable material to the literature on the subject of reinforced brick masonry. Since 1924, numerous field and laboratory tests have been made on reinforced brick masonry beams, slabs and columns and on full size structures. In 1932, the Reinforced Brick Masonry Research Board, predecessor of the present Structural Clay Products Research Board, was organized. This Board is composed of prominent professors in engineering schools, outstanding consulting engineers and other authorities on structural engineering. A comprehensive research program has been outlined, and the Board has done effective work in directing and coordinating tests on materials, mortars, plain and reinforced brick masonry. The reinforced brick masonry units tested have included beams, slabs, walls and columns.

Modern Developments

During the past 10 years the use of reinforced brick masonry in this country has been growing rapidly. Prior to the war, most of the larger structures were built in Southern California; however, since Pearl Harbor and the emphasis that has been placed on designs to resist bomb blast, the walls of many large structures in the East have been reinforced. Among the latter is the Naval Bomb Site Factory at Indianapolis, Indiana, an air-conditioned, windowless building, approximately 500 feet by 1000 feet in area, and with reinforced brick curtain walls approximately 50 feet high.

While the required reinforcing steel can usually be placed in masonry built of standard brick, special shapes have been developed which permit the use of heavy reinforcement without requiring excessively wide mortar joints and which provide a mechanical key between the grout layer in the wall and the masonry units.

Figure (1) illustrates one such unit, known as "Groutlock," developed by the Simons Brick Company. The V or Soffit brick provides space for the reinforcement at the bottom of a lintel or beam and the bevelled edges, in addition to forming a grout key, permit the placing of the horizontal steel

without widening the vertical or collar joint between the wythes of masonry. This unit was used in the construction of the Ramona Gardens Housing Project of Los Angeles, California, which was designed by Housing Architects Associated and constructed by Baruch Corporation, General Contractors, at a cost of $2,004,000. The 2,250,000 brick required in the construction were furnished by the Simons Brick Company of Los Angeles. This project consists of 112 two-story buildings with 8 inch thick reinforced walls for the first stories and 7 inch thick reinforced walls for second stories.

Groutlock reinforced brick masonry was also used for the construction of the Walt Disney Studios, Hollywood, California. The walls of these buildings are 8 inch thick reinforced load-bearing walls.

Figure (2) illustrates the system of reinforced brick masonry known as "Steeltyd" which was developed by the Davidson Brick Company of Los Angeles, California. In this system, L-shape brick are used to provide space for the lintel or beam reinforcement and the wythes of the wall are tied together with metal ties which prevent any tendency of the wall to spread during construction, due to the pressure of the grout. This type of construction has also been used extensively in Southern California for the construction of commercial, industrial and residential structures.

An example is the addition to the plant of the Payne Furnace and Supply Company of Los Angeles, California, which was designed by Clyde Duvell and constructed by Minor Arganbright at a cost of $45,000.

Figure (3) illustrates typical reinforced brick masonry construction using standard brick and shapes to provide additional grouting space around the reinforcement. This type of reinforced masonry was used in the construction of the Los Angeles Vermont Avenue School which was built in 1937. The school was designed by the architects of the California Board of Education and Mr. Charles A. Fork, Consulting Structural Engineer. In an article* describing this project, Mr. Fork states:

"The new Vermont Avenue School in Los Angeles, California, is an outstanding example of what can be done to make brick construction safe in an area subject to earthquake shocks.

"The east and west wings of the schools are two stories high, connected in front with a one-story unit. The horizontal floor area is 38,700 square feet. Total cost of the building proper was approximately $180,000, or $4.62 per square foot of floor area. The school cost less than a similar job of concrete. This is significant in view of the fact that face brick were used to face the 13-inch exterior walls and interior corridors.

"Unusual features in this school are the use of shaped brick, and the grouting method for filling the interior joints.

"The walls are distinguished from the usual type of reinforced brick masonry in that definite channels are provided for a grout core around the reinforcement. This is accomplished by the use of three different brick shapes; the standard unit for general filler purposes, the ¾ unit to provide grout space for the vertical reinforcement, and the ½ or narrow unit to provide grout space for horizontal reinforcement.

"By the use of these units, it is possible to place the reinforcement nearer the faces of the wall, and thus increase its effective depth. Greater assurance of securing a good bond between steel and masonry is obtained by the large grouting space. A very notable feature of the ¾ unit is its extreme flexibility for accommodating any spacing of vertical reinforcing bars. The bar spacing need no longer be in multiples of brick dimensions. If the unit laid in the usual manner does not clear the bar, the unit is simply reversed, thereby, moving the channel four inches forward. One unit provides a 4-inch channel, while two units placed adjacent to each other provide an 8-inch channel. In general, it is advisable to maintai a maximum bar spacing in order to provide sufficient workin space for bricklaying. In this job, a spacing of 2 feet 2 inche was used, wherever possible, for the vertical bars, and a spa ing of 2 feet 0 inches for the horizontal bars. When it becam necessary to increase the steel area either the size of the ba was made larger or the bars were grouped two in a channel

Another type of reinforced masonry construction, whic is rapidly gaining popular acceptance and use, is the precas reinforced tile beam floor. This floor may be built with flus or beam ceilings as illustrated in Figures 4, 5 and 6. Hundred of thousands of square feet of this construction have bee installed during the past 8 years, and during the recent lumbe shortage it has proved a satisfactory substitute for wood floor both from the standpoint of cost and performance, and due t its fire resistance, it adds greatly to the value of the structure The tile beams are usually precast at the building site although some tile manufacturers precast them at thei plants for projects to which they can be economically deliv ered by truck. Experience in the Southwest (Oklahoma an Texas) indicate that this type of floor can be installed in thi area at a price comparable to a good wood floor, and whe used in residential construction for the first and second floor and the ceiling or attic floor in conjunction with masonr walls, it produces an all masonry fireproof residence.

Extensive tests have been made of precast tile floor beams some of which are reported in Research Bulletin No. 236 of th Agricultural Experiment Station, Iowa State College. Thes beams may be designed in accordance with the formula applicable to reinforced concrete joist floor construction an the floors have been found to be less subject to volume chang during and after setting than solid concrete slabs.

Indications are that the use of reinforced masonry co struction will continue to expand in the post war era an the Structural Clay Products Institute is now devoting a larg part of its Research Program to an investigation and study o methods of design and construction of reinforced masonry. A this research is completed, the results will be made availabl to the construction industry through publications of the Insti tute's technical articles and reports of the research laboratorie

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At the June 3 meeting in Urbana of the Central Illinoi Chapter, A.I.A. the Geology Department of the University o Illinois exhibited an interesting display of stone quarrie from Illinois. It was explained that the Exhibits were found i unlimited quantities in areas of the state along the Mississip River. It is hoped that companies will develop the quarrie for the market after the war.

The Chapter has a corporate membership of 34 of whom are fellows. In addition there is one associate and one junio associate. Four are in U. S. military service.

Plywood's only serious disadvantage, inflammability, i now being removed by a flameproofing process. Use of thi plywood is illustrated by the doors of the Navy's new all-woo blimp hangers.

Sheets of plywood are flameproofed, a carload at a time by American Lumber & Treating Co.'s Minalith process. Thi pressure treatment employs a combination of phosphate, sul phate, and boron chemicals. Ordinary untreated plywood burn like untreated timber, and, with some glues, heat ever causes a delamination of the plies, aggravating the fire hazard The new treating process, however, prevents flamespread an delamination by filling the wood cells throughout the plie with chemicals which entirely inhibit the combustion charac teristics of wood.

Did you hear about the Yank soldier, stationed in Eng land, who thought Privy Seal was the lock on a pay toilet.— *Roger Allen.*

R.B.M. GROUTLOCK CONSTRUCTION

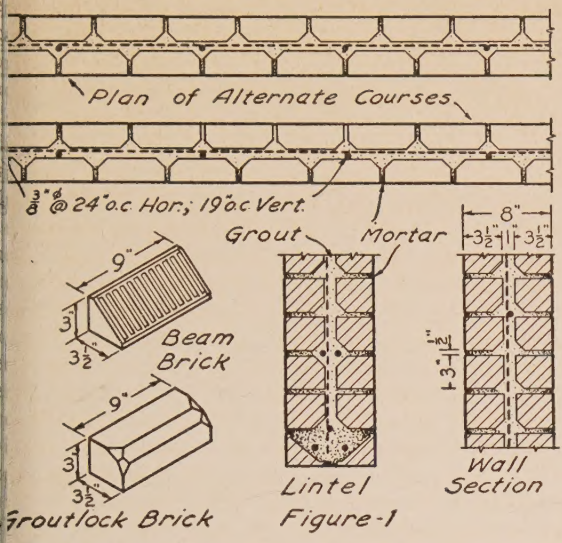

Figure-1

R.B.M. STEELTYD CONSTRUCTION

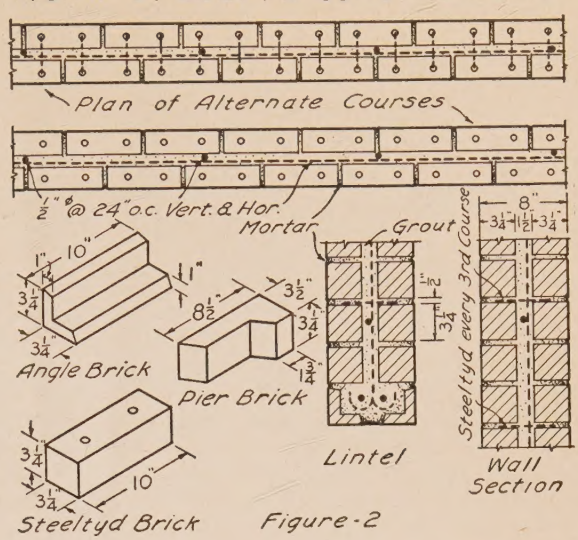

Figure-2

R.B.M. TYPICAL CONSTRUCTION

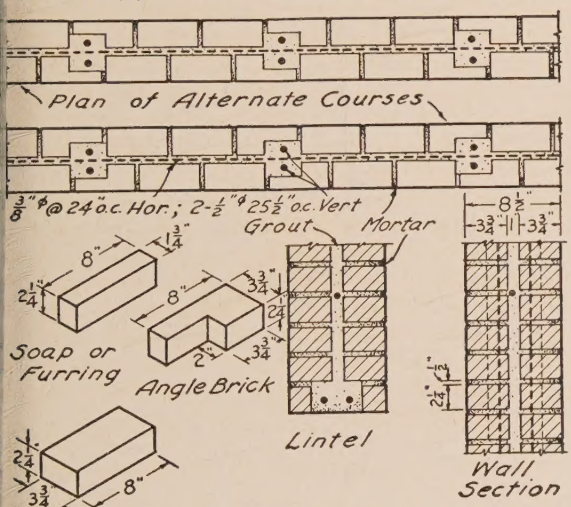

Figure-3

PRECAST TILE BEAM FLOOR
EXPOSED BEAM CEILING

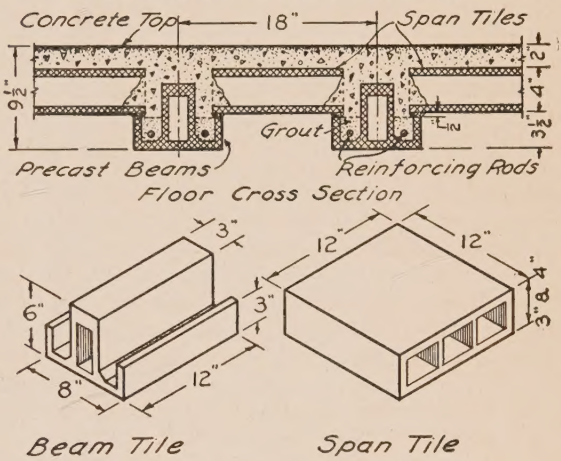

Figure-4

PRECAST TILE BEAM FLOOR
FLAT CEILING

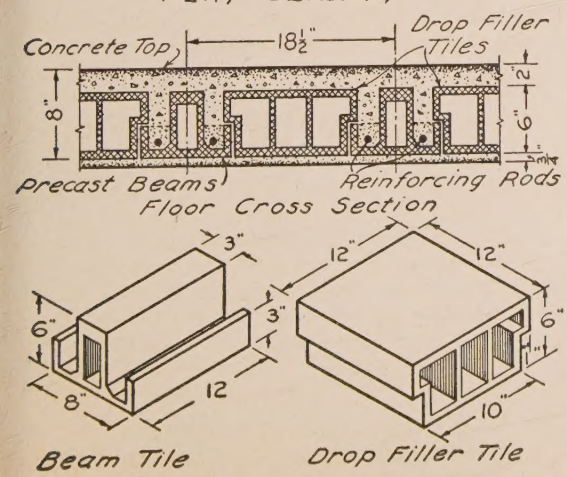

Figure-5

PRECAST JOIST-TILE FLOOR
FLAT CEILING

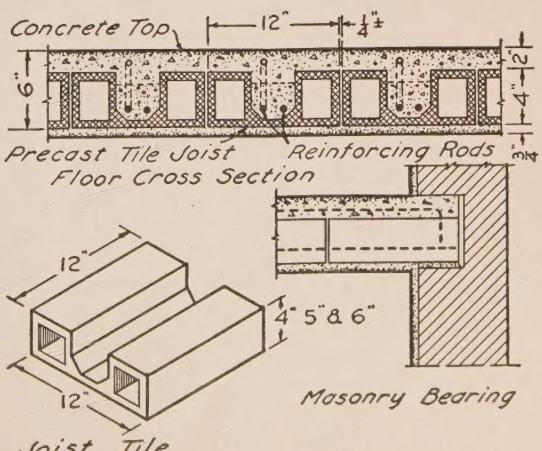

Figure-6

A. I. A. Representative Este Fisher, Jr., says in the July Journal of The American Institute of Architects, "We are engaged in 'unification'—in an effort to bring all architects of good will into The A.I.A., to strengthen our professional organization." The membership of The A.I.A. on January 1, 1944, was 3,915 corporate members, an increase of 275 during 1943. Julian Oberwarth, the Membership Secretary, has performed a yeoman service during 1943, having visited and spoken before 62 of the 72 chapters. We have heard it stated that it is Mr. Oberwarth's ambition to raise the Institute membership to 7,000 during his incumbency of the office of Chairman of the Membership Committee.

All this is highly commendable and there can be no question that the vast majority of architects in the land favor a strong national organization, qualified to speak for the whole profession before Congress and other Federal bodies. There is, however, a feeling of doubt in the minds of many architects regarding the interpretation of the word *unification* by The Institute authorities. These architects wonder whether it is the purpose of The Institute to put state societies and associations out of business and presume that Institute chapters are best qualified to represent the profession before local boards of aldermen, other municipal bodies and state legislatures. Their doubt is strengthened by the dissolution of the Detroit section of the Michigan Society of Architects when 80% of that section's membership were found to be members of the Detroit chapter.

President John C. Thornton of the Michigan Society tried to allay such fears when he said "The other cause (reduced membership) was that a number had the erroneous idea that the Society was going out of the picture. This is far from the case. The Society will go on stronger than ever. It is true that it will relinquish local activities to the chapters, but it will take over all state activities. This is as it should be and is the unification goal for which we have been striving."

The Institute Board must realize that in the majority of cases Institute chapters are much older than state societies or associations. The Board should inquire into the reason for the formation of state societies which, in most cases, were founded by members of The Institute chapters in their respective states. Had the chapters functioned satisfactorily, the state organizations would never have been called into being. There are 72 Institute chapters. The A.I.A. June Bulletin registers 23 state organizations as affiliates of The Institute, and 4 state organizations unaffiliated. We believe there are more than 4 unaffiliated societies.

The Chicago chapter A.I.A. was organized in 1869 and has just finished its 75th year. The Illinois Society of Architects, organized in 1897, celebrated its 47th year on June 27. The I.S.A. is an affiliate of The A.I.A. as is the most recent state organization, The Massachusetts State Association of Architects, founded in 1941. When it is considered that the Boston Society of Architects, which we believe is now the Boston chapter A.I.A., was founded in 1870, with a distinguished membership from the very beginning, there must be some reason why throughout the land these state societies were formed.

Since we believe the experience in Illinois typical of that in other states, we will review the cause of the formation of the Illinois Society of Architects.

After the Columbian Exposition of 1893 in Chicago, the city found itself with many apartments and other type structures poorly designed and poorly constructed. Building ordinances were either inadequate or disregarded in the hurry to prepare for world fair visitors. The chapter discussed the architect's duty in the matters of safeguarding the public against incompetence in handling design and supervision. The chapter as a body could not be roused to take action, when within the chapter a body of men organized what was at first known as the Chicago Architects Business Association. They made it their business to formulate a state license act which was to safeguard the life and the health of the public, by putting the designing of buildings into the hands of men qualified by examination by a state board or by showing years of experience with results. They interested themselves further in adequate city ordinances and it was not long before their organization name was changed to Illinois Society of Architects with its membership spread over the state. The membership has always counted about 50% Institute men and sometimes more. Their efforts brought about the passage by the State Legislature of the first architect's license law in any state of this country. Experience has shown that boards of aldermen and state legislatures are more amenable to views advanced by a state or local organization in the matter here discussed, than to a national body.

Nothing has happened in the Chicago chapter management to warrant a change of opinion from that of the chapter members who organized in 1897 the Chicago Architects Business Association.

The Bulletin recommends that The Institute board give this question serious thought and publish its views, namely, the efficacy of Institute chapters in local matters as compared with the efficacy of state societies.

Fond mother—"Yes, Ruth is very bright. She's only twelve, but already she's studying French and Algebra. Ruth, dear, say 'good morning' to Mrs. Perkins in Algebra."—*West Point Pointer.*

Illinois Society Forty-seventh Annual Meeting

June 27 was a hot day in Chicago, the thermometer registering 100°F. On that evening the I.S.A. held its annual meeting, the forty-seventh, preceded by a dinner. They met in the quarters of the Chicago Bar Association and numbered 46 with ladies. The rooms were air conditioned so the cocktail appetizers were not slighted. The ladies were dressed in light colors, suitable to the heat, and apparently had a mollifying effect upon any men inclined to be crabby.

Following the dinner President Ryan welcomed all in his best style and called on Secretary Fuhrer to read the minutes of the May meeting. They were approved as read. Next came committee reports. In past years the Board of Directors had appointed one man to read all these reports and at the annual meeting gave a review or a resumé. That plan was not adopted for this meeting and committee chairmen were handed back their reports for reading to the meeting. H. L. Palmer reported for the Membership Committee; he, as financial secretary, also reported on the condition of the finances of the Society; Chairman Leo J. Weissenborn reported for the Entertainment Committee; in the absence of Charles A. Urbanek, Secretary Fuhrer read Urbanek's letter from the Materials and Methods Committee; the Publicity Committee report was read by Arthur Woltersdorf.

The only news that had developed in the matter of the Professional Engineering Act for Illinois, was the sending to all Illinois Society members on June 23 applications for registration as a registered professional engineer in the State of Illinois. The purpose of this was to safeguard architects who had themselves taken care of the mechanical engineering planning on their jobs through the years, that they might come in under the grandfather clause should the Illinois Supreme Court not sustain the judgment of the Sangamon County Circuit Court in finding the present act unconstitutional. This report was made by President Ryan.

With the business disposed of the President introduced the speaker of the evening, Dr. Von Ogden Vogt, Rector of the First Unitarian Church of Chicago, situated at 57th Street and Woodlawn Avenue, within the shadow of the Chicago University campus. A distinguished clergyman, lecturer and author, Dr. Vogt chose as his subject The Church Building in the Community. With humor in the introduction where he mentioned his acquaintanceship with a number of the architects present, and mentioning a letter of regret for his inability to attend this meeting from Dennison Hull, architect of Dr. Vogt's church, he proceeded to develop his theme.

The speaker told of his early contact with architecture when a boy of thirteen working in a plaster shop on models for the White City by the Lake. Later his contacts with new and crude western settlements impressed him that the dominating features in such towns were the cattle pen and the grain elevator. The village store front with its expansive upper works without structural background was also a common feature. He next travelled to Egypt where he visited ancient Thebes and the Tombs of the Kings, with an archaeologist friend. Then the good Doctor told of the various problems that the architect had to solve and placed the crown on religious architecture. It made no difference what the religion was and there were religions thousands of years before the Christian era. Every religion had and has an ideal—an ideology —be it the religion of Buddah or of the savage negro in the heart of Africa or of the American Indian. There is in all of them the goal to reach the better life, and in this religious architecture, the architect has a most important place and the greatest responsibility, for he not only creates the structure but he must direct and merge all the other arts in his ecclesiastical structure in his aim to express the oneness in religion.

In this country the earliest efforts in religious architecture appeared in New England, Virginia, in Philadelphia and later in New York. All this work was Georgian, a phase of the Renaissance. He passed on rapidly until he came to the Romanesque as exemplified by H. H. Richardson's Trinity Church in Boston. The craze for Romanesque churches followed and degenerated twenty years later. Some terrible examples defiled the landscape. Dr. Vogt spoke of the architecture in our universities, at Harvard where he had studied; at Yale where he had likewise studied and at Chicago University. He held that no man of good judgment would erect such buildings with the attempt to forget the past. He would not have the designer copy the past slavishly but these religious structures must always reflect the ideal of the religion and something of its past. He commended the beliefs and influences of the late Ralph Adams Cram and spoke of the symbolism, referring to the inscriptions and carvings wrought into the nave of his own church here in Chicago, not neglecting to tell the inscriptions over the entrances and those over the exits where worshipers passed in and out.

Regarding architecture in the path of war, the speaker feared the possible destruction by contending armies at Caen of the two famous Norman Romanesque churches built under William the Norman, Abbaye aux Hommes (St. Etienne) and Abbaye aux Dames (La Trinité). This William is the gentleman who, with his followers, paid a visit to England in 1066, you will remember. In Paris, said Dr. Vogt, the most valuable building by far is the Cathedral of Notre Dame. It would cost many millions to restore should the war destroy it, and achieving a perfect restoration was always a question.

Dr. Vogt closed his address with the hope that he had expressed in an address before the Chicago chapter of the A.I.A. in October, 1923, and which address was reported at the time by your reporter here. That hope was for a great community cathedral where men of good will of many denominations might go to services of the respective denominations and that the edifice would always be open for worship.

Amidst universal applause and approbation Dr. Vogt took his seat, followed by a few words of appreciation on behalf of the Society, uttered by the President.

The next business was a report of the tellers on the election of new officers and directors. Victor Matteson spoke for the tellers. The new officers are: President, G. Harold Smith, Chicago; 1st Vice President, John E. Coyle, Joliet; 2nd Vice President, R. Harold Zook, Chicago; Treasurer, Carl Hauber, Chicago; Secretary, Ralph C. Harris, Chicago; Financial Secretary, Herman L. Palmer, Chicago.

New directors elected for three years are Marvin Probst, Chicago, and James H. Ticknor, Lake Forest.

The new Board of Arbitration: John C. Christensen, Chicago; Richard E. Schmidt, Chicago; H. S. Bradley, Rockford; Herbert Hewitt, Peoria; Benjamin A. Horn, Rock Island; Sigurd Naess, Chicago; John R. Fugard, Chicago.

Mr. Smith, the newly elected President, accepted his responsibility in fitting words and Arthur Woltersdorf proposed a vote of appreciation to the retiring officers and boards for their untiring and sometimes thankless efforts in behalf of the profession in general and the membership in particular.

Wood Treatment

A treatment applied similarly to the full-cell process of pressure impregnation of lumber has been perfected to make lumber harder, more resistant to change due to moisture, chemicals and abrasions, and to change wood so it will not support combustion. The process uses a chemical agent, methylolurea, compounded by addition of urea to dimethlolurea. This process makes wood much harder than its natural state, it is claimed. Poplar can be made as hard as maple, and the hardness of maple increased to equal ebony, equivalent to that of some metals. Cost of the treatment is said to be comparable to that of pressure treatment creosoting. Depth of treatment can be varied to make only the exterior hard while leaving the center resilient and shock resisting.

—E. I. du Pont de Nemours & Co.

Otto K. Jelinek has been promoted from traffic to planning engineer of the Chicago Park District. He will serve as staff officer in the development of plans for the construction and extension of parks and park facilities.

Chicago Chapter Annual Meeting

There were 38 members in attendance at the 75th annual meeting of the Chicago Chapter, American Institute of Architects, held in the Chicago Bar Association quarters on June 13th, preceded by the usual dinner.

No special program was announced, though comments and suggestions either by members present or by letter were asked for in the invitation to the meeting, for the purpose of guiding the Executive Committee in the immediate future.

President Shaw presided. On the vote of the members no minutes were read. Treasurer Marx being absent, Mr. Shaw read from the Treasurer's written report showing that there was a balance of about $2,000.00 in the treasury.

Then came the reports of committees, beginning with that on the Illinois Professional Engineering Act, given by Paul Gerhardt, Jr. He stated again that though the Act was to go into effect August 1, 1943, it did not do so because of the case questioning its constitutionality, pending in Sangamon County Circuit Court. The opinion of the Illinois Supreme Court on this Bill is not expected to be made public before November. The question regarding applications for license without examination to practice engineering under the Act, should the Circuit Court's finding be upset, by men now practicing engineering or architecture, was discussed by Messrs. Shaw, Fuhrer, Schmidt and others.

Of the 25 newly elected members to the Chapter, 6 were present and introduced. Among the present was Gilbert A. Johnson of Rockford, now Vice President of the Illinois Society of Architects.

Jerrold Loebl, now a member of the Illinois State Board of Examiners for Architects, spoke on state registration to practice. He introduced his talk by reading a long statement which appeared in the May 30th issue of the bulletin of the Michigan Society of Architects on information gleaned from a questionnaire circulated in California by the State Association of California Architects. The statement gave statistics on the average age of architects in California, number of architects per thousand of population, in 1920, in 1930 and in 1940; enrollment in architectural schools; state examinations to practice; Mr. Wurster's statement that the youngest architect practicing in California is 30; and that the average age is approaching 60.

A general discussion followed. It was brought out that now since Illinois examinations are 4-day examinations, agreeing in that respect with other States whose license laws were passed more recently, that the licensee under the 4-day exams was eligible for license in any other state whose examining council holds a membership in the National Council of Architectural Registration Boards.

Pierre Blouke spoke next on membership. He paid his respects to the ability and effort of the National Membership Chairman, C. Julian Oberwarth of Kentucky, whose ambition is to register a national membership of something over 7,000 within the near future. Mr. Blouke regretted that some of the new members elected into the Chicago Chapter had resigned.

Now came Jerrold Loebl again and this time he spoke on the postwar committee and its efforts. Loebl held out hopes on a seminar on postwar architecture where all architects and others would be welcome to attend sessions, presided over by Mies van der Rohe and his associate teachers.

There was a short discussion on the Chicago Building Code, the public hearings now going on, whose purpose is to make changes in the interest of economy in building so that more building by private parties would be encouraged.

And now the meeting was ready for election of officers and directors for the Chapter year 1944-45. The membership had received, through the mails, the proposed ticket submitted by the Executive Committee under date of May 22. This ticket returned all officers now functioning except the secretary. J. Howard Raftery was nominated to fill the unexpired two years of Jerrold Loebl's term on the Executive Committee. John S. Cromelin was candidate for four years on the Executive Committee. The President asked for nominations from the floor. There were none. Then someone proposed that the secretary cast a ballot for the officers named and that the election be made unanimous. This was carried, so the slate for the coming Chapter year is as follows: President, Alfred Shaw; 1st Vice President, Paul Gerhardt, Jr.; 2nd Vice President, George W. Carr; Treasurer, Samuel A. Marx; Secretary, Norman J. Schlossman; Raftery and Cromelin.

So ended the 75th year in the life of the Chicago Chapter A.I.A.

Architect Harth-Terré of Lima, Peru, Visits Chicago

Senor Emilio Harth-Terré, distinguished Peruvian architect, who is visiting some of the leading American library centers as a guest of the Department of State, was in Chicago June 16-19. He was a guest of Daniel Catton Rich, the director of Fine Arts of the Art Institute, and visited the American Library Association Headquarters.

Senor Harth-Terré, Chief of City Planning in the Ministry of Public Works in Lima, is at present engaged with plans for the immediate rebuilding of the National Library of Peru which was devastated by fire in 1943. The new National Library in Lima will cost more than 7,000,000 soles—about $1,000,000. It will cover a ground area of 60,000 square feet, and its three floors will give it a floor space of 150,000 square feet and a capacity exceeding 1,500,000 volumes. An old cloister which was the only part of the former library to escape the flames will be incorporated into the construction of the new edifice. Traditional Peruvian colonial and pre-colonial design has been blended with the modern in the plans for the new library.

Besides his work for the Ministry of Public Works, Senor Harth-Terré is Professor of Fine Arts in the Lima School of Fine Arts and is a founding member of the National Council for the Preservation and Restoration of Historical Monuments. In the latter capacity he supervised the reconstruction of the historic Cathedral of Lima; the tower of the Church of Santo Domingo, felled by an earthquake; the facade of the Church of La Merced and the Convent of St. Augustine, at Sana, all without compensation.

Twenty-five years ago, Senor Harth-Terré was the first student to be graduated from the School of Architecture at Lima, and he spent three years in post-graduate work at Paris.—*Harriette L. Greene, A.L.A.*

Leon Henderson conducted the noisiest one-man band on a high wire in recent political history. After a long time Congress pushed him off and now Chester Bowles is doing a right good job of repair in OPA. The TVA is pretty well conducted, as privately owned organizations go. But it is gradually dawning on the people that, after all, it is publicly owned, and the Senator will bet a cigar that eventually it will be compelled to turn its receipts into the Treasury just as other public corporations should. The National Planning Board outplanned itself and after a long time the vine was lopped.—*Nation's Business.*

The Italian gardener of the Renaissance rarely or never employs the vast levels and long vistas of French gardening, while, in the treatment of water, he avoids the massive and lofty jets and immense basins which distinguish the gardens of Versailles. Toward the sloping lawns and meandering paths of English and American grounds he feels much as the Frenchman did who said, "Nothing is easier than to lay out an English garden: one has only to make the gardener drunk and then follow his meanderings."—*From "The Italian Formal Garden," by A. D. F. Hamlin.*

Marc Thompson, formerly the architect for the Eleventh Naval District at San Diego and noted as a planner of Marine air bases, now is working out of Washington on a tour of the nation for the Building Design Unit of the CAA's Airport Service. His work is part of the overall CAA post-war airport planning now under way.

Replanning Illinois Towns

The University of Illinois (Bureau of Community Planning, Department of the College of Fine and Applied Arts) has recently issued a 40 page booklet entitled "Planning Opportunities for Towns in Illinois." The author is Karl B. Lohmann, Professor of Landscape Architecture at the University, and the foreword is written by Rexford Newcomb, Dean, College of Fine and Applied Arts.

Mr. Newcomb in his foreword says Illinois towns generally were platted by townsite promoters when even the most elementary principles of town planning were not understood. Not well planned in the beginning, they have shown little improvement through the years. Came the automobile and the airplane. As a result most Illinois towns are faced with the necessity of making serious physical readjustments. Town planning in Illinois really means town replanning and now is the time to plan and replan.

Mr. Lohmann in the body of his essay says every community is an intimate part of the countryside; every large city a composite of country-surrounded communities. The essay is divided into sixteen sub-heads beginning with advantages of the community planning, passing on to long term budgeting, making streets more suitable, solving traffic difficulties, automobile parking, mass transport services, railroad considerations, airports, sanitation, recreational opportunities, water fronts, better residential areas, subdivision regulations, housing, business sections, industrial areas, zoning regulations, public buildings, their location and use, and finally civic appearances. Under airports, Mr. Lohmann says: "of no small importance, especially for the small community, will be the role of the helicopter with its relatively small space requirement for landing or take-off. This will, no doubt, find extensive use in the carrying of mail, in bus shuttle service between smaller towns and airport terminals, and in taxi service."

The publication is illustrated with charts and maps, park plan diagrams, shopping centers, site plans and photographs of existing buildings and woodlands.

Philadelphia to Restore Historic Area

Philadelphia is planning to restore as a postwar project the "Old Philadelphia" area. The most important structures in this group are the buildings on Independence Square, fronting on Chestnut St. between 5th and 6th streets. In the center is Independence Hall, which was built in 1735 as the state house. Here the Declaration of Independence was signed, and the building now houses the famous Liberty Bell. To the east is the Old City Hall, where the Supreme Court met in 1791; back of it is the American Philosophical Society building erected in 1787, and to the west Old Congress Hall, which was completed in 1797 and used when Philadelphia was the national capital.

Other notable buildings in the vicinity include the Hall of the Carpenters Company, erected in 1770 and the original home of the Carpenters Guild, where the Continental Congress first met; the old Custom House, erected in 1824, to house the second bank of the United States, and the Old Franklin Institute, erected in 1826. Not far away is the Betsy Ross House, where the first flag of the United States was made; Christ Church, built in 1727; Gloria Dei or Old Swedes Church; the Pennsylvania Hospital—immortalized by Longfellow in "Evangeline," and the oldest bank building in America.

The plan for improvement of the district provides for a park fronting on Independence Hall and extending northward from Chestnut St. between 5th and 6th St. to Race St. to connect with the Philadelphia Plaza of the Philadelphia-Camden Bridge. The proposed work also includes widening 5th and 6th streets to boulevard width and the construction of a park, a playground, and parking facilities for automobiles and buses.

The group of buildings has been designated as a national historic site by Congress, and an agreement has been reached between the city and the United States whereby the title to the property would remain in control of Philadelphia. The National Park Service will aid with the project. *E. N-R.*

Medical Progress International

"An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur and a German, Koch, elaborated a new technique.

"In peace as in war we are all of us the beneficiaries of contributions to knowledge made by every nation in the world. Our children are guarded from diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind. The best that every individual group has produced anywhere in the world has always been available to serve the race of men, regardless of nation or color."

—From Preface to Annual Report, Rockefeller Foundation.

Roger Allen of Michigan says—

"A study of the architectural journals might convince a layman that the house of the future is to be a structure strongly resembling a demounted caboose. Arranged in rows, these structures would give any neighborhood a striking resemblance to a switch yard, and the purchaser of one of them would be hard put to it to tell if he was a home owner or merely a brakeman.

"The big talking point for these houses, of course, is that they are mass-produced and pre-fabricated and hence inexpensive. Since they eliminate the necessity for employing an architect, the constant plugging of pre-fabrication by the architectural journals, as I once pointed out in a professional journal, is very much as if a magazine circulated exclusively among barbers devoted most of its editorial space to long articles explaining to one and all how to cut your own hair. These articles might be intensely interesting but conceivably their effect might be to cause the barber-subscribers to lose interest in the future success of the magazine . . .

"Symbolic sculpture has always fascinated me in a gruesome sort of way. I never figured out why a marble lady with an unusual bust development should represent Balboa discovering the Pacific, but so it is."—*From Michigan Society of Architects Bulletin.*

The U. S. Supreme Court, on April 24, found that a person supplying materials to a materialman on a government contract cannot recover on the payment bond executed by the prime contractor the amount owed him by the materialman. The court made this finding with respect to a suit brought to recover under the provisions of the Miller Act, passed by Congress on Aug. 24, 1935, to protect subcontractors, materialmen and laborers on federal construction work.

William W. Wurster, A.I.A., California architect, designer of many notable buildings and housing projects, has been appointed dean of the School of Architecture of the Massachusetts Institute of Technology. Wurster succeeds Dean Walter MacCornack, who retired July 1. In 1943, after 20 years of practice which included 5000 war houses, Wurster closed his architectural office to study war and postwar architectural problems.

Walter MacCornack, Fellow and Vice President of The A.I.A., had been with M.I.T. since 1936.

Public Housing

"In order that there may be less confusion than at present xists in discussions of the subject, it is proposed that the ..I.A. define for itself as follows the term 'Public Housing' hich The Board believes is now being used too loosely:—

a) **Federal Public Housing:**—Housing constructed under Federal direction, wholly with Federal funds, and remaining under Federal ownership.

b) **Federal-aid Public Housing:**—Housing constructed under a local Housing Authority, partly financed by Federal funds, but remaining under local ownership.

c) **Local Public Housing:**—Housing constructed under local Housing Authority, wholly financed by local funds and remaining under local ownership.

"Housing developed and financed by private enterprise, hether with F. H. A. or similar financial stimulation or not, *not* considered to be 'Public Housing' as here defined, since ich operations are predicated upon an economic return on ll funds invested.

"The A.I.A. has, in the past, declared itself in favor of ublic Housing, by adoption of resolutions at several convenons between 1936 and 1941. The Board believes that the .I.A. should now, again, declare clearly and unequivocally hat its present position is on this important public question. ecause of the postponement of the annual meeting of The nstitute, The Board desires to poll the opinion of the proession in order that a statement may be issued, as quickly as ay be, which will be truly representative of the profession. here is attached a form of return which each chapter and ch state association member is asked to complete and send The Octagon at once. The result of this poll will be issued an official bulletin.

"Copies of this statement and form of return are being nt to the secretary of each chapter and each state associaon member of the A.I.A. Chapters and state association embers are urged to discuss the subject fully at special meetgs for this purpose to the end that the answers given on the allot represent the majority opinion in each chapter and state ssociation.

"Chapters and state association members may secure, pon request to The Octagon, a sufficient number of the forms poll their membership if that method of operation is esired.

"The replies to The Octagon will be 'weighted' in accordnce with each chapter's and each state association member's nvention representation, in order that the final total vote on ne poll will represent the opinion of the profession similar to nvention action."—*A.I.A. Bulletin No. 27.*

Architect and Engineer

The engineer has become the glamor boy of the war conruction era. The architect has become the employee of the ngineer or he has sought to maintain his identity by adopting ne professional designation architect and engineer or the firm ame, "Architects and Engineers." The architect weakens his rofessional position in his contract with the owner by charging an extra fee for engineering service which he should be ompetent to perform.

If the architect is to regain his professional position as the aster builder he will have to meet the competition of the ngineer with the engineer's weapons—structural competence. he place to begin is in the schools by insisting on more orough courses in construction and in the fundamentals of athematics and mechanics underlying construction. Fifteen ears ago 22% of the 6006 architectural students in the colges were majoring in architectural engineering. In March is year there were 1391 students left, of whom 31% are omen, and the student in architectural engineering has all ut vanished. This student lack of interest in structural ourses is difficult to understand in the light of his intense nterest in the modern architecture, of which the very essence the glorification of construction. With the greatest of ease e has accepted and added a sixth order of architecture to the classical five of history. It is a gas pipe filled with concrete without either base or capital which yesterday was used in basements, and today takes its place, unashamed of its nakedness, in the facades of even monumental buildings.—*Charles St. John Chubb, Ohio State University, in "The Ohio Architect."*

Ill. Society of Architects Members in Military Service

Anderson, Stanley D., Lt. Comdr., U. S. N. R. Home address 262 Deerpath Rd., Lake Forest, Ill.

Behrensmeyer, Charles F., Lt., C. E. Corps, U. S. N. R. Construction Bn., Co. D. c/o Fleet Post Office, San Francisco.

Carlson, Elmer C., Captain, Corps of Engineers, U. S. Army, Fort Custer, Mich.

Cerny, Jerry J., Lt. Col., Corps of Engineers, U. S. Army, Chicago, Ill.

Cheney, Howard L., Major, Air Force. U. S. Army, Liaison Officer, c/o District Engineer, 751 South Figueroa St., Los Angeles, California.

DeLong, Albert J., Lt., U. S. N. R. Naval Architect, 2443 Vallejo, San Francisco, California.

Garretson, W. Goron, Lt., A. C., Fort George Wright, Washington.

Heimbrodt, Carl E., Lt. Col., Corps of Engineers, U. S. Army, Aberdeen Proving Grounds, Maryland.

Hewitt, Carter Edmond, Major, C. E. 0-904564 Hq. Ser, Com. APO-198, c/o Postmaster, San Francisco, California.

McCaughey, William F., Captain, Corps of Engineers, U. S. Army, 1613 Vermillion St., Danville, Ill.

Newhouse, Henry L., Lt., U. S. N. R., c/o Harvard University, Cambridge, Mass.

Nitsche, Edward A., Major, Corps of Engineers, U. S. Army, Chicago, Ill.

Schimek, Alfred F., U. S. Army, St. Louis, Mo.

Sommer, Charles B., Lt. (j.g.) U. S. N. R., 2105 N. 32nd St., Boise, Idaho.

Taylor, D. Coder, Lt. (j.g.), U. S. N. R., C. B. D.-1047, A. V. D., Davisville, Rhode Island.

Wright, William Campbell, Lt. Col., U. S. Army, Office of the Chief of Engineers, Washington, D. C.

There is much gossip about this thing called "freedom" and we are told that this war is being fought for "freedom." We have heard the Atlantic charter discussed and are somewhat confused as to just what type of "freedom" we are seeking.

We do, however, believe we have a fairly good idea as to the "four freedoms" that are best suited for the construction industry. They are:

1. Freedom from excessive government regulations, reports and paper work.
2. Freedom to operate as formerly—free from dictation.
3. Freedom from graft, favoritism, chiseling, bid-peddling, etc.
4. Freedom from worry of lack of work and an opportunity to earn a living.—*Construction—Organ of B.C.E.A. of Chicago.*

An Architectural Library of Note

The Architects Realty Trust trustees, whose unsung duties continue until all real and personal property at 1801 Prairie Avenue, Chicago, has been sold, bring to the Bulletin's attention the fine architectural library of some 350 volumes collected by a prominent architect and donated to the Architects Club of Chicago. It is now for sale as an entity. It contains many splendid folio portfolios of famous buildings superbly illustrated. Interested parties should apply to Architects Realty Trust, c/o Gerhardt F. Meyne Co., 7 South Dearborn Street, Chicago.

There is also for sale a life size portrait painting, framed, of Sir Christopher Wren.

The recent history of 1801 Prairie Avenue may be found in the I.S.A. Bulletins for December 1939-January '40 and for June-July 1943.

San Jacinto Battle Monument

The Bulletin is indebted to Professor Goldwin Goldsmith of the Department of Architecture, University of Texas, for the information of San Jacinto monument which stands on the battlefield outside the limits of Houston, Texas. The June-July Bulletin carried a note on page 6 concerning this monument and stated the cost to be $12,500,000. Mr. Goldsmith corrects this and adds much new information.

The architect was Carlton Adams of San Antonio, Texas. The Houston Chamber of Commerce gives the approximate cost of the monument proper as $1,250,000, while equipment and museum collections add $614,148. The contributors to the cost with the amounts were as follows:

Texas Centennial Commission	$ 250,000
U. S. Centennial Commission	385,000
Public Works Administration	225,000
Houston Ship Channel District	40,000
State Highway Department	55,523
Works Progress Administration	876,375
Two State deficiency appropriations	32,250
Total	$1,864,148

Professor Goldsmith continues: "The monument is 47 feet square at base and tapers to 30 feet at top, on which is perched the Texas 'Lone Star' a little matter of 35 ft. high, making the total height 570'-4" from the ground, 'the tallest masonry building in the world.' It is built of reinforced concrete faced with 'golden buff Texas limestone' which has 'a high fossil content.' Our Architecture building is faced with the same kind of stone and every piece shows several shell formations ranging from very small to about 1½ inches across. It is a very lovely stone. There is a hall of honor 44' x 34' and on each side of this a museum room 36' x 103'. There is also an amphitheatre seating more than 5000.

"The base structure is 124 ft. square. The approximate weight of the Monument is 35,000 tons. The foundation soil is treacherous, like much of south and east Texas soil, and the University Bureau of Engineering Research is keeping tabs on the settlement, which is appreciable.

"The monument commemorates the battle of San Jacinto, which freed Texas from Mexico. Houston's 'army' was about 900, against Santa Ana's force of 1,350. The Texans had 2 killed and 23 wounded, six of these fatally. The Mexicans had 630 killed and 570 taken prisoner, including Santa Ana. Houston also was wounded."

The Handbook of Architectural Practice

(Revised 1943 Edition)

Published by the American Institute of Architects, 1741 New York Ave., N. W., Washington, D. C. Price $5.00.

This new edition was prepared under the direction of William Stanley Parker, F.A.I.A., of Boston; Past Secretary of The Institute; Chairman of the Committee on Contract Documents; and Consultant on Contract Procedure. He was assisted by special committees of the New York and Boston Chapters of The Institute and by members of the Committee on Contract Documents.

The Handbook is commended by The Board to the seasoned architect, to the draftsman, the office manager, and the architectural student—and to him who prepares for the examinations of state registration boards.

The Building Code Revision Subcommittee of the Chicago City Council Committee on Buildings and Zoning, at their meeting on July 10 considered a communication from Alderman Arthur Lindell, Chairman of the City Council Committee on Housing. He advised that the concensus of opinion of all building interests is that "the Chicago Building Code is fundamentally sound, but that there is some need of revision in order to bring it up to date." The Sub-committee will give consideration to suggested revisions of the Chicago Building Code.

Chicago as Seen by Wm. W. Wurster

CHICAGO, is to me an example of miles and miles of greyness and mediocrity. Never have I been so impressed with what can be done to ruin a place for living. It is not so much congestion for there are gaps where structures have been torn down. We came on all this in our search for the new building designed by Mies Van der Rohe for the Illinois Tech which is located in this part of the town where the casual traveller never goes. Rather, lacking hills for variety, they have not evolved a substitute by way of neighborhood planning which might give point and zest to each area. True, as with our Victorian houses, there is the great false front along the Lake—but behind it! And this is the type of thing all cities are headed for unless we set up some type of positive land-use control. Call it land budgeting if you will. It is more than zoning which describes more what can't be done rather than what shall be done. Don't let property slip from public ownership—keep open spaces even though they be only sand lots.

—From an address at the San Francisco Museum of Art.

Not until the war is over will the full story of Turkey's industrialization be known. One of the world's important exporters of chromium ore, Turkey has also exceptionally good copper mines. Other mineral wealth it is already exploiting commercially includes zinc, lead, mercury, manganese, antimony, arsenic, sulphur. It has known deposits of gold, silver and nickel.

Turkey's forest reserves, estimated at 23,000,000 acres, have pine, oak, beech, lotus, pitch pine, boxwood and walnut.

Turkey offers a market for every one of our mass-produced articles. Iron and steel manufactures and machinery top Turkey's list of imports.

"The absorption of all the principal ability of the country into the governing bureaucracy is fatal, sooner or later, to the mental activity and progressiveness of the body itself . . . A state which dwarfs its men, in order that they may be more docile instruments in its hands, even for beneficial purposes—will find that with small men no really great thing can be accomplished . . . The worth of a state, in the long run, is the worth of the individuals composing it."—*John Stuart Mill.*

Charles V. Lavery, 42, director of the department of construction and maintenance of Colonial Williamsburg, died at the Virginia city June 26. Since 1941, he had been head of the department in charge of restoring the city to its eighteenth-century appearance.

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Benjamin H. Marshall, prominent Chicago architect in the first quarter of the 20th century, died in St. Luke's Hospital, Chicago, on June 19, age 70 years. Mr. Marshall was born in Chicago and was first heard of in the architectural profession in an association with Oliver W. Marble. In 1893 he entered the office of H. R. Wilson, architect, and in '95 he became the junior partner under the firm name of Wilson and Marshall.

From 1902 through 1905 he practiced alone. In this period he was the architect of the Illinois theater, Chicago, now wrecked and the ill-fated Iroquois theater in the same city. From 1905 through '24 he practiced in partnership with Charles E. Fox under the firm name of Marshall and Fox. During this period they were architects for the Blackstone Hotel, Blackstone theater, Edgewater Beach Hotel, Steger building, Burlington office building, all of Chicago; Northwestern Mutual Life Insurance building, Milwaukee; Forrest theater, Philadelphia; Maxine Elliott's theater, New York. After 1924 he practiced without partners. His work during this period includes the Edgewater Gulf Hotel, Mississippi; Edgewater Beach Apartments, Lawsonia Club Hotel, Drake Tower, all of Chicago.

Mr. Marshall joined the Chicago chapter of the American Institute of Architects in 1908 and the Illinois Society of Architects in 1927.