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Building Costs - Present and Future

By Eugene Fuhrer, Architect

A crystal gazer of 1900 viewing through the years to 1941 might have foretold a most fantastic tale concerning the future variations of construction costs. A glimpse of the reality showing all the vicissitudes of the construction costs and practices would have seemed so grotesque a vision that the prophet would never have been believed. This clairvoyant method of looking into the future has lapsed into disfavor, but nevertheless we still attempt to foretell the future. Business and banking institutions necessarily do so to protect their investments.

Fortunately, perhaps, through new concepts, we are now educated to think of cost trends in terms of index numbers, especially in the field of building costs.

Capitalizing on that advance in our concepts, we delve into what these so-called index numbers have done in the past in an attempt to ascertain the future. Figures of the past forty years seem somewhat alarming because of the great gyrations that have occurred, but they definitely stimulate thought.

One of the well-known indexes is that published by the Engineering News Record, and here are the summarized figures.

		Year 1926 = 100%	Year 1913 = 100%	Estimated Vol. per yr.
Stability Years Average	1900-1915	45.	95.	
World War Years	1916	62.2	129.5	
World War Years	1917	87.1	181.2	
World War Years	1918	90.9	189.2	
Post War Years	1919	95.3	198.4	$3,540,000,000
Post War Years	1920	127.	251.3	3,380,000,000
Post War Years	1921	97.	201.8	3,470,000,000
Post War Years	1922	83.8	174.5	4,900,000,000
Prosperity Years	1923-1929	100.	210.	9,700,000,000
Depression Years	1930	97.5	202.8	8,050,000,000
Depression Years	1932	75.4	157.0	2,839,000,000
Depression Years	1935	93.8	195.2	3,680,000,000
Depression Years	1938	113.3	235.8	6,378,000,000
Depression Years	1940	116.3	242.	6,700,000,000

A glance at the above figures indicates that building costs in the first fifteen years of this century were remarkably stable; they varied approximately 10 per cent between high and low points. During the "World War years," costs rose 100 per cent above the previous average. In subsequent "Post War years," wide fluctuation occurred. First, a jump of an additional 60 per cent in cost; then, a drop to a point below the World War figures.

During the prosperity years, costs rose again to a point approximately 120 per cent above the 1915 figures and remained fairly stable to the end of 1929. During the following "Depression Years," the low ebb of cost was reached in 1932 at which point costs were approximately 66 per cent above the 1915 average. From 1932 on, costs continued to gradually rise until October, 1940, at which time they had reached 150 per cent above the 1915 average and were at the highest point during the forty years of this century exclusive of the year 1920. Since October, 1940, prices have been exceedingly erratic due to psychological as well as economic conditions. The tendency has been for sharp increases and decreases. At the present time they are approximately 7 per cent higher than they were in October, 1940.

The above figures also indicate a rather stable situation in the total volume of construction for the first fifteen years. The peak years for construction volume were the years from 1923 to 1929 when an average of $9,700,000,000 per year of construction work was completed. It then dropped to 30 per cent of that construction volume in the low ebb of the Depression Year 1932. In 1940, construction volume recovered to approximately 70 per cent of the Prosperity Years.

If this article had been written prior to the World War, and at that time prediction had been made that costs would rise 160 per cent above the then stable level, that particular prognostication would have been viewed with alarm and in the main would not have been acceptable as a criterion for building and banking institutions.

In general, we now are again faced with the situation where the production plant of the United States is being geared up to a large extent for the production of other than regular consumption goods. This will undoubtedly tax the labor supply to the fullest extent within a relatively short time and no doubt labor rates will increase. Such a potential

increase may be prevented by Governmental action. The material market is subject to increase in costs due to the law of supply and demand and it may be necessary for the Government to stabilize materials as well. While it is true that the natural tendency would be for labor and material to rise in cost, the actual conditions of the reaction to Government defense orders should lower the cost of material since it would increase the percentage of utilization of present plants which would reduce the cost of production. After the defense program is in full swing and the plants operate at or near 90 per cent of their capacity, an increase in cost would result because of wear and tear; thus the government would have some reason for stabilizing material costs until work is at full capacity.

Labor, during the World War period, operated at approximately 48 or more hours per week, whereas today we are operating on a basis of 40 hours per week. Again in connection with labor, the potential tendency to increase costs may be stabilized by the Government, partly by increasing the number of hours of production per week, thus giving labor a greater weekly return and at the same time keeping costs stable.

The above trends are generalized for all industry. Trends based on past experience in construction industry may be subdivided into the following component parts: (1) Architectural design. (2) Construction labor. (3) Construction material. (4) Contractor performance. An analysis of the present and future costs of these component parts are as follows:

1. Architectural design is usually based on a percentage factor of the construction cost as remuneration and the various influencing factors of increase or decrease in the architect's primary cost of operation may be governed to a large extent by the general trends, and since this proportion of the costs, in most work, amounts to approximately 6 per cent of the construction cost, any increase or decrease in this item will not materially influence building costs.

2. Construction labor during the past three years has more than recovered its basic rate of remuneration of the prosperity era, and in general has finally attained levels of approximately 10 per cent over and above the highest former rate it has ever had. In the Chicago area union labor rates were at a peak in 1929, dropping in succeeding years, and thereafter the rates have increased to the equivalent of, or in some cases higher than, the prevailing rates of 1929. Since labor's proportion of the building cost is approximately 30 per cent for industrial buildings and 40 per cent for commercial, residential, and apartment buildings, increase or decrease of rates would effect building costs materially. During the last World War period the wages in the construction industry, as an average, did not rise more than 10 per cent, and very likely the wages during the ensuing emergency will not rise to a large extent.

3. In the first year of the 1914-18 World War, building material costs increased approximately 30 per cent and continued to rise thereafter until material costs were 250 per cent over the 1915 level. Building materials during this past year, as an average, did not increase in cost to the levels of 1929, but since October of 1940 certain basic material costs have gone to this 1929 level. If our experience in the past serves as a basis for the present, material costs should rapidly increase, and it is safe to say a minimum increase may be 25 per cent during this coming year, even if government restrictions are thoroughly utilized. Since materials compose 40 per cent of the total cost of the construction dollar in commercial, apartment, and residential fields, and compose 50 per cent of the total cost of that in the industrial field, this estimated increase will effect building costs materially within a short space of time.

4. Contractor performance exerts a great influence on the final cost of the structure. During slack periods, prevailing methods of bidding tend to lower profit and overhead. Factors both psychologically and practically require that a fair rate of return must be recovered during times of activity and an increase of 10 to 20 per cent above the present overhead and profit can legitimately be anticipated. Certainly, during periods of stress, the contingent items of inability to secure labor and materials, except after extreme endeavors and costly procedures to do so, must be taken into account. Expediting of work because of priority agreements in connection with government contracts will effect an increase in overhead. Therefore, in the main, higher overhead and profit can be anticipated on the cost sheets of the contractor.

It can be said conservatively at the present time that since the average cost of construction has increased 16 per cent above the levels of 1929, up to the date of October, 1940, and that since, a further quick increase of 7 per cent has occurred in that short period of four months, most business and banking institutions are anticipating a further increase of approximately 15 per cent within the coming year. The tendency of construction costs to increase at this rapid rate within the ensuing year will naturally effect the architect. It is quite probable that residential work will decline somewhat within the Chicago area. It is rather doubtful that any apartment building whatsoever will be done excepting as subsidized by government funds or as promoted by the building industry itself. However, there should be a considerable upturn in the industrial field, perhaps as much as 40 per cent. The commercial field should gain at least 15 per cent construction volume. This increase can be explained by the fact that commerce and industry will definitely expand. An increase in cost of construction affects these groups very slightly when their volume of business and increase in legitimate profits warrants the need of building.

The above review is of private construction work only. Added to this private work will be a tremendous amount of public work required by the defense program. According to the calculations of Dodge reports, the total of such public work will equal 40 per cent of the total construction volume. Government reports list approximately $3,360,000,000 worth of work for the ensuing year. This will undoubtedly result in the largest yearly volume of work since the prosperity era. With this large volume of work facing the entire construction field, the architect will be taxed to the utmost.

In the light of the above forecasts, 1941 will present the greatest opportunities for the revival of our profession since 1929, and a challenge that will be met by the profession. As Daniel Hudson Burnham said, "Make no little plans." The profession is ready to expand these plans and adapt them to all the new techniques of the present.

The present legislature at Springfield has before it a Bill to Amend the Architectural Registration Act aiming to eliminate flaws that have become evident in the law as it stands today. Section 20 of the Bill says, "The practice of architecture is hereby declared to be a profession and shall include: The planning or supervision of the erection, enlargement, alteration or remodeling of any building or buildings or of any parts thereof, for others: the preparation of drawings and specifications for the erection, enlargement, alteration or remodeling of any building or buildings or any part thereof, for others, or the furnishing of consultation or service requiring architectural skill or knowledge in connection with any such drawing or specification; the sale, offer for sale, or the giving away of drawings or specifications for the erection, enlargement, alteration or remodeling of any building or buildings or any parts thereof. A building is any structure consisting of foundations, floors, walls, columns, girders, beams, and roof, or a combination of any number of these parts, with or without other parts."

The Bill says further: "No corporation shall make any contract for services to be performed by an architect nor shall any corporation furnish to any person the services of an architect employed by such corporation." The Bill stipulates that persons (mechanics or builders) are not prevented from making plans, specifications for or supervising the erection, enlargement or alteration of single family residential buildings constructed by themselves for their own occupancy, provided such plans are truthfully signed and proper relations to the construction made clear. Single family residential or farm purpose buildings and their repair are exempt from the Act when the structure is not more than two habitable stories and basement for single family residential occupancy, even though within the corporate limits of city or village, where the total cost of said building including mechanical equipment does not exceed the sum of $7,500.00.

In the matter of upholding the architect as a professional man in this Bill, it would seem that the framers have studied carefully the opinion of Mr. Justice Rosenman of New York in the case of the American Store Equipment and Construction Corporation vs. Jack Dempsey's Punch Bowl, Inc. The Illinois Society of Architects is active in furthering the passage of this Amended Bill.

In the state of Illinois the term "Architect" as applied to practice in that state is restricted to one having obtained his license to practice architecture in that state from the State Board of Examining Architects.

The Federal Architect's editorial in its October-December number devoted to housing as recommended by the Federal Home Loan Bank Board says, among other things, "These houses have a superiority over the huge establishments of our forefathers. A man with a $5,000 income today lives in about half the space as a man earning $2,500 at the beginning of the century.

"In 1900 a man's standing in the community was judged by the house he lived in. . . . In 1940 his home is not of paramount importance. The home must concede much of its erstwhile importance to the automobile. A family now requires shelter and transportation. Capital investment as of today in the family automobile (and its replacements) comes very near to equaling capital investment in the family house."

The editor says the existing houses reflect the fact that the automobile drains from the same budget that formerly bought only the house. There is constriction in size, elimination of rooms, space contraction, dual-purposing, and mechanical equipment. The owner is expected to have few friends, over-night guests would be difficult. For grown children, night clubs and parked cars are presumed to be the solution. The movement, the editor says, is glacier-like in its slow crunching certainty.

Economists have claimed that the automobile in the U. S. A. absorbs far too much of the country's capital. A share of this capital might well be spent in other fields redounding to the culture and well-being of generations to come.

November 5 entry in Henry Saylor's Diary (Architectural Forum): The British plan of preparing a documentary film on architecture with the object of giving "a comprehensive survey of architecture from Saxon times up to the present with particular emphasis on the influence of local materials and local needs in the development of styles" is noted. Saylor closes with the remark, "A rather better idea, I should think, than trying more directly to tell what the architect is and does."

Bravo, Brother Saylor! This editor agrees with you.

The nation's financial health is of first importance in assuring the perpetuity of our way of life. National solvency is the condition ruling the American people's ability to help themselves, and thus to help others. Its achievement is a grubby business, offers no thrills, is bare of sensational headlines, shakes the world with no thunders of combat or oratory.

Yet, somewhere on the road we are now traveling, we must come to grips with the issue of bankruptcy. The artifice and sophistry of political hocuspocus will not save us. A country unable to pay its own bills is in poor position to grant loans or credits to a friend in need.

The hard, emerging fact is that our fiscal resources are not limitless in any realistic sense. Only irresponsible wishfulness can support the thought of an unearned prosperity. "Happy New Year" collect, is a greeting with a face value as dubious as the warmth of its sentiment. *Editorial, Nation's Business.*

Illinois Society January Meeting

On January 14, the Commonwealth Edison Company mailed invitations to architects of Chicago and beyond to be their guests at a dinner followed by a Forum on Fluorescent Lighting to be held on Tuesday evening, January 28, in Chicago. January 28 fell on the established fourth Tuesday of the month on which the Illinois Society holds its monthly meetings. The Society's program committee had its program for that evening all arranged. However, fluorescent lighting is such an important subject for the architect to learn more about at this time that it was thought unwise for the Society to compete with architects' attendance at this Forum. Accordingly it was arranged that the Society's meeting should be merged with that arranged by the Commonwealth Edison and Chicago Lighting Institute, and the Lighting Institute generously offered their assembly room to the Society for its business session on that evening to follow the dinner and precede the Forum. And so it came to pass.

The dinner was served in the large dining room at the south end of the 39th floor of the Civic Opera Building, attended by 225 architects from Illinois and neighboring Indiana and Wisconsin. Of this 225, 65 were members of the Illinois Society of Architects. The dinner was palatable, sociable, and informal. After the dinner, the Illinois Society members withdrew to the Lighting Institute's little theater on the 36th floor for their business meeting. During this time the other attendants visited among themselves socially. After the Society's business meeting, the rest of the company came into the little theater to listen to the program arranged for the Forum.

The I. S. A. Business Meeting

It had been announced that the Forum would begin at 7:30 P. M. and President Gerhardt managed dextrously to conduct the meeting with neatness and dispatch, eliminating discussion from the floor. Secretary Fairclough read briefed minutes of the November meeting, the Society holding no December meeting because of the holidays falling in the meeting time. Names of new members elected were read publicly and those in attendance were asked to rise to be introduced.

The president announced that the Illinois Society of Architects was now a State Association member of the American Institute of Architects. Secretary Fairclough's records show that formal application was made to the Institute on January 17 accompanied by check for 1941 dues. On January 27, Frederick A. Fletcher, Chairman of Committee on Unification, A. I. A. replied that the I. S. A. had been voted into the State Association membership on January 24; that the Illinois Society, one of the oldest, if not the oldest, was cordially welcomed, its prestige appreciated and that the membership would redound to the benefit of the Society as well as to the group of State Associations now in the Institute's fold. The Society now passed from Chairman Fletcher's official interest to that of Leigh Hunt, State Association Director in the A. I. A. Another letter of welcome was received from Peter Brust, A. I. A. Director, Illinois-Wisconsin District.

The president spoke of two Bills now before the State Legislature for passage, namely, the Amended Architects' License Act and the Act to create a State Building Code. He appealed to the members to get behind both these Bills by writing to their state senators and representatives.

A motion to waive the Society's dues of members entered in the military service of our country was carried. This measure extends during the active military service of the individual.

Group advertising by the Society in the interest of jobs for architects was reported on, the Society's Board of Directors having decided to try a few insertions in a Chicago daily paper presenting to the public the benefits to be derived from employing an architect to design and supervise their buildings.

The president referred to the next meeting of the Society occurring on February 25 and called on Chairman Weissenborn to tell of the plan for that meeting. Mr. Weissenborn announced that Colonel Albert Smith, B. S., C. E., Past President, Illinois Section of American Society of Engineers and former Professor of Structural Engineering, Purdue University would talk on "Wind Pressures and Suctions on Buildings," illustrated with diagrams. To make the subject still more vivid, there will be presented at that meeting Professor F. B. Farquharson's (State University of Washington) motion picture in three episodes of the Tacoma Narrows Bridge, which occupied so much space in public prints after its collapse on November 7. The three episodes are: 1. Construction Phases. 2. Motion observed during four months of its life. 3. Catastrophic motion developed on November 7, 1940. Members of the Western Society of Engineers are cordially welcome to participate in this meeting. The president then adjourned the meeting and the doors were thrown open to all the other architects that had come to the dinner.

Forum on Fluorescent Lighting

The gentleman who first addressed the company said that this would be a progress report on "Fluorescent Lighting." His introduction spoke of the kerosene lamp of 1870, the first Edison lamp of 1879 with its improvements by 1890, and finally the fluorescent lamp which made its appearance in 1938, a step-up in illumination in that time from 0.3 lumens per watt to 40 lumens per watt. He introduced Mr. Aldrich of the Westinghouse Company whose subject was "Characteristics of Fluorescent Lamps and Lighting, and Operating Problems in Fluorescent Systems." On the podium with the speaker was a table with a screen background on which were secured fluorescent tubes ranging from six inches in length to sixty inches. He illustrated his talk by using this equipment and by making diagrams on sheets of paper. It is not the purpose of this report to go into the technical details of this new illumination. The Bulletin in its December-January number presented an article by two illuminating engineers covering many of these technical points from the architect's point of view.

Each attendant at this Forum was presented with a Chicago Lighting Institute folder carrying the following booklets: 1. Questions and Answers on Fluorescent Lighting by James Oberhausen of the Chicago Lighting Institute. 2. Engineering Data on Fluorescent Mazda Lamps by the G. E. Nela Park Engineering Department. 3. Design Data for Show Window Lighting by W. J. Eby, Nela Park Engineering Department. 4. Fluorescent Applications by G. E. Nela Park Engineering Department. 5. Essential Data for General Lighting Design—Lighting for Seeing—Selling—Production, also a Nela Park Booklet.

The second dissertation "Fluorescent Luminaire Types and Materials," discussed by Charles Stover of G. E., was very illuminating and pointed out certain difficulties encountered with fluorescent lamps. One of these is low temperature. When used outdoors, the lamp rapidly loses power in very cold weather, as was demonstrated in the first story of a garage on Monroe Street east of State during the near zero weather of last November. Another difficulty is experienced when the lamps are in close proximity to radio. This produces a flicker, hesitation, and a loss which must be overcome by traps and other wiring devices. He stated that excessive claims had been made by some of the added light with a given wattage over that produced by incandescent lamps. It was safe to say, however, that at least twice the illumination was produced by fluorescent over incandescent lamps given the same wattage. The life of the lamp also was longer but each fluorescent lamp required a regulator or equalizer or transformer to make it work properly. Different colored lamps were gone into, heat effect touched upon, and many other points brought out.

For part three the company was asked to move into other rooms where merchandise of various kinds was ranged along the wall and in show windows. This third section was called "Applications of Fluorescent Lighting for Various Interiors, Roll of Honor of Fluorescent Installations." There were two rooms given over to this talk, each one having its own lecturer. This reporter listened to a man named Tilson. There were charts, and he turned on various lights on show window displays and on the merchandise ranged on the shelves along the side walls to demonstrate various ideas to dramatize advertising merchandise. He recommended in places supplementing the fluorescent light with spot lighting. His introductory remarks, however, dwelt on man's many thousands of years on this globe and how little civilization had advanced until our modern day, merely a few seconds in man's history. It was only, he said, with the invention through mechanical, electrical, and other scientific methods that civilization had advanced, which the speaker measured by labor-saving gadgets and modern conveniences. It would have been interesting to have heard Dr. Mortimer Adler of the University of Chicago reply to the speaker's implied definition of civilization.

Altogether it was a most illuminating and instructive evening.

Chicago Chapter December and January Meetings

The November meeting of the Chicago Chapter, A. I. A. materialized on December 3 in the Tavern Club. Following a buffet supper, the meeting—attended by 36 members and guests—proceeded in the south dining room. Attendants were overwhelmingly youthful members of the Chapter—an encouraging sign for the Chapter. The organization has been noted in the last years for its obliviousness of the Chapter's background, its history, and its aims through the years. Secretary Suter reported that in reading minutes of the past few years, he noticed that matters came up, resolutions were passed, and nothing further happened. He urged better compliance with the sense of the meetings as registered by resolutions.

Led by President Loebl, the members stood in silence in memory of Alfred Alschuler.

Peter Brust of Milwaukee, Regional Director for the Illinois-Wisconsin District attended, reporting at length on happenings in Washington, D. C. President Bergstrom, he said, has closed his office in California and is now devoting his entire time to A. I. A. affairs, with his headquarters in Washington. Edmund Purves of Philadelphia has also spent the last three months in Washington in behalf of Institute affairs, more particularly to learn where architects may secure work from the Government in the defense program. Architects desiring governmental appointment must apply to the Steering Committee of the Institute for recommendation. Twenty million dollars worth of work has been assigned to the Procurement Division. Regarding funds solicited by the Institute to carry on the work of finding places for architects, Mr. Brust pleaded for contributions by members.

John R. Fugard spoke on the Government's defense program, saying of the 13,000 questionnaires circulated by the Institute, 8,500 had been returned. Architects Shaw, Naess and Murphy had been assigned work on the Naval Base at Bermuda, and Holabird and Root for the one on Newfoundland. Mr. Fugard paid tribute to President Bergstrom for his outstanding management of the Institute's finances during his treasurership. He also reported progress in the construction of the new Administration Building adjoining the Octagon in Washington. The Octagon, on completion and occupancy of the Administration Building, is to be furnished and decorated as of the time of President and Dolly Madison and to be used solely as a museum, open to the public.

B. Leo Steif spoke on "What does an architect get out of his profession?" Conforming to wishes expressed at earlier meetings, the Secretary read the report of the Executive Committee's meeting.

The April exhibition of architecture at the Art Institute was outlined by William Alderman and the means of financing it and an illustrated catalog were discussed. A scheme proposed was to sell pages, not called advertising, but meant for illustrations of an architect's work, where the selection of material would be the respective architect's, and the $25 or $30 for the page paid by him. According to Mr. Deknatel, the work exhibited will include the last decade.

The President announced that there will be no architects' ball in 1940-41.

The question of permanent quarters, shared by the Chapter and Illinois Society, in the Skyline Club was raised. Live interest was shown and the desire expressed to see the quarters in advance of any lease that might be made. In this connection Leo Weissenborn raised the question of wall space for the Chapter's portrait gallery in the Skyline Club quarters. The answer was there is no space available.

Paul Gerhardt, Jr., President of the Illinois Society, referred to the subject of ethics, scheduled for this meeting. The subject was a stillbirth, however. Mr. Gerhardt complained of architects' unwillingness to attend meetings of the Rezoning Committee of the City Council, to which B. Leo Steif replied that the architect's voice in those quarters meant little, as demonstrated by the committee of architects to write the apartment house chapter of the present Building Code. This chapter was unrecognizable after the Code appeared.

Referring to the April architectural exhibition, Ralph Gross deplored the Chapter officers' woeful lack of information regarding the profession in Chicago. He cited the Incorporated Exhibition League, organized in the past, sponsored by the Chapter, the Society, and Architectural Club. There was a residue in the hands of this League of $1,285.00 invested in Government bonds. Mr. Gross suggested that the Exhibition Committee contact the Exhibition League officers to learn details. He advanced the thought that the Chapter should maintain a paid secretary to gather data on movements and personalities involving architects' work to be given out, not neglecting work emanating from Washington, D. C. This secretary should be a fact finder and publicity man.

The meeting was stimulating. The general discussion was liked and the thought prevailed that a fixed program for every meeting was unessential since general discussion of subjects uppermost in members' minds could fill a number of regular meetings of the Chapter year.

—L. J. W.

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To celebrate the end of 1940 and to help 1941 over the threshold with appropriate ceremony, members of the Chicago Chapter, A. I. A., met at the Tavern Club for cocktails late in the afternoon of Monday, December 30, 1940. About twenty-eight came to enjoy the food, spirits, and fun. Dainty, but not too ladylike, appetizers and Bronx cocktails were in abundance. These helped to heighten the camaraderie, and along toward six o'clock, with B. Leo Steif at the piano and Stanley Fairclough strumming his guitar, the group joined in singing —a becoming conclusion to the party and to the old year.

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To Normandy House on Tower Court came twenty-seven members of the Chicago Chapter, A. I. A. on Tuesday evening, January 21, to attend the regular monthly dinner and meeting of the Chapter. No special program had been arranged for, the membership having voiced its opinion that the meeting be devoted to consideration and discussion of the ills and (vanishing?) hopes in these troublous times for the architect in practice and particularly of the young architect looking forward to a practice and good reputation in his chosen profession.

Secretary Suter read the minutes of the November meeting. In memory of the late E. A. Renwick, President Loebl asked the assembly to stand in silence out of respect for the deceased. The president announced the election of four new corporate members in the Chapter, Messrs. Van der Rohe, Hilbersheim, Peterhans, and Rogers, all faculty members in architecture of the Illinois Institute of Technology. The president also announced that Graham, Anderson, Probst and White were awarded the work of designing a new naval base at Puerto Rico. Nathaniel Owings spoke on the amended Architects Registration Act for Illinois to come before the Legislature at Springfield at an early date. Attorney Edward Morse was given full credit for writing the Act which puts the architect before the law as a professional man, a feature not brought out in the present law. Paul Gerhardt added that each architect contact his representative in the Legislature to plead for the passage of this amended Act. Lawrence Perkins followed on the same subject, making the point that such pleas should be put forth on the grounds of public interest rather than advantages to the architect. Messrs. McLaren and Gerhardt discussed further the sponsorship of the Act.

Ralph Gross was called upon to report for his committee on the creation, by the Chapter, of the office of executive secretary, a paid official. From his report it was gleaned that this executive secretary should be a lawyer versed in architecture, a publicity man and lobbyist, a man thoroughly familiar with building contractor methods and possessing a full list of contractors in various branches, and much else. The committee would guaranty such an official $4000 a year salary. The total cost with the necessary expenses to the Chapter for such a functionary, the committee figured, would be $7650 per annum. To raise this money the Gross Committee would tax Chapter members for this service. The committee recommended circulating a questionnaire among the members on the creation of such an office. The company listened in silence and no one rose to contribute any further thoughts on the subject.

President Loebl voiced a different solution for the assembling of information on prospective work than that given by the Gross Committee. He referred to the radio station WBBM and their broadcasts on architecture and architects for the Southern California Chapter. Each Sunday morning the station devotes fifteen minutes on the radio to talks aimed to interest the public in this subject. The Southern California Chapter feels its efforts over the air have been crowned with success and claims these efforts have brought $1,000,000 worth of building construction into the offices of architects for planning. Those who attended the Louisville Convention of the A. I. A. last

April will remember the paper read before the Convention on this same subject. President Loebl advanced the thought that each architect obtaining a commission through such efforts over the air should be assessed for his share of the expenses in putting on such a program in the Chicago Chapter area.

Louis Perola reported for his committee on architects and the defense program, architects furnishing limited service in the small house field, and other allied subjects. John Merrill was called upon to talk on group activity in the defense program. He had nothing tangible to report. He was leaning on Leigh Hunt of Milwaukee, the chairman of this program, to whom he had been unable to talk.

Program Chairman Dornbusch opened the subject of "ethics" or "Principles of Practice," a subject that had been scheduled for the November meeting, but had at that time proved lifeless. Paul Gerhardt referred to an article in the December Octagon bearing on this question. Messrs. Dornbusch, Owings, McLaren and Loebl all entered this discussion. Finally, Ambrose Cramer opened the subject of the architect purchasing furniture and fittings for the houses he designs. The speaker thought certain clauses in the A. I. A. "Principles of Practice" were impractical and disintegrating for the architect handling such furniture selection and installation.

It cannot be said that these discussions were stimulating. They were rather desultory, and yet they must be looked upon with much sympathy in view of the leaden skies overhanging the practice of architecture at the moment, particularly for the young man entering the profession at this time.

State Building Code

The subject matter for the proposed State Building Code has been prepared and will be presented to the General Assembly probably before this Bulletin is off the press. The Code is substantially the same as was presented to the 61st General Assembly, unfortunately tabled, as it was presented too late in the session.

We ask that every member of the profession take an active interest in securing the passage of this Building Code. Contact your local Representatives and Senators and explain its merits and secure their support.

The following is offered as of value to make our Legislators realize how important a Building Code is to the people of the State. We quote from a recent issue of "Building Codes" by the National Board of Fire Underwriters.

"A black diorite obelisk unearthed in the near east about forty years ago, was the Code of Hammurabi, a famous king and law maker of Babylon, of the era 2100 B. C. Deciphered from the inscription on this ancient written statute was the following stipulation: 'In the case of collapse of a defective building, the architect is to be put to death if the owner is killed by the accident, and the architect's son, if the son of the owner loses his life.'

"For forty centuries the safety of building construction has been a matter of public concern in civilized countries, ancient and modern. We no longer subscribe to the primitive law of retaliation; we now seek rather to prevent accidents, to profit by past experience, not to punish, and around those objectives have grown up the rules and regulations we call building codes.

"Since the economic life of the country is organized on a competitive basis, it is to be expected that buildings will be built at minimum costs. No builder will be altruistic enough to provide non-revenue producing safety elements unless his competitors are compelled to do likewise. For this reason it has been necessary to enact building codes and State housing acts, measures giving legal control by duly constituted authorities over the character of construction permitted.

"Stripped of its legal and technical phraseology, a building code is really a set of rules to keep people from getting hurt. Through short-comings in building construction, a man may get hurt either physically or financially. Physically he may be injured by collapse of the structure, by falling through unguarded openings, by being burned, through sickness resulting from improper sanitation, or from any number of other causes. The same occurrences may cause him financial loss, whether he be owner, occupant or merely a passerby."

The foregoing presents clearly and concisely, facts every member of the profession knows, and you may make use of this material in contacting your Senators and Representatives, interested, as they should be in the enacting of legislative measures that are of direct benefit to all the people of the State. If you will one and all "close ranks" and go forward, I am certain that the State Building Code will be passed. I ask for your wholehearted support.

—Leo H. Pleins
Chairman, Legislative Committee, I. S. A. and Central Illinois Chapter, A. I. A.

Mackinac Straits Suspension Bridge

The Mackinac Straits Bridge Authority, profiting by the collapse of the Tacoma Narrows span in the state of Washington, is taking every precaution to perfect and check the design of its proposed suspension bridge over the Straits of Mackinac in Michigan. Slenderness ratio for both width to length and depth of truss are being determined after subjecting models to dynamic as well as static loadings, and other information obtained through the use of a wind tunnel. The studies contemplate use of trusses instead of plate girders for stiffening members, and an open grid floor rather than the usual solid slab. The open grid has the advantage of reducing the uplift from pocketing winds.

Mackinac Bridge will consist of two suspension bridges placed tandem, with a common central anchorage as used on the San Francisco-Oakland Bridge. One span is 2,950 ft., the other is 4,600 ft., the longest yet attempted. Designing engineers for the Authority are Modjeski & Masters.

School of Design

The School of Design in Chicago announces opening of its spring semester February 3, 1941. The school principle, integration of academic and workshop training, takes place in the field of architecture as well as in other courses. George Fred Keck heads the architecture department, with Robert Bruce Tague and Jan J. Reiner, associates. The School's illustrated catalog describing courses is sent on request.

From the Washington State Chapter, A. I. A. Monthly Bulletin we learn that the Tacoma Society of Architects, at its January meeting, listened to Professor Schaefer of the College of Puget Sound talk on some social aspects of city planning. The professor told his hearers that Tacoma's corporate area contained four and one-half square miles more than the city of San Francisco. Tacoma, he said, actually covered more area than the city of Paris.

From the New York World's Fair, the Chicago Museum of Science and Industry will receive for permanent exhibit in the Museum, the "History of Glass" display consisting of twenty large glass retorts, each containing carved figures depicting the growth of glass making from primitive ages to the industry's production of most modern products.

1960's View of 1940's Architecture

It is possible that in another twenty years, when the people now in schools and colleges have arrived at positions of power, the picture will be quite different and the accomplishments of our own age, except for the small amount of excellent work which seems to go on through all periods, will be looked back upon as evidence of a kind of dark age.

Certainly there is nothing to be gained by trying to return to the purple passages and exaggerated poses of the Naughty Nineties. We are of our own period, and we can work only within its framework, looking forward, not back. Each one of us must strive, as far as he is able, to see that art in design—that is, a serious and idealistic search for visual beauty—is produced to the uttermost of each one's ability. In our work and our thoughts we must do our utmost, it seems to me, to overcome that state of mind which considers the word "arty" as a sort of ultimate damnation and, instead, re-establish the ideal of creative art in a controlling position, so that the blessings of composed and harmonious visual patterns may flow out over all the people of the world.

—Talbot Hamlin in January "Pencil Points"

Edward Langley Scholarships for 1941

The American Institute of Architects from January 1 to March 1, 1941, will receive proposals of candidates for Edward Langley Scholarships for the year 1941. Awards will be announced about June 1, 1941. Awards may be made to residents of the United States or Canada.

These scholarships are awarded annually for advanced work in architecture, for study, travel, or research, as the holder of the scholarship elects. Awards to undergraduates are precluded, but awards may be made to architectural draftsmen who desire to do undergraduate work or take special courses in architectural schools. An award in a succeeding year to a holder of a scholarship is not precluded.

Competitive examinations will not be used as a method of selection. The scholarships are open to all persons engaged in the profession of architecture. To facilitate making the awards, such persons are grouped as follows:

Group 1.

(a) Architects in active practice (b) Architectural draftsmen employed by architects, whether the draftsmen are engaged in drafting, writing specifications, supervising or acting as executives, and whether or not they are college graduates.

Group 2.

(a) Teachers in schools of architecture (b) Students about to graduate from such schools (c) Graduate students of such schools who are engaged in post-graduate work either in college or in travel.

The awards will be made and the grants determined by the Committee on Awards and Scholarships of The Institute. In making awards, all candidates from both groups will be considered as a single group by the committee, and scholarships will be awarded to those who, in the judgment of the committee, are best qualified therefor by reason of character, ability, purpose, and need, regardless of place or residence or whether they are Group 1 or Group 2 candidates. The amount of grant with each scholarship will be determined in accordance with the need and purpose of the candidate and the funds that are available. Only a very limited number of awards can be made in any year, so, to avoid unnecessary disappointment, a candidate should not be proposed unless his qualifications are outstanding and it is evident the profession will be benefited by an award to him.

Proposers of Group 1 Candidates. Any architect in the United States or Canada may propose any other architect or architectural draftsman residing in the same country as a candidate for an award in Group 1.

Proposers of Group 2 Candidates. The faculty or head of any architectural school in the United States or Canada whose standing is satisfactory to the committee, may propose any teacher in such school, any student about to be graduated from the school, or any graduate student engaged in post-graduate work in the school or in travel, as a candidate for an award in Group 2.

Form of Proposal. Every proposal of a candidate of either group shall be made in duplicate on A. I. A. Form S70, which may be obtained from The American Institute of Architects, 1741 New York Avenue, Washington, D. C.

Filing Proposals. All information and data required shall be filled in on the proposal form, and both the original and duplicate proposal shall be sent to The Secretary, The American Institute of Architects, at the address given herein, so as to reach there not later than March 1, 1941. Proposals received after that date cannot be considered.

A proposed candidate may be requested to submit examples of his work and to appear before a representative of the committee.

Dan Waid Education Fund Competition

The Atlantic Monthly, in association with the American Institute of Architects, will award a prize of $1000 to the author of the best essay on "The Fine Arts in America." A second prize of $500 will be awarded to the runner-up. Manuscripts intended for the prize should be not more than 5000 or less than 2000 words in length; they must be submitted to the Atlantic Monthly on or before April 1, 1941. The judges reserve the right to reject any or all of the manuscripts, but it is their hope that the prize-winning paper will be available for publication in the June issue.

These awards have been made possible thanks to the generosity of the Waid Education Fund of the American Institute of Architects.

If you have definite and constructive ideas about the place of the fine arts in America today, now is your time to speak out. Detailed announcements will be sent on request made to either the American Institute of Architects or the Atlantic Monthly by those who are interested.

Wilhelm Doerpfeld

Wilhelm Doerpfeld was one of the great students of classical Greek art. On April 27, 1940, he died at the site of his last excavation on the Greek Island of Leucas. His more than eighty years of life were almost exclusively devoted to archaeology, beginning with his work as technical director of the Olympic excavations from 1877 to 1881. In the following year he became 2nd Secretary of the Archaeological Institute at Athens, shortly afterwards being made first Secretary, a post which he held until pensioned in 1912. He was an annual visitor to Greece and the expeditions he directed or participated in included Troy, Corinth, Olympia, Athens, Pergamon, Leucas, Ithaca and Corfu. He was associated at Olympia and other excavations with Heinrich Schliemann. Besides his published works on these various excavations, he was also an authority on the classical Greek Theatre. Dr. Doerpfeld received honorary degrees from many universities both in Germany and abroad, and was an honorary member of the Academy of Sciences.

Prefabrication Ordered for Defense Housing

The Indian Head defense housing project in Maryland is to be made a laboratory of prefabricated house construction A total of 650 prefabricated houses of 12 different types will be erected. The San Diego project with 1,000 demountable units is coming along rapidly.

No land is available in town for the Indian Head project. It will have to be built in a field some ways out—a potential ghost town when the emergency is over. This calls for demountable construction which can be taken down and moved.

A standard floor plan and elevation has been drawn up by PBA. It is for a one-story single family house about 24 x 28 feet with no cellar or attic. It contains two bedrooms, living room, bath, and kitchen. The general outline is such as to give a conventional appearance, with sloping roof. Use is being made of the advice of the Bureau of Standards, which has been testing house panels for several years.

Fort Knox Defense Housing

Site for Fort Knox defense housing consists of 70 acres of gently rolling terrain, which offered an opportunity to orient the houses and connecting streets in relation to the contours of the land. The 700 individual family units will be combined into four- and eight-unit multiple dwellings, half of which will be of the eight-unit type. Living quarters will be provided for 2,700 persons. Frame construction is used throughout, exterior walls clapboard or ship-lap, roof composition shingles.

Stiff Union-Dues

In New York, Local No. 3, International Brotherhood of Electrical Workers, voted an extra assessment of $12 a month on Class A members. That makes their total tribute $18 a month, or $216 a year—more than dues in some of the swankiest clubs in New York or Washington.

Temporary workers hired at the Fort Meade army camp in Maryland are required to pay the carpenters' union $57.50 for membership and "permission to work at carpenter work or any of its branches."

James Petrillo, who draws $20,000 a year as head of the American Federation of Musicians and $26,000 from the Chicago Federation, attributed his success to the fact that "I was always good at arithmetic." Apparently that is not a unique qualification among labor leaders.

—Nation's Business for January.

Wright Plans Community Church

"If I did supply detailed specifications on this new type of modern architecture, I would have to supply engineers and architects for your department to understand them," countered Frank Lloyd Wright when faced with Kansas City Building Commissioner F. L. Lang's refusal to issue a permit to build a community church without more detailed plans and specifications (according to *Time*).

The cantilever construction proposed, as well as other features, were insufficiently lucid to satisfy the Department of Buildings. However, Architect Wright agreed to employ Engineer Irwin Pfuhl to make revised plans of the church's foundations, and Wright agreed to be more specific about his specifications.

This building is not ecclesiastical architecture as ordinarily understood. It is revolutionary in design, as might be expected from Mr. Wright. Wright calls it "the first completely functional church." There are three decks of parking space for the congregation's cars, since Wright holds "it is immoral and unethical to build a structure without providing for the traffic it will attract." In lieu of a tower with steeple, the church will have pillars of light shot heavenward by interweaving floodlights from a copper crown on the roof. Walls as here proposed have never before been built. There are steel stanchions interwoven with wire lath on paper on which is sprayed gunite, the entire wall thickness being 2¾ inches. The walls are unbroken by any windows.

The building will be heated by radiant heat, with pipes embedded in the floor construction, eliminating all radiators and convectors. It will be air-conditioned, summer and winter. The auditorium will be provided with a movie screen, room for a one-hundred piece orchestra in front of the chancel, a chapel, nine Sunday-school classrooms, a large "rumpus" room for games, a banquet hall, and open-air terraces. Estimated cost is only $175,000. By comparison a traditional church would cost at least $300,000, says Dr. Jenkins, pastor.

Bulletin readers would be interested to see a comparison, on completion of the Kansas City Community Church, of the estimated cost and the cost on completion. With this might be presented similar comparative figures of the Johnson Wax Company's office building at Racine, Wisconsin.

The Great Builder

Sir Christopher Wren built better than he knew. One cannot suppose that he ever expected his London to be assailed by high explosives from the sky, but he built it strong enough to resist them. One saw it when a German bomb crashed through the roof of St. Paul's in a recent raid and demolished the high altar. Experts who showed me the damage, both from the roof and from the altar steps, marvelled at the strength and cunning craftsmanship employed in the bonding of the roof laid bare by the destroyer. For nothing less than the most superb workmanship in the knitting together of the roof's brickwork saved the cathedral from much more serious damage.

So strong is the bonding of the 18-inch thick roof over 90 feet above the choir stalls, that I was able to stand in safety within three feet of the clean-cut hole through which the bomb passed. There was no danger at all of crumbling away at the edges. What the bricklayers of 250 years ago put up still stands, and the main fabric of the cathedral is safe.

Canon Alexander was naturally much upset as he surveyed the scene. For a quarter of a century now he has devoted most of his time and talents to directing the great work of preserving St. Paul's against the dangers that manifested themselves in its foundations. He sighed with relief as he looked at the famous choir stalls and remarked that it was a miracle no fire followed the explosion. If it had, then Grinling Gibbons' masterpiece would have perished with the chapter stalls, which were smashed to pieces by falling masonry.

The floor before the altar also displayed unexpected strength. Some of the pieces of masonry which crashed on to it from the reredos pediment, 50 feet high, must have weighed at least two tons. Yet, as Canon Alexander said, there was not the slightest sign of damage in the crypt below. The splendid wrought-iron screens and gates at each side of the altar, the work of a Sussex craftsman of French origin who was one of Sir Christopher's discoveries, likewise stood intact.

The ebony and bronze altar, with its marble top and its fine gilt crucifix, took the brunt of the blow and lay in dust-covered fragments on the steps where bishops have been enthroned and kings knelt in prayer.

—The Manchester Guardian.

The stained glass in the windows of Canterbury Cathedral was badly damaged by blast from a bomb. Fortunately the oldest and most valuable glass of Canterbury, some of it dating back to the 12th century, had been put into a place of safety. The structure of the cathedral was not damaged.

—The Manchester Guardian.

Who Designed The Douglas Monument in Chicago

The Editor: Who designed the Stephen A. Douglas shaft that stands at the east end of Thirty-fifth Street and the I. C. tracks in Chicago, and when was it erected?

—Leo J. Weissenborn.

Answer: The Illinois Blue Book for 1939-1940 says, that the Stephen A. Douglas tomb standing in a two acre park at the east end of Thirty-fifth Street and the I. C. tracks was designed by Leonard Volk, sculptor. The state of Illinois acquired the site in 1865, and the monument was erected in 1877. The granite base has a crypt with a marble sarcophagus containing the remains of Illinois' Senator Douglas. On the base stands a shaft 104 feet high surmounted by a bronze figure of Douglas. *—Ed.*

Tallest Housing Project

The country's tallest low-rent public housing project to provide homes for 1,296 low-income families is to be built in New York City's lower East Side. The central buildings will be 13 stories high and will be constructed with USHA funds.

Frank Lloyd Wright, the eminent architect, has designed a house in California with a stream running through the living room. This will be old stuff to certain speculative builders to whom a lake in the basement is standard equipment.

—Roger Allen.

Edward A. Renwick, prominent Chicago architect, died in his home in Evanston, Illinois, January 10, in his 81st year. Mr. Renwick was born in Grand Rapids, Michigan in 1860, coming to Chicago in 1882 where he entered the employ of Holabird and Roche, Architects. In 1896 he became a partner in that firm and was its senior member when the name was changed in 1928 to Holabird and Root, Architects. Mr. Renwick's forte was the economics of architecture and practical design. His name is identified with such structures as the Marquette, Monadnock, McCormick office buildings in Chicago; University Club of Chicago; the Sherman, Stevens, and Palmer House Hotels in Chicago; Mandel Brothers and Boston Store department stores in Chicago; and the Chicago City Hall and Cook County Building. He is given credit for much effective work on the Chicago Daily News Building designed by the firm of Holabird and Root. He functioned conspicuously as a business executive in the practice of architecture. In 1937 Hamilton College awarded Mr. Renwick an honorary M. A. degree. He was a member of the A. I. A. since 1916. In recent years he had an association with Alfred S. Alschuler, Inc., Architects.

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Chester H. Aldrich, architect of New York, died December 26, 1940, age 67, in Rome, Italy where he was director of the American Academy in Rome. Mr. Aldrich was born in Providence, R. I.; graduated from Columbia with a PH.B 1893; diploma École des Beaux Arts, 1900; in practice since 1903. Member Delano and Aldrich, architects. Director American Academy in Rome since October, 1935; Fellow, A. I. A.; member National Institute of Arts and Letters; Architectural League of New York; Society of Beaux Arts Architects; Society of Architects; diplomés par le Gouvernement Francais, etc.

Among the many homes he designed for prominent Americans may be included those for John D. Rockefeller, Vincent Astor, Otto H. Kahn, Dwight W. Morrow, and Col. Charles A. Lindberg. He was unmarried.