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Chicago Municipal Airport Plans

By D. H. Burnham, I.S.A. — F.A.I.A.

The story of the growth of the airlines over the last twenty-five years is somewhat like that of the railroads about the time of the Civil War. Both, during their adolescence, were confronted with financial obstacles and difficulties to command the capital needed for ever increasing rapid expansion and development. Without tremendous public subsidies, intended primarily for handling the United States mail and for the use of the Army Air Corps and the State Guard, the present magnificent chain of coast to coast airports, together with connecting overland lighting routes and terminal signal beacons, could not possibly be in existence today. Similarly most of the railroads would never have been built without the aid of federal land grants.

More than three years ago, on October 3, 1939 to be exact, one of the major airlines retained architects Burnham & Hammond, Inc. to make studies and sketches to assist in convincing the other airlines and the City of Chicago of the need of a new building and also to assist in formulating plans for the financing of same. The client explained that the airlines would have to advance the money because the City was not able to assume this obligation in addition to its commitment to remove immediately the railroad, build new double runways on the north half to double the width of the then existing runways on the south half and to do the underground drainage and install a complete new system of field lighting.

This, in brief, is an outline of the present status of the plans for the proposed new airlines terminal building whose cost, \$1,200,000, shall include furnishings, equipment and carrying charges. It will be located at the northeast corner of the new north half of the Chicago Municipal Airport, which airport now covers approximately one square mile of land, having been recently doubled in size by the removal of the separating railroad tracks. The old terminal building at the southeast corner of the south half of the field, built in 1931, is today quite inadequate because the passenger business has, in the last twelve years, increased over 600%. At present, under the old set up, there are three separate buildings, one each for passengers, mail and express. The new building is planned to house the three services under one roof; it will be approximately one mile closer to the loop, and therefore, the running time to reach the airport will be reduced.

Immediately preceding the outbreak of the present war the airlines had jointly reached the point of initial financial stability where they could, for the first time, breathe a little more comfortably. The financial plan finally evolved for the Chicago Passenger Terminal requires the airlines to advance the money and the City to build and own the building. This advance is to be repaid over a series of years out of money paid annually to the City for landing fees and

hangar rents by the airlines. The negotiations culminated in the passage of an enabling ordinance by the City on January 29, 1942. This is a public document and anybody interested may read it for such details as may be of interest.

All during the time that the negotiations proceeded many meetings were held, both in Chicago and New York, with various joint committees of the airlines, some of which lasted all day. Between meetings such architectural plans and data as were needed by the airlines for their lease negotiations with the City had to be developed. Also, the architects visited and studied the principal major airports from coast to coast to determine how this, that, or the other new features were meant to operate under differing weather conditions. Most of the meetings were held in the architect's office in Chicago and it was quite usual to have fifteen or twenty men attend, who flew the night before from New York, Pittsburgh, St. Paul, Kansas City, St. Louis, and Dallas arriving in Chicago the next morning like a flock of birds. The airline personnel is characteristically young like the industry.

These meetings were fascinating and stimulating and we had to keep ourselves abreast of the rapid changes of building construction ideas and the different problems involved as new model planes came off the production lines of the many factories for the Allied Armies prior to our entry into the war. We had to make twenty-eight sets of sketches to keep up to date, with detailed cost estimates together with many estimates by contractors. After making each set we all heaved a sigh of relief as we thought we had reached a final solution. At one early stage we were so sure we had the problem licked that the airlines went to the expense of having made a costly large scale model. This could be taken apart floor by floor and you could look inside to see how the various functions were to be performed. Forty passenger planes, arriving and departing, spectators on the roof, terraced restaurants, buses and taxis arriving on a ramp, trucks below for freight and mail, and little gasoline tractor trains that received the baggage at the planes and delivered it in "nothing flat" at the upper level to the departing passengers, were features of this model.

Valuable help was received from Chicago's own Howard L. Cheney now in Washington and recently in charge of the design and plan development for the magnificent new Passenger Terminal in Washington, D. C. We had several meetings with Cheney who very generously gave us valuable criticism of our sketches and furnished us with prints of all his working drawings and details.

You can well imagine the countless intricate engineering problems involved in planning such a building. The communication systems inside the building from the ticket counters and airline offices out to the concourses, cargo rooms and plane stations necessitated a maze of wires and tubes

involving the use of all the well known instruments as well as many new ones not yet in common use.

Provision also has to be made inside the building for the outside connections for all airlines to interconnect them with their national network of offices in various cities and they are also at all times in communication with their planes in flight. The National Civil Aeronautics Authority, which has the actual control of all planes in flight between airports, must be provided with a large space in the building to house its personnel. It needs a vast quantity of scientific equipment to adequately perform this most important function. Then comes the National Weather Bureau with its equipment requirements to perform the services without which no planes could fly. Also, some of the major airlines have their own separate weather forecasting systems. Separated from all others are the instruments of communication and airport light control mechanism located in the Control Tower on top of the building. This is a municipal function. When a plane nears an airport the city takes over control from the C. A. A. and directs the plane into the airport and lands it on the field.

Servicing of the planes at an airport is a special headache. We have planned a series of interconnecting tunnels running out from the mechanical plant in the basement to the various plane stations. Each departing plane, with one wheel resting on a turntable, must be heated in winter and chilled in summer, filled with gasoline, stowed with cargo, baggage, express and mail. Also wires and tubes must be run to these points for telephones, starting current, and lights. After the plane departs the iron weathertight doors to the trenches must be instantly closed so no obstructions protrude above ground when the next plane wheels into place. All the above requires the design of both a boiler plant and air-conditioning machinery sufficiently large for both the building needs and to service the planes.

One of the most fascinating problems, and one of the most interesting, is the preparation of food in the terminal building for the meals to be eaten aloft. If the meals were cooked in advance they would be overdone when consumed perhaps a few hours later as the plane flew, say over Omaha or Detroit. Therefore, they prepare the food hot in huge thermos containers timed so that the actual cooking of the food takes place in the air as the plane flies, and calculated so accurately that just as the food is served to the passengers it has reached its point of perfection.

In the fall of 1942 the City of Chicago, at the expense of the airlines, sent a representative to Washington for several weeks with the latest set of plans and specifications to negotiate with the WPB for a priority rating and permission to proceed with the erection of the building and Mayor Kelly also went to Washington twice at that time to help. The answer came back that we must postpone the building for the time being. It may be that the need for this semi-public project will justify its going ahead before the end of the war, when the critical material situation becomes less acute. Otherwise the building will be postponed until the war is over.

To minimize critical materials, we figure that if the building is designed in the main of reinforced concrete the steel tonnage will be reduced approximately from 2,500 tons to 800 tons; but whether a steel frame or reinforced concrete

one will be used depends largely on whether the building goes ahead before or after the end of the war.

All our plans to date as stated above are for a terminal building to handle, under one roof, in addition to passengers and their baggage, both air mail and air express.

A report was published in October, 1941 of a study prepared by an air-minded group, together with the Chicago Association of Commerce, the Chicago Plan Commission and the Chicago Regional Planning Association entitled "Airport Program for Chicago and the Region of Chicago." This report showed the future need for three major air terminals (including the present Chicago Municipal), four major inner belt airports, five major outer belt airports, thirty secondary airports and thirty minor airports. Aviation has developed so very rapidly in the last year in the region of Chicago that the Army and Navy have each acquired one of the major air terminals recommended in this report, and it is possible that the Government may also acquire one of the major inner belt airports recommended. At the end of the war Chicago will emerge with three or four fully equipped super airports in place of the single one we had when the war started.

The degree that these newly acquired government owned airports will be available in whole or in part for the use of the commercial airlines after the war is today unknown.

Also it is unknown which types of the newly developed mammoth, high speed military airplanes will be adopted by the airlines as their standards after the war. Larger planes will mean lower fares and this will stimulate an expansion which will dwarf anything yet seen.

The above new factors are bound to affect radically the final design and capacity of the new airport terminal building. Perhaps after the war separate cargo planes will fly freight out of separate airports. Before the war, passenger, air mail and air express were all three flown in the same planes. What will happen after the war is anybody's guess, but the solution will be somewhat dependent on the future policy of the government as to what percentage of the first class mail will be transported by air. Possibly, we may see three types of planes in the future for passengers, cargo, and mail.

Before the war, Chicago and New York were the two top ranking airports in the world. New York exceeded slightly in passengers, but Chicago exceeded in mail and express. It is safe to say that after the war Chicago and New York will continue to be the two outstanding nerve centers of aviation for the entire continent; and Chicago, because of its mid-continent location, will then become one of the half dozen most important world focal points for both commercial and military aviation. Chicago is closer on the Great Circle routes to many points of Europe and Asia than most other cities in the United States.

Three types of paint have been developed to prevent ice formation on war planes; one contains oil, one salt, and the other can be heated electrically.

Bolivia is now the principal source of tin for the United States.

The Solomon Islands are a good potential source for plywood and high grade veneers.

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Editor Monthly Bulletin

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The day of prefabricated demountable houses has arrived, thanks to the purchases by the U. S. Navy and Army. Without the orders of the armed forces of this country in wartime, prefabrication of complete houses would probably have languished. But orders for 75,000 completely equipped prefabricated dwellings for war workers has advanced an industry from the experimental to the stage of mass production.

It is argued that the individually built small house costs approximately \$5,000 while a mass production house, of similar accommodations, can be produced for very much less, making it possible for a family with a \$2500 per year income to own its own home. But this argument had little bearing with the Army and Navy in their purchase of ready made houses. The armed forces sought to avoid creating ghost towns after the war through building permanent homes in localities that, in time of peace, would offer the dwellers no means of livelihood.

So these houses are made collapsible wall by wall, releasing individual floor and roof, loaded onto a truck and moved anywhere where dwellers may be found. This thought suggests a nation of nomad workers who, like the Arab, folds his tent and silently steals away, or the Gypsy who moves more noisily from town to town.

Prefabrication of building parts is a very old story. Timber joists were cut with a disc saw run by steam power and perhaps even by water power before steam power was introduced. Studding, t & g boards, shingles, complete window frames and sashes, door frames, doors and moldings made in factories, all came in before the birth of any living architect today. Hardware was prefabricated. Plumbing goods, valves, etc. and endless other parts of buildings prefabricated were introduced and are introduced constantly by every architect designing houses. So the thought of prefabrication is not a new one. It was accelerated by the automobile and those who constantly pointed to the automobile as a model for house building can say, "I told you so."

The fact remains that everyone financially able to live in a well-founded, well-designed home, willing to tie himself to a fixed locality for a period of years, will always prefer this type of dwelling to one made for a nomadic population. The John B. Pierce Foundation is preparing to publish, in six chapters, the story of The Prefabricated House.

Early in December, '42, the Board of Directors of The Chicago Public Library discussed the glass mosaic decorations installed in the central library in downtown Chicago forty-six years before. These mosaics decorate soffits and ceilings, girder encasements, and stair rails in the Washington Street stair hall, and in the delivery room a magnificent glass mosaic dome occurs. These mosaics are all of Tiffany glass, a method differing in technique from Byzantine, Venetian, and Florentine glass mosaics. They were made in the shops of Louis Tiffany in New York.

Glass mosaic, as monumental architectural decoration, is today, in this country at least, almost a lost, if not forgotten, art. Chicago possesses, outside of the Public Library mosaics, some fine examples of glass mosaic imported from Venice.

The Directors' discussion was continued by a small group of elder architects. It became evident that there was a dearth of knowledge bearing on the mosaics Chicago possesses. The Bulletin is alive to the fact that libraries and historical societies, in Illinois at least, look to it as a recorder of contemporaneous history of architecture and architects in its territory. Accordingly, it sought a competent person to discuss in its pages Glass Mosaics in Chicago and is pleased to present in this issue Frank L. Davis' treatment of the subject.

Mr. Davis studied architecture in the University of Illinois, served Burnham & Root as draftsman, represented Burke & Company of London, England in the installation of marble mosaics in the Chicago Auditorium, and in the next decade represented Evans Marble Company, contractors for the interior of the Chicago Public Library. The Bulletin knows of no man as familiar with glass mosaics and their installation in this country as Mr. Davis.

General encyclopedias are, as a rule, unsatisfactory as reference books on this subject. Russell Sturgis' Dictionary of Architecture carries a four page essay on mosaics written by the late Frederick Crowninshield and supplemented with a paragraph on Florentine mosaics by Sturgis. Emerson Howland Swift's monograph on Hagia Sophia (Columbia University press, 1940) devotes two pages to the technique of glass and gold mosaics installed in that structure in the days of Justinian. The January, 1931 issue of "The Art of Mosaics and Terrazzo" carries an illustrated article on "The Mosaics of The Chicago Public Library" by Helen Lenehen. The half-tones are fine, the text inconsequential. So the Bulletin and Mr. Davis make this contribution to the record for the benefit of history and the young architectural practitioner growing up in this machine age oblivious of the craftsmanship and art of the glass mosaicist.

"The wrangling that occurs at times between art and criticism is, at bottom, merely a fraternal discord, one in which Cain and Abel belabour each other with stuffed clubs. Criticism is often more sympathetic when it is apparently most cruel: the propounder of the sternest, hardest philosophy that the civilized world has known never failed sentimentally to kiss and embrace his sister, Therese Elisabeth Alexandra Nietzsche, every night at bed-time. 'It is not possible,' Cabell has written, 'to draw inspiration from a woman's beauty unless you comprehend how easy it would be to murder her.' And—'Only those who have firmness may be really tender-hearted,' said Rochefoucauld. One may sometimes even throw mud to tonic purpose. Consider Karlsbad.'"

—George Jean Nathan

New natural products, now being considered for plastics include lignin, a byproduct of wood pulping; soybean protein; and bagasse, the residuum of sugar cane after the juice is removed.

Illinois Society January Meeting

With an attendance of 58 members and guests the Illinois Society of Architects held its January 26 dinner-meeting in the Chicago Bar Association quarters. Reversing the usual order President Ryan began with the program by introducing Comdr. Weichelt, Comdr. J. S. Leister, and Lt. Staniunas, all of the U. S. N., as special guests, and member Frank Sexton of Springfield was also welcomed.

Comdr. Weichelt spoke first, forcefully, eloquently of the Navy's need for men in the CB (Construction Battalion). No doubt, the address, so fluent, punctuated with Naval history, had been given many times before. Comdr. Leister's appeal was to the same purpose. He talked longer and read from his prepared paper. The CB wants officer material to be drawn from men with experience as construction superintendents, foremen, and the like, to take charge of building bridges, improvising shelters, roadways, and much else. No college degree will be demanded. The aim is to build up the CB to about 200,000, approximating the Marines. The CB's include 57 trades. They have three training centers. Architects are appealed to for their influence with contractors and the building industry, generally, in obtaining the human material here outlined.

Here followed the showing of the Navy's technicolor sound film of the Battle of Midway with a sailor at the projector. This was timed to end just as the radio announced to the hearers the meeting of the President and Prime Minister Churchill together with others in high command at Casablanca in Africa. With the ending of the radio came the departure of the Navy men and the business meeting began.

Neither minutes nor correspondence were read. B. F. Olson, of the Legislative committee, reported more letters from the architects of southern Illinois opposing the presence of the Department of Registration and Education in the examining and licensing of architects in Illinois. Mr. Olson was instructed to reply that the Board of Directors had weighed carefully the objectors' earlier letters and had instructed Secretary Palmer to make the reply. Now the full membership instructed Mr. Olson to write our southern confrères saying that the Society stood by what Mr. Palmer had written them earlier.

President Ryan asked for volunteers to serve on a committee to revise the Chicago Building Code. The volunteers are Messrs. Olson, Schreiber, Eugene Fuhrer, McLaren, and Hubert Burnham.

The President desired to hear a report of what transpired at the January 19 Chapter meeting. He called upon a member who had attended that meeting for a report. Readers are referred to page five of this issue for a report on that meeting.

Changes in Illinois Architect Exams

The architect division, Department of Registration and Education, Springfield, Illinois, announces changes in examination requirements beginning with the 1943 Spring exams.

Replacing the three day 24 hour Junior Examinations, a four day 36 hour exam is substituted. The junior syllabus is: First Day: Architectural Design with reference material not permitted.

Second Day: Graphic Statics; Supervision; Architectural Composition.

Third Day: Structural Design; Selection and Use of Materials; Mechanical Equipment of Buildings.

Fourth Day: History of Architecture; Counselling and Administration.

Passing Grade: The Junior Examination has a total value of 1,000 points. Passing is 750 points with no subject lower than sixty points. The grade is determined by dividing the earned points by 10.

Senior Examination—oral (for architects who can prove ten years or more of independent legal practice as a principal in the profession of architecture). Candidates for the Senior Examination are advised to have a Council Record prepared by the National Council of Architectural Registration Boards. Write Mr. William L. Perkins, Secretary, Chariton, Iowa.

For further particulars address Philip M. Harman, Superintendent of Registration, Department of Registration and Education, State of Illinois, Springfield, Ill.

The United States produced more metals and minerals in 1942 than at any time in its history.

Principles of Professional Practice

At the annual meeting of the A.I.A. in Detroit in June, 1942 the Board of Directors was authorized to notify corporate members of the Institute of conditions and requirements of professional practice. These principles are published in the current (November, '42) issue of the Octagon. Below is a summary:

"The American Institute of Architects, seeking to maintain a high standard of practice and conduct on the part of its members as a safeguard of the important financial, technical and esthetic interests entrusted to them, offers the following advice relative to professional practice:

"The profession of architecture calls for men of the highest integrity, business capacity and artistic ability. The Architect is entrusted with financial undertakings in which his honesty of purpose must be above suspicion; he acts as professional adviser to his client and his advice must be absolutely disinterested; he is charged with the exercise of judicial functions as between client and contractors and must act with entire impartiality; he has moral responsibilities to his professional associates and subordinates; finally he is engaged in a profession which carries with it grave responsibility to the public. These duties and responsibilities cannot be properly discharged unless his motives, conduct, and ability are such as to command respect and confidence. . . ."

(1) "The relation of an Architect to his client is one depending upon good faith. . . ."

(2) "The contractor depends upon the Architect to guard his interests as well as those of the client. An Architect will condemn workmanship and materials which are not in conformity with the contract documents but it is also his duty to give every reasonable aid toward a complete understanding of these documents so that mistakes may be avoided. He will not call upon a contractor to make good oversights and errors in the contract documents."

(3) "An exchange of information between Architects and those who supply and handle building materials is encouraged and commended but the use of the free engineering service which is offered by manufacturers and jobbers of building materials, appliances and equipment is accompanied by an obligation which may become detrimental to the best interest of the owner."

(4) "The A.I.A. has set forth a schedule or guide by which the proper professional charges may be determined. The Architect's charges for his professional service shall be made to the client only, and he will not receive commissions, fees, gifts, favors or any substantial service from a contractor, or from any interested person other than the client. He will not knowingly compete with a fellow Architect on a basis of professional charges."

(5) "An Architect in his investments and in his business relations outside of his profession must be free from financial or personal interests which tend to weaken or discredit his standing as an unprejudiced and honest adviser, free to act in his client's best interests."

(6) "An Architect will not advertise for the purpose of self-laudatory publicity, but publicity of the standards, aims and progress of the profession is to be commended. . . ."

(7) "An Architect may introduce to a possible client the service which he is able to perform but will not, except under unusual circumstances, offer to continue this service without compensation until it has been approved; and in no case will he offer this service in competition with others except as provided in Article 9."

(8) "An Architect will not falsely or maliciously injure, directly or indirectly, the professional reputation, prospects or business of a fellow Architect. He will not attempt to supplant another Architect after definite steps have been taken by a client toward his employment; nor will he undertake a commission for which another has been previously employed until he has determined that the original employment has been definitely terminated."

(9) "The A.I.A. has issued a Circular of Information in regard to Competitions. An Architect will take no part in a competition which does not include the provisions which experience has found to be necessary if the best interests of the owner and of the Architect are to be safeguarded. . . ."

Chicago Chapter December and January Meetings

The Chicago Chapter A.I.A. December dinner and meeting fell on the fifteenth and occurred at the Tavern Club. There were perhaps thirty odd members present and the program read "In honor of Past Presidents of the Chicago Chapter A.I.A." The dinner was good and what followed was an informal meeting filled with reminiscences and pleasantries. President Nathaniel Owings welcomed the members, then called upon Assistant Secretary Ward for brief minutes of the time, September, October and November meetings. The minutes were read and briefed.

President Owings here turned the chairmanship over to Vice-President Gerhardt, who with a list of all the Chapter Presidents since 1910 in his hand, referred to the past Presidents, six in number, who had responded to the call to this meeting and read letters of regret for inability to attend from four more. He stated that up to the present, Chapter officers had been unable to compile a complete list of Chapter Presidents from the founding, in 1869, up to the present; but the Chapter hoped to accomplish this with the help of Executive Secretary Kemper of the A.I.A. in Washington. With this information in hand, the Chapter would publish to all its members a complete list of past Presidents.

Mr. Gerhardt called successively upon past President Woltersdorf, past A.I.A. Director R. E. Schmidt, past Presidents Elmer Jensen, C. Herrick Hammond, H. K. Holsman, Elmer Roberts, Earl Reed. Woltersdorf referred to Chicago's earliest architect John M. Vandel, brought to the city by Chicago's first Mayor, William B. Ogden. He referred to a list of the Chapter's portrait gallery of famous architects and told of the epoch-making Chapter meeting held at the Cliff Dwellers in 1915 where the portraits of D. H. Burnham and S. S. Beman were unveiled.

R. E. Schmidt spoke of the destiny of the Chapter's portrait gallery on the walls of a public museum in Chicago where these paintings would form the nucleus about which the celebration of the fiftieth anniversary in 1943 of the World's Columbian Exposition could revolve.

Elmer Jensen harked back to the afore-mentioned 1915 Chapter meeting. He referred to Louis Sullivan, to earlier days in the Chicago Architectural Club and the Chapter, not forgetting reference to eastern practitioners with whom he came in contact while serving as A.I.A. Director.

C. Herrick Hammond, who had been national A.I.A. President from 1928-1930, built up his talk on his earliest contacts with architects and their draftsmen through the Architectural Club, the Chapter, the Illinois Society, and finally the nation's leaders in architecture. He said, too, that he was related to William B. Ogden who became Mayor of Chicago in 1837. The highest spot of his talk was his narrative of a celebration at Versailles during an international congress of architects held in Paris.

H. K. Holsman spoke of the Chapter's effort to save the old Fine Arts Building of the World's Fair of 1893 which was crowned with success, with the help of Mrs. Hedburg and her 7,000 women, culminating in the 3½ million dollar Julius Rosenwald gift for metamorphosing that building into permanent materials as the Industrial Museum in Jackson Park.

Elmer Roberts reminisced on the A.I.A. convention in New Orleans. Earl Reed turned from the past to the present and the future. He was interested, he said, in the small house, in the conversion of larger dwelling units into smaller apartments with the help of HOLC and commented on planning studies for residential areas in Chicago encouraged by the Chicago Plan Commission.

Harry T. Frost, recently returned from a two year sojourn in the Orient where he had planned Quezon City, an extension of Manila, P. I., touched on his experiences there and expressed his hopes for the future of the Pacific. President Owings closed the meeting with an expression of perfect confidence in the future of the architectural profession after the war.

The Chapter's January 19 meeting was a progressive one; progressive because it started as a dinner business meeting at 6 P. M. in the Old Town Room, Hotel Sherman and soon after 7 P. M. continued with its program four blocks away in the auditorium of the Engineers' building at Wacker Drive and Wells Street.

Old Town Room is in the basement and it's large; it isn't one room but areas subdivided by paneled wood screen partitions about 1½ feet high. Listening in any of these subdivided areas is like

listening in a baseball park during a game. And so the 35 members and guests had difficulty hearing President Owings and the others that addressed the meeting. In the absence of Secretary Suter and Assistant Secretary Ward the President read the minutes and got them approved. The President again made some report on public jobs for architects, read some more correspondence and then came to the question of giving the Chapter's collection of portraits to the Chicago Historical Society. Responses to the Chapter's request for guidance in this matter, addressed by the officers to the membership, were read. Consensus of opinion endorsed the gift.

In a temperature of 8° below zero the company moved from the hotel to the Engineers' auditorium. Here the new arrivals joined the already seated engineers and with the chairman's advice to come closer to the podium, proceedings began. The engineer chairman turned the meeting over to Chapter chairman Owings who, in turn, turned it over to H. Evert Kincaid of the Chicago Plan Commission's technical staff.

Kincaid acted as permanent chairman and first introduced Alderman Arthur Lindell, chairman of the City Council Zoning Committee, as the first speaker. Mr. Lindell pictured the woes of American cities, generally, with populations deserting the city for the suburb as a dwelling place, the growing slums, shrinking taxes for maintenance of public utilities and services, population shifts, declining property values and the period of distress ahead; tax delinquency, and the necessity to rebuild blighted areas. It was rather a sad picture but one whose familiarity must find place in the minds of those entrusted with the problem of creating new zoning laws that will fit and cure.

George Horton, chairman of the Chicago Plan Commission, spoke briefly on re-subdivision of land. Larger unbroken parcels, he thought, were a prime necessity and a saving in sewers, light, pavements, police and etc.

Miss Elizabeth Wood, Executive Secretary, Chicago Housing Authority, is a housewife, a sociologist, and an impressive personality. She spoke on physical planning, on long term planning, and made clear that her ideal was not to shift responsibility on Government, but rather to encourage private initiative to do for one's fellow man all that the more fortunately placed can do to relieve the burdens of the underprivileged. She favored low interest rates in lieu of subsidy.

Dr. Homer Hoyt, Research Division, Chicago Plan Commission, is a statistician, a humanist, which we will take to mean a lover and sympathizer of the human species. He claimed for the city of Chicago a distinct individuality from its very beginning when the original city was laid out by the Illinois and Michigan Canal Commissioners at the northeastern end of the then proposed canal which was to be dug to give access to lake vessels for the products of the Illinois farmer. That was planning! Then followed, in more or less rapid succession, making it a railroad center; raising buildings; making it a manufacturing center; planning parks; experiencing the Big Fire of 1871; developing the skeleton steel frame building; Columbian Exposition of 1893 with its fine planning; the Burnham city plan; reversing the flow of the Chicago River; 1923 zoning law; aviation center. And now we must revise our plans to bring them up to date, humanize dwelling conditions, and strengthen and guard public health. Dr. Hoyt's address was followed by lantern slides in Kodachrome of Chicago districts, Plan Commission plats, and bird's-eye-views. It was all illuminating and stimulating.

Chairman Kincaid closed the program with more lantern slides made from the developments by the Chicago Plan Commission for projects Chicago should undertake in the future. The listener carried home with him the thought that the Chicago Plan Commission, through its technical staff, were doing a great and important work not alone for Chicago but, by precept and example, for every city in the country.

Jan. 1, 1893, which came on Sunday with rainy weather, found Chicago in the heat of preparations for the Columbian Exposition, which was to make the year the greatest in the city's history.

Downtown Chicago was in a boom. Among the buildings that had been in construction during the year were the Illinois Central station, the Auditorium annex, the Monadnock annex, the Public Library, the Marshall Field, Columbus Memorial, Old Colony, and Hartford buildings.

—Charles Collins in the Chicago Tribune

David Saul Klafter, after election by the Board of Cook County Commissioners, was inducted into the office of Architect for Cook County, December 21, 1942. Mr. Klafter became County Architect succeeding Eric Edwin Hall, deceased. Mr. Klafter has practiced architecture in Chicago for 35 years.

Glass Mosaics in Chicago

Primitive man evidently amused himself by selecting wave-worn pebbles of different colors, placing them in some kind of an arrangement to please his fancy, and in time found by cracking them apart that the fresh fracture was more highly colored and had a more desirable effect.

With advancing time, instead of searching for pieces of rock that had been eroded or broken from cliffs, washing their way along the streams and lakes and seventeen seas and finally ground into pebbles, the more enlightened man located deposits of different kinds of colored marbles and stones from which blocks could be secured, sawn into slabs, cut into small pieces and worked into patterns. These patterns adorned tombs or buildings and in time these accomplishments were given the name of marble mosaics.

The workers in clays had not been idle in the meantime. They had produced, baked, burned, or fired clay forms of different sizes, shapes and colors that could be put in such order as to meet their needs. This started an endless series of made tiles of all kinds in different parts of the world, since the materials and labor were at hand to work out the requirements for floors, walls, and other parts of their buildings and some of these, in time, took on the form and name of glazed tile mosaics.

With the discovery of glass making and the method of controlling its color to a reasonable degree, this material was also employed for mosaics and finally became popular for wall decorations. Its many colors and shades made it a particularly desirable medium to express pictorial subjects in a more permanent form, known as glass and enamel mosaics.

In the 1860's Lorenzo Radi, a glass-blower of Murano and Dr. Salvati, a lawyer of Venice decided to revive the neglected art of an earlier age that had left so many exquisite examples of glass mosaics in St. Mark's right above their noses, with the result that one of them went to London, where money was much more plentiful, and formed a company to carry out their mutual ideas and gradually growing hopes. It seems the old artistic mare is never willing to go anywhere until she is assured there is enough money to keep her in oats. The result was that their financial sponsors became their most profitable patrons and England fell heir, in the 1870's, to many of their earlier productions and installations.

In the 1880's when Chicago had struck her noted sky-scraper stride, John W. Root of Burnham & Root, architects of the Rookery building, visited London and prevailed upon William H. Burke of Burke & Co., an English firm with a marble mosaic factory in Paris, to come to Chicago and lay a marble mosaic pavement in the vestibules, elevator halls and rotunda of that building, which was then under construction. This initial undertaking was so successful that Burke afterwards, upon another visit, decided to establish a branch here, arranging for a future office and exhibit space in the Institute of Building Arts, Henry Lord Gay, manager.

On January 1, 1889, having severed his connection with Burnham & Root, the writer installed in the Institute of Building Arts an exhibit of marble floors, wainscoting, columns and entablature, and panels of marble and Venetian glass mosaic. The glass mosaic panel represented a pair of sea horses; it was sent here on paper and the mosaicist from London, with the writer as assistant, set it in cement in an iron frame. This was the first showing in Chicago of a representative sample of glass mosaic.

Size of the tesserae play an important part in evaluating mosaics. The nearer the eye to the mosaic the smaller the tesserae; the smaller the tesserae the higher the class of work produced. It is self-evident that 144 square inches, or one square foot, divided into $\frac{1}{2}$ inch squares would require 576 pieces; cut these into $\frac{1}{4}$ inch squares and 2,304 pieces are required for the square foot. With each piece selected for shade of color the smaller the tesserae the greater the amount of labor.

The sea horse panel of enameled gold mosaic has found permanent lodgment in the ground floor corridor of the Madison Street entrance to the Chicago Athletic Club. It hangs near enough the eye for the student to observe tesserae, technique of tessellation, method of shading. As a painter guides his brush strokes, so the mosaicist arranges tessellation.

John W. Root (Burnham & Root) was first to use Venetian glass mosaics in the Middle West. The example appeared in a small build-

ing used as the entrance to the Central Market in South Water Street, Chicago. The next example was in inlaid bands on octagonal English alabaster columns in the first story of the Reliance building at State and Washington Streets.

The pièces de resistance of Venetian glass mosaic in Chicago are the two historical mosaic pictures of Columbus Discovering America and his return with the Indians to the Court of Isabella, installed in the Columbus Memorial Building (southeast corner State and Washington Streets) in the spring of 1893 by the Company Murano. The first of these can be seen on the east wall of the store flanking the building entrance on the south; the other has been walled in with brick for a number of years, indicating that while trade will follow the flag and seek security beneath its billowy folds, cold-blooded commercialism will not protect art when it interferes with sales of dividends.

The one still exposed at the end of a long store may be viewed from many different distances. The student may approach and touch it to experience the different methods employed for achieving effects here is tropical foliage, land, sky, water, sail, the hands, faces and garments of sailors planting the flag on the soil of a New World. The technique for each item differs with the effects sought. The now-hidden mosaic depicts the throne room of Queen Isabella with notable assembly, an ideal composition for glass mosaic technique. Unfortunately both these examples are set in cement against the brick wall making their removal difficult and dangerous.

A few years later the writer furnished for the Church of the Epiphany, southeast corner of Ashland Boulevard and Adams Street, two panels of Venetian glass mosaic, one, the Mother and Child, the other Christ Bearing His Cross. They were designed by Charles Halloway and cartooned abroad and, like all other glass mosaics were sent here mounted on paper. The panels are then set in cement in iron frames and can be removed. Since they were the last of the Venetian mosaics to come to Chicago demonstrating this enduring method of preserving works of art, it is hoped that their swan song will land them in some institution of art for permanent preservation against the attacks of wreckers with pickax and crowbar.

Louis C. Tiffany, artistic son of a wealthy New York City goldsmith and jeweler, was making stained glass windows. While so engaged, he decided to make his own glass and, in time, developed what has become known as favrile glass. Favrile denotes a gleam of shine. It is a much more iridescent product than the glass product up to that time, although having a resemblance to ancient glass. This new glass was made in small sizes and first shown in the mosaic work of a small chapel exhibited in the Columbian Exposition of 1893.

Stained glass windows evidently were the offspring of ancient glass mosaics; Tiffany's favrile glass, however, was the outgrowth of American stained glass windows.

Naming the building, erected in 1895 on the northwest corner of Adams and Dearborn Streets, Marquette Building, in honor of the French priest-recorder accompanying Joliet who paddled his way along the Chicago River (Riviere des Checagou), in 1673 prompted architects Holabird & Roche to propose for the fascia of the banking floor gallery rail giving onto the main entrance a picturization in glass mosaics of the scenes of Joliet and Father Marquette's travels in the Illinois country. This rail is hexagonal in plan with concave corners at the angles, measuring about 90 feet in length. There are three long pictorial and three long decorative horizontal panels separated by six narrow panels each carrying a single figure.

The mosaicist here has resorted to many kinds of glass and kinds of treatment; some of the techniques of faience, leaded glass and different forms of mosaic are introduced. Some of the glass is ridged, hollowed, raised, and in one panel is shaped into bead, button, bone, tooth, or claw forms, colorful ornament detailing trappings of the American Indian. Much larger pieces indicate the sweep of the birch bark canoes, while the species of tree is made evident through variegated pieces of glass. The glass, in truth, was manufactured for the effect to be produced by the mosaic and not the mosaic made from uniformly colored glass to attain the desired results. Only unrestricted funds could employ this method.

These Marquette building panels are, in part, opus sectile (pieces cut to special form or sectiliae), part opus tessellatum (pieces cut square, irregular or tesserae); but when some pieces contain fifteen to

wenty square inches the bounds of mosaic are exceeded. It will be conceded that from the station point of the beholder some pieces have become entirely too large.

The architect of the Chicago Public Library at Michigan Avenue and Washington Street (Shepley, Rutan & Coolidge) with Charles Coolidge then resident in Chicago, gave particular attention to the mosaic work to be introduced in that building. Mr. Coolidge was familiar with the best glass mosaic work in Europe and he devoted particular attention and care to the designing of the glass mosaics for the Chicago Library. They are found in the Washington Street stairway hall and in the great domed delivery room in the third story.

He decided upon a light cool color scheme; greens and creams dominate. Italian Blanco P and Tiffany glass mosaic was used. The stairway plan provides a bridge with elliptical arch soffit some twenty feet inside the Washington Street entrance. This soffit, like all stairway soffits and ceiling panels, is of Tiffany glass mosaic.

The delivery room dome rests on four piers sheathed with white marble over warped surfaces to the spring line of the elliptical arches spanning the openings. The dome, with its mosaic base superimposed by a skylight dome, presented problems requiring many special studies. The decorative scheme of mosaic and marble unfold gradually, after passing through the Washington Street entrance, and have their climax on reaching the third story landing with the glistening iridescence of the delivery room dome revealed to the north, and to the south the magnificent girder fascia with the honors shown to great literary men by name and quotation.

When architects D. H. Burnham & Co. designed the court in the Marshall Field & Company Retail Store, northeast corner Washington and State Streets, they established a barrel vaulted dome to be of favrile glass mosaic spanning the court between the fifth and sixth story floors. Viewed from the ground floor, the mosaics are most effective; the three north to south bays have their barrel vault divided by color bands on column lines and an elliptical panel links up with the cross color bands and the bands crowning circular headed openings.

This glass mosaic barrel vault was installed in 1906-07, ten years after the Library mosaics and twelve years after the Marquette building panels. The Field mosaics show an improvement in strength and a better utilization of favrile glass when its special qualifications are considered. In favrile glass large piece reflections are more brilliant than the same area of favrile glass cut into four or six pieces. The Field barrel vault elliptical panels, tessellated in rows of medium size tesserae, with large pieces spotted irregularly over the entire field, produce an effect simulating stars sparkling in a less brilliant sky.

To supplement what was said earlier in this discussion on the difference between ancient glass mosaic and Tiffany favrile glass, it should be understood that the ancient glass was a colored glass fired throughout the entire tessera. When gold was used, the gold was applied to the lower glass and fused with its thinner glass fascia to the lower body.

Tiffany glass, on the other hand, strove for higher iridescence observed in translucent stained-glass windows. To achieve this chemicals and metals were introduced in the fluid glass mixture.

—Frank L. Davis, Chicago

In Tokio

"The Prime Minister's official residence is a bastard of the architectural era which followed the building of the Imperial Hotel by Frank Lloyd Wright of Chicago. When George IV built his many-domed pavilion at Brighton, Sydney Smith went to see it and reported: 'St. Paul's has been down to Brighton and pupped.' It seemed as if the Imperial Hotel had conceived and given birth to a mongrel. The Wright style, motifs, materials, coloring, and general bizzarerie were imitated. The architect had been unable to get away from the hotel idea, and the entrance hall, with its inquiry office, was the Imperial Hotel lobby with its ceiling lifted and the reception desk placed at the right of the entrance instead of the left."

—From "Government by Assassination," by Hugh Byas (Knopf, 1942)

A new word, *geotechnology*, has been coined to include all the mineral arts and sciences from metallurgy to ceramics.

Landscaping at Norris, Tenn.

Sir Ernest Simon of London speaking to the N. Y. Chapter A.I.A. October 8 (Oculus report) on blitzed London architecture concluded his remarks with comments on American community planning saying that "at the TVA the result was no doubt of our over-zealous landscape architects." The Bulletin asked architect J. Frazer Smith to elucidate. The following is his answer.—Editor.

The Editor: "What does Sir Ernest mean by that?"—you ask me; which brings to my mind the question: What does an Englishman think about? It might interest you to know that this is not the first time we of Tennessee have had to explain away the remarks of visiting European architects concerning Norris. Sir Raymond Unwin once remarked that the town of Norris would have expressed more unity if the houses had been in rows instead of detached dwellings. It was very evident to all of us here that Sir Raymond was not accustomed to our vast open spaces and to our individualism. One of the architects of Norris, in answering this remark, said he was sure that Europeans would like to live in detached houses with gardens if they knew what it was all about. And there I expect you have the answer to your question concerning Sir Ernest.

As you know, Norris has a dwelling density of three houses to the acre. Its site is a mountainous slope overlooking the lake of Norris, in plain sight of the Norris dam. Here, of course, the scale is confined to the lake, the mountain, and the sky. That tremendous engineering feat—the dam—is the only man-made thing in sight. The people who inhabit this mountain garden are of Tennessee pioneer stock who have grown accustomed to the scene through many generations of life there. I happen to know that most of the landscaping referred to by Sir Ernest was done by God and tenant and not anyone else. If you can imagine a person's coming into this stage-setting and suggesting a unity by simply installing several hundred London row-houses—then I think you will be forced to agree with us that there is a possibility that the criticism should not fall on the town of Norris or on its creators, but rather somewhere else.

The town of Norris is an American architect's interpretation of the original purpose of architecture; that is—to house mankind. I quote one of these gentlemen as follows: "I still cling to the old theory, 'Beauty and happiness are permissible.'"

In closing, my request is that you send some more Sir Ernests and Sir Raymonds but we will not promise to extend our Southern hospitality to the point of making them feel at home by putting London row-houses in "them thar' mountains."

—J. Frazer Smith, A.I.A., Memphis, Tenn.

More Light on the Bulbous Dome

The Editor: I was much interested in Dr. Simon's challenging discussion of the onion dome, printed in the last issue of the Bulletin. Confronted with the prospect of days devoid of familiar garden vegetables our enhanced respect for the lowly onion may project itself into renewed admiration for it as an architectural form.

Before continuing the discussion, I should like to differentiate between the helmet shaped dome and the bulbous or onion dome. The diameter of the helmet dome steadily decreases from its springline. Its section describes the curve of the Gothic ogee arch. The true bulbous dome bulges out from its springline. In other words, the helmet dome is like the top half of an upstanding onion, whereas the bulbous dome is like the top two-thirds of another upstanding onion. Both may be mounted on a cylindrical base. My concern has been with the origin of the bulbous dome and not the helmet type.

As Dr. Simon indicated, the European vogue of the bulbous dome occurred in the eighteenth century although the type appeared in the late seventeenth century. He has also suggested the spiritual and intellectual climate of the period. Early eighteenth century Europe replaced the sumptuous grandeur of the Baroque with an art of exuberant fantasy invaded by foreign importations and designed to excite and delight the cultivated taste of an ennuied aristocracy whose political hour glass was rapidly running out. Perhaps, as one writer suggests, there was a symbolic significance in the celebration of the first New Year's Day of the eighteenth century at the French Court with Chinese festivities. Certainly the delight

of the period in light springing forms, in the use of curves rather than angles, in brilliant surface effects and exotic motives created an environment receptive to the bulbous dome and it is not strange that this period of European architecture should furnish the majority of examples.

With Dr. Simon's inference that the bulbous dome was transmitted from the Orient to the West by the Turks I cannot agree. My reasons are two.

The first is that while there were examples of the bulbous dome in the Turkey of this time, they were rare and generally restricted to gateways and kiosks. The minarets of the mosques of this period almost invariably terminate in sharply pointed cones and the mosque domes are almost all based on the dome of S. Sophia. In Russia of the same period there were literally thousands of bulbous domes, and in the center of Moscow itself stood that brightly colored exaggerated example, the Church of Basil the Blessed, which must have caused the eyes of all visiting architects to blink with wonder and surprise. Bulbous domes in Russia were omnipresent. They constituted a very limited architectural minority in Turkey.

My second reason is based on the military and political situation. Turkey was engaged in a series of military conflicts, during this period, with Austria, Poland, Venice, and with Russia, and while there is the possibility of cultural influence during interims of peace, it seems unlikely that these enemies of Turkey should borrow from her culture as easily as from that of their allies. Further, if we grant that the flow of influence was to, rather than from, Russia during this time, we must also recognize that Turkey was heavily influenced by France at the beginning of the eighteenth century—first by the style of Louis XIV and then by the Rococo style of Louis XV. The path of western influence to Russia was through Poland which itself adopted some western innovations. This path might also have served for reverse influences and numerous examples of the bulbous dome exist in Poland.

There are, however, two mosaic representations of the bulbous dome which are difficult to explain. These are in the Church of the Nativity in Bethlehem. One is a representation of the Six Provincial Councils on the north wall of the nave. In this the Greek inscriptions are enframed by churches. While the churches illustrated are Byzantine in type, the one framing the Antioch inscription has two bulbous domes as terminal elements on its facade. Within recent years this mosaic has been established as a work of about 700 A.D. The other representation is on the east wall of the south transept and illustrates Christ's Entry into Jerusalem. In it, a bulbous dome of pronounced outward curvature is shown over a gateway leading into the city. This is dated 1169 by a bilingual inscription in the choir which also gives the name of the mosaicist, Ephraim—probably a Byzantine.

Early extant examples of the bulbous dome also appear farther west in the terminal or capping domes of S. Mark's, Venice, which were added in the fourteenth century.

The fact that the bulbous dome was known and is illustrated in twelfth century Russia provides a possible source for the later representations in Bethlehem and the example in Venice, but the dome represented in the earlier Bethlehem mosaic remains a problem. I know of no contemporary parallels in the Near East. However, the possibility of an independent invention of the form in Russia during the Middle Ages remains and the form is one that would normally develop in a country using wood rather than in one using brick or stone.

—Alan K. Laing

Professor of Architecture, University of Illinois

WPA made a travesty of the inspiring definition of the engineer and construction man as an individual who can do well with one dollar what any bungler can do with two, after a fashion. On its record WPA was not a success. It deserves to be remembered only to avoid its repetition.

—*Engineering News Record*

One-fifth of the 3,072 counties in the United States lack hospital facilities.

Draught beer in some bars and restaurants is now coming to the ultimate consumer via pipelines of transparent plastic.

Hubert G. Ripley, F.A.I.A. of Boston, Mass., died December 15, 1942. Details lacking

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Albert Kahn, distinguished Detroit architect whose executive works spot every hemisphere of the globe, died in his home in Detroit December 8, 1942, age 73. He and his associates carried out works reaching an expenditure of over two billion dollars since 1900. Doubtless there has never lived an architect in any country whose operations reached such magnitude.

Mr. Kahn was born in Rhaunen, Westphalia, Germany, the son of a rabbi, March 21, 1869. He came to the U.S.A. with his family at the age of 11. He came to Detroit, which city remained his home until his death. Professionally, he was a product of the apprenticeship system and the office of Mason & Rice, Detroit architects, helped him until 1895 when he entered practice with George Nettleton and Alexander B. Trowbridge. In 1897 he began practice alone.

Albert Kahn's growth as an industrial architect was coincident with the beginning and growth of the automobile industry. For Henry B. Joy, of Packard Motor fame, he planned and carried out his first auto factory. Then came Henry Ford, then Chrysler and for General Motors he designed 127 major buildings. For Packard he was architect 35 years, for Ford 30 years.

During World War I the U.S. Government employed Kahn to design about 200 million dollars worth of construction for the military aviation section. He also built camps, warehouses, airfields and hangars throughout the country and his staff designed portable structures for shipment to France to be used by the fighting units of the Army Air Corps.

Kahn very early took up with reinforced concrete and his brother Julius developed the pronged Kahn reinforcing bar. In 1929 Kahn was commissioned by the Soviet Government to plan great factories "behind the Ural Mountains." It would be unfair to picture Mr. Kahn as solely architect for industrial buildings; he was architect for office buildings (General Motors, Fisher Bldg. in Detroit, National Bank Building, Detroit Athletic Club, Free Press, News, Times, Kresge Administration Building, Maccabee Building, New Center, Buildings for the University of Michigan at Ann Arbor and very many others. He built the Brooklyn Building for the New York Times and extensions to Eidlitz's New York Times Building on Manhattan, to mention just a few.

In 1890-91 he held the American Architect scholarship for study abroad. American architects first became acquainted with the name of Albert Kahn in viewing the fine sketches made abroad and published in the American Architect.

Though Kahn never attended formal architectural school, he was later given many honorary degrees: L.L.D., University of Michigan, 1933; Doctor of Fine Arts, Syracuse University, 1942; Gold Medal Paris Exposition, 1937; the ribbon Chevalier of the Legion of Honor by the French Republic; Architectural League medal, 1929 and others. He was a Fellow and life member of the American Institute of Architects, honorary member of the Michigan Society of Architects, member of the Detroit Arts Commission, Fine Arts Society. Albert Kahn became a member of the Illinois Society of Architects March 11, 1930 and continued until his death.

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Eric Edwin Hall, architect for Cook County, Illinois, since 1914, died in his home in Chicago, December 9, 1942, age 59. Mr. Hall was born in Sweden in 1883, coming to the U.S. at the age of 21. He had graduated in architecture and engineering from Eskelstuna Technical school in Sweden. He pursued further studies at Armour Institute and at Lewis Institute in Chicago up to 1912 when he began independent practice as Hall and Westlund. His firm was succeeded in 1914 by Hall and Ostergren to 1919. In 1923 his firm was Hall, Lawrence and Radcliff, Inc.

He became architect for Cook County in 1914 and continued in that office until death. He was the County's architect for the Criminal Courts building and jail, Oak Forest Infirmary, Cook County Nurses Home, Cook County Children's Hospital, Juvenile Detention Home, among other structures for the County. During the first World War, he was a member of the Illinois National Guard. He was a member of the Swedish Engineering Society and a member of the Illinois Society of Architects since October 14, 1924.