

Greendale, Wisconsin

A Federal Suburban Resettlement Town

The Suburban Resettlement Division of the Resettlement Administration is engaged in building several rural-industrial communities on the outskirts of badly crowded cities. These projects are intended to give permanent, valuable assets to the Nation in return for money spent on relief. Eventually each town will provide low-rental homes for 3,000 to 5,000 families, although only from 750 to 1,300 dwellings will be constructed at first.

In the strictest sense, the Resettlement Administration is not in the housing field at all. True enough, it is building houses, but its considerations go beyond the fact—important as that fact is—that millions of Americans need new homes if a minimum standard of decency is to be attained. What the Resettlement Administration is trying to do is to put houses and land and people together in such a way that the props under our economic and social structure will be permanently strengthened.

That is, of course, a huge task, but the Resettlement Administration is beginning modestly. Its suburban projects are being carried out only on a demonstration basis and are few in number. Yet if these communities are successful, they should prove invaluable as examples to local governments and private industry, and have a profound effect upon the future.

The great community resettlement projects of England, Sweden, and Germany have had no counterpart on this continent. While America has led the world in nearly every other line of material progress, in public housing it has been almost as backward as China. As a consequence, nearly 11 million families, urban and rural, are living in tumble-down insanitary homes. Over 63% of city families are outside the market of commercial building. Unaided private enterprise simply cannot produce houses which they can afford.

Of the three "greenbelt" towns, one, Greendale, 10 miles south of Milwaukee, lies due west of Cudahy and South Milwaukee. The three vary considerably in the way they carry out the general objectives of the Suburban Division. This is due to the fact that each project has been handled by a separate planning group all working together under one director and chief of staff. I think this was a wise decision because it made possible varying solutions of a new problem in a new and untrodden field and avoided the disadvantage of one stereotyped solution which might have been wise in one section of the country but not in another. The "greenbelt" is, of course, one of the outstanding characteristics of the program. Its advantage is so great and obvious that it seems strange that the idea has not been emphasized more in the past. At Mariemont, Ohio, several weeks ago, I saw their pleasantly planned community into which cheap and undesirable elements have obtruded. I am also told that Kingsport, Tennessee, a planned community, has been so invaded by later ill-considered development that one would hardly know today that it was originally a planned community. In other words, the "greenbelt" held inviolable as a future protection, prevents these elements from spoiling the town.

Greendale will have a large proportion of single houses. We believe that the row house which is so generally accepted in the east might not satisfy the needs and desires of a midwestern population. We are, however, introducing a minor percentage of group and twin houses. About half of the units are single detached houses; about half are groups and twins and there will be a small percentage of small units in multi-family buildings.

The town plan reflects, first of all, conditions imposed by the automobile age. There are three types of streets: through traffic streets with no housing frontage, collector streets with a minor amount of housing frontage, and residential streets, usually cul de

sacs, on which most of the housing faces. The idea is a little like that of Radburn where all houses face on cul de sacs, which serve both as principal approaches and as service streets and are kept narrow to reduce road costs. We are not using Radburn's super-block idea with interior parks because of the maintenance cost that would be loaded upon the town management by keeping up many small parks. A generous area for parks, however, prevails, but the areas are combined in general into large areas presenting lower maintenance costs.

Greendale dwelling units vary in size from small units in multi-family buildings, containing living room and no bed room, or living room and one or two bed rooms, to the largest type which contains four bed rooms in addition to living room and kitchen. The normal type, greatest in number, is a house containing living room, kitchen, three bed rooms and bath. There are no houses in the town with dining rooms. In studying economy, it was found after trying many types of plan, that a great economy came from elimination of basement and introduction of a utility room at the first floor level. This economy resulted not from adding a utility room to a house containing a dining room, living room and kitchen on the first floor, but by eliminating the dining room and giving up its cubage to the utility room. Most of the houses have dining alcoves opening from the living room, and some have kitchens large enough for dining, although in most cases the kitchen is small.

House construction in general is cinder concrete block painted outside with cement paint and furred and plastered inside. Most of the houses are roofed with Ludowici tile; a few have asbestos shingles. All houses are heated with warm air furnaces with blowers, made necessary because of elimination of basement and the need of forced circulation.

In the town center there is a community building and school for kindergarten and elementary pupils only. High school children for the time being will be carried to Milwaukee by bus. A site for a high school is provided in the town plan to be utilized when town growth justifies the construction of a high school building. In the town center is placed a fire and police station in the same building with the heating plant which heats other buildings in the town center. There is a mercantile building containing two food stores, drug store and variety store, a building containing a cinema and small miscellaneous shops, a post office and tavern, garage and filling station, and an administration building.

For town utilities we are putting in a storm and sanitary sewerage system, a water supply system and an electric distribution system. The sewerage system will include a sewage disposal plant with an incinerator for disposing of town garbage. For the water supply system, we are drilling two wells going to a depth of about 1,800 feet, building a water softening plant and an elevated tank of 400,000 gallons storage capacity. The compactness of the town which is enforced by the need for economy makes an underground electric distribution system possible at reasonable cost. The electricity will be bought wholesale from the local public service company and will be charged to the tenants in their rent without metering. We believe that the economy effected by omitting meters and meter reading will offset possible wastage of current by tenants. If the assumption is wrong, meters will be installed later. We are buying current at wholesale at so favorable a rate that electric refrigeration and cooking by electricity will fit within the budget of the tenants.

No houses are to be sold, but all will be rented. Rentals are expected to vary from about \$20 for the smallest units up to about

\$30 to \$35 for the larger units, the average being between \$25 and \$30. When the project is completed, it is intended that it be turned over to a housing authority conforming to Wisconsin statutes and that a political town government be formed which will work along

with the housing authority that will act as landlord for the houses. The housing authority will pay taxes which will be passed on to the tenants as a part of the rental charged them.

—Harry H. Bentley.

Condensation In Walls and Attics during Cold Weather

In the December, 1932, issue of the Bulletin, the writer commented on the problem of moisture accumulation within the walls of humidified homes and suggested that where winter air conditioning is to be included in new building, consideration should be given to methods of construction intended to prevent the accumulation of moisture in walls and attic spaces. Since that time hundreds of instances of moisture collection have been reported both with and without air conditioning, and for the last two years the Forest Products Laboratory has been actively studying the problem both at the Laboratory and in occupied homes. It occurs most frequently in the better built homes, where the house is well insulated, weather stripped, has storm sash, and is otherwise made tight to prevent heat loss and infiltration. In such houses the normal relative humidity or vapor pressure within doors without automatic air conditioning is higher than in houses less tightly constructed. The higher the humidity or vapor pressure, the higher the dewpoint temperature or the temperature at which vapor will condense.

Ordinary building materials such as plaster, plywood, and similar wall covering used for inside walls offer little resistance to the passage of vapor. A good grade of sheathing paper, however, is very vapor resistant. Hence, in the event the dewpoint temperature in a conventional frame wall—lath and plaster, studs, sheathing, paper, and siding—should fall at some position between the plaster and the sheathing paper, moisture will condense. The amount that will collect depends upon the rate at which the vapor will pass through the inner wall. Insulation in such walls increases the moisture problem since the temperature of the sheathing is lower during cold weather if insulation is used than in the same type of wall without insulation and consequently the sheathing will be below the dewpoint for longer periods. For example, in two laboratory panels of the type described, one insulated with fill insulation and the other uninsulated, we found the following temperatures when the outside temperatures were 5° above zero and the inside temperature 70° F.:

	Insulated Panel	Uninsulated Panel
Inside face of sheathing.....	16° F.	40° F.
Outside face of sheathing.....	13° F.	30° F.
Inside face of siding.....	12° F.	26° F.
Outside face of siding.....	9° F.	10° F.

The average relative humidity in a home of normal occupancy and without air conditioning would be about 20% when the outside temperature is about zero. The dewpoint for 70° F. and 20% relative humidity is 28° and from the temperatures given, assuming the same vapor pressure in the stud space, we would find the dewpoint at some position between the plaster and the sheathing paper in the insulated panel, and between the sheathing paper and the siding in the uninsulated panel. Actually the plaster wall offers some resistance to the passage of vapor so that the vapor pressure in the stud space will be somewhat lower than on the room side of the plaster. Hence the dewpoint temperature will also be lower in the wall than in the room. The dewpoint temperature for the room conditions can therefore be used only as an indication of the dewpoint temperature within the wall. As most sheathing paper is highly moisture resistant, the moisture that gathers within the wall cannot escape outward. Obviously the higher the relative humidity inside the room the higher the dewpoint temperature and the greater the amount of water that will condense in the wall. For the same dry bulb temperature of 70° F., the dewpoint temperature for 30% relative humidity is 37°, and for 40% relative humidity, 45°.

The most common manifestation of condensation occurs in attic spaces, usually on the roof sheathing and rafters, forming as frost during the coldest weather and then melting and soaking through the ceiling plaster to produce the effect of roof leaks. In walls it sometimes forms as ice on the sheathing, later melting and running

down to the plate. Around window openings it often soaks through at the sill line and appears to be caused by leaky window frames. Sometimes it soaks through the joints in the sheathing paper, wetting the siding and contributing to paint failure. In houses built during cold weather the walls and attic spaces often become soaked following the plastering operation.

Condensation is not limited to frame walls, but will occur also in walls of brick, tile, or other building materials under similar conditions of temperature and humidity, and particularly in combination with insulation or with winter air conditioning.

In view of our present knowledge we believe that high humidities within doors during cold weather are hazardous in houses of conventional construction because of the moisture problem; further that the presence of insulation increases the hazard and the more effective the insulation the greater the hazard. Even normal winter indoor humidities may cause some trouble but in most instances with which we are familiar the difficulties have not yet caused permanent damage to the structure. In spite of the fact that insulation increases the hazard of moisture, it has so many other obvious advantages that it should not be left out because of the hazards mentioned here. Rather the structure should be protected against such hazards and for such protection we suggest the use of moisture barriers, the object being to stop the moisture while it is in vapor form and before it can condense into water. Such barriers are particularly important where air conditioning apparatus is to be used. The Forest Products Laboratory has been working on various methods of preventing the collection of moisture in walls and attic spaces. Though the studies are incomplete and further work may produce better methods, the following suggestions are offered as the best available at this time.

One simple method of obtaining a moisture barrier in houses under construction is to place a vapor-resistant lining between the studs and lath of outside walls and between the lath and ceiling joists below the attic. The wall would, of course, be lathed and plastered in the usual manner. We have been making tests on a number of materials suitable for the purpose and have found several that are highly vapor resistant. Among these are (1) glossy surfaced asphalt-impregnated sheathing paper, weighing 35 to 50 pounds per roll of 500 square feet; (2) laminated sheathing paper made of two or more sheets of kraft paper cemented together with asphalt; (3) light weight asphalt roofing; (4) reflective insulation mounted on paper. It is not presumed that any of the barriers suggested will stop all the vapor but will withhold most of it and that the amount that would enter would be unimportant; further, that during the summer there would be enough redrying to remove the small winter accumulation. Under these conditions it would seem desirable that the outside sheathing paper be less vapor-resistant than that used for the barrier and for this purpose we suggest slater's felt.

For houses already constructed the methods of protection possible are, of course, more limited. Two coats of aluminum paint on plaster appear to be very effective and permit almost any subsequent method of decorating desired. Metallic wall paper made of aluminum foil on a paper back could also be used either by itself or under other wall paper. In the latter case it need only be used on exterior walls and ceilings.

If adequate ventilation could be provided in those areas and spaces subject to condensation the moisture problem could be controlled. It is possible to ventilate the attic space in most houses and where normal humidities occur, such ventilation will usually be sufficient. In fact, houses that have wood shingles over roof boards with spaces between the boards seldom experience roof condensation.

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Editor Monthly Bulletin

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Another chapter has been added to the history of Chicago's proposed new building code.

The Illinois Society of Architects had as guests on January 25, Alderman James J. McDermott, chairman of the City Council Sub-Committee on Buildings and Zoning, Aldermen Thomas J. Tirrell and Arthur G. Lindell, and F. J. Thielbar, chairman of the Commission for Revising the Building Code. Secretary Brookes of the Commission was also present.

This meeting coinciding with Alderman McDermott's birthday, the architects had provided a huge birthday cake, though candles disclosing the Alderman's age were omitted. Alderman McDermott advanced the thought that passage of the new code could be facilitated by amending the old code to include the provisions of the new. He hoped a committee from the Society could be appointed for that purpose, though he did not go into detail regarding determination of amendments. Mr. Thielbar suggested that the important sections of the new code could with advantage be added to the old with a stipulation that anything in the old in conflict with the new would be void.

This course at a later day was adopted with the approval of Alderman McDermott. The plan was developed in conferences, with the help of Herman Palmer, and finally confirmed by letters. Before adoption, Commission Chairman Thielbar was consulted and his approval secured. A joint committee was appointed consisting of Robert S. DeGolyer, representing the Illinois Society; John A. Armstrong, representing the Chicago Chapter, A. I. A.; and Frank Randall, representing the Western Society of Engineers. This committee is functioning in that it has already submitted sections to Alderman McDermott's committee.

It is hoped that through this joint committee representing architects and engineers, the building industry will benefit by the valuable work of Mr. Thielbar's Commission sooner than through the method of waiting until all controversial points are cleared up.

Aldermen McDermott, Tirrell and Lindell evince a fine

spirit of cooperation and the Board of the Society is happy to assist them in consummating this important work.

The constantly recurring comparison of the incomparable—building industry with automobile industry—is well answered by Frederick L. Ackerman in the February "Octagon" in the article "Must We Have Trailers for Houses?" The automobile industry is called a shining example of perfect conduct in the industrial field, while the construction industry, he says, is referred to as the "Peck's Bad Boy" of the whole industrial system.

The former has a highly developed second-hand market. New car buyers see vividly the rate at which car values are extinguished by the rules of obsolescence that the industry has been able to put into force. The continual turnover of cars from one income group to another involves physically merely the transfer of cars from one garage to another. The turnover of habitations from one income group to another has an altogether different effect. The habitations stay put but the users move from place to place.

Mr. Ackerman says: "What would have happened during the last thirty years if the automobile industry were under the surveillance of laws governing the building of automobiles which imposed the lag, as do laws covering the erection of buildings, of a quarter of a century or more following the unfolding of an idea before it could be applied? What would have been the history of Ford, General Motors and Chrysler, had it been necessary for these industries to assemble all cars in individual garages instead of upon the assembly line? What would have happened to the rate of flow on the assembly line had it been composed of forty-odd well established trades engaged, most of the time, in jurisdictional squabbles over vested interests in the use of materials and in techniques?"

Vested interests in materials, processes, labor, are retardants to progress. Lending institutions do not respond favorably to innovations in form, arrangement, and application of materials since a wide discrepancy in respect to utility between old and new would tend to render investments in the obsolete of dubious worth.

Mr. Ackerman quotes Roger Babson's prophecy that America will take to the trailer. "The lower income groups are continually on the move from one area of decay and obsolescence to another. Well, his prophecy may come true, but one may ask: Precisely what problem is solved if it does?"

From 1900 on, as regards architecture, have been years of transition and the beginnings of a revolt against the restrictions of the past. Throughout the world, architects, working under conditions appreciated as belonging especially to their generation, have stressed the need for a new approach more consonant with these conditions, and have attempted to meet them with a philosophy related to new ways and new ideas.

Are we foolhardy if we put on the prophet's cap and say that the next generation will continue to be in revolt against the past? Are not all the indications pointing toward a struggle of youth to find himself politically, economically, and emotionally in a new world? Must not then architectural education anticipate, in part at least, the vision of the result to be gained by that struggle?

And it is not enough to say the answer is the "machine."
—Ralph Walker in "Pencil Points."

February and March Illinois Society Meetings

The dinner over, Secretary's minutes read, new and old business dispatched, President Jensen's correspondence and report of conferences bearing on the proposed Chicago building code since the January meeting, the Illinois Society of Architects at their February 23 meeting in the Architects Club of Chicago were ready for the program of the evening, namely, consideration of the work of the Chicago Plan Commission and the Illinois Regional Planning Association. The speakers were Messrs. Eugene Taylor and Robert Kingery of the Chicago Plan Commission and Regional Planning Association, respectively.

Philip Guedalla has given to the world this year—the centenary of Queen Victoria's ascent to the throne—his book "The Hundred Years." Mr. Taylor celebrated the centenary of Chicago's incorporation by presenting in words and pictures on the screen, the city's progress—development, mistakes and proposed corrections—since 1837 when Fort Dearborn with a few straggling shacks along the lake formed the nucleus. Mr. Taylor prefaced his picturized address by a discussion of zoning and frankly admitted that under this division of effort every American city had made grievous mistakes and that only experience could determine what was needed. Now the experience has been had and amendments reducing business and industrial areas to the advantage of residential are needed.

Slums have proved most expensive since public utilities like sewer, water, light, police and fire protection and cleaning (?) must be maintained in sections producing little or no tax. The pictures carried the listeners rapidly through the years and high spots such as the drainage canal, opened in the 1890's, and in the next decade the widening of streets, proposed diagonal streets, Grant Park and in another decade a shore extension in the nature of parks and driveways, the railway terminal problem, the Supreme Court ukase restricting the flow of water from Lake Michigan down the Sanitary Canal after the spending of many millions on this canal, the new sewage disposal plans with plants that must go into commission some time in the year 1937, the proposed locks and barge harbor at the mouth of the river confined by the Navy Pier on the north—all these and other problems were posed and discussed, the review and solutions proposed forming a splendid resumé to jog the memory and cause appreciation in the assembled architects of what the Chicago Plan Commission, purely an advisory body, has accomplished.

Mr. Kingery, who had spoken at the Society's November meeting on the public work carried out in the State of Illinois under the Emmerson and first Horner administrations, was cordially welcomed as the next speaker. Kingery's geniality, enthusiasm, knowledge and efficiency would hold a company of professional men as well as laymen, regardless of time. The statistical knowledge obtained and charted by the Regional Planning Association under Mr. Kingery's leadership in Illinois and adjoining states is astounding and he has all these things at his fingertips. All he needs is one map after the other on the screen and his enthusiasm and splendid flow of words make the picture live.

Increasing and decreasing populations in towns and cities are observed with the same loving care that a mother bestows upon her growing child. The building of roads and playgrounds, establishing forest preserves and building suitable rural architecture for the accommodation of the public in these areas—all these were gone into. Mr. Kingery asserted that ten acres of recreation space are necessary for every 1000 people. That is the Planning Association's ideal. An area of 6.7 acres is more common in actual practice, though there are communities that have fully ten acres for 1000 people. The evil of unrestricted subdivision was gone into and the Association's effort to bring real estate subdividers to cooperate with the Association in stamping out this absurdity, born through greed, was reported underway.

The work of C. C. C. boys in draining such sections as the Skokie marsh, the successful building of stone and concrete bridges by these young men was pointed out. The Government's efforts have in many instances produced skilful mechanics among those really interested.

Based on immigration laws, trends of population, and all other available information, Mr. Kingery's Association estimates that between the years 1960 and 1970 the population of this country will be 160 to 170 million people.

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Secretary McEldowney's minutes of the February meeting were the incentive of President Jensen's encomium to Robert Kingery of the Regional Planning Association who held attendants at the February meeting spellbound.

The March 23 meeting took place at the Architects Club of Chicago before 32 members. The President referred to Leo H. Pleins' commendable labors in the interest of a state building code for Illinois and announced Paul Gerhardt, Jr. as chairman of the committee in Chicago to cooperate with Mr. Pleins. Mr. Gerhardt and Mr. Pleins are convinced that a state code is vitally necessary, that it be a basic code on which any municipality in Illinois can build to establish and adopt regulations and ordinances governing construction alterations and repairs of buildings provided no clause therein minimizes the requirements of the state code. The model that the state code committee uses as a basis to build upon is the building code recommended by the National Board of Fire Underwriters in its 1934 edition.

Henry K. Holsman took the floor to endorse this move, stating that he considered it vital to have a state code fundamental to all municipal building codes. E. Stanford Hall held that a state code makes architects' registration more effective.

President Jensen then reported the condition of the proposed Chicago Building Code that architects and engineers have hoped and prayed for these last ten years.

The President referred to a revised bill to come before the legislature on the registration of engineers. This amended bill proposes enlargement of the engineer's authority under the all embracing title "professional engineer." The architects will cooperate with the proponents of this bill, not necessarily to further it but to clear the atmosphere and to say what is what.

Harry Howe Bentley, the speaker of the evening, had come from Washington to deliver an illustrated address on Greendale, the Federal suburban resettlement town in Wisconsin of which Mr. Bentley is one of the two Principal Architects. Mr. Bentley's article appearing on another page of this issue condenses what he said before the meeting. There was absorbed interest as Mr. Bentley passed from county maps showing principal highways, park preserves, etc. of Milwaukee and surrounding territory to more detailed group and street maps and finally to individual home plans, elevations and photographs. All this raised questions on the part of the hearers and the President found difficulty in closing the meeting by 10:15 o'clock. It might have continued for an hour.

The official staff of Greendale comprises the following: Fred L. Naumer, Executive Officer in Charge; Jacob Crane and Elbert Peets, Town Planners; Harry H. Bentley and Walter G. Thomas, Principal Architects; Charlton D. Putnam, Engineering Designer.

Attention, Please

The Board of Directors of the Illinois Society of Architects at its March meeting ruled that the Illinois Building Contract Documents are strictly the instruments of the architect and should not be allowed to find their way into the hands of men not registered to practice or into practice which is unethical.

Many have used the Society's contract documents without the services of an architect and secured the confidence of owners by exhibiting these contracts. Some architects, not members of the Society, have used these documents in practice that is not ethical. This is harmful to the profession and for that reason notice is hereby given to all that only members of the Illinois Society of Architects will be able to purchase the Illinois Building Contract Documents.

—H. L. Palmer, Financial Secretary.

February and March Chapter Meetings

Numerically not large, yet absorbed in the subject discussed were the attendants at the February 9 meeting of the Chicago Chapter, A. I. A. The dinner, the reading of the minutes, old and new business dispatched, President Merrill announced the address in Chicago on February 19 by Architect St. Hubert of Paris on the forthcoming Paris fair.

The President introduced H. A. Rendel Goven, A. R. I. B. A., traveling scholar from the University of Edinburgh. Mr. Govan is making a study tour through the eastern half of the United States and at the President's request gave his impressions of Chicago. Frederick G. Frost, Secretary, New York Chapter, A. I. A., was another guest that the President had pleasure in introducing. All were interested to hear Mr. Frost talk about the plans of the 1939 New York Fair. To satisfy them, Mr. Frost went into detail regarding the latest scheme for the Theme Building of which Harrison and Foulhoux are architects. The thought today is to make the Theme Building a huge sphere, 200 feet in diameter, on whose outer surface clings an inclined walk winding up and around the orange until an opening near the top is met. Here the maggots (human beings) are to break through the shell and come upon a big balcony from which the swarm looks down and up upon the human nuts performing for the edification of the other nuts on the balcony. Well, why not? Prokofieff wrote his opera "The Love of Three Oranges."

The President touched on the A. I. A. Convention at Boston in June and then introduced Robert E. Hattis, heating and ventilating engineer who was to talk on the newer forms of heating and cooling. Speaking from notes, Mr. Hattis explained the different classifications of heat, the importance and place of humidity, the dew-point, and the various ways of obtaining cooled air. The latter is, of course, the costly air conditioning bugbear. After touching upon the necessity of double glass windows and sealing up the cracks at sashes, exemplified in the experiment at the University of Wisconsin, he came to cooling methods. Here his conclusion, backed by splendid results from sinking wells where the water has a temperature of not over 55° F., was a recommendation to sink such wells rather than depend upon metered city water or mechanical contrivances. A number of his hearers carried that thought further and wondered what condition might prevail when these wells, through added air conditioning installations in a fixed area, might exhaust the water supply in the subterranean rock. Run dry, in other words. But that contingency was not touched upon by the speaker.

Questions and answers followed Mr. Hattis' formal address. Among these was Victor A. Matteson's description of concealed heating pipes in the ceilings of rooms in the new British Embassy at Washington. Radiant heat, Mr. Hattis explained, was resorted to in England, but American systems did not make use of it.

Unflinching interest was shown throughout and at ten o'clock the President declared the meeting adjourned.

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The soup was outstanding, for members asked for a second helping, the dinner was good, immediately followed by the business meeting of the Chicago Chapter, A. I. A. on Tuesday, March 9. President Merrill and 1st Vice-President Hull being out of the city, 2nd Vice-President Rafferty presided. The usual minutes of the previous meeting disposed of, a representative of the "Economist," bespeaking consideration for the paper's reporter calling at architects' offices weekly for building news, was listened to.

The special business of this meeting, attended by a limited membership, pertained to matters preliminary to the national convention to be held in Boston, June 1 to 4 inclusive. William Jones Smith had ideas regarding the pre-convention committee's meetings. Secretary Heimbrodtt figured that the Chicago Chapter with its present membership in good standing is entitled to eleven delegates to the convention. This, however, is subject to review and correction by the Washington office of the Institute. If members would pay their dues when due, local and national, no such doubts would arise.

Earl H. Reed presented a report of the Membership Committee, estimating that the Chicago Chapter's territory contained 85 non-member architects eligible for membership in the Chapter.

Tellers reported result of ballots on delegates and alternates to the Boston convention in June. Delegates are: John R. Fugard, E. S. Hall, William Jones Smith, Robert DeGolyer, Earl H. Reed, Elmer Roberts, Henry K. Holsman, Alfred Shaw, John Bollenbacher. Alternates: T. J. Ferrenz, Lawrence Perkins, F. Charles Starr, Andy Anderson.

Regarding revision of the bylaws of the Chapter to conform to new Institute bylaws, Secretary Heimbrodtt was authorized to appoint a Chapter committee to study the proposed revisions.

The company moved to the lounge on the main floor to witness moving pictures taken by Andy Anderson in various sections of our country. Irving K. Pond was called upon to tell about his forthcoming book, "Big Top Rhythms."

Saint Hubert on Paris Exposition - 1937

One hundred men from the Chicago Chapter, A. I. A., Illinois Society of Architects, Architects Club of Chicago and Chicago Architectural Club, responding to a call from those organizations, met at the Architects Club on February 19 to hear Robert La Montagne Saint Hubert, fresco painter and at the moment special representative of the French government, give an illustrated lecture on the forthcoming Paris exposition of 1937. There was a good dinner, followed by the address in the atelier. M. Saint Hubert dwelt upon the point stressed in this fair, namely, the aim to show by juxtaposition past and passing civilizations in contrast to the present and coming, as exemplified in art and architecture; that there is no hard and fast break with the past, but that the hangover of the past blends with the efforts and tendencies of the new.

The pictures shown on the screen began with an airplane view of the Champ-de-Mars with its Eiffel Tower, the Seine, the new bridge spanning the Seine and connecting the left bank with the new Trocadero Museum, which forms the important and permanent building of this fair, as did the old Trocadero for the 1878 exposition.

Other airplane pictures of the grounds were shown and then followed a series on the new Trocadero, which occupies the site of the old. To produce the design a competition was held and three young architects, M. Carlu and Associates, were entrusted with the design of this building. In outline it conforms approximately to the old and great care was taken to preserve the trees that formed the setting of the old. The new structure contains a theater below the central terrace dividing the building in two, from whose front an elongated pool or mirror lake extends toward the Seine. The architecture—though modern—in proportion, in sub-division of parts is founded on classic design as is Paul Cret's Folger Library in Washington.

A sincere invitation to visit Paris this summer to study, compare and enjoy was extended by the speaker to all, reminding them that railroad rates in France would be reduced for the benefit of visitors just one-half.

Walter Gropius Accepts Harvard Offer

Professor Walter Gropius has accepted the offer by the Senate of Harvard University of the Chair of Architecture in the Graduate School of Design. The professorship is a life appointment carrying with it the greatest possible measure of responsibility to architectural education in America, and the offer is therefore one which Professor Gropius feels bound to accept. He will take over his duties in April, but in order to complete outstanding building commissions here he will return to London again from June to September.

The partnership between Professor Gropius and Mr. E. Maxwell Fry, F. R. I. B. A., will continue for a further period and will be dissolved only when Professor Gropius' duties at Harvard University make this necessary.

—London Times.

Professor Albert Speer, architect, has been appointed by Chancellor Adolph Hitler of Germany to redesign the city of Berlin. The process will be a gradual one. This is a life assignment to Professor Speer, now thirty-one years old, and the transformation is expected to carry through twenty or thirty years.

(Continued from Page 2, Column 2)

Condensation is most likely to occur under roofs of other materials, such as tile, slate, tin decks, asphalt roofing, and wood shingles when laid on tight sheathing. It is questionable if adequate ventilation to remove the moisture can be obtained in insulated walls of conventional construction, and to ventilate such walls would add materially to the heat loss. However, suitable means of ventilation combined with some modification in the construction of the wall may be evolved that will be both economical and practical.

The question sometimes arises as to the possibility of summer cooling causing condensation in the walls. This is very unlikely because the inside temperatures are seldom more than 15 degrees below outside temperatures so that the possibility of condensation would only occur during periods of extremely high outside humidities. Such conditions are very unusual in the northern states and when they do occur they last for such a short period as to be unimportant.

—L. V. Teesdale.

Skyscrapers of the Desert

Hans Helfritz, German explorer in Southern Arabia, made photographs of ten to fourteen story apartment houses in Shibam and Sana. These pictures appeared in the Chicago Daily News rotogravure section on January 30. And American architects think they invented the skyscraper!

But what are the Arabian buildings built of and when were they built? Information is meager since but few men from the Western world have been permitted to penetrate into this land of Bedouin tribes. In 1835 Lieuts. J. R. Wellsted and C. Cruttenden attempted unsuccessfully to penetrate into the interior. It remained for Adolph von Wrede, in 1843, to follow up this work. Ill-treated, robbed, and forced back to the coast by fanatical Bedouins, he never set foot on the land of his desire.

In 1893 Leo Hirsch, after six months of effort along the coast, did enter the hinterland of Hadhramaut. He visited three towns and had to flee for his life to the coast. At the end of 1893, J. Theodore Bent, wife and party, reached Shibam, the first town in the great valley, but were forced to turn back. British army planes in 1929 flew over this hinterland, making excellent photographs.

D. van der Meulen, who had been chargé d'affaires for the Netherlands at Jidda in Arabia on the Red Sea, together with Hermann von Wissmann, German explorer, left Aden in April, 1931, by coastal steamer to Mukalla to explore Hadhramaut province. No auto roads nor railroads exist. The province lies at the south end of the Arabian peninsula and its seaport is Mukalla. Its limits are vague, the area approximating 550 miles east to west by 150 miles from the coast inland. The heat here is almost unbearable by day, the "wadis" (dry canyons) of Arabia being among the world's hottest places. In this territory once flourished the culture of incense trees.

The houses are built entirely of adobe or sun-dried brick. This applies also to the high buildings that pique our curiosity. They are built high, not because of ground rents or profits to be made, but as a means of safety from desert raiders. They are more than one hundred years old and some of them, particularly the Shibam sultan's palace, are almost modernistic in some phases of decoration. Color contrast is achieved with whitewash on the brown-gray walls. In hot weather people sleep on the flat roofs. Goods are stored on the ground floor, in the second story live the servants, the third is devoted to guest rooms and the family is in the higher or upper stories. A feature of all of these structures is the many wooden troughs projecting out from the walls like gargoyles, overhanging the narrow streets. These carry off and deposit indiscriminately on the street or on the heads of passers-by, the refuse from kitchens and the products of the bathroom.

The silhouette of these tall buildings crowded together at Shibam, showing but dark shadowed slits between, reminds one of how Chicago's downtown skyline would look from the lake if its tall buildings were huddled close together. Tunnels connect the buildings. At Dijar al Buqrie stands a desert stronghold in three

units, nine or ten stories high. Sometimes armed slaves, commanded by the dominant tribe, man these city defenses. They are reminiscent of mediaeval castles in Europe.

Shibam is a walled and fortified city, the largest in Hadhramaut. It contains an open plaza on which imposing high structures and the Jemadar's palace face. Shibam's citadel can fire on any enemy passing along the valley. It has some ancient East India Company cannon, according to Bent.

Tarin, once the largest of all Hadhramaut cities, is now falling into decay. It is a stronghold of the Kathiri dynasty.

The pretentious mosques were built by zealous Arabs who, after growing rich from business ventures in foreign lands, returned to end their lives in their native country. Various tribes and distinct social groups often at war among themselves form the Hadhramaut population. There is a sharp differentiation from the Arabs further north. Sayid (meaning lord, chief, or prince) is the hereditary title of the numerous Hadhramaut class that claims descent from Mohammed's grandson.

While Hadhramaut itself now has no sources of wealth, many of its sultans, sayids, and prominent Arab families have grown rich on trade with India and through business ventures in the Straits Settlements and Dutch East Indies. Much of their furniture, jewelry, clothing, and weapons is imported from India.

Sana contributed one picture to Explorer Helfritz that showed eight story apartment houses decorated with band courses, grilles, canopies, and the like. Sana is the capital of Yemen, which lies to the west of Hadhramaut, with a shore line on the Red Sea.

Much of what is given above is taken from van der Meulen's illustrated report appearing in the National Geographic Magazine for October, 1932.

Water and Sewer for Air Conditioning

The Editor: Loren D. Gayton's conclusions, summarized in the February-March Bulletin from his talk before the American Society of Heating and Ventilating Engineers on "Air Conditioning and Chicago's Water Problem," to the effect that it would be necessary to design air conditioning installations more economical in their use of water to meet the limited water and sewer capacity, are also true from the angle of cost of city water, low as it may seem. In an actual installation the cost was found to be an almost prohibitive item without materially increasing office rentals.

During the first year (1934), it cost \$9,415 for 18,495,000 cubic feet of metered city water to operate this plant. By an expenditure of \$24,434—including lawyers' fees, right of way, permits, mechanical engineer's fees and cost of installation—water is now pumped directly from the river at a cost in 1936 of \$1,120 for an unmetered supply. The cost of condensing per ton of city water during 1934 was \$0.5789 and in 1935 and 1936, using river water, \$0.040. However, figuring the 1936 water at the 1934 rate, it would have cost \$28,508, while it did cost by pumping from the river \$1,969.89. The difference covered the cost of river water during the first year of operation.

All buildings in the loop cannot avail themselves of this alternative. The use of cooling towers or air condensers, as stated by Mr. Gayton, would be another resource, and we believe would give an impetus to the modern designer to treat these adjuncts architecturally as was done at Radio City. We learn that a committee headed by Otto Armspach of the American Society of Heating and Ventilating Engineers has been appointed to study this subject. The engineer of the here cited air conditioning plant figures that the two gallons per minute per ton quoted by Mr. Gayton is 100% excessive. This, if substantiated, would reduce the demand on city water considerably.

However, the sewer problem remains. A recent loop air conditioning plant last summer, we were told, so overtaxed the sewer system as to overflow the basements along State Street.

—Leo J. Weissenborn.

An Egyptian sarcophagus of rose granite weighing three tons is to be brought to the Brooklyn Museum from Egypt.

The Parthenon Naos

A Critique on Ernest Flagg's Deductions

Several weeks ago, Dr. Lin Yu-táng, eminent Chinese scholar and author of the now famous book *My Country and My People*, gave a lecture at the University of Chicago entitled "The Reasonable Spirit." His main theme was that the Western world, in contrast to the East, systematically carried reason to its logical conclusion, but that in this process it generally became unreasonable and always inhuman.

Upon reading Ernest Flagg's *The Parthenon Naos* (Charles Scribner's Sons, New York, 1928), the above statement forces one to admit how utterly inhuman it is to imprison man's faculties, particularly the creative, within an arbitrary system. Innumerable examples of this sort of logic abound in the history of the Western world. To name but one—Plato, a passionate lover of music, had to exclude this art from his "Republic" because there was no logical reason for it.

The present author is not the first one who thought he had discovered or re-discovered a system of proportions, whether for the human figure or architecture. To mention but a few, Vitruvius¹ propounds definite rules based on a module system for the proportions of buildings; W. Watkins Lloyd submits a system similar to Mr. Flagg's; and Jay Hambidge² analyzed the Parthenon Naos, as well as other Greek Temples.

In his introduction, Mr. Flagg states the Greeks made use of primary ratios, i. e., 1 to 1, 2 to 3, 4 to 7, etc. These supposedly established the harmony of the proportions upon which their creative art was based. Claiming the use of such primary ratios has been lost to the visual arts, he reminds us that music is the only art form that maintains these simple ratios as in the octave, 2 to 1, fifth, 3 to 2, etc. The author seems to be unaware of the fact that in the first place, these ratios are rates of vibrations, and not string lengths, and, secondly, that they hold true only in the natural, but not the tempered, scale of twelve semi-tones to the octave in use today, where the ratios are anything but simple.

He calls absurd Hambidge's theory² (without referring to it by name) of root figures, because the eye cannot grasp the relationship between the diagonal and the side of a square, but expects it to see one of 2 to 7. Hambidge at least justifies his theory by explaining that the Greeks thought geometrically, whereas we think arithmetically. He further chides Vitruvius for vaguely suggesting the Greeks used a system without actually explaining it.

Part one of the book under discussion is devoted to a general description of the Parthenon Naos where the author establishes that the portion enclosed by the columns has a ratio of 2 to 5, the rear section of 1 to 3, and the aisles of 1 to 8. There is never any attempt to explain why a certain proportion or ratio is harmonious or beautiful, nor does he show just what relationship the portions mentioned above have to each other besides a simple arithmetical one.

Upon a careful perusal of the book, one discovers that nowhere is the significance of these relations, their art value, or their practical use to the designer of today, touched upon or elucidated, so that the subtitle "Recovery of Art" remains curiously obscure and meaningless.

Strangely enough, all the dimensions throughout the book are based upon the measurements of Francis C. Penrose³ and Magne⁴, whose findings differ considerably. It seems amazing, to say the least, to base a complete theory on source data supplied by others without at least checking it, as did Hambidge. Mr. Flagg tries to explain this away by saying it is not so much a case of actual dimensions as "intended dimensions." He goes to great pains to show what these are, not however without leaving even the casual reader rather skeptical. The rest of the book is given over to a forest of figures labeled "Items of Data," attempting to show that if the dimensions do not uphold the author's theory, the "intended dimensions" do.

It seems to us that by merely rediscovering the Greek foot (which is doubtful), the author has done no more than rewrite approximately the specifications of the original architect. The fallacy of the system is brought out by Mr. Flagg himself on page 65 and again on page 103, when he admits that columns, triglyphs and

other members were spaced with little regard to the system of units employed. This brings us back to Mr. Lin Yu-táng's statement, and leaves us happy that the Greeks were human after all and not strange creatures resembling Buck Rogers, whose reasoning and antics remind one of an adding machine.

—T. M. Hofmeister, Jr.

¹Vitruvius on Architecture. Loeb Classical Library. (G. P. Putman's Sons, New York). 2 Vols. 1931-1934.

²Jay Hambidge, *The Parthenon and other Greek Temples, their Dynamic Symmetry*. (Yale University Press, 1926).

³F. C. Penrose, *An Investigation of the Principles of Athenian Architecture* (London—1888) Second Edition.

⁴I have been unable to discover who the Messrs. Magne are, since Mr. Flagg does not include a bibliography and the Burnham Library of the Art Institute of Chicago has no record of such persons writing on Greek architecture.

Will Build Jefferson Memorial in Washington

The Thomas Jefferson Memorial Commission on February 18 unanimously adopted John Russell Pope's design for the \$3,000,000 Jefferson Memorial in Washington. The plan is reported having the unqualified approval of President Roosevelt. Necessary legislation has already been passed.

The site chosen is on the Tidal Basin and faces north to the White House. The Tidal Basin will take on a new form. The Jefferson Memorial will occupy the fifth cardinal point in L'Enfant's plan of Washington, the other four being marked by the Capitol, Washington Monument, Lincoln Memorial and White House.

The Pope plan calls for a circular building. In the conception, consideration was given to Jefferson's record as statesman, scholar, architect, third U. S. President, drafter of the Declaration of Independence, adviser on the Constitution, and founder of the University of Virginia. The Commission was mindful of prototypes with which Jefferson was familiar and which he loved—the Pantheon in Rome and the Villa Rotunda near Vicenza.

Pope is the architect of the Archives Building and he has been selected by Andrew W. Mellon to be the architect of the National Art Gallery.

And speaking of packing the Supreme Court, what if after six members are added it is discovered that there is not sufficient room for them in the new building. Then will they be good and get a residential architect used to providing space for possible additional children to design a new building.

—Quid Nunc.

Looking to the day when the modern flat-roof type of home will be generally prevalent, heating engineers are already studying experimental homes which have about two or three inches of water on the roof. In winter this water freezes and adds a layer of heat-insulating ice to the normal roof thickness. In this point the engineers are simply stealing an idea which Mother Nature has long used to protect plants with a covering of snow and ice. In summer this water-covered roof would be the spray system with which the air conditioning unit would be cooled.

Contributors to this Issue

Harry H. Bentley is Principal Architect for the federal government on the town of Greendale, Wisconsin. Before going to Washington two years ago to fulfill this assignment, Mr. Bentley practiced residential architecture in the Chicago territory. During that time he taught architectural design and the history of architecture in the Armour Institute of Technology.

L. V. Teesdale is Senior Engineer in Forest Products Laboratory, Madison, Wisconsin. This Laboratory is a division of the Forest Service, U. S. Department of Agriculture and functions in cooperation with the University of Wisconsin. More than twenty years ago, Mr. Teesdale was a practicing architect in Chicago.

T. M. Hofmeister, Jr., is Assistant Professor of Modeling at Armour Institute of Technology, Chicago. His experience as designer for important architectural firms permits him to speak authoritatively on the subject he discusses.

Steel Skeleton of Welded Rods

At Culver City, California, Architect Emmet G. Martin of Los Angeles is erecting St. Augustin's Catholic church with a skeleton network of welded steel rods having an air space between inner and outer walls. The invention of this system is by A. M. McLellan, construction expert. The frame becomes a series of small trusses with each member either in tension or compression, the entire structure compensating. In other words, it is a fifty-fifty tension and compression arrangement.

Fabricated in the shop, the frame comes to the building in units where they are welded together after placement. The system has homogeneity and lightness. The inventor claims its weight is one-third the weight of a corresponding wood frame and of course infinitely lighter than masonry. The steel is dipped in a protective coating in the shop, providing resistance to corrosion. The temperature in the air space between enveloping walls averages above the dew point, thus preventing condensation upon steel.

The ceiling of the auditorium is arched so that the framing of the roof units carries the load directly to the side walls, eliminating side thrusts. The side walls give a heavy masonry effect by increasing the air space, while the rear wall, 44 feet long and 54 feet high, is but 8 inches thick, designed without column or buttress.

The concrete floor slab is carried on steel frame joists. Outside walls are 2 inches thick. A 1-inch coat of plaster was applied on the interior walls over metal lath.

Artistic Racketeering

"The picturization of objects seen with peripheral vision is a matter largely of mental interpretation," says Dr. Lloyd A. Mills, Los Angeles eye physician, "and this is the doorway through which all sorts of artistic excesses, perversions and daubery have been permitted to enter and to gain recognition as true forms of art.

"An informed public opinion should have recognized this debauchery as evidence of ocular or mental pathologic (diseased) state, or, as much of it is, deliberate racketeering in art. A careful analysis of recent baroque art should identify without much difficulty the artists who sincerely painted objects as they saw and idealized them with defective eyes and those who had other sources of motivation."

A brighter future in art, freer from both the mischievous and the unavoidable use of side vision, is suggested by another of Dr. Mills' comments. In the past eye defects were not so frequently recognized in either artists or laymen. On the continent, however, when impressionistic art was getting its start, no one wore eye-glasses unless forced to because of extreme visual defect. The present gradual spread of better visual hygiene will make the eye defects of the artist much less of a factor in his painting.

It may be that the age of cockeyed art is even now passing.

Among poets and musical composers, and those who lead the dynamic imaginative life generally, youth is best. Keats, Shelley and Schubert are instances of men who completed titanic works in their early years.

Among writers of fiction, history, philosophy and biography—wherein reflection must dominate the image—middle-age, and even old age, is the best. Most of the solid work in these arts is accomplished between thirty and seventy—Shakespeare, Spinoza and Thomas Hardy are instances.

But among those men whose work is dependent purely on intellectual processes—scientists, lawyers, judges and architects—the reflective wisdom of advancing years is the best.

—*Benjamin de Casseres.*

The big new hospital to be built at Melbourne, Australia, will have the inside walls and partitions movable, so that wards and rooms can be adjusted.

Babel's Tower Sans Architect

An eminent architect, a Mr. Alexander, was being cross-examined in court.

"You are a builder?" asked the state's attorney.

"No, I am an architect," replied Alexander.

Well, is there a difference?"

"Yes," said the witness. "An architect conceives the design, prepares the plan—in short, supplies the mind. The builder is but the machine which puts it together."

"A very ingenious distinction without a difference," rejoined the attorney sarcastically. "Could you tell this court who was the architect of the Tower of Babel?"

"There was none," replied Mr. Alexander very calmly, "hence the confusion."

—*Christian Science Monitor.*

A Correction

An inaccuracy crept into the appreciation of Ernest R. Graham by Thomas E. Tallmadge appearing in the February-March issue, where it was stated that from the year 1894 to the time of his death, the cost of buildings produced by the firms of Mr. Graham's association had amounted to \$500,000,000.

This figure is more accurately applicable to the work of the firm of Graham, Anderson, Probst & White. From the monograph, "The Architectural Works of Graham, Anderson, Probst & White, Chicago, and Their Predecessors—D. H. Burnham & Company and Graham, Burnham & Company," one gleans that Mr. Graham, who was an important figure in all these firms, was identified with the expenditure of upwards of \$700,000,000 for buildings and monuments from the year 1894 through to 1933.

—*The Editor.*

Wanted

The Burnham Library of Architecture needs the following issues of the Illinois Society Bulletin to complete its files before binding the Bulletin for permanent reference in the library:

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Vol. 2 all copies.

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Vol. 4 Nos. 1-6.

Vol. 7 March, 1923, No. 9.

Vol. 8 April, 1924, No. 10.

Vol. 13 November, 1928, No. 5.

Vol. 14 June, 1930, No. 12.

Vol. 15 October, 1930, No. 4.

The Library will appreciate receipt of these numbers as a gift.

—*The Burnham Library of Architecture, Art Institute of Chicago.*

Walter Burley Griffin, first prize winner in the international competition for the capital city of Australia—Canberra—in 1912, died at Lucknow, India, on February 11 after an operation. He had gone to Lucknow as architect for the Lucknow Exposition. Mr. Griffin was born in Maywood, Illinois, in 1876; graduated in architecture, University of Illinois, 1899. Before setting up in independent practice in Chicago, he studied with Frank Lloyd Wright. Member, A. I. A.

William F. Gubbins, architect, long-time practitioner in Chicago and faithful member of the Illinois Society of Architects, died March 3, 1937, age past 60. His best known work is St. Mel's Catholic Church, Chicago.

Frederick MacMonnies, renowned American sculptor, died in New York, March 22, age 73. His Columbian fountain was an ecstatic thrill to Fair visitors in 1893. His "Bacchante with Infant Faun" was a sensation in 1895.