Illinois State Association of Architects.

THE regular monthly meeting of the Illinois State Association was held February, President W. W. Clay in the chair, Osborne J. Pierce, secretary.

After the usual lunch had been disposed of the meeting was called to order, the following members being present:

Louis J. Schaub, Dankmar Adler, W. W Clay, N. S. Patton, Henry Raeder, S. A. Treat, O. J. Pierce, S. M. Randolph, Alfred Smith, Clinton J. Warren, Edward Baumann, C. L. Stiles, L. J. Halberg, H. B. Hill, R. C. Berlin, J. L. Silsbee, H. O. Hansen.

On motion of S. M. Randolph, the chair appointed a committee, consisting of S. M. Randolph, J. L. Silsbee and H. B. Hill, to draft resolutions upon the death of Edward Baumann, who died in Europe recently.

The following resolution was introduced by C. L. Stiles:

Resolved, That this association request of the Quarry Owners' Association samples of old stone, represented by them, from which analyses, crushing and frost tests, may be made, the expenses to be borne by the Quarry Owners' Association.

Resolved, That the president of this association appoint a committee of three to receive said samples, under whose direction the analyses and tests shall be made.

Mr. Adler: Here is a matter which ought to have been attended to before, but owing to Mr. Sullivan's illness and much work I have been unable to attend to.

The Western Association of Architects adopted a proposed form of legislative document, which was to be presented to the various associations, agitating that architects should be placed on the same footing as lawyers and doctors, and to pass examination as to capability, etc., and furnish satisfactory bond to be posted, and that a committee be appointed to confer with the Illinois State Association to present a bill, and that each architect shall constitute himself a committee of one to see the bill is passed; that a committee of three be appointed to represent the association at Springfield, and that the necessary expenses be paid by the association.

It was stated by members that the Texas State Association and the Western New York Association had similar bills before their respective legislatures, with a fair probability of passage. S. M. Randolph introduced the following resolution:

WHEREAS, The Illinois State Association of Architects, together with their professional brethren in all parts of this country, feel a deep interest in the course which the United States Government shall pursue in the designing and construction of its buildings; and

WHEREAS, A change of administration in the government is about to take place, and changes in this branch of the public service may follow; therefore be it

Resolved, That the Illinois State Association of Architects hereby respectfully petition the President-elect and the incoming Secretary of the Treasury to make such changes in the practice of designing and erecting public buildings as shall more nearly conform to the methods adopted by independent corporations and private individuals, thereby obtaining a much better grade of buildings at considerably less cost; and be it further

Resolved, That we distinctly disclaim any intention to reflect upon the incumbent of the office, or of any of his predecessors, believing that their comparative want of success is due to the system under which they were laboring; yet if a change is made in the office of Supervising Architect, we respectfully request the appointment of some architect whose energy, skill, experience, executive ability and integrity shall be thoroughly established, and who is in sympathy with the desire for reform in the methods of the government as far as they relate to the architectural design and administration of its public buildings, as expressed by the resolutions of the Western Association of Architects and the American Institute of Architects.

It was also ordered that the secretary mail copies of the resolution to other associations, inviting their coöperation, as follows:

In pursuance with the instructions of this association, we take pleasure in forwarding copies of the above resolutions to you with the request that the subject matter of this communication may be laid before your society at the earliest available opportunity, and with the hope that you will earnestly coöperate with us in the endeavor to correct the obvious evils of the present methods of government building. Will you kindly distribute surplus copies to the officers of any local architectural societies or chapters which we may not have reached in this distribution.

On motion, the resolutions were adopted and the instructions so ordered.

Mr. Dankmar Adler was then called to the floor to address the association upon the subject of "Stage Mechanism," as applied to the stage of the Auditorium, and as compared with the new improvements in European theaters. Mr. Adler apologized for not having prepared a formal lecture on the subject of stage mechanism, and stated that he would simply indulge himself in a discursive chat on what he had seen during his late European tour.

Mr. Adler said that in London he had visited five new theaters in process of erection, and he considered their methods of construction admirable. Beginning at the bottom, the pit was literally what its name implied, in some cases sunk as much as 30 feet below the street level, and as the flooring was laid on the ground without any basement, there was no danger of fire from below. The framing constructions of the galleries and balconies were entirely of iron. The main beams about fourteen feet apart, with lighter iron cross-beams at the lines of the risers, and the whole then filled in solid from bottom to top of beams with Portland cement. The risers for the stepping of the seats were made of hollow bricks with three-inch plank bolted on the top to form floors of the steppings. The entrances, though somewhat primitive in their accommodations for ticket buyers, were quite well arranged, each part of the house having two entrances of its own without the lobby for common use customarily in this country. The stairs were usually of concrete, their width being about 4 feet 6 inches, generally, between brick walls, thus giving sufficient side support. In some cases where elegance was aimed at, the concrete was covered with thin marble slabs. The concrete forming the floors was covered with linoleum glued down. This material in addition to doors and sashes was practically the only one combustible in the auditorium proper and in the hallways. One thing, however, struck him as strange, that in every case the roof and the trusses supporting it were made of wood, Mr. Phipps, the recognized authority for theater building in London, having an idea that in case of fire an iron roof construction would cause the walls to fall. Another peculiarity of these theaters was the construction of the proscenium wall. This was built of brick, the proscenium opening being covered with a heavy stick of timber into the ends of which notches were cut which served as skewbacks for a brick relieving arch. In answer to the inquiry what would become of this arch after the timber had decayed, he was told by the clerk of the works, that there was no danger of that in the climate of England. The only heating device that he observed in any of these theaters was in the form of open fireplaces in the dressing rooms. The gas and animal heat of the audience were supposed to be sufficient to maintain a comfortable temperature in the coldest weather to be expected in the mild climate of England. What little ventilation there was, was obtained by windows and alleged ventilating ducts, showing no connection with any motive power for moving the air either into or from the building, their efficacy depending entirely upon the arrows drawn on the plans to show the direction of the wished-for air currents, with the result that it was decidedly imperfect. Throughout London, it appeared that the small theaters were, as a rule, most scientifically constructed, in fact, that as they increased in size they decreased in safety. Some of the large ones being veritable fire traps, for even if the auditorium proper was moderately fireproof, the stage was a regular tinder box. The curtains were generally of corrugated iron covered with asbestos and painted so that they could be used as act drops. They were raised by counter-weights.

Leaving England, it appeared that on the continent the conditions were reversed. The larger theaters, being the property of the governments and municipalities, were by far the most thoroughly constructed, many of them fireproof as far as the auditorium was concerned, a few even with fireproof stage construction. The rarity of fireproof stage construction is due to the almost insurmountable difficulty, and the enormous cost of such an undertaking.

Before speaking of fireproof stage construction in particular, I wish to say a few words as to stage construction and mechanism in general. Up to a very recent period no effort has been made to apply upon the stage any of the results of modern progress in the science of mechanics. The block and tackle and winch, aided by "main strength and awkwardness," were, and on most stages still are, the only tools at the command of the manager of a stage performance. One reason why labor-saving devices were not adopted may have been because in the theaters on the continent of Europe, most of which are under state and municipal control, soldiers are always obtainable in case the services of a large number of extra men are required. Some twenty years ago a Mr. Brandt invented a system of balancing scenery with counter-weights, which was used in Germany, but to the best of my knowledge nowhere else. It enabled the stage manager to direct from one spot the raising or lowering, by men stationed on the stage floor, of anything required. After the disastrous fire in the Ring Theater, in Vienna, in 1881, Messrs. Dengg, Kautsky and Roth, of Vienna, invented certain improvements to prevent, if possible, a recurrence of such disasters; chief of these was the substitution of iron for wood in the framing of the supports of the stage. The weight of the iron used was so enormous that the usual methods of raising and lowering the movable parts of the stage had to be abandoned and a system of hydraulic jacks, controlled from a single point was substituted. Their motive power was supplied by steam pumps, compressors, or the power given from an elevated tank, and was controlled by valve-connections. The opera house at Buda Pesth has a curtain opening of 47 feet and a depth of stage 120 feet; the mechanism of the stage is almost perfect, and, in fact, it was chiefly to familiarize himself with the working of this theater that Mr. Adler's tour was undertaken. The most marvelous and rapid transformations are produced by proper applications of the power of the hydraulic jacks, somewhere from 100 to 123 in number. For example, the ship scene in "L'Africaine" which takes from twenty-five to forty-five minutes to set in an ordinary theater, but here eleven minutes are sufficient.

The same system of stage mechanism and construction is in use in the Municipal Theater at Halle, and in the German Theater at Prague. But efforts to assimilate existing theaters to the improved system are being made in many places. In the Court Opera House at Dresden they have begun to take out the woodwork and are substituting iron in the rigging loft of the extensive stage, also replacing hemp with wire ropes, the wooden pulleys and blocks by iron ones, etc. In the Imperial Opera House at Berlin all the old wooden traps, sinks and bridges have been removed and iron ones substituted for them. A system of hydraulic motors is used here, differing somewhat from the one in use at Buda Pesth. It was designed by and erected under the direction of a son of Mr. Brandt, by whom also the Court Theater has been remodeled and its entire stage rebuilt, and iron framing, iron pulleys and blocks and wire ropes used everywhere. A hydraulic apparatus is also being built for this stage, to be put in place during the summer of 1889. The new Lessing Theater at Berlin is fireproof and its rigging loft entirely of iron, though the sub-stage is mostly of wood.

The Hofburg Theater, at Vienna, is certainly the most magnificent in the world. The artist, sculptor and painter seem to have vied with each other to make this building a marvelous work of art. The staircases equal in quality of design that of the Grand Opera House at Paris. There are two main stairways, both straight with a landing in the middle. The steps, balustrades and wainscots are of the rarest and richest marbles selected and combined with the most exquisite artistic skill. The frescoes of the ceiling are so carefully arranged that as you mount the stairs, picture after picture presents itself each

from its proper and effective point of view without necessitating that craning of the neck so distressingly destructive to the comfortable enjoyment of such decorations as ordinarily found. Bronze is used on the staircase, and the house is adorned with many basso-relievos. This theater, considered abstractly as an artistic creation and as an exponent of the utmost development of the application of the fine arts to decorative building purposes, stands without a peer. Yet it is from the utilitarian standpoint a lamentable failure. Fully one-third of the audience can hardly hear a word, and although this theater covers much more ground than the entire Chicago Auditorium Building, yet the seating capacity is only 1,800, the rest being taken up in foyers, etc The stage mechanism is a most stupendous and egregious blunder. The constructor, having decided to use a system of his own, and determined to evade the patents of Messrs. Gwinner, etc., has substituted for the direct transfer of hydraulic force used at Buda Pesth, a transmission of power by ratchets, gearings, pulleys, ropes and winches, which has multiplied the cost of the apparatus by three and divided its efficiency by nine. To overcome the vastly increased friction, the size and weight of the moving parts was largely increased, this again increasing friction and so on indefinitely.

Mr. Adler stated that he had seen a letter from the Vienna correspondent of the *Staats-Zeitung*, which stated that public interest in this theater had divided the population of the city into two factions, one of which seemed to think that the architect ought to be treated to "something lingering, as in boiling oil," or at least that he should be condemned to perpetual imprisonment, while the other held the ground that the creator of so exquisite an art work must be held as moving on a higher plane than ordinary mortals, and should not have been expected to be *au fait* in such little matters as sight lines, acoustics, stage mechanism, etc. Not only is the populace excited on the subject, but the local association of architects, civil engineers and others are continually holding stormy meetings, endeavoring to decide if the architect shall be indorsed or condemned.

The stage mechanism of the Chicago Auditorium will be similar to that used at Buda Pesth, and will have a depth from curtain line to back wall of 62 feet, by a width of 110 feet. It will be divided into sections, four of which, each measuring 9 by 46 feet, will each have a downward motion of 8 feet, and upward one of 13 feet, and capable, besides, of a rocking motion, and each section capable of any of these motions independent of the others. In the middle of each of these four sections a space 4 by 26 feet is capable of a downward motion of 18 feet, and an upward one of 18 feet. On the 26-foot section any stage picture and a group of performers can be raised from below to a height of 18 feet above the stage. There will also be three smaller divisions, two of which will be capable of an 8-foot downward motion, and one with an upward and downward motion of 8 feet each way. When raised above the stage, the aperture below the platform was concealed by scenery from the audience. The drops, being light, are worked by counter-weights with hemp ropes, handled from the stage, the rest of the ropes used being of wire. The floor is of three-inch plank, and this and the canvas are the only combustible materials used. The canvas can hardly be considered as very inflammable, owing to the paint used being distemper—mineral paint, ground with water and mixed with glue. It has been found impossible to use any preparation to render the canvas perfectly uninflammable, as all the solutions recommended absorb damp, and cause the paint to peel off. It has been found in fires that it is the woodwork that is the great source of danger, and that the thick coating of distemper paint renders the scenery very slow-burning material; so that with electric light instead of gas, and the substitution of the arc light effects for the calcium light formerly used, the two greatest dangers have been eliminated. In the larger European houses the stage is provided, for the purpose of gaining control of fires among scenery and properties, with perforated copper pipes, controlled from the stage by valves. The great height, 90 feet, would render automatic sprinklers both uncertain and slow in operation, as a current of hot air is so easily deflected to a sufficient distance as to cause a sprinkler to work in the wrong place; also, as at that distance the heat would not penetrate rapidly enough by radiation, but as the heating effect upon the sprinkler would have to be made by the actual lifting of the smoke and heated air to the fusible plugs, the response of an automatic sprinkler to a fire would be comparatively slow. The sprinklers used in Europe are from eight to ten feet apart, and are worked by cords from the stage, each pipe having a shut-off on the stage floor, so that by pulling a cord, every section can be used by itself. Copper pipes are used in preference to iron pipes, because the latter, having greater thickness of metal, and greater tendency to form oxides, present more risk by stoppage of the perforations in the pipes by dust and rust.

Mr. Adler narrated a few instances where incipient theater fires were extinguished very quickly through the presence of mind of the manager and the excellent discipline of the stage employés. Mr. Rudolph, the stage manager of the Municipal Theater, at Frankfort, saw a fire break out among his gauze hangings over the back part of his stage. He gave the signal to pull the rope controlling the counter-weight of that particular drop and in a few seconds the burning material was lowered to the stage floor and the fire stamped out without the audience having been any the wiser.

The boiler of McVicker's Theater is on the opposite side of an alley, and the ceiling over the boiler room formed of wooden joists, which were to have been covered with porous terra-cotta, but at the time of opening the theater after its recent reconstruction this part of the work was not finished, and at one of the first performances some of the unprotected joists caught fire. The smoke passed into the air duct and the manager smelt it, at once shut off the air supply and stopped the ventilating fans; he then ran over, and with the aid of the well-drilled force of the theater and a few buckets, and the often ridiculed but very efficient syringes, provided for such emergencies by Mr. McVicker, had the fire out before the fire department, which had been summoned at once by the automatic fire alarm, could arrive. In consequence of this occurrence, Mr. McVicker caused the removal of the entire wooden framing over the boiler room and the substitution therefor of iron beams and tile arches.

Mr. Adler terminated his talk, which was altogether conversational and without reference to manuscript or notes and which had been frequently interrupted by the inquiries of the listeners, by stating that although he was far from having exhausted his subject he had exhausted himself and feared that he had exhausted the patience of his hearers.

The meeting then adjourned to Monday, March 18, 1889.