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THE RECONSTRUCTION OF THE CAMPANILE IN THE PLAZA OF ST. MARK'S, VENICE

By CHARLES A. BRASSLER



THE recent dedication of the bell tower, built to replace the historical Campanile, one of the archaeological attractions of the famous Plaza of St. Mark's, at Venice, has aroused considerable attention throughout the civilized world, especially among those interested in art and architecture. Much curiosity has been manifested as to the nature of the new edifice, the manner of its construction, etc., and the following description of the new tower, and accompanying illustrations showing the progress of its erection, will doubtless be of timely interest.

It will be remembered that the great tower, the construction of which was commenced early in the tenth and not completed until the close of the sixteenth century in the form it finally bore, fell, after affording unmistakable evidence of instability, to which the attention of the authorities was called by Luigi Vendrasco, a competent architect and

practical builder. He was so insistent in pointing out its weakness, that he was banished from the city, as a public nuisance, and deprived of his professional standing. On July 13th, 1902, he predicted that the Campanile would not last twenty-four hours; on July 14th, at nine o'clock in the morning, it subsided into a heap of rubbish, some eighty feet high, without, however, injuring anybody and only slightly damaging the adjoining Palace Library. The fact that the gilded angel that crowned the apex could be seen through the cloud of dust descending in an upright position almost gently to

the ground, to be subsequently found uninjured in the debris, and that one of the biggest bells that hung in the bell-chamber reposed unharmed on top of the heap of rubbish, show the peculiar manner in which the tower fell; as the Italians expressively state in their own language, it "sat down on itself." *se sedesse*.

It was thought at first that a settlement, due to the unstable character of the land on which the city stands, it being practically built on islands and mud flats in the lagoons



ST. MARK'S, VENICE

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VIEW TAKEN A FEW DAYS AFTER THE COLLAPSE OF THE CAMPANILE IN 1902, SHOWING THE COMPLETE DAMAGE EFFECTED

at the head of the Adriatic, was the cause of the fall. Investigation proved this erroneous. It was found that the tower, owing to the poor quality of the mortar used in its erection, which had become so much dry dust, had simply disintegrated, crumbled into ruins. Barely had the dust settled on the débris, before plans were afoot for the rebuilding of the tower, the absence of which left a very conspicuous gap in the picturesque beauty of the Plaza.

Moreover, involved with it in ruin was the superbly ornate Loggia, designed by and



PARAPET OF THE BELL CHAMBER OR BELFRY

erected under the direction of Jacopo Sansovino and dating from 1540, a sort of vestibule to the Campanile, located on one side of it and a never-failing source of interest and inspiration to appreciative visitors. It was originally used as a place of assemblage for the nobles and dignitaries of the city, but was subsequently the headquarters of the guard.

The removal of the débris was a task of no small magnitude. Every wheelbarrowful taken away was carefully scrutinized for pieces of the bells or ornamental metal work, for fragments of carved stone, etc., as well as for bricks and pieces of brick, all of which was removed and stored in a special



SHOWING THE WIDENING OF THE OLD FOUNDATION OF THE TOWER

museum, established in the ducal palace and it was the conscientious thoroughness with which this was done that permitted of the subsequent successful, economical and speedy restoration of the Loggia, etc.

A better idea of the magnitude of this part of the work may be gathered from the fact that some of the ornate marble pillars of the Loggia were shattered into as many as thirty pieces, while a gilded terra cotta figure of the Madonna, that had adorned the interior of the Loggia, was pieced together from 1600 scattered fragments. One of the accompanying illustrations shows a frieze that had adorned the Loggia in the course of reassembling in one of the arcades of the ducal palace, and gives an excellent idea of the character of the work this entailed.

Even the bricks recovered from the débris were carefully cleaned and preserved. They were of extraordinary dimensions, 12 inches

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long, 6 inches wide and 3 inches deep. Some of them were hundreds of years old, dating from the first century before Christ and having been taken from Roman ruins at Aguileia. More than a million brick were required for the tower, the new supply being made from several kinds of clay, collected from different districts and ground three times to ensure perfect homogeneity. It being found that certain saline ingredients in the new bricks tended to produce an un-



View copyrighted by Charles A. Braseler
THE NEW CAMPANILE, SHOWING THE SLIDING PLATFORM
IN PLACE OF THE USUAL SCAFFOLDING

sightly efflorescence on the walls, they were all subjected to thorough soaking and scrubbing, special tanks being built for this purpose. Some of the structural work, done with the first, untreated bricks, was subsequently torn out and replaced. After everything of any possible value had been sorted out, the rubbish was transported away on scows and utilized for reclamation purposes in the lagoons.

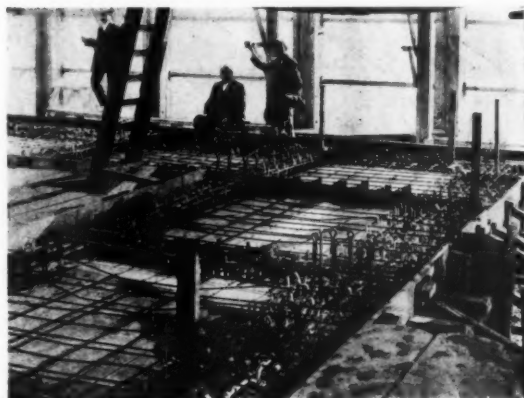
When the ruins had been finally cleared away, down to the stump of the tower, left standing, and this had been in turn removed, it was discovered that the foundation was in-



A VIEW IN THE INTERIOR OF THE NEW CAMPANILE,
SHOWING THE SLOPING WAY

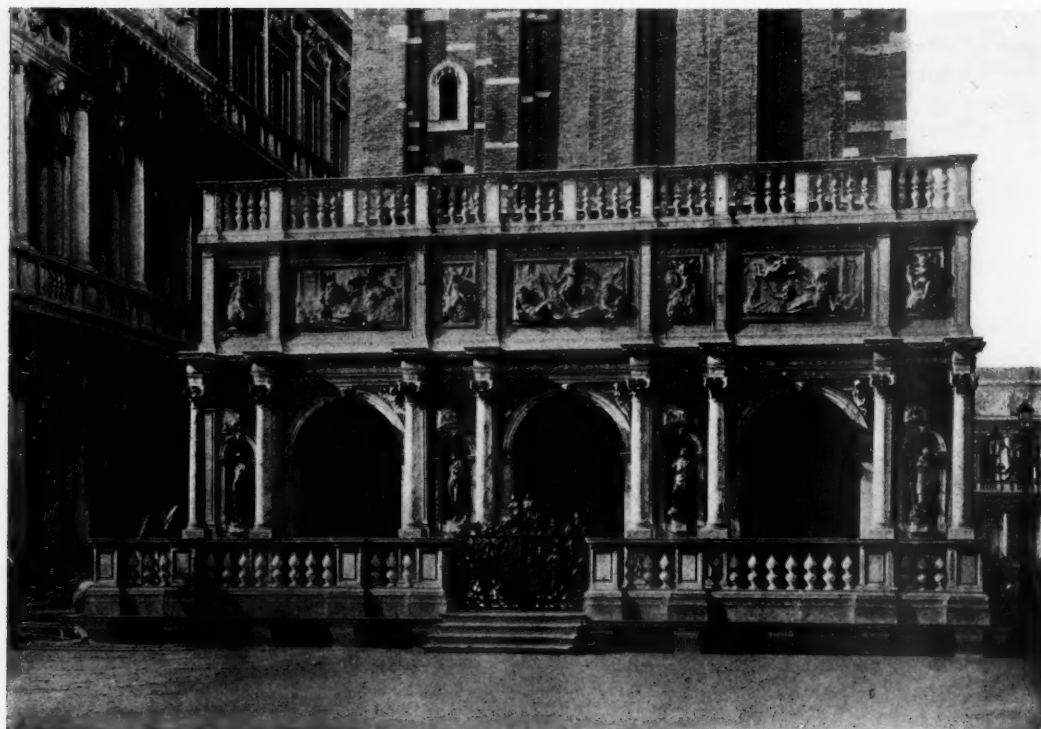
tact and unimpaired. The idea that the collapse of the tower was a result of its sinking had been from the first denied by the engineers, who rightly maintained that had this been the case the tower would have tilted and fallen prone as a whole, with disastrous results to its surroundings, in place of collapsing in a heap, on its own site.

Careful inspection revealed the fact that



VIEW TAKEN DURING CONSTRUCTION OF THE REINFORCED
CONCRETE FLOOR OVER THE BELFRY

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THE LOGGETTO DEL SANSOVINO (BEFORE THE FALL) AT THE BASE OF THE CAMPANILE OF ST. MARK'S

with suitable extension and improvement, the massive bed of the tower could safely be employed for the new structure which is estimated to weigh 20,000 tons. In constructing the original foundation, the builders had dug down to the stiff clay that overlies the sand forming the substratum. Through this, over the whole area, they had driven white poplar piles, ten to eleven inches in diameter, to an average depth of about 30 feet and almost touching one another. On top of these carefully levelled piles a double platform of squared oak timbers was laid, the layers crossing one another, and on this was reared a mass of masonry, twelve courses of different kinds of stone, laid in cement, and of a total depth of sixteen feet six inches. The timbers were perfectly sound and the masonry absolutely undisturbed, satisfactorily disproving the settlement theory. After clearing an ample space about the foundation piles, nine additional rows were driven over a much larger area upon which a heavy course of steel reinforced concrete was laid, greatly increasing the supporting surface to enable

it to safely carry the enormous load. Every second course of the new stone work is bonded into the old foundation, so that the new base is really an enlargement of the old one.

On this greatly strengthened and extended base the new tower has been reared in exact facsimile of the old, and except for the newness of its appearance and the use of reinforced concrete wherever advantageous it does not differ in the least from the old one; even the appearance of age has been partly reproduced by skill in mixing the stucco.

Like its predecessor, the tower is in form a truncated pyramid 42.2 feet square at the base and 39 feet square at the summit. It really consists of two great shafts one within the other, the walls of the outer shaft being six feet in thickness. Between the two are disposed the series of ramps or inclined planes, by which, in place of the usual stairs or the more modern elevator, the bell-chamber is reached. These inclines are constructed of reinforced concrete, lighted by thirty-one small windows, shaped and placed exactly as were those in the original

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VIEW OF THE LOGGETTO DURING RECONSTRUCTION

tower, the length, width and incline of the slopes being the same, and they are paved, in the same manner, with bricks arranged in herringbone pattern.

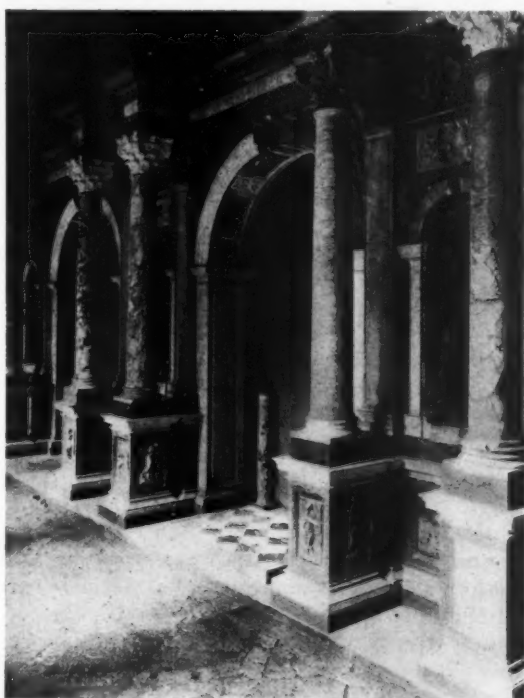
In addition to the inner and outer shafts of the column being united by these inclines and the arches that sustain them, beams of reinforced concrete, set in the inner column at one end and in the outer wall at the other, and pilasters of similar construction, unite the whole structure into a solid mass. If it should ever fall again, it will certainly fall as a monolith, owing alike to these improvements in construction, the superior material, and the careful workmanship, that mark the construction of the new tower. The interior brick-work is a remarkable example of fine workmanship and portions of it, when struck with the hand, resound like a drum.

The tower was built its entire height,



BAS RELIEFS AND PARTS OF THE LOGGETTO OF SANSOVINO RECONSTRUCTED IN THE COURTYARD OF THE DUCAL PALACE

without the use of any scaffold extending from the ground up. In its place there was employed a sliding scaffold or platform that was moved upward as the building rose and which one of our illustrations shows. It was constructed of four immense trussed beams which encircled the tower, supporting not only the platform but its covering, which had a framework of wood and iron, covered with canvas. Beneath the scaffold a strong wire netting was spread to catch any tool or piece of material that might fall. The scaffold was raised with the aid of four



THE RECONSTRUCTION OF THE LOGGETTO DEL SANSOVINO SHOWING THE BLENDING TOGETHER OF THE OLD AND THE NEW MARBLE

couples of V irons, placed before every row of windows and moved by means of four screw devices. In order to prevent any bending of the poles formed by the V irons, a suitable supporter, with a roller, was placed at every small window of the tower, which not only guided the poles, but facilitated the upward movement of the scaffold, which was shifted at regular intervals. The fact that not a hitch or accident occurred to interfere with the progress of the work is the best evidence of the completeness of the

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precautions exercised and of the perfection with which everything worked. When the lantern and belfry, the dado of the spire and the spire itself were reached, a separate scaffold had to be used.

The rapidity with which the work progressed under the direction of Signor Edoardo Dr. Piacentini, the chief superintendent, to whom the writer is directly indebted for the facts upon which this article is based, its illustrations being made from views forming part of the official photographic record made of the new tower during reconstruction as each new stage was completed, is quite as remarkable as the success attained. On July 14, 1902, the tower fell, on January 2, 1906, the stupendous task of removing and assorting the débris had been completed and the foundations had been laid bare and strengthened, on April 5, 1906, the work of rebuilding the tower was commenced, and on June 22, 1910, the bells were replaced in the belfry, all ready for ringing, the main shaft having been completed in December of that year. The cost of the reconstruction, 2,000,000 francs, in round figures \$400,000, was much less than would have been possible, had it not been for the scrupulous care exercised in the preservation of the fragments and the skill and patience with which these were pieced together.

In the reconstruction of the famous Loggia, the importance of this factor was all the more apparent. Here the delicate stone carvings and metal-work were smashed into thousands of little bits and then overwhelmed with the débris from the tower. When it is considered that all this exquisite work was successfully reconstructed, with the exception of one column which was so irretrievably ruined that it had to be replaced, marble suitable for the purpose being found in the ruins of an ancient villa near Rome, the marvellous feat seems almost impossible. Particularly worthy of mention beside the aforesaid Madonna of terra cotta, is the restoration of the four superb bronze statues, the work of Sansovino himself, which adorned the lower story of the Logetta and represented Peace, Minerva, Mercury and Apollo. Minerva and Peace suffered decapitation in the catastrophe, the others lost fingers and suffered some minor injuries. The missing heads were recovered and replaced and the

other damaged parts restored with such consummate skill that no trace of the injury is perceptible.

The reliefs under the statues representing Tethys assisting Leander, the fall of Helle from the ram of Phryseus, etc., and three bas reliefs in the upper story representing Venice as Justice in the center, Jupiter on the left, to represent the dependent Kingdom of Candia, and Venus on the right representing the vassal Kingdom of Cyprus, the work of Fizzano Mini and Girolamo Lombardo, although somewhat damaged, were recovered and completely restored, while in connection with the beautiful bronze gates, completed in 1750 by Antonio Gai and regarded as among the choicest specimens of the plastic art in metal, a notably skillful piece of restorative work was accomplished. The gates, buried under tons of débris, were twisted, bent and crushed out of all form and one of the heraldic lions was broken into infinitesimal fragments. Skilled artisans and enthusiastic artists took them in hand and after protracted and patient labor restored them to their original beauty and their conspicuous position at the entrance to the rebuilt Logetta.

Even the bells, the largest weighing 36 hundredweight and the smallest 10 hundredweight, all but one of which had been dashed to fragments, were recast almost wholly from the original metal, picked piece by piece from the ruins, at the expense of the present pope, who, having been at one time patriarch of Venice, was very much attached to their sonorous music. With such consummate skill was the work accomplished that not only was it found unnecessary to touch the recast bells with tool or chisel, on their removal from the founder's pit, but the original tones were almost perfectly reproduced and a phonographic record of their ringing, on the occasion of the dedication of the Campanile, sent to his Holiness, was warmly praised by him.

Mounted on the apex of the Campanile as of old, is the same angel that stood there when the tower fell. Since 1822 it had occupied its dominating position, having replaced a similar figure set up about 200 years before. After the fall of the tower, it was discovered, undamaged, in the main doorway of the great cathedral of St. Mark,

(Continued on page 236)

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CITY PLANNING PROBLEMS

A COMMENDABLE feature of the Fourth National Conference on City Planning to be held at Boston, May 27th to 29th, inclusive, is the proposed open session. The stated object is to provide an opportunity for the discussion of questions to be chosen from suggestions of members of the Conference and others interested in the general subject of City Planning. It seems not unlikely that this feature will prove among the most interesting of the Conference. Already a number of topics have been proposed and there is little doubt that others of varying degrees of importance will receive consideration.

Among the subjects which might properly be brought before the proposed open session, and one which has not perhaps received all the attention it deserves by reason of its having a very practical bearing on the success of many City Planning projects, is that of acquiring at just and reasonable cost the necessary property to carry out a contemplated improvement. Experience has shown that announcement of any definite plan for city betterment is almost immediately followed by speculation in property affected by the proposed improvement. A recent instance in New York in which plans for fictitious improvements were filed for the

apparent purpose of creating an abnormal increase in value for a certain piece of property affected by the plan under consideration, has already been commented upon, and is typical of similar actions in other cities. It might be well for those who are actively engaged in Town Planning movements to give serious thought to this phase of the matter and recommend legislation designed to prevent these and similar unfortunate conditions. Men who are alert to profit by the thoughtful efforts of their fellow-citizens and who fail to take sufficient pride in their city's growth and improvement to deter them from such action, should be legally restrained from efforts calculated to create fictitious values for their property that invariably tend to place and not infrequently do result in placing the land entirely out of reach, and thus effectually defeating the project for improvement. If our cities are to improve in form and beauty, the process will be greatly aided and accelerated if proper laws can be devised to restrain the pernicious activity of the unscrupulous land owner and speculator.

PROFESSIONAL ETHICS

REFERRING to a discussion of the subject of Professional Ethics initiated by the Society of Architects, "The Architect and Contract Reporter," of London, comments as follows:

We cannot help believing that a great deal of the animus that distinguished the question whether Architecture should be regarded as a profession or an art was due to a conviction that if it is a profession there should be some code, written or unwritten, of professional etiquette, but if it is regarded as an art, then the business methods of other artists are permissible in the business of architects. It cannot be denied that these methods as practised by painters, sculptors and other artists are practically indistinguishable from those of tradesmen who offer their goods to the public in a shop window, and make the utmost use of advertisement in every possible form to induce the public to buy those goods.

So those architects who insist strongly upon their recognition as artists and not as professional men are prone to object to any limitation of their freedom, in common with painters and sculptors, to further business by the fullest possible use of advertisement, touting and travelers, or by supplanting another artist whenever they get the chance. It is much to be desired that there should be unanimity of opinion and practice among architects, either as professional men, with a code of ethics, or as artists with the freedom of the tradesmen in methods of business. If the discussion initiated by the Society of Architects leads to such

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unanimity a great advance will have been made, but we are not sanguine as to the unanimity.

The position of the Royal Institute of British Architects in regard to professional ethics is ludicrous, because that body is governed partly by artist-architects and partly by professional architects. The few resolutions of the Council on professional etiquette that appear in the *Kalendar* are rather pious expressions of opinion than regulations for the conduct of its members entailing punishment for infraction. They do not touch many important points, and in particular do not afford any guidance on the delicate and difficult question of professional advertisements, except by the one ridiculous suggestion that an architect's name may be put on a building when it is finished but must not appear while it is in course of erection, a restriction that is undoubtedly bad for architecture and the public interest in the art.

The difficulty of devising an adequate and acceptable code has been experienced as well in America as in England, and for this reason the observations of our contemporary across the water become of special interest to us. It is freely admitted that our present

situation, however far in advance it may be of former conditions, still leaves much to be desired. In any action, however, which may be taken with a view to improvement, it must be borne in mind that unless the public as well as the profession can be made to realize the ultimate advantage that will accrue to it, any code devised will not stand the test of time and experience. Occasional misunderstandings, even leading to the charge that the regulations or requirements insisted upon by architectural bodies are opposed to or in violation of law, seem to indicate that it is possible to take such a position as to antagonize an intelligent and not unimportant element of the public. Such course will almost certainly retard rather than advance the professional interest.

The subject is one that, while demanding attention, should be handled by architectural organizations with extreme care.

THE RECONSTRUCTION OF THE CAMPANILE IN THE PLAZA OF ST. MARK'S, VENICE

(Continued from page 234)

whither the imaginative Venetians declared it had flown for protection against the rain of falling masonry fragments. It now enjoys a more secure footing on top of the new tower, while to ensure its protection against the fierce storms that occasionally sweep over the city from the Gulf it is mounted on a pivot, so that it can yield to the blast, a pendulum device being contrived to restore it to an upright position. It stands 310 feet above the ground, which with the height of the figure (12 feet) makes the total altitude of the new Campanile 322 feet. Other dimensions that may prove of interest are the height of the tapering shaft, 158 feet; of the base or plinth, 4 feet 5 inches; of the decorated frieze, 18 feet 3 inches; of the bell chamber, 28 feet 4 inches; of the dado, 27 feet 11 inches; of the spire, 68 feet 7 inches; of the pedestal, 6 feet 3 inches.

From this lofty eminence, the Venetians may again hear the tones of their beloved

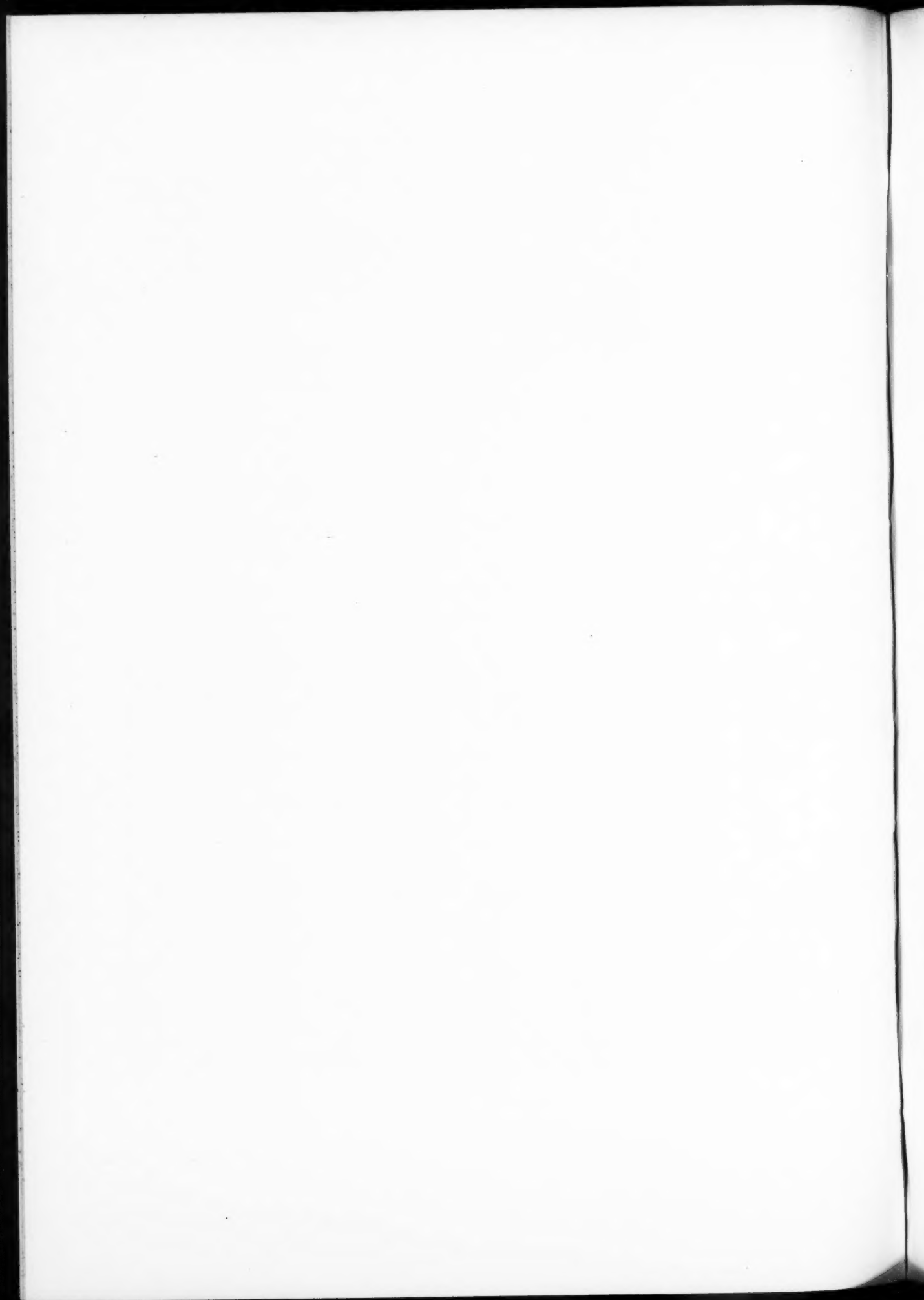
bells, La Marangola, calling them at sunrise to their daily toil, La Testamezzana, announcing the opening of the official bureaus, La Trotteria, which called the councils to duty at noon and assembled the famous pigeons for their daily feeding in the square, and La Malificio, sounded only as the death-knell, for criminals about to suffer capital punishment. The fifth bell, which rings only on Ascension Day, was brought originally from Candia.

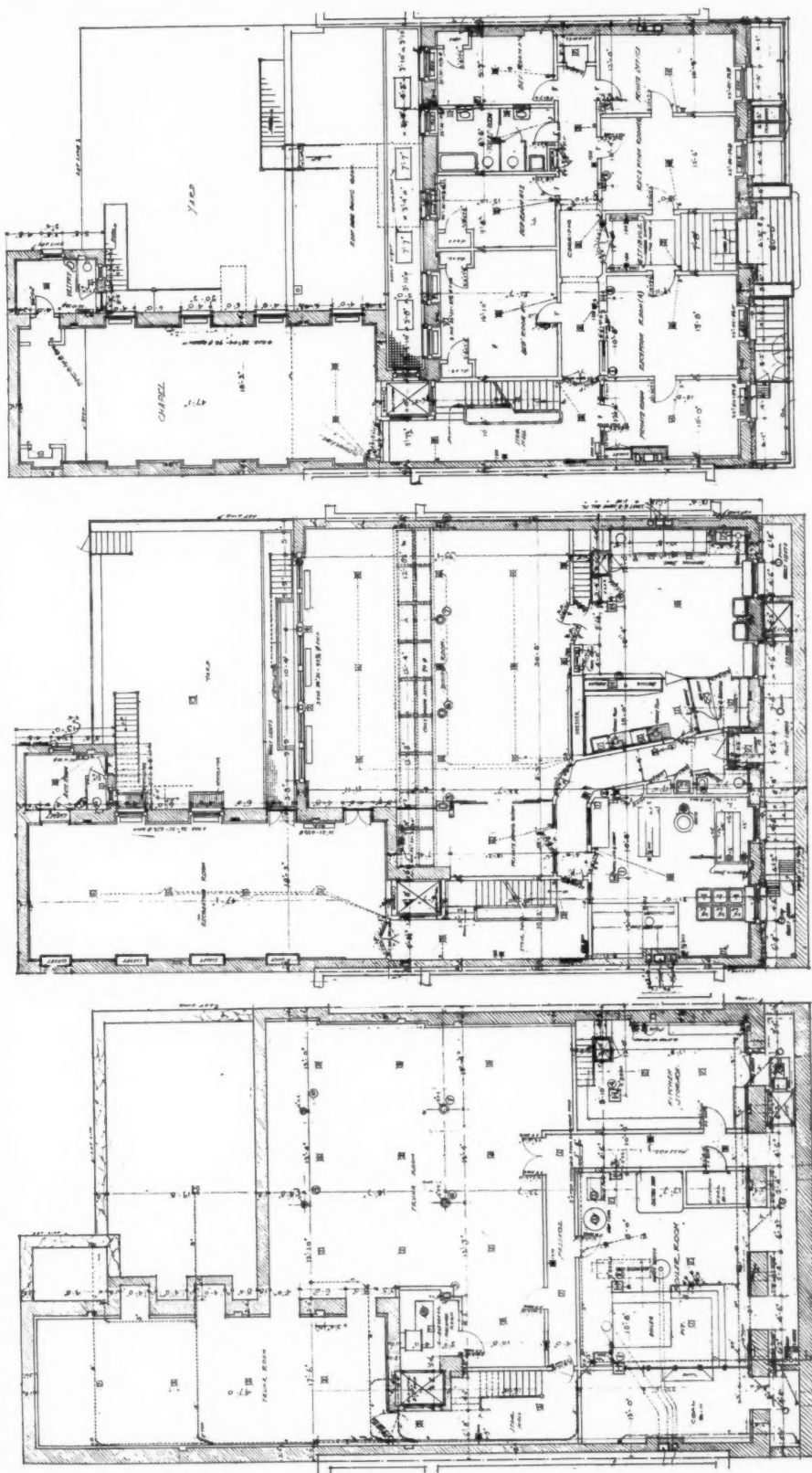
Few works of construction in modern times have attracted wider attention and aroused more general interest than the reconstruction of this famous bell-tower, while its completion was a source of supreme gratification to the Venetians, who regard it affectionately almost as a guardian deity of their attractive city. It is not by any means surprising that contributions to the rebuilding fund came from those interested in art and archæology in all parts of the world, or that thousands from all countries gathered to witness the ceremonies, civil and religious, with which it was dedicated on St. Mark's Day, April 25th.



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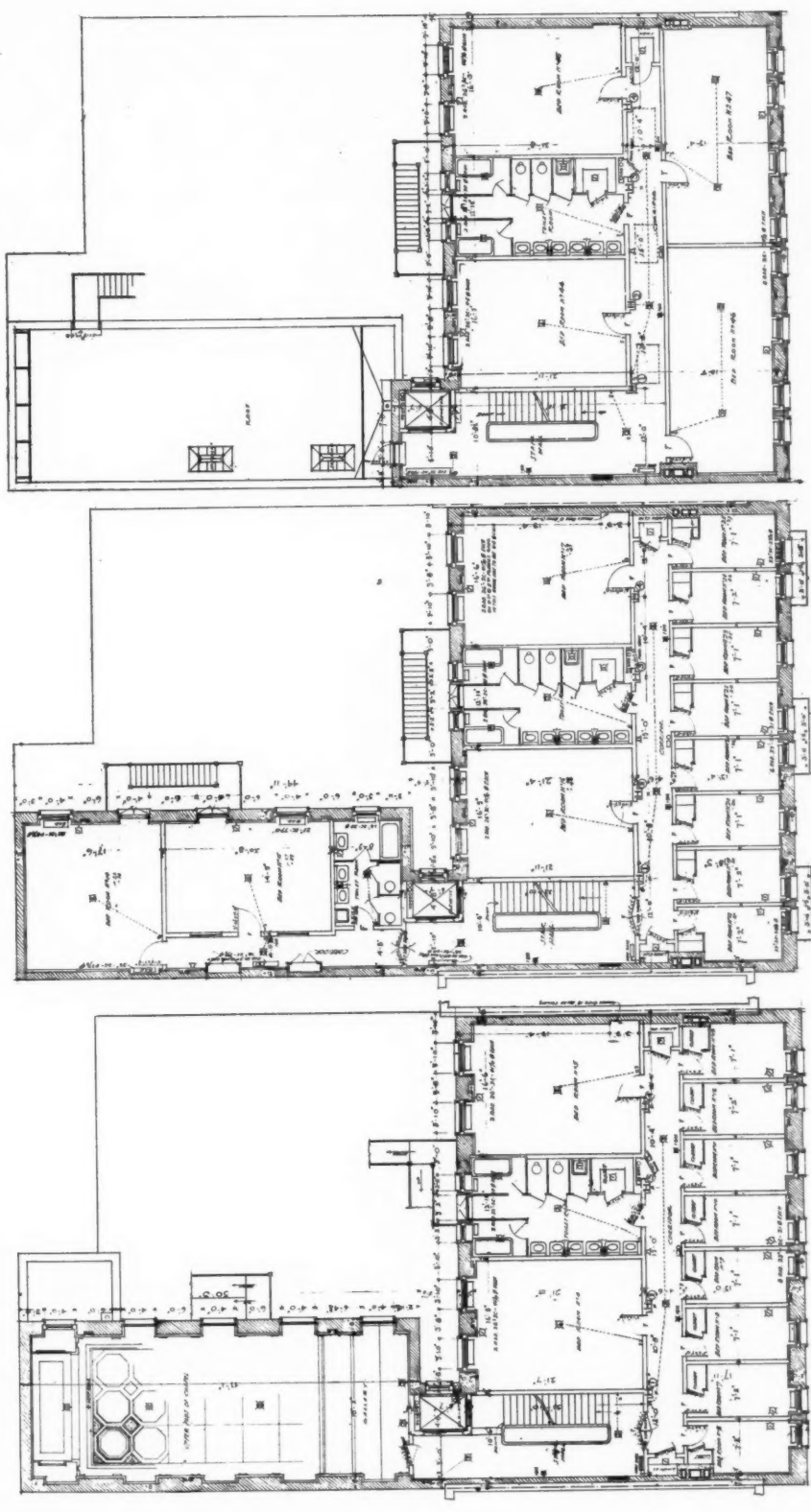


FIRST FLOOR

BASEMENT

CELLAR

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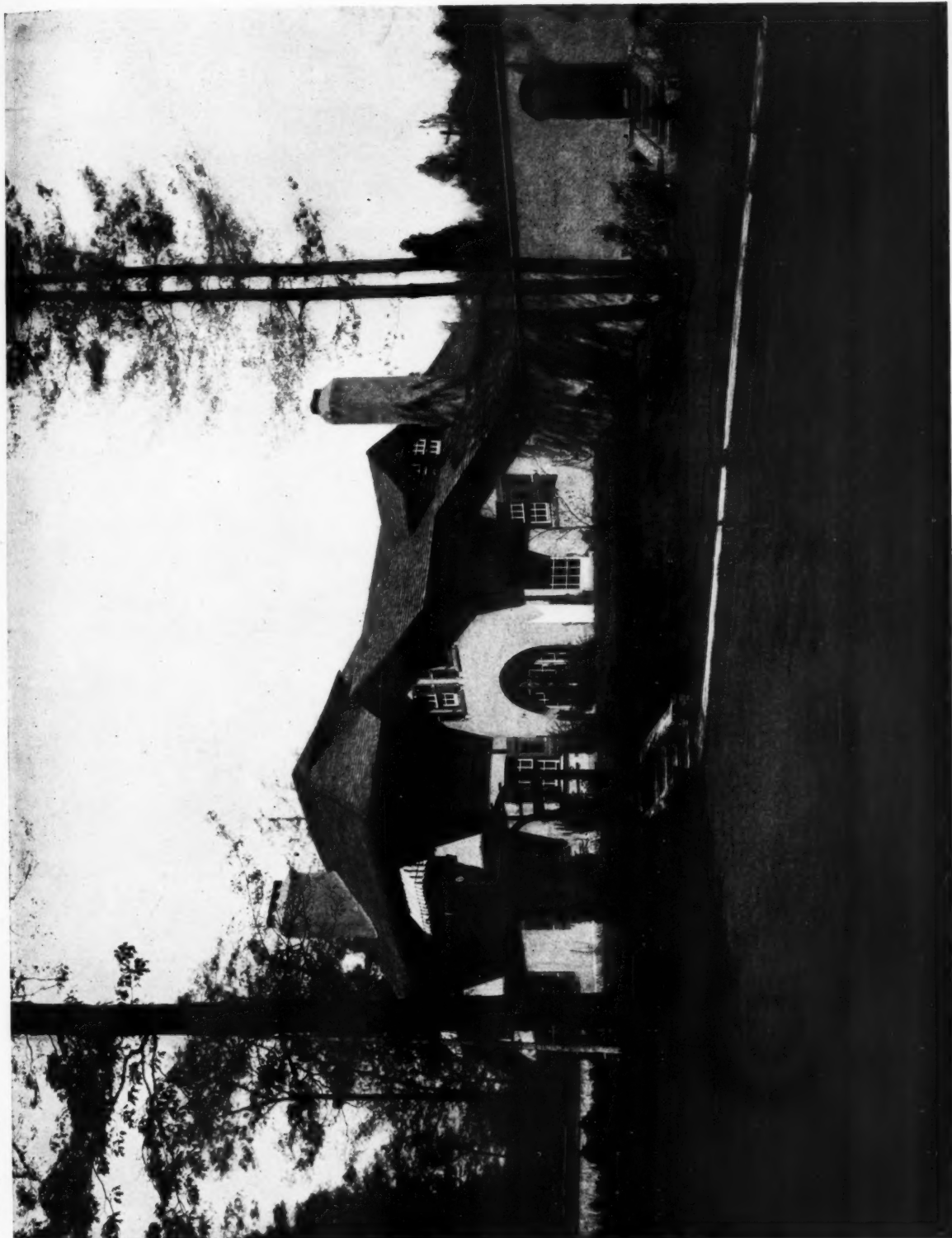


SIXTH FLOOR

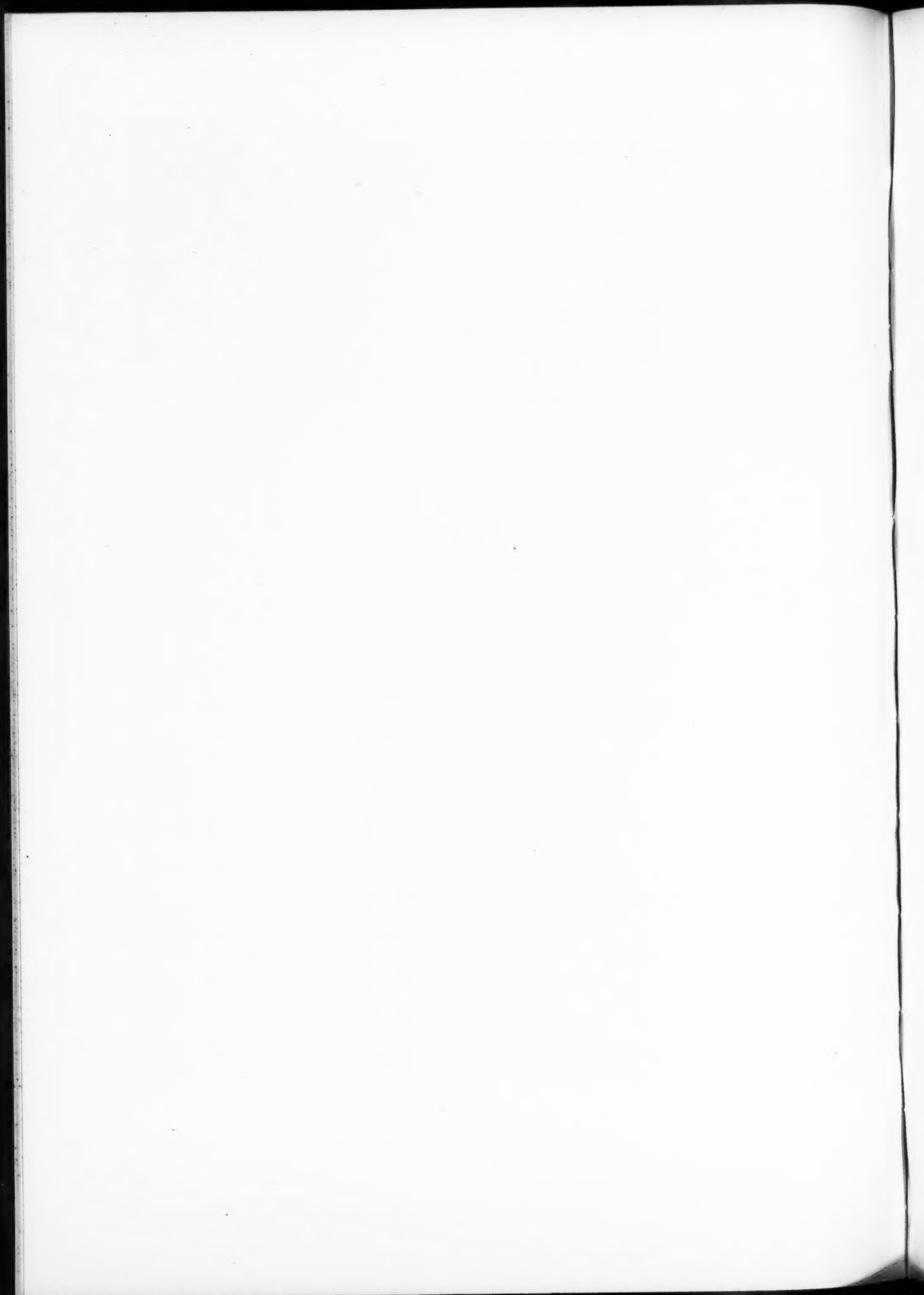
THIRD, FOURTH AND FIFTH FLOORS

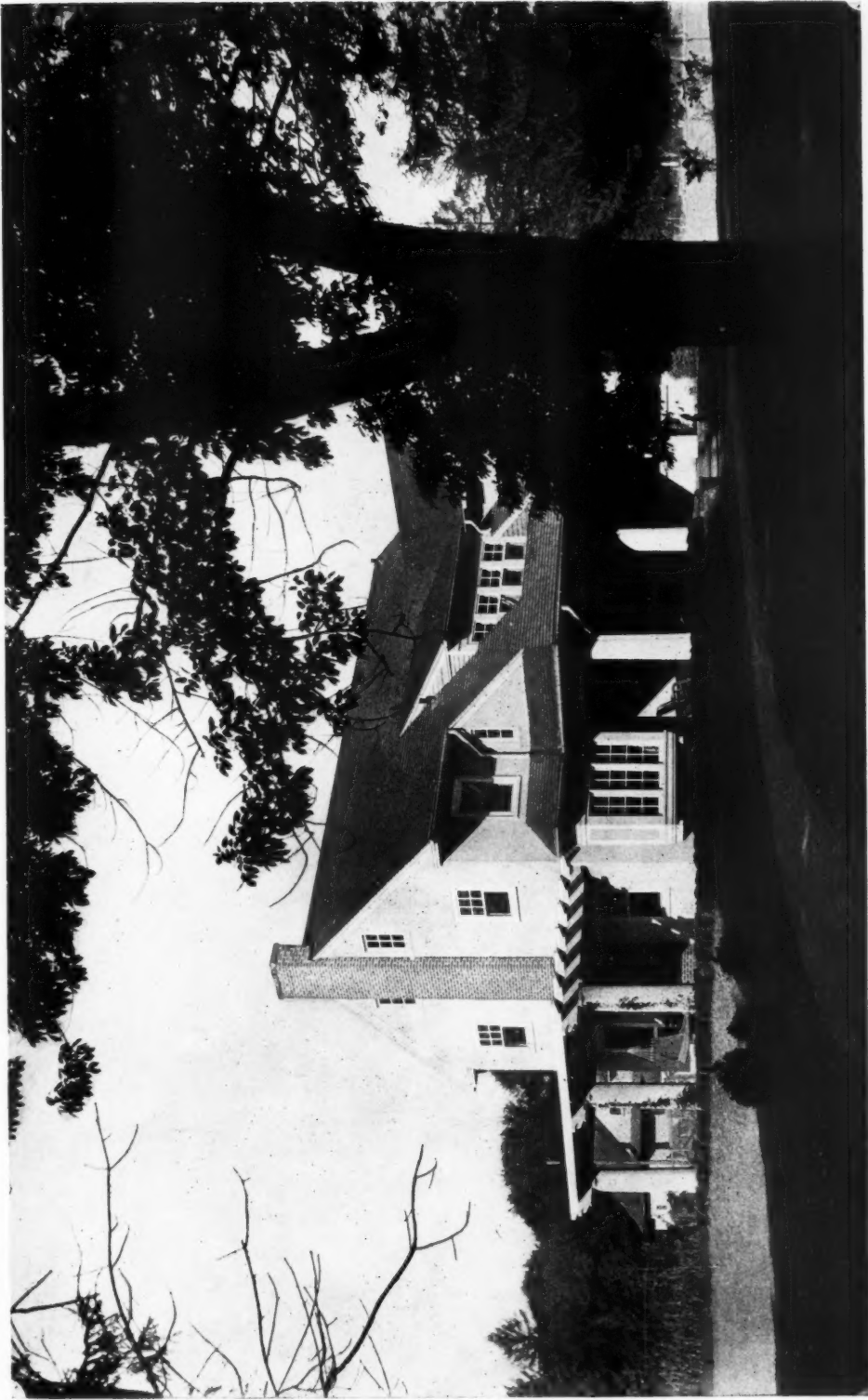
SECOND FLOOR

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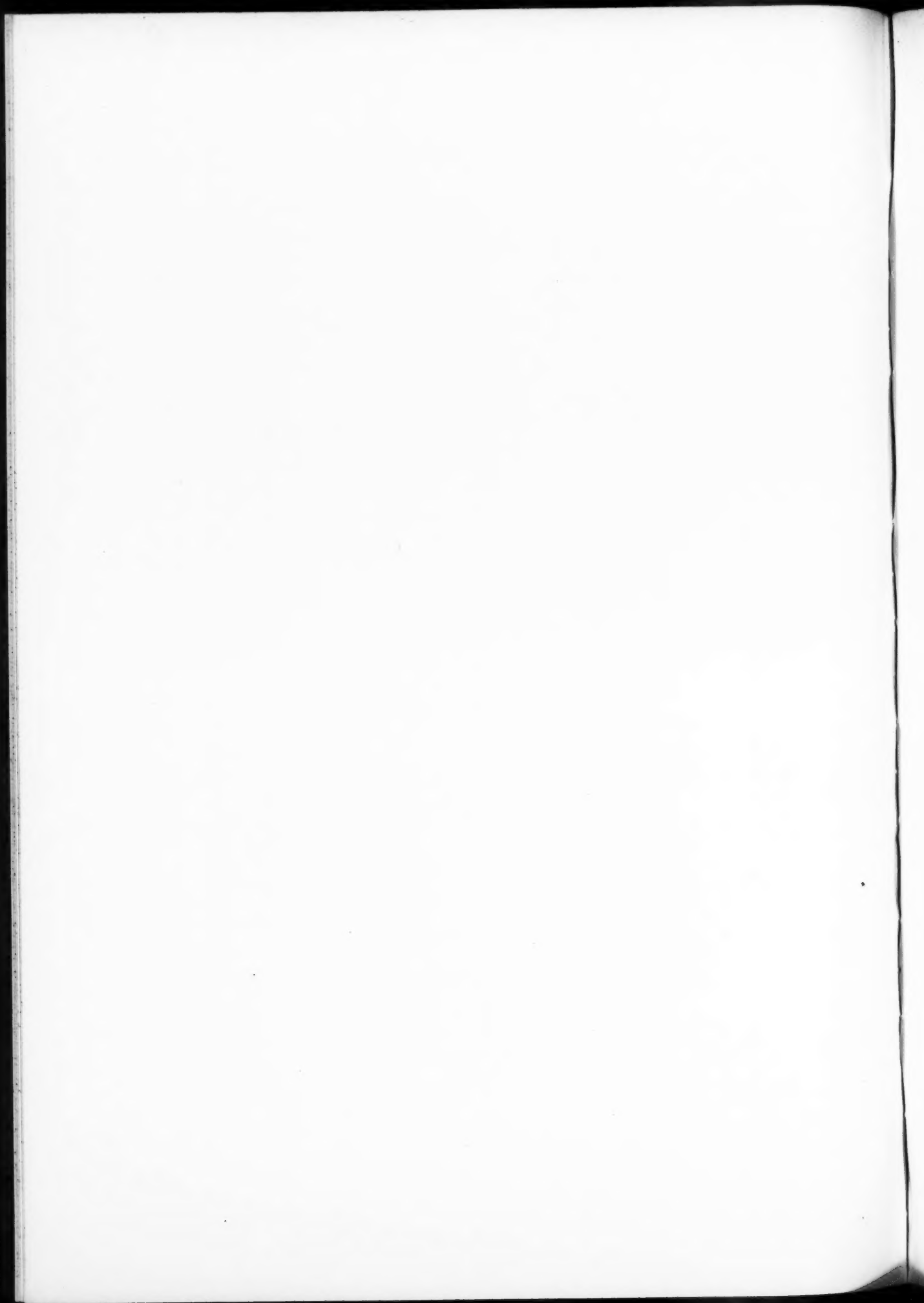
A HOUSE IN NEW JERSEY
MR. WILSON EYRE, ARCHITECT

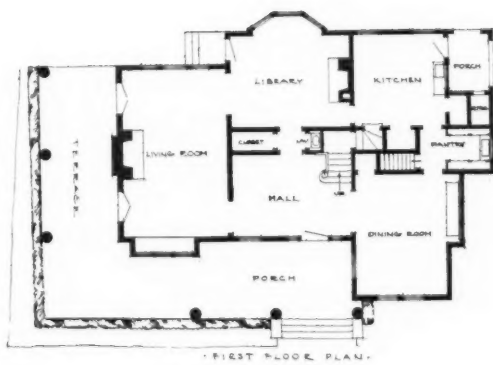
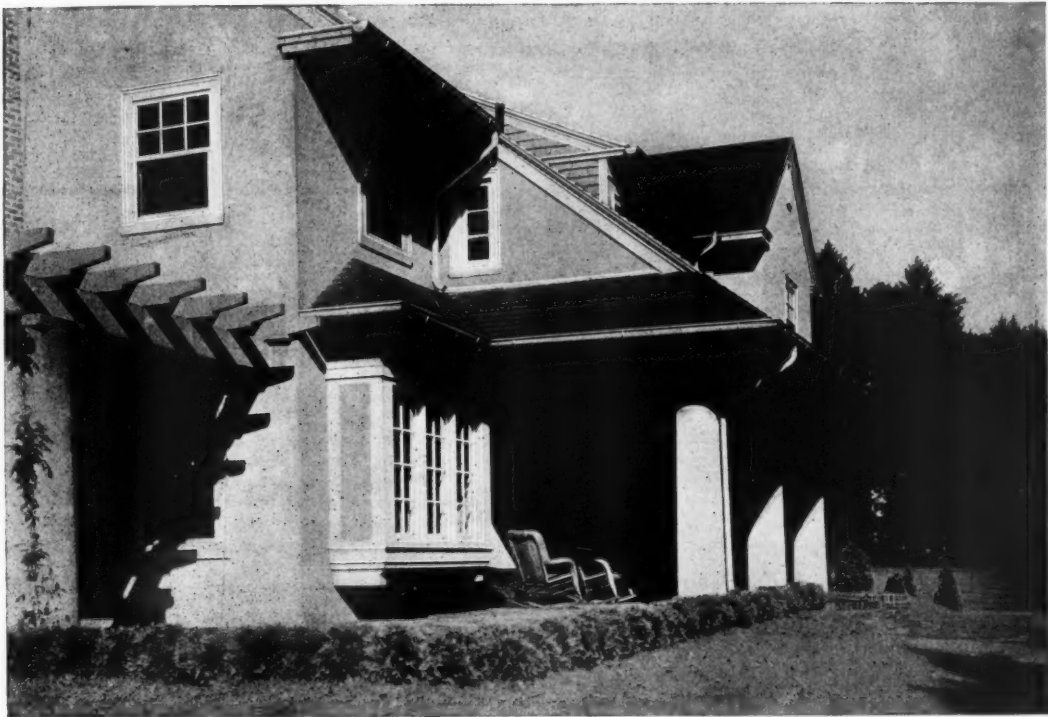




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