

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. LXI.

Copyright, 1898, by the AMERICAN ARCHITECT AND BUILDING NEWS COMPANY, Boston, Mass.

No. 1177.

Entered at the Post-Office at Boston as second-class matter.

JULY 16, 1898.



SUMMARY:—

Proposed Revision of the Schedule of the R. I. B. A.—Illicit Commissions.—How one Briber was Defeated.—The Height-limit on Copley Square, Boston.—The Exhibitions at the Carnegie Art Galleries, Pittsburgh.—Proposed New Bridge at Venice.—Nautical Discoveries at Donada, Italy.—The New Workmen's Compensation Act for England.	17
ARCHITECTURAL FEATURES OF THE BOSTON PARKS.—I.	19
LANDSCAPE PHASE OF THE UNIVERSITY OF CALIFORNIA PLAN.	20
THE ARCHITECTURAL FREAK.	22
BUILDING LAW: EXTRAS.	23
ILLUSTRATIONS:—	
The Restaurant: Delmonico's, 44th St. and Fifth Ave., New York, N. Y.—Delmonico's, 44th St. and Fifth Ave., New York, N. Y.—Competitive Design for the U. S. Post-office and Custom-house, Camden, N. J.—Bridges in the Boston Parks.	
Central Fire-station, Bootle, Eng.: Second Prize Design.—House at Chicago, Ill.	
Additional: Gentlemen's Café: Delmonico's.—Terrace on the Esplanade, Barton-on-the-Sea, Hants, Eng.—Newcastle and Gateshead Water Co.'s Offices.	23
NOTES AND CLIPPINGS.	24

AFTER the lapse of a little more than a quarter of a century, the Royal Institute of British Architects is just now engaged upon a revision of its schedule of professional charges, and, as American practice is largely founded on English precedent, it will be interesting to note those changes that may eventually be made. The alterations proposed by the Council mainly consist in a dislocation and recombination in more logical sequence of declarations that already exist in the present document, while most of the changes and all of the new added matter relate to conditions of English practice which have no exact counterpart here. As the matter suggests a comparison with the American schedule, it is worth while to point to some of the good points of the English schedule which have been omitted from our own. One of these is the distinct declaration that the *per diem* charge which an architect so frequently has to make—and it is really astonishing how often correspondents apply to us to know what *per diem* charge it is proper for them to make—"depends upon an architect's professional position, the minimum charge being three guineas." It would obviously be useful in American practice to have incorporated in the adopted schedule a similar recommendation, whether the minimum figure be placed at ten dollars, as is rather the general practice, or at fifteen, so as to conform closely with English precedent. An excellent feature of the proposed new arrangement is the bringing together in the first clause of all the statements that precisely define just what an architect undertakes to do for the five per cent charged by him for "full professional service," as our own schedule reads. "This commission is for the necessary preliminary conferences and sketches, approximate estimate when required (such, for instance, as may be obtained by cubing out the contents), the necessary general and detailed drawings and specifications, one set of tracings and duplicate specifications, general superintendence of works, examining and passing the accounts, exclusive of measuring and making out extras and omissions." The words we italicize are in the original English schedule, but nothing like them appears in our own, so that American architects now have no defence against the petty robbery to which they are exposed through constantly increasing legal enactments which make it obligatory on some one—and that some one is usually the architect—to provide, pay for and deposit a full set of blue-prints with this department and that department, and, for all we know to the contrary, with the policeman on the beat and with the Board of Walking-Delegates whose control over building operations is so pretentiously exerted.

ONE omission from the old schedule seems hardly explicable, and the omission caused Mr. Beresford Pite to exclaim that it gave "a sinister appearance to the whole document," and that he would "rather have the old schedule

with that in than the new one with it out." The omitted clause (No. 14 of the old schedule) reads: "The above payments alluded to in this document are to be made by the employer to the architect, who is not to receive commission or payment of any kind from the builder or any tradesman in respect of works executed under the architect's direction." The proposed omission of this declaration may be due to a feeling that it is not necessary for a body of men conscious of their own rectitude to make such a public declaration of probity, while it is not at all likely to be an indication that the taking of illicit commissions has become a lawful practice. Moreover, every Fellow and every Associate upon election has to sign a "declaration," one of whose provisions reads: "I promise and agree that I will not accept any trade or other discounts or illicit or surreptitious commissions or allowances, in connection with any works the execution of which I may be engaged to superintend, or with any other professional business which may be entrusted to me." Still, this declaration is merely a part of the private records of the Royal Institute of British Architects and is not accessible to the public, and the public does hear not infrequent tales of alleged bribe-taking by architects; and as the schedule is used by architects as an informing document which they freely furnish to clients for their guidance, it seems rather unwise that this statement should now be omitted from the schedule, after having done who can tell how good a service during twenty or thirty years.

SPEAKING of illicit commissions, we know a case where an architect secured a commission in a town much given to jealousy between the local practitioners and not un-naturally found in the building-committee partisans of the defeated competitors who were quite willing to make things uncomfortable for him, from first to last. When the building was nearing completion he received a visit from the representative of one of the contractors, who expressed his employers' sense of gratitude for the manner in which the architect had behaved toward them during the execution of what evidently had proved to be a very profitable contract, and just before leaving the office laid a slip of paper on the architect's desk. Seeing it was a check, the architect called his visitor back and asked for an explanation, only to be told that the check represented "his share" in the profitable contract. No amount of angry expostulation could induce the clerk to touch the check again, as he declared that, having once reached the payee's hands, neither he nor his employers had any right or interest in it, and thereupon finally departed. The puzzled architect finally endorsed the check over to the chairman of the building-committee with a letter of explanation and thought no more of the incident until he learned that his action had caused him to lose ground with the business-men of the community. This led to the discovery that the opposition members of the building-committee had declared that he only turned over the check because he was afraid to negotiate it, and that his sole object was to secure a reputation for uprightness that did not at all belong to him. Since that time, we fancy, he has been wondering whether, while honesty might be the best policy for the artistic portion of his biogenic self, it were equally the best policy for his astral business portion.

IN turning over some old clippings just now, we have come upon one cut from a usually well-informed weekly contemporary of New York, which we have evidently saved with a view to using it as a text for some preachment, as, for instance, one showing how unwise it is to laugh at the ignorance of American geography so generally shown by foreigners. The extract begins: "Copeland Square is now so crowded down by huge structures that the celebrated Bullfinch front of the capitol is dwarfed," etc. This rediscovery of an amusing bit of topographical ignorance reminds us that we have not yet recorded the outcome of the attempt to preserve Copley Square, Boston, from that threatened invasion of high buildings, which would so injuriously affect the architectural value of, at least, the Public Library and Trinity Church. It was feared that the end aimed at, an end most admirable in its enlightened public spirit-edness, might be made to look like a rank piece of special legislation by those whose private interests were at stake. Fortunately the public feeling on the subject was so pronounced

that this objection was swept aside, and a legislative act resulted which is fair to all parties and interests. Permission is given to owners of land abutting on the square on the south and west to build new, or remodel existing, buildings and carry them to a height of ninety feet, while abutters on the north may build to a height of one hundred feet, in both cases spires, domes, chimneys and sculptured ornaments being allowed to rise above the limit of height fixed in the act. We suppose that this enactment will settle the vexed matter, though we believe that the Park Commissioners have not formally waived their claim that Copley Square is in their jurisdiction and, hence, that abutting buildings cannot exceed a height-limit of seventy feet. The act further allows the owners of the new apartment-house whose threatening height precipitated the discussion to recover from the city the value of that portion of their structure that has been ruled out, and, also, grants to any one who is or may be damaged by this limitation of height to bring suit for damages against the city at any time within three years of the passage of the act. The incident is one that shows that the public does have real rights as against the individual, and that if the public is really willing to exert itself it can maintain them.

JUST as there is no more useless person than a director who does not care or know how to direct, so there is no more valuable a one than a man who does, and intelligent lovers of art in Pittsburgh should hold themselves fortunate that the interests of the Carnegie Art Galleries have been placed under the charge of so diligent and industrious a man as Mr. John W. Beatty. Thanks to his activity and intelligent perceptiveness, the international exhibitions of painting held annually in Pittsburgh are already widely known as affairs of real substance, in which it is of real value to an exhibitor to take part. The third of these annual shows will take place this fall and Mr. Beatty's recent trip abroad has secured exhibits from scores of the best-known of living modern artists, so visitors are sure to find, in addition to the work of American painters, canvases from the studios of Henner, Zorn, Monet, Cazin, Dagnan-Bouveret, Israels, Mesdag, Bouguereau, Orchardson, Poynter and others, to say nothing of Vedder, Sargent, Whistler and other semi-expatriated Americans.

THE seeming unconcern with which foreign governments allow presumably wealth-producing citizens to transfer themselves and their capacities to this country is a rather interesting phase of politico-social life to consider, since, if the immigrants who reach us are wealth-producers, it would seem to be the part of good government to keep them at home in place of allowing them to leave the fatherland and add to the strength and wealth of one of its commercial rivals. On the final analysis we fancy that the cause of this movement would be found to be nothing more nor less than sheer hunger, and in the case of no people is this more certainly so than in that of the Italians, who, frugal as their tastes actually are, find it impossible to raise on their peninsula, under present agricultural methods, sufficient food for their annual needs. Ingenious as they are in making use of their hillsides, as Americans would never dream of doing, they neglect other opportunities that our cultivators would be quick to seize, and one of these opportunities seems to be involved in the carrying out of a new project against which Signor Giacomo Boni, a well-known architect and archaeologist, protests with much vehemence. Venice and all that relates to it are of interest to all enlightened peoples, and he is quite right in drawing attention to the damage that may, but not necessarily, be done by building a new bridge for vehicles and foot-passengers to connect Venice with the mainland. The new bridge is to parallel, at a short distance away, the present railroad bridge, and Signor Boni points out that just as the railroad bridge and its embankments obstructed the slight tidal flow and helped to make the canals of the city less sanitariously safe than they used to be, so the new bridge will but add to the difficulty and make Venice still more the favorite haunt of typhoid malaria; and he shows how already the presence of this disease stands in the way of the city's prosperity in shortening the stay of travellers who in large measure really support it. It seems to us that American engineers would find no great difficulty in accomplishing several very desirable things by reclaiming the malarious marshes that lie

between Venice and the mainland—using their pneumatic dredges with such discretion that they preserved and deepened the main channels and canals, while the dredged material was piped away to fill up shallow pools and low levels—and that it could not be very long before a considerable part of this new-made land would be in a fit state to produce crops of one kind or another, which would, by so much, add to the country's food supply.

SHOULD any such reclamation be undertaken, historians and antiquaries, if not architects, might confidently count on a number of valuable discoveries being made during the operation which would add to our store of knowledge and probably increase the number of exhibits in Italian galleries and museums. These marshlands are the result of the fluvial deposits brought down by the numerous streams that lie between the Piave and the Adige, and who can say how many galleys, galleons and ships laden with the artistic spolia of the East may not have foundered while trying to navigate the tortuous channels. During the centuries, the entire coast-line has advanced and one-time prosperous seaports are now deserted and malaria-haunted villages. It was only last November that a potter at Donada, while laying foundations for some new furnaces, came upon certain nautical relics which led him, out of curiosity, to continue the excavations, and these resulted in the unearthing of the complete and well-preserved hulls of two early fifteenth-century vessels, which are to be towed to Venice and deposited at the arsenal. Now if such a find can be found at what is nowadays a little inland village at a considerable distance from the sea—and yet not far from that famous seaport, Adria, which gave the name to the Adriatic Sea itself, now seventeen or eighteen miles away—it is probable that still more interesting things might be discovered.

IT seems to be the end and aim of a good deal of modern effort to abolish accidents by the mere process of legislating them out of existence; but as an accident is defined to be "a happening without intentional causation," it would seem to be somewhat difficult to get rid of these unpleasant occurrences, let legislators enact never so carefully that for every occurrence there must be a responsible intention. If a mischance of any kind happen to a man nowadays his first impulse is to secure redress in money damages from some one, and the laws give him a fair chance of getting something. Surely a cloudburst or an abnormally heavy rain might be considered an act of divine Providence, but certain citizens of St. Louis are now threatening to sue the city because their premises were flooded in consequence of a fall of nearly six inches of rain last week! The most startling attempt to abolish accident as a word, if not as a fact, is the Workmen's Compensation Act, which became the law in England with the first of this month, and essentially relieves some six million workmen from ever using the obnoxious word. If their bodies are maimed, the new law seems to declare that it was the intention of the employer that they should be maimed, and the said employer must pay to some heir or heir-at-law, in case of fatality, from one hundred and fifty to three hundred pounds, while in case of a disablement for more than two weeks the injured man must receive a pension equal to half his weekly wage, but not exceeding one pound per week. If the victim thinks he can get more money by suing under the common law, that course is open to him, and if the jury does not see fit to give him satisfactory damages the judge may, at his discretion, give him in place thereof the damages that would fall to him under the new act. The theory is simplicity itself: some one has been hurt and therefore some one must pay; and as the theory of the responsibility of the injured man's "fellow-servant" is expressly eliminated, the payment must be made by the employer, no matter if his entire establishment has been destroyed by the act of that other fellow-servant. It is an ideal and Utopian arrangement for every one—save the unfortunate employer, who still believes that the word has a place in the language and that the act itself is a happening "without intentional causation." One singular provision of the new act is that it covers building accidents only when the structure exceeds thirty feet in height, a provision which seems to suggest that all buildings will hereafter begin at the third story, since no good Union man will consent to work unprotected from mischance in the lower two stories.

ARCHITECTURAL FEATURES OF THE BOSTON PARKS.—I.

BRIDGES.



THE proper relation of works of architecture to public pleasure-grounds finds its best illustration in this country in the public parks of Boston. Very fortunately the designing and the construction of the great park system of Boston has remained in charge of the same firm of landscape architects from the beginning—that of Frederick Law Olmsted and his associates. The work has therefore been guided by a uniform artistic policy. This policy, so far as it relates to structural work, has adhered to the broad principle that the main consideration in the design and development of a public park is the attainment of landscape beauty; that no buildings or other structures are permissible mainly for the sake of ornament; that such structures should be erected only so far as required for

public necessity and convenience; that when erected they should never be allowed to become unduly conspicuous, but should always be designed with reference to the surrounding landscape, subordinate thereto in character, harmonizing therewith, and forming an artistic element in the scene. In carrying these principles into effect, the Boston Park Commission has adopted the policy of giving, so far as practicable, all these structures a permanent and substantial character, deeming that course the wisest economy.

In order to secure the greatest possible agreement with the park environment, it has always been the practice for the landscape architects to make careful studies of the conditions relating to all proposed structures and furnish preliminary sketches for the same. This work, it is of interest to note, has almost without exception been done by Mr. John Charles Olmsted, and it was also the custom for Mr. Frederick Law Olmsted to give close attention to these matters.

These structures comprise bridges; entrances and gates; buildings for shelter, refectories, administration purposes, gymnasias, bathing, lavatories, carriage-sheds, etc.; piers and landings, stairways, terraces, and also monuments, and fountains for drinking-purposes and for ornament.

The bridge architecture of the Boston parks is of particular interest. In their class, the bridges of the parks present an admirable object-lesson, and form artistically an oasis in a desert of badness; for, outside the parks, the bridges of Boston are almost wholly atrocious. The rivers and channels are, for the most part, crossed by bridges at the lowest possible grade, resting on piles, and obstructive to navigation. Their ugliness is unmitigated. The only exception to these wooden affairs consists in the Harvard Bridge across the Charles River between Boston and Cambridge, the new bridge between Boston proper and the Charlestown district, now under construction, the Broadway and the Dover Street bridges. All these have superstructures of steel resting on stone piers. Their effect is enhanced by the fact that they rise in the centre to a considerable height above the water. The Harvard Bridge, however, is badly proportioned, and lacks proper strength, both apparently and actually. The new Charlestown Bridge is a very strong affair, and it looks so; when completed it will evidently possess a certain dignity of appearance. The element of design has, however, not been sufficiently considered; the aid of a good architect would have been of



The Fenbridge.

immense advantage, and the cost would probably not have been materially enhanced thereby. The Broadway and the Dover Street bridges to South Boston, across the Fort Point channel, are high, level structures of steel; less offensive than the remaining bridges of the city.

A numerous class of bridges are those that carry the streets across railway tracks; many of these are inconspicuous, but many others are nightmare atrocities of truss-work, like the Dartmouth Street Bridge, near the Museum of Fine-Arts. The aqueduct bridges are handsome and substantial affairs of stone; the chief of these, however, the celebrated Echo Bridge across the Charles River at



The Riverway: Bellevue St. Bridge.

Newton Upper Falls, having one of the great spans of the world, and beautiful in design, was sadly marred by carrying a course of brickwork above the granite.

When we consider what important features in the landscape bridges are, and how atrociously the landscape throughout this country is marred by bridges of modern construction, it may be seen that a thorough course in the principles of design should be an essential feature of the civil-engineering courses in our technical schools.

Returning to the Boston parks, the bridge-work here seen presents an agreeable contrast. The key-note was set by the very first bridge that was built by the Park Department, the celebrated Boylston Bridge, that carries Boylston road across the Back Bay Fens. This bridge was designed by the late Henry Hobson Richardson, and, both in itself and by reason of its location, is one of the most important bridges in the park system. In its simplicity and its dignity it is a noble example of the great architect's work. In the original report of Mr. Olmsted on the design of this portion of the Parkway it was stated that this bridge will be the most conspicuous object in the territory, and its architecture should be studiously appropriate to the circumstances. It was also pointed out how its elevation of twenty-three feet above the water would give it a commanding view over the Fens on one side and over Charles River on the other, while its arch would be the frame of a quiet, distant, rural scene from the bridge on Commonwealth Avenue. All this has been fully realized in the work. The bridge is a structure of red granite, extremely plain in character, and making its æsthetic impression solely by its massive effect and magnificent proportions, taking its place naturally in the scene, and artistically and structurally true to its purpose in carrying a very important thoroughfare across the Parkway. The granite was selected with great care, in order to obtain the natural color upon its face, which is that of the seams as the stone was quarried. It is worthy of note that the architect's original design for this bridge would have produced a structure more Titanic in character, for it called for a work of rough boulders, to be largely overhung by trailing plants, something after the manner of certain other bridges in this division of the Parkway. This design, however, met with objection on the part of the Park Commissioners on the ground that it was too rough and primitive in character for a site that would eventually be in the midst of urban surroundings.

The railing, lamps, etc., of the bridge carrying Charlesgate West over the Boston & Albany Railroad were also designed by Richardson.

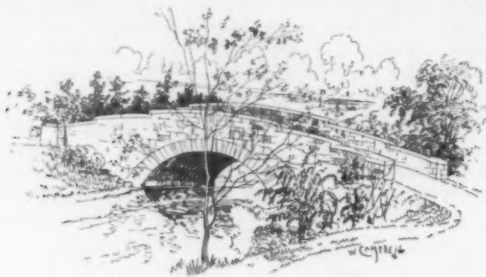
Next comes Agassiz Bridge, dividing the upper and the lower basins of the Fens. This is a rustic structure with five narrow arches. These arches vary in height, the central arch being the highest. The material is rough conglomerate, or Roxbury pudding-stone, quarried in Franklin Park. It was carefully put in shape in the Park and the stones were numbered, so that on transportation to the Fens the effect could be preserved exactly. With its drapery of herbaceous and trailing plants growing from crevices provided with pockets of earth, it is a strikingly picturesque object at all seasons. It was designed by the landscape architects.

In marked contrast is the bridge next in order, the Stony Brook Bridge. This bridge carries the Fenway across the storm channel of Stony Brook where it enters the upper basin of the Fens. This channel has the shape of a canal, with straight lines and formal banks. It therefore invites an elegant treatment, and the bridge



The Riverway: A Foot-bridge near Bellevue St.

was designed in an Italian style, with five light arches. Two of these arches carry the footway beneath the bridge to a crossing of the channel by a light iron, separate structure, on the lower side. The bridge is faced with brown brick. The bridge is carried on transverse arches within. This, together with the fact that it is lined with glazed brick, on account of the footway, gives the interior



Leverett Park: a Foot-bridge.

a peculiarly light and attractive appearance, particularly at night, when it is illuminated by incandescent electric lamps studding the arches. The architect of this bridge is Mr. C. Howard Walker, who is the author of much other successful work in the Boston parks.

Next above the Stony Brook Bridge comes the Fenbridge, which carries a road connecting Fenway and Audubon Road. It spans the river-like channel where the Fens end and the Riverway begins. It has a single arch and is a rustic structure of boulder work, draped with vegetation, similarly to Agassiz Bridge.

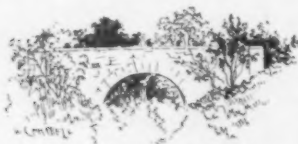
All the bridges in the Riverway and the principal ones in Leverett Park were designed by Messrs. Shepley, Rutan & Coolidge, the successors of Richardson. With one exception, they are simple in design, though agreeably varied, and substantial in character. Not counting three or four small affairs in Leverett Park, carrying footways over brooks, there are nine of these bridges,—six in the Riverway and three in Leverett Park. They are constructed of a rich-hued stone of a sort of golden-brown color, and form pleasing features of the English-like scenery of this portion of the park system.

The first of these bridges is a striking "double-decked" structure that carries the saddle-path across the river on a series of groined arches. Underneath, transversely through these arches, the footway crosses on a light ornamental structure of steel. Another notable bridge is that for the footway between the Boston side and the neighborhood of the Longwood railway station. It is composed of two light and graceful arches sprung at different levels. The higher arch spans the saddle-path and the footway descends by steps to the second arch, spanning the river. A picturesque element in the composition formed by this bridge and its environment is the round, tower-like structure of stone on the bank close to the entrance of the bridge on the Boston side. This tower, which is the work of the same architects, was built for shelter and as an outlook over an extraordinarily pleasant prospect.

The Huntington Avenue Bridge, which forms the line of demarcation between the Riverway section of the Parkway and Leverett Park, is notable for its great width, which makes a long tunnel of its single arch. As one passes up the river through this arch in a canoe or launch the effect of the expanse of Leverett Pond with its beautiful shores, framed in the semi-circle of this arch—and perhaps duplicated below, when the water is calm—is that of an enchanting picture.

In Leverett Park the two other notable bridges are, respectively, that which carries the footway on the easterly side of the pond across a quiet cove with bosky shores, and at the head of the pond where a pretty little cascade tumbles into a small inlet. Of the minor bridges in this park there is one that carries the footway across a brook near Willow Pond. From below, near Brookline Road, there is a charming little picture formed by a shimmering waterfall seen through the arch of this bridge.

It has been noted that, with one exception, this Shepley, Rutan & Coolidge series of bridges are of simple design. This exception is that of the great Longwood Avenue Bridge across the Riverway, now under construction by the City of Boston and the Town of Brookline to replace the rude wooden affair that stood here for years.



Leverett Park: a Foot-bridge.

of its landscape environment. In contrast to the almost sublime reticence of the Boylston Bridge, this work of Richardson's successors is marked by a striking elegance of treatment. This is not to say that it is either florid or elaborate in design. It certainly could not be charged with over-elaboration. Its adornment, indeed, is very simple. But where the Richardson Romanesque structure depends upon massive proportions combined with absolute simplicity

of surface, the Longwood Bridge is conceived in the Renaissance spirit. It complements massive harmony with a sort of melodic grace; it accents and emphasizes surface character with rich lines and clean-cut projections. The bridge is a high structure, and it spans the river with a very wide arch, crossing the Newton Circuit Branch of the Boston & Albany Railroad by a second and smaller arch beyond. Stairways and terraces enrich the composition. Large medallions occupy the spandrels of the main arch. The English-like square tower of the Longwood church near by is a landmark, and forms an important element in the scenery of this part of the Riverway.



The Riverway: Bridge near the Fens.

A very handsome bridge is that by which the Boston & Providence Division of the New York, New Haven & Hartford Railroad crosses the Parkway—here called Arborway—near Forest Hills, between the Arnold Arboretum and Franklin Park. It is composed of several stone arches, with one for each of the roads of the Parkway and for the adjacent traffic road.

Another important bridge is that where the Arborway enters Franklin Park by crossing Forest Hills Street. A higher grade for the Parkway was necessary here in order to avoid the interruption of pleasure-travel by the frequent funeral processions through Forest Hills Street to the great cemetery near by, as well as to avoid the unpleasant sight of the same. It being one of the main entrances to the Park a structure of monumental character was in place here, with handsome stone piers for the gates, and stairways connecting with the street below. Both this bridge and the railway viaduct aforementioned were designed by Messrs. Shepley, Rutan & Coolidge.

In Franklin Park there is but one bridge of the first importance. To secure the separation of traffic and freedom from liability to accident, it is essential, in a public park, so to shape the design as to avoid, so far as possible, the crossing of roads by footpaths at grade. The fact that but one bridge has been necessary for this purpose in Franklin Park is a tribute to the skill of the landscape architects. This bridge is the Ellicott Arch, designed to carry the Circuit drive over the footway approach to the popular playground called Ellicottdale, thereby making its access perfectly safe for users of the latter. It is built of rough stone. With its mantling vegetation it forms a pleasant, unobtrusive picture in the landscape, viewed from either side. It, also, was designed by the landscape architects.

The bridge by which the Circuit drive crosses Scarborough Pond and the foot-bridge across the same pond were designed by Messrs. Shepley, Rutan & Coolidge.

Besides the Agassiz Bridge, Fenbridge and Ellicott Arch, it should be noted that Mr. John Charles Olmsted designed the following boulder bridges and culverts: In Leverett Park three small boulder bridges over a brook, a small foot-bridge between the two upper pools near Pond Street, the boulder bridge and dam at the outlet of Ward's Pond; the culvert under the drive entering the Arboretum near the Museum, also the culvert at the outlet of the pond in the Arboretum and that over the brook near Hemlock Hill, in the same park. He also designed the boulder terrace of the Overlook and that of the Refectory in Franklin Park, the boulder wall of the concourse on Scarborough Hill, in the same park, and also the boulder terrace, steps, etc., at Charlestown Heights.

SYLVESTER BAXTER.

(To be continued.)

LANDSCAPE PHASE OF THE UNIVERSITY OF CALIFORNIA PLAN.

THE regents of the University of California, with a view to securing in advance of reconstruction an ideal plan for the University, have invited the architects of the world to enter a competition for an architectural plan. When they have secured this, it is to be hoped that they will also be able to fix the plan and a consistent policy regarding it so firmly that their successors will not depart from it.

The authorities of nearly all of our important educational institutions have, in the beginning or at different periods of the growth of these institutions, adopted a more or less comprehensive plan of grounds, or a style of architecture, with the intention that future additions should conform to it, but such preconceived plans have for various reasons been radically departed from or only partially realized. The original designers were sometimes unable to anticipate the future growth of the institution, or, when this was done and the first plan was sufficiently comprehensive for all time, later administrators, induced by temporary financial embarrassment, disposed of land (of which there was often a liberal endowment) which was

essential to the development of the plan. Nearly every growing school has had occasion to regret such a short-sighted policy when compelled to make new purchases at a large advance over the price for which school property had previously been sold. Again, administrators have been weak enough to permit departures both from the established plan of grounds and from the style of buildings, purely for local or personal considerations, such as the presence of a temporary building, a group of unimportant trees, an established path or an individual's desire to design or have designed a building markedly different from the established type and to locate it in a position where its individuality would be conspicuously evident.

The Programme begins with the statement that "University" means "the collection of buildings." In another paragraph it states that the provision for access and communication is an essential part of the Programme; that the arrangement of the buildings should harmonize with the topography and picturesque nature of the grounds, and that the fine tree growth, especially that within one hundred feet of the brook, must be preserved; but in a brief section devoted to approach and communication are the following words: "This whole arrangement, naturally subordinate to the general conception of the ensemble, does not allow of more detailed directions." This statement, the few incidental references to a general plan of grounds, and the fact that approaches and means of communication other than buildings are not called for on the preliminary or final plans, make it appear that there was no intention on the part of the framers of the Programme to invite landscape-architects to take part in this competition.

The founder of the Stanford University sought first the advice of a landscape-architect, who, after having determined upon the site (the present site being a second choice), outlined a preliminary plan of grounds, and then prepared in conjunction with the designers of the buildings a comprehensive scheme which, up to this time, has been only partially carried out. Similar action in reference to the whole or a part of their grounds was taken by the trustees of the American University at Washington, the Washington University at St. Louis, also at Harvard, Yale, Cornell, Princeton, Bowdoin, Amherst, Brown, Columbia, University of Minnesota, Bryn Mawr (Pa.), Smith (Mass.), Lake Forest (Ill.) and Drew Seminary (N. J.).

The landscape problems presented by the site in question are so unusually intricate that the advice of a skilled landscape designer would have been of much assistance in the preliminary stages of the undertaking to determine in advance the areas required for each department, the practicability of providing for all of these on the site selected, and to consider, in conjunction with the architects, the character and disposition of buildings and means of communication, and their association with existing and proposed plantations, all these to be considered as elements of and related to the landscape of the chosen site.

Having made an examination of the grounds with the topographical plan in hand to determine for my own satisfaction how far it was practicable to make adequate provision for the requirements of the Programme, I will here review circumstances that may prove of interest to those who have entered the competition. The topography and the wooded areas appear to be correctly indicated upon the maps provided. The omission of the alternate contours on the upper levels, though clearly referred to in a note, is likely to mislead one. Important new wooden buildings, probably constructed since the plan was made, are omitted, but if, as stated, the existing buildings are to be ignored, this is of no moment. The direction and character of the important views from different points on the grounds are omitted; so, too, are a number of important individual trees. More information concerning the character of groups of trees and fine individual specimens, some of which are very tall with high trunks, and others very broad-spreading with branches almost touching the ground, would have been of material assistance to a designer.

The area within the present boundaries, and including land that may be acquired on the north, is about 350 acres. I was assured by one of the trustees that no other adjoining land could be secured. From this estimate must be excluded about fifty acres of wooded land along the water-courses, and seventy-five acres of land having a slope of from forty to eighty feet in a hundred.

Upon the remaining area are the following comparatively flat sites, of which I give approximate dimensions, the difference in elevation between the lower and upper levels of the tracts and the least elevation between each tract and the one following it in the list given below, and which is also the one nearest to it on the plan:—

			DIFF. IN ELEVATION.	BELOW NEXT TRACT.
Near Agricultural Experiment Garden..	200 x 300	(1.3 a.)	12 ft.	16 ft.
Orchard and south of orchard.....	800 x 1,000	(18.3 a.)	70 "	24 "
Westerly End of Campus.....	400 x 600	(5.5 a.)	20 "	24 "
Easterly End of Campus.....	600 x 1,200	(16.5 a.)	90 "	8 "
North of Bancroft Way, lower end.....	300 x 400	(2.7 a.)	16 "	16 "
North of Bancroft Way, upper end.....	400 x 900	(8.3 a.)	32 "	20 "
End of Piedmont Way.....	200 x 300	(1.3 a.)	20 "	20 "
Reservoir Site.....	200 x 300	(1.3 a.)	15 "	520 "
Hill Top towards the N. E.....	400 x 500	(4.5 a.)	32 "	
			59.7 a.	

The Programme requires that provision be made upon the site for roads upon easy grades and other means of communication, for campus, yard, reservoir, botanic and other gardens, an open-air drill-

field, sheltered courts for drilling twelve companies of infantry, one company of engineers, a squadron of cavalry and a battery of artillery, an armory, an auditorium for 5,000 people and another for 1,500, with a connecting garden for celebrations, a museum, a library for 750,000 volumes, gymnasia "to occupy a large space" and the full complement of buildings for eleven administrative and fifteen educational departments, together with ample provision for future extensions, all planned with the assumption that there will ultimately be 5,000 students. [At Harvard there are now in round numbers 3,000 students, at Yale 2,600, at Pennsylvania 2,900, Princeton 1,100, Cornell 1,800, Columbia 2,400, University of Chicago 1,850, University of Minnesota 2,575, University of Wisconsin 1,600, Stanford University 1,200.]

The site indicated for a reservoir will undoubtedly all be required to store the large amount of water needed to tide over the long rainless period during which the supply of ground water is also limited, but possibly a building could be constructed over it.

The high hill-top site is hardly available for a large group of buildings.

Including these sections the area of the tracts of land referred to upon which large groups of buildings can be arranged conveniently without undue cost comprises only about sixty acres.

In this connection the following estimates are instructive. As most of the estimates given in this article are based upon measurements scaled from maps, they must be accepted as approximate only:—

	AREA.	AREA BUILDINGS.	APPROACH TO COMMUNICATIONS.
Harvard A.....	9.91 a.	2.35 a.	7.56 a.
" B.....	21.80 a.	4.19 a.	17.68 a.
" C.....	61.16 a.	7.66 a.	53.50 a.
Yale A.....	10.90 a.	2.82 a.	8.08 a.
" B.....	16.64 a.	3.52 a.	13.12 a.
" C.....	29.97 a.	4.65 a.	25.32 a.
Columbia A.....	11.82 a.	4.73 a.	7.09 a.
" B.....	17.55 a.	5.43 a.	12.12 a.
Princeton B.....	19.28 a.	6.94 a.	12.34 a.
" C.....	45.73 a.	7.98 a.	37.81 a.

A represents a section of ground so fully occupied by buildings as to permit no extensions, as, for example, the college-yard at Harvard and the buildings immediately about it. B represents a section the greater part of which is occupied by buildings but where some extensions could be made, as on the grounds of Columbia College, while C represents the area reserved in the vicinity of principal buildings to provide for future growth, not including, however, distant outlying land, like that held by Columbia in the city proper, or by Harvard in outlying towns and at the Soldiers' Field.

On the twenty-four acres comprising the grounds of the Chicago University upon the Midway Plaisance it is proposed to place buildings covering about six acres.

Under A the minimum acreage of approach and communication (including the college-yard) to the acreage of buildings (ground area) is about one-and-one-half to one at Columbia, about three to one at Harvard and at Yale; and at Stanford University (buildings planned, not yet erected) the proportion is nearly four to one.

At Harvard and Yale the college-yards are often uncomfortably crowded on Class days. At Columbia, with the greater number of floors and consequent larger capacity of halls about the college-yard, the crush in the yard is likely at times to be very uncomfortable if not dangerous. The same ratio between buildings and grounds prevailing at Harvard, Yale and Chicago Universities, where the grounds are comparatively flat, can hardly be adopted at Berkeley, where there is a difference in grade on the areas which I have specified of from 12 to 90 feet, a difference in elevation of adjoining areas of from 80 to 24 feet and in one case 520 feet,—differences which will require say four and one-half acres of ground to each acre of buildings within these areas, from a practical standpoint alone. From an æsthetic standpoint, upon which much stress is very properly laid, more land will be required to maintain a proper proportion between buildings and grounds, to secure at certain places satisfactory perspectives, and to provide for plantations, which will be quite as important elements in a wholly artistic result as will be the buildings themselves. The location and composition of all plantations bearing any relation to the buildings and grounds about them should be carefully considered as the study of the plans of these buildings and grounds progresses.

As a basis for an estimate of the amount of space required for the various departments for which provision is to be made at Berkeley, I have endeavored to determine the ground area of buildings or sections of buildings devoted to similar purposes at other colleges.

At Harvard, and at Columbia, there is used for administration purposes about one acre of floor-space, and at Princeton and Cornell considerably less than this.

Accommodations for 750,000 volumes are to be provided at Berkeley. The Harvard Library, containing 412,000 volumes and 310,000 pamphlets, covers a little less than one acre. The building is used for no other purpose and has recently been reconstructed to utilize the room to better advantage. At Yale the library building, with 235,000 volumes, covers one-half acre. At Princeton the library building, containing 182,000 volumes, covers three-fourths of an acre. At Pennsylvania and Cornell the library covers about one-half acre each, and at Columbia nearly one acre.

The museum at Harvard is planned to cover about twelve acres of ground, and about the same area is reserved for this purpose at the University of Pennsylvania. At Princeton, Yale, Columbia and Cornell the ground actually covered by buildings devoted in whole or in part to a museum appears to be less than one-half acre.

Saunders Theatre at Harvard, College Hall at Yale, and Assembly-hall at Columbia, each accommodating about 1,500 persons, cover less than one-half acre. An assembly-hall to provide for 5,000 persons would occupy about two acres. If in addition to these a garden were provided, about two acres more would be needed. The present outdoor meeting-place for Class-day exercises at Harvard, back of Hollis Hall, containing about one-fourth acre, is to be superseded by the "flatiron" piece of a little less than an acre in front of Memorial Hall.

No precedent has been found at other universities to determine the space required to provide for the military establishment proposed at Berkeley. Cornell provides one-and-one-half acres for an armory and parade-ground, and at the University of Minnesota the armory covers one-half acre and an adjacent "athletic field" two acres. A competent authority states that a drill-field for exercises in the open air should be not less than two acres in extent with one acre of level ground, and that four acres of rolling with one acre of level ground would be better. For squad-drill an armory should have a floor-space of about 150' x 150'.

The ground actually covered by gymnasias in the universities referred to is one-half acre or less.

Where especially equipped athletic grounds are provided they vary in size — at Princeton between seven and eight acres are provided, at Yale twenty-two acres, in the Soldiers' Field at Cambridge twenty acres, and in the Ohio Field of the New York University twenty acres.

At Harvard nearly three acres of college ground is covered by dormitories, mostly three to five story buildings, which accommodate only about one-third of the students; at Yale and Cornell two and one-fourth, and at Princeton and Pennsylvania one and one-fourth acres are covered by such buildings.

At Harvard club-houses occupy about one acre of ground, at Princeton about one-half acre.

The infirmary occupies about one-tenth acre at Harvard and at Yale, and less than a quarter of an acre at Princeton and at Pennsylvania.

Centrally located structures for general service, though not ordinarily provided, should give the most convenience and economical results in the generation of power, heat and light, the maintenance of buildings and grounds, the storage of supplies, vehicles, etc.

As separate buildings for the departments of Philosophy, Pedagogy, History and Political Science, Ancient and Modern Languages and Mathematics are not ordinarily provided, it may be assumed that a place would be found for these in the buildings of other departments.

For the department of Jurisprudence about one-half acre is appropriated at Harvard, a larger area than this at Columbia, and smaller areas at Yale and Cornell.

The buildings devoted to Physics at Harvard, the Massachusetts Institute of Technology, Cornell and Columbia occupy from one-fourth to one-third acre of ground.

The buildings at the Harvard Observatory cover about one-half acre of ground.

The buildings for the department of Chemistry at Cornell, the University of Pennsylvania, Harvard and Yale cover from one-fourth to one-third acre, and at Columbia, Havemeyer Hall occupies over one-half acre.

At Harvard and Yale about one-fourth of an acre is devoted to Fine-Arts, but at the other institutions referred to from one-eighth to one-sixth of an acre is appropriated.

Over one acre of ground is occupied by structures devoted chiefly to Natural History at Harvard, over half an acre at Columbia, and from one-fourth to one-third of an acre at Cornell and the University of Pennsylvania.

The Harvard Botanic Garden contains a little over six acres, some of which is occupied by buildings for the herbarium and by greenhouses. A much larger number of species can be grown at San Francisco than at Cambridge, and fully as much room will be required to bring together a satisfactory representative collection. A complete collection could not, of course, be attempted in such a garden. I am told that a large tract of land lying at some distance from Berkeley may be available for this purpose.

At least one acre will be required to provide for such buildings as are called for in the agricultural section, and very likely considerably more, if the sheds for the practical demonstration of the use of agricultural implements are made fully adequate for this purpose. For an experimental field of any practical value twenty acres would seem to be necessary. Including the orchard, nearly this amount of land is already devoted to this purpose at Berkeley. Lands outside of this college property are referred to as being available for farming purposes, and it is upon such land that extensive experimental work must be done. At Cornell over one hundred acres is devoted to experiments in horticulture.

For the last three departments named in the Programme, viz, Mechanical and Civil Engineering, Mining and Draughting, a building covering two acres will probably be required. Sibley College at Cornell occupies over two-and-one-half acres, while at Yale one-and-three-quarters acres, and at the Massachusetts Institute of Tech-

nology nearly one acre is occupied by buildings for this purpose; at other colleges from one-third to one-half acre.

In making the following estimates, it is assumed that at least the maximum amount of space required for the various specified purposes at other universities will ultimately be required at Berkeley:—

BUILDINGS.	ACRES.	ACRES.
Administration.....	1.	
Library.....	2.	
Museum.....	12.	
Assembly-hall for 1,500.....	.5	
Assembly-hall for 5,000.....	2.	
Outdoor Assembly.....		2.
Armory and Military Buildings.....	1.5	
Covered Drill Court.....	2.	
Drill Field.....		4.
Gymnasias.....	.5	
Athletic Grounds.....		20.
Dormitories.....	5.	
Club-houses.....	.5	
Infirmary.....	.5	
General Service.....	2.5	
Jurisprudence.....	.5	
Physics.....	.5	
Observatory.....	.5	
Chemistry.....	.5	
Fine-Arts.....	.5	
Natural History.....	.5	
Botanic Gardens.....		6.
Agriculture.....	1.	
Experimental Fields.....		20.
Engineering.....	2.	
	36.	52.

If these estimates are fair and reasonable, as I have endeavored to make them, it would appear from this that it is impracticable to provide adequately on the site for all that is called for on the Programme. If for each of the thirty-six acres of buildings four-and-one-half acres of ground is reserved for approach and communication, one hundred and sixty-two acres will be required, and this will exceed the fifty-nine-and-seven-tenths acres of readily available ground by one hundred and two and three-tenths acres. Of the two hundred and twenty-five acres of possibly available ground, only sixty-three acres will remain upon which to provide for the fifty-two acres of fields and gardens required, and for the approach and communication between different parts of the grounds, if all the buildings and their future extensions are placed upon this site. It will be necessary to crowd these buildings on rugged and irregular land. This will result in picturesque grouping and treatment much more in keeping with the character of the topography and landscape than if anything approaching a rectangular arrangement is attempted. It will also add much more to the cost and difficulty of the undertaking, result in the mutilation of a greater number of trees, unless this is very carefully guarded against in the elaboration of the plan and in the execution of the work upon the grounds, and the question of providing approach and communication upon easy grades between the various parts of the grounds will be an exceedingly complicated one. In view of these facts, it may be unwise to look upon this site as the home of all the departments of the University for all time. If it can be determined in advance which departments are likely to outgrow any provision that can be made for them upon this site, these should be provided for in a temporary manner only. If American universities continue to expand and add to their curricula as they have done in the past fifty years, many of them will sooner or later completely outgrow their present facilities. At some of our important institutions this fact is fully recognized, and large areas of land are now being secured at some distance from the present site at a low cost, presumably with a view to their ultimately becoming the home of the institution.

WARREN H. MANNING.

THE ARCHITECTURAL FREAK.

LEFT to itself, says the London *Globe*, the architectural freak is not greatly gifted with a spirit of originality; as a general rule, it has to be built stone by stone on the lines of a plan suggested by some human eccentric, and even then it fails to bear the proud title of "freak," for it is usually known, in this country at all events, as "So-and-So's Folly," but there are exceptions. In a certain town in Italy, discovered by Cook, there exists the "doyen" of architectural freaks in the shape of a tower that has a distinct bias on one side — a bias achieved by the sole exertions of the structure itself, without the intervention of human hands. This tower having achieved great popularity — few, we believe, of the casual visitors to Pisa, for that is the name of the place, have the strength of mind to leave the town without visiting and purchasing a photograph of this greatly advertised erection — other towers naturally essayed to eclipse it in leaning, but notwithstanding that the "Falling Tower" of Caerphilly Castle, in Wales, throws its head, which is 77 feet from the ground, 11 feet out of the perpendicular, as compared to the 14 feet bias of the 60 yards of Pisa's pet, the latter has never lost its hold on the public's affection, in which its foundations are deeply rooted, nor do we think it will loosen its grip, notwithstanding the efforts of Chesterfieldian champions on behalf of their crooked spire. This spire, which most closely resembles a bayonet as made in Germany after an encounter with a sardine tin, undoubtedly possesses claims to be known as the champion of architectural freaks,

and in making this assertion we are not influenced by any leaning on the grounds of nationality—the spire attends to that department—but because there is, unlike the subsidence of the foundation at Pisa, no reasonable explanation of the spire's caprice; optical illusion, lightning and warped woodwork have all been suggested, but a first-class theory is still wanting.

Had Philip II of Spain lived to-day the Escorial would be known as "Philip's Folly," but as he sojourned in this world in the sixteenth century, his contemporaries acknowledged that the building of the palace in the shape of a gridiron as a compliment to St. Lawrence, upon whose day, in the year 1557, he defeated the French at St. Quentin, was nothing short of a delicate attention and a prodigiously clever idea. There were, by the way, some vastly uncomfortable cells at their disposal had they said otherwise. This novel form of compliment is perpetuated in our country, it is alleged, in that charming example of Tudor architecture known as "Charlecote House," the ground-plan of which was built in the shape of an "E" in honor of Elizabeth Regina. When aerial navigation is an accomplished fact this idea will probably be adopted for advertising in our great cities: to see "——'s Cocoa is the best" neatly picked out in terraces, squares and streets would doubtless be as delightful and stimulating as the article advertised.

If the little Northamptonshire village of Rushton was not so situated, in longitude 10.21 E., the travelling Britisher would visit it in crowds, and philanthropic societies would extensively advertise their personally-conducted trips thither; indeed, "a week in rural Rushton for 5l." would be as familiar in our mouths as household words. Rushton, it should be explained, possesses one of the freakiest buildings in the wide world in the shape of a triangular house erected some three centuries ago by a fervent Roman Catholic, Sir Thomas Tresham, who is supposed to have had the idea of typifying the Trinity in his design. There are three sides to the house, each 33½ feet in length, and in height it is three stories; three windows grace each of the three sides, and six of them are in shape trefoils; naturally, the panes of glass are triangular. From the meeting-place of the roof of the three gables on each rises a three-sided chimney, and through three holes that perforate the three sides the smoke escapes, when there is any. Each of the gables bears a three-sided pyramid crowned by a trefoil, and each of the three Latin inscriptions gracing the sides contains thirty-three letters. The interior of the house is so arranged by the cutting-off of corners that on each floor there are three-sided apartments. In very sooth everything in this remarkable house is in threes, with the exception of the number 5555 carved over the doorway. Why these figures should appear there is a mystery, for in no circumstances will three go into it without a remainder.

Another architectural freak having a religious significance is Jezreel's Tower at Chatham, built under the direction of one White, who under the name of James Jerusha Jezreel gathered together a numerous following who called themselves "Jezreelites," and who were to be immortal—at least, they were given to understand they were. Unfortunately, the founder of the sect died before the completion of the tower, which was built from plans supposed to have been received from the Heavenly Jerusalem, to accommodate the 144,000 chosen. Some little time ago the property, upon which 40,000l. had been expended, was put up to auction, but, notwithstanding the auctioneer's suggestion that it might be converted into a "brewery or a lunatic asylum," no sale was effected, though the breaking-up price was but 6,300l.

In the castle grounds at Midford there stands a tower which has claims to be regarded as a *bona fide* freak of the second class, inasmuch as its ground-plan reveals the fact that it was erected in the shape of the ace of clubs. There is, of course, the obvious legend attached to the building, as well as a priori, to account for the strange shape adopted, but the erection cannot be regarded in the first flight of freaks, and would probably, in more senses than one, be looked down upon by such eminent examples as the crooked spire of Chesterfield and other naturally deformed architecture.

Among the many suggestions of features warranted to secure success for the Paris Exhibition of 1900 one of the most startling was the idea of erecting the "Woman's Building" in the shape of a woman's head—not an ordinary head either, but one that would be typical of feminine beauty. Whether the model obtained from a composite taken from the photographs of the most beautiful types of modern women would give a result that would secure votes of approval from one per cent of the feminine beholders we do not know, but a *plébiscite* would be full of interest. The details of this proposed architectural freak are remarkable; we learn, for instance, that beneath the layer of thin wood which bears the complexion of the fair but exaggerated composite powerful electric lights will be arranged. The wood, we are given to understand, will be "of some variety that is not opaque," while the electric light will be of sufficient force to penetrate the complexion and give the latter a soft translucent effect that will be decidedly charming at night. With regard to Juliet, Shakespeare wrote:—

There lies more peril in thine eye
Than twenty of their swords.

What he would have said, had he lived to-day, concerning the powerful electric arc-lights which were to illumine the orbs of this proposed architectural freak we cannot conjecture, but we trust he would have altered the latter part of the quotation or, saving his nationality,

he might have found himself literally in the same box as his distinguished comrade—in a literary sense—M. Zola. Finally, we learn that the hair will be of dark-brown shade and will consist of fine strands of rope; doubtless the coiffure will be on the lines suggested by Dryden:—

Her head was bare
But for her native ornament of hair,
Which in a simple knot was tied above,
Sweet negligence unheeded, bait of love.

Could any more appropriate coiffure for strands of rope than the knot be suggested? We hardly think so.



EXTRAS.

WHAT is not an E.tra.—A building contract provided that the contractor should make the excavations and put in the stone foundations of the proposed buildings according to the plans and specifications, including all labor and material necessary thereto. In order to make the excavations it was necessary to underpin a building on the adjoining ground, and to use a quantity of lumber to do this. The court held that the underpinning of the house and the lumber used in the trenches were included in the terms of the contract, and that a recovery for same could not be had on an implied obligation to pay what they were reasonably worth.

[Ashley vs. Henahan (Sup. Ct. Ohio), 47 Northeastern Rep. 575.]

When not liable for Extras.—Where a builder has contracted for a stipulated price to build, as required by an agreed plan and specifications, and it was expressly agreed that no charge would be made for extra work unless it was executed under written authority, a charge for extra work will not be allowed unless it is shown that the proprietor agreed to the change.

[Monarch vs. Board of Com'rs (Sup. Ct. La.), 22 Southern Rep. 239.]

Owner can order Extras.—A stipulation in a building contract as originally made, that the contractor should make no claim for extras for additional work unless the same was done under order from the architect, and such claim made in writing, does not apply to work done pursuant to alterations made in the contract by subsequent agreement between the contractor and owner.

[Wilkins vs. Wilkerson (Tex. Ct. Civ. App.), 41 S. W. Rep. 178.]



[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

THE RESTAURANT: DELMONICO'S, 44TH ST. AND FIFTH AVE., NEW YORK, N. Y. MR. JAMES BROWN LORD, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print, issued with the International and Imperial Editions only.]

DELMONICO'S, 44TH ST. AND FIFTH AVE., NEW YORK, N. Y. MR. JAMES BROWN LORD, ARCHITECT, NEW YORK, N. Y.

COMPETITIVE DESIGN FOR THE U. S. POST-OFFICE AND CUSTOM-HOUSE, CAMDEN, N. J. MESSRS. BAILY & IRUSCOTT, ARCHITECTS, PHILADELPHIA, PA.

BRIDGES IN THE BOSTON PARKS.

SEE article elsewhere in this issue.

[The following named illustrations may be found by reference to our advertising pages.]

CENTRAL FIRE-STATION, BOOTLE, ENG.: SECOND PRIZE DESIGN. MESSRS. BRIGGS & WOLSTENHOLME, ARCHITECTS.

This plate is copied from the *Building News*.

HOUSE OF MR. J. A. LYNCH, CHICAGO, ILL. MESSRS. JENNEY & MUNDIE, ARCHITECTS.

[Additional Illustrations in the International Edition.]

GENTLEMEN'S CAFÉ: DELMONICO'S.

[Gelatine Print.]

TERRACE ON THE ESPLANADE, BARTON-ON-THE-SEA, HANTS,
ENG. MESSRS. DANCATER & ROGERSON, ARCHITECTS.

NEWCASTLE AND GATESHEAD WATER CO.'S OFFICES. MESSRS.
FREEMAN & ROBINS, ARCHITECTS.



THE WOOD-PULP OUTPUT.—In the State of New York there are 128 wood-pulp mills in operation, which have a combined daily output of 1,400 tons of paper, employing 15,000 men, and having a pay-roll of \$6,000,000 a year. This expenditure for labor supports 100,000 people, besides indirectly helping to support many more. — *Exchange.*

MOLTEN IRON SHIPPED BY RAIL.—A mechanical and an economical triumph reported from Pennsylvania is the daily shipment of tons of molten iron by railway from the blast-furnaces at Duquesne to the Homestead Steel Works. This remarkable service was instituted on the 1st of June, and is now an ordinary daily routine. The molten iron as it is tapped from the furnaces runs into an immense mixing ladle having a capacity of 250 tons, and from this it is poured into the 20-ton ladle-cars, the ladles being made of sheet-steel or iron, with a lining of refractory material. The cars are then hauled by a locomotive to the Steel Works, where the direct conversion of the molten iron into open-hearth steel is made, avoiding all the expense of casting the metal into pigs and cooling, handling, reloading, reheating, and remelting the pig metal. It is stated in the *Iron Age* that between 700 and 800 tons of iron are transported daily from the Duquesne furnaces in this manner. — *N. Y. Evening Post.*

"SHALL" AND "WILL."—According to Southey, the possession of "shall" and "will" gives the English language an advantage which is not possessed by all European languages. But apparently the meaning of "shall" is not yet fully defined. A case came before the Tribunal of Appeal under the London Building Act which turned on the meaning of the word. The Lion Brewery Company, it appeared, were desirous to alter premises in Foubert's Place, Regent Street. Plans were approved by the County Council, but before they were carried out deviations were proposed and new plans were submitted. The Council declined to sanction the new scheme. The Building Act provides that if any one should desire to deviate from existing plans it should be lawful for him to apply to the County Council, "who shall sanction such deviation on such terms as they shall think fit to impose." Counsel for the company held that no one could construe the word "shall" in an act of Parliament to mean "may." Mr. Hudson, one of the Tribunal, asked if the Council were bound to sanction all plans presented under such circumstances, as there would then be no object in the Act. On behalf of the Council it was maintained that, according to Lord Esher, the word "shall" was not always to be taken as having an obligatory sense. The Tribunal gave the Brewery Company the benefit of the doubt, and approved of the new plans subject to certain alterations. — *The Architect.*

THE BRONZE CANCEROID.—Some curious particulars regarding the presence of bacteria on ancient bronze implements has lately appeared in *Nature*. The disease makes its appearance in the form of small excrescences, which are centres of rapid oxidation. On scraping off a little of the material from these points it is found to be swarming with bacteria. This "Ulcerative Disease of Bronze," or "Bronze Canceroid," as it has been called, has been described by Dr. W. Frazer, in the *Journal of the Royal Society of Antiquaries of Ireland*. According to this authority all objects of antiquity fabricated from metallic copper, and its important alloy, made by adding tin in certain proportions, are liable to be attacked by this destructive corroding affection. The bronze disease produces a remarkable disintegrating effect on the object it attacks, and there are good reasons for considering it possesses infective powers, spreading like leprosy through the substance of the metal, and slowly reducing it to an amorphous powder. Further, there are substantial grounds for believing it capable of being conveyed from surfaces already suffering with it to those yet uninfected. This sign of antiquity has not been overlooked by the counterfeiters of such objects, and we are told that skilful artists of these false antiques are known to inoculate their productions with spots of the bronze disease. — *Boston Transcript.*

BARON GRANT'S PROJECTED HOUSE.—The sensational and, to those not in the know, sudden and unexpected failure of a man who not long ago was supposed to have cleared a couple of millions sterling out of a single deal recalls to mind several other similar colossal commercial catastrophes. One of the most dramatic, if not actually one of the largest, so far as the liabilities were concerned, was that of Baron Albert Grant, of "En-ma Mine" notoriety. Grant was the uncrowned king of the financial world of his day and generation. He made millions almost as deftly as the late Mr. Barney Barnato, and he spent them right royally. He bought Leicester Square, and presented it, a free gift, to the people of London. He gave a dinner to nearly a thousand city magnates, at a cost which was popularly reputed at the time to have exceeded a hundred guineas a head; and which, in any event, undoubtedly established a record in extravagant dinner-giving which has yet to be beaten. And he started out to build a palace in Kensington which should "knock spots off" all other private residences, past, present or to come. Everything was got up regardless of expense. The ball-room walls were inset with panels of pink Italian marble, cost-

ing 800 guineas each. In the entrance-hall were four pillars of porphyry, worth £4,000. The building was scarcely finished when the crash came, and it remained for long a brick-and-mortar white-elephant on the hands of the trustees in bankruptcy. Eventually most of the interior fittings and decorations were disposed of piecemeal; the grand staircase, which had cost to build some £40,000, being acquired by the representatives of the late Mme. Tussaud for a trifle over a fourth of that sum. It now forms the main approach to the upper and principal suite of rooms of the new exhibition buildings in the Marylebone Road. — *London Daily Mail.*

ROMAN ROADS.—An authority on road construction says that the Romans made their main roads to last forever. They were composed of siliceous and calcareous materials, and were far superior to the highest type of modern work. The large roads averaged 4 to 4.34 metres, the smaller ones 3 to 3.12 metres. In mountain regions the road was narrowed down to a single carriageway, 1.34 metres. The sidewalks were larger near the cities, but reduced to six-tenths of a metre in the outer districts. They were built of cut stone, at least on the border. At every twelve paces mounting-stones were placed, and at every 1,000 paces milestones. Some of the best roads were paved with marble. The minor or secondary roads were not so carefully made, though of a solidity with which few modern roads can compare. A ditch was dug to the solid earth, which was stamped, rolled or staked; then on a floor of sand, 10 or 15 centimetres thick, a layer of mortar was spread. This formed the basis of the four courses which constituted the road. The first was a course of several layers of flat stones, bound by hard cement or clay. This layer was usually 30 centimetres thick, and twice that in bad lands. On this came a concrete of pebbles, stones and broken bricks, strongly rammed with iron-sheathed rammers. The ordinary thickness of this layer was 25 centimetres. In the absence of mortar, loam was used. Superimposed on this was a layer of 30 to 50 centimetres of gravel or coarse sand, carefully rolled. The top layer, or crust, was convex, and ran to a thickness of 20 to 30 centimetres or more. It was made differently, according to the materials at hand. It was either paved with cut stone or laid with pebble and granite, or metalled. — *St. Louis Globe-Democrat.*

A PICTORIAL ILLUSION.—Philip H. Calderon was elected A. R. A. in 1864—the same year and at the same time as Frederick Leighton. Nor has the Royal Academy ever elected two men who have been more devoted to its service. Those student days in Paris with his friend Marco, when they had rather to rough it—those doleful days of doubt when he feared he would have to give up all thoughts of art—were all past; he was in a pleasant and lofty studio in Marlborough Place, built at his own expense, and there were pictures on the easel that commanded four figures. His painting partook of the happy times. His touch was firm and confident, his color joyous, and he showed that in dexterity at least he was not to be outdone. Among other things he painted, chiefly for amusement, or as a "fetch," as we used to call it, a portrait of his wife, life-size, standing in a doorway, with her hand on the door-handle and her foot on the step, looking back over her shoulder as though she were quitting the room. The picture was placed against the panelled wall of the studio, and was such a perfect illusion that it looked not like a picture but a reality—so much so that genial Tom Landseer, the engraver, who called one day, made a most profound bow to it, and, addressing the effigy, said "Pray do not leave us, madam." — *G. A. Storey, A. R. A., in the Magazine of Art.*

A GLASS HOSPITAL WARD.—An "aseptic ward" in one of the London hospitals contains some novel features. It is 14' x 11' in area and 13 feet high, being intended for only one patient at a time. The walls and ceiling are of enamelled glass, with rounded angles, and the floor is of marble mosaic, with angles also rounded. A plate-glass window, with outside blind, forms three-fifths of the west wall; the door is of ground glass, and the frame—the only wood about the ward—is of hard teak. No pipe or drain opens into the ward, and great care has been taken with the ventilating arrangements, the ward being also cut off from the rest of the hospital by a ventilated lobby; the bed, chair, patient's locker, etc., are of metal. Everything in the apartment can be washed in hot water without harm of any kind, and it is suggested that future houses will be provided with the most complete protection against the growth or entrance of any description of harmful germs. — *N. Y. Tribune.*

THE ETHICS OF BOOK-BORROWING.—A friend of Burne-Jones returned some borrowed books which he had kept for thirty years with a note saying that if it is base to keep books thirty years, it is also heroic to return them after time had bred a sense of possession. Burne-Jones replied: "The return of those books has simply staggered me. It has also pained me, for it seems to raise the standard of morality in these matters, and perhaps to sting the susceptible consciences of book-borrowers. I have many borrowed books on my shelves. I would rather the owners should die than that I should have to think about these things and return them. I have two costly volumes that were lent to me before that little incident of ours, which, you may remember, was in Red Lion Square. I hope the owner is no more, for I simply will not give them up. And you have made me uneasy, and have helped to turn an amicable rascal into a confirmed villain."

Your affectionate, NED."

IVORY VENEERS.—Veneer-cutting has reached such perfection that a single elephant's tusk thirty inches long is now cut in London into a sheet of ivory 150 inches long and twenty inches wide, and some sheets of rosewood and mahogany are only about a fiftieth of an inch thick. — *Boston Transcript.*

7.

er-
he
nt
he
nd
he
of
al
d.

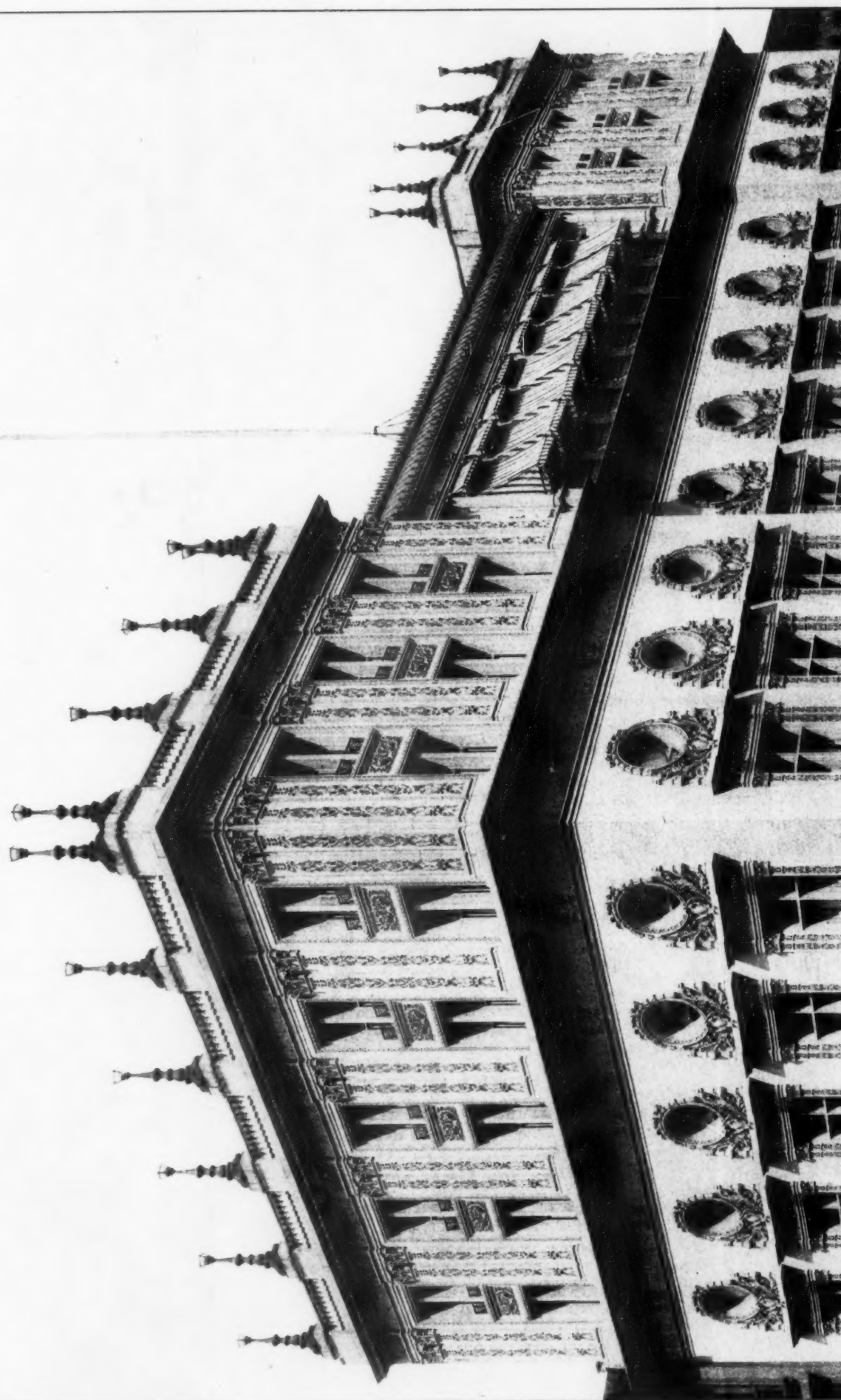
he
ed
he
-4-
he
he
a
on
nd
ed
ly
re.
d;
ar
ti-
es,
res
es,
m-
In
a
ed.
30
a-
ble

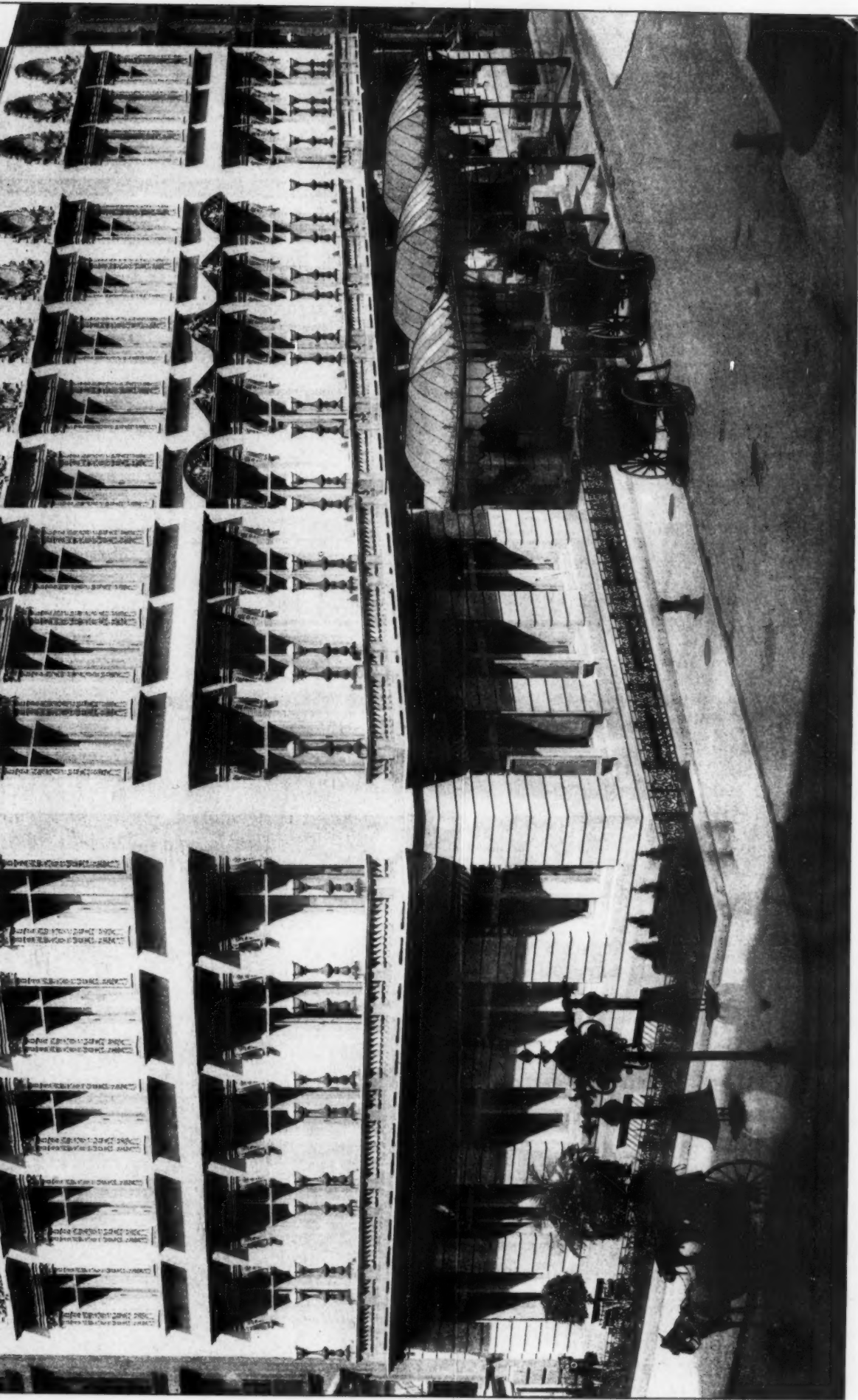
A.
on.
ore
nd
bt
all
ce,
m-
lia
in
he
it,
on
al-
ed
on
ial
ro-
us,

on-
nd
ills
or
w,
of
is
are
iso
ed,
ent
ag-
ro-
ful

re-
n a
pic
hes
nas
ese
or-
mer
ese
to
ras
will
eed

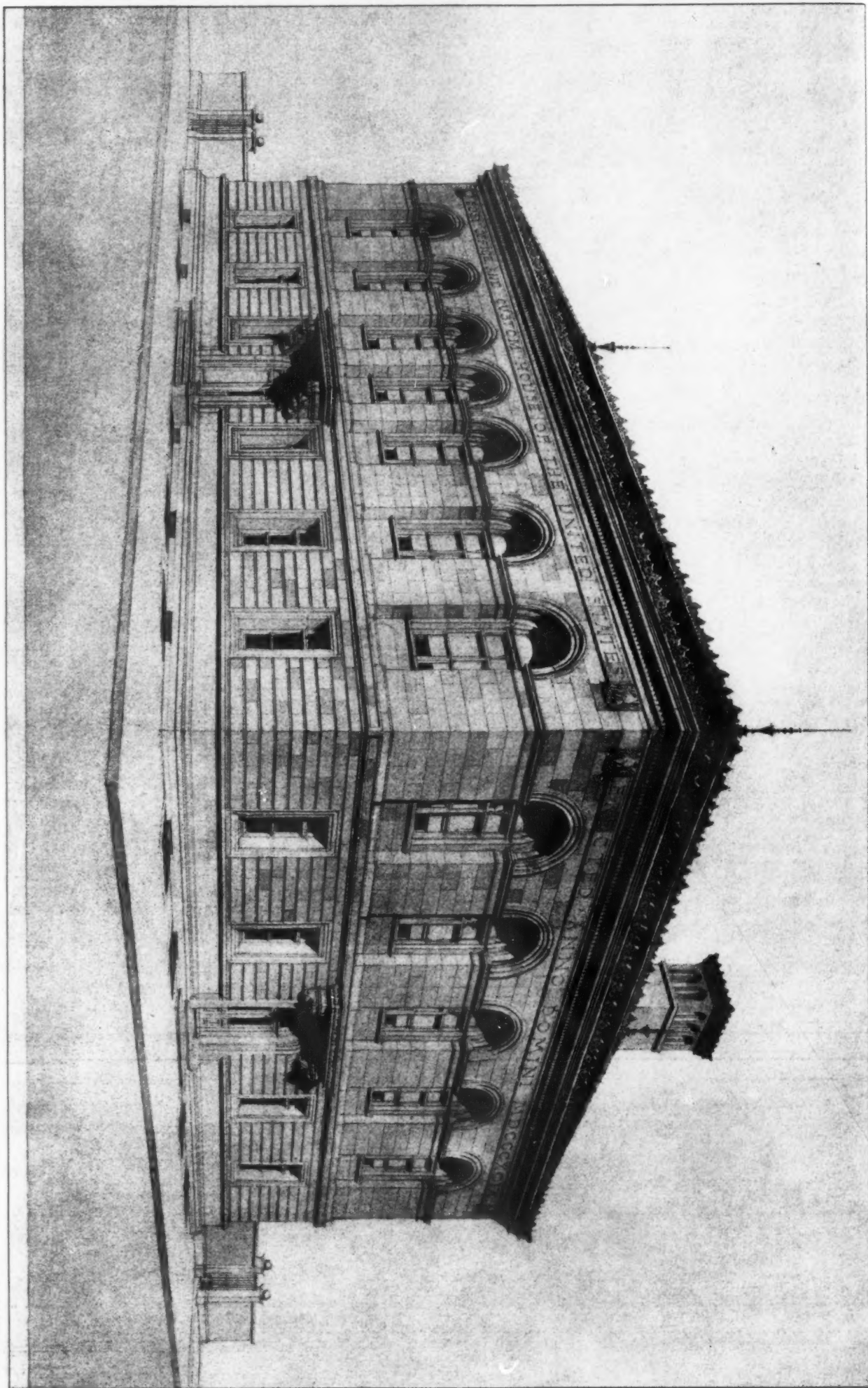
hat
o a
ets
—





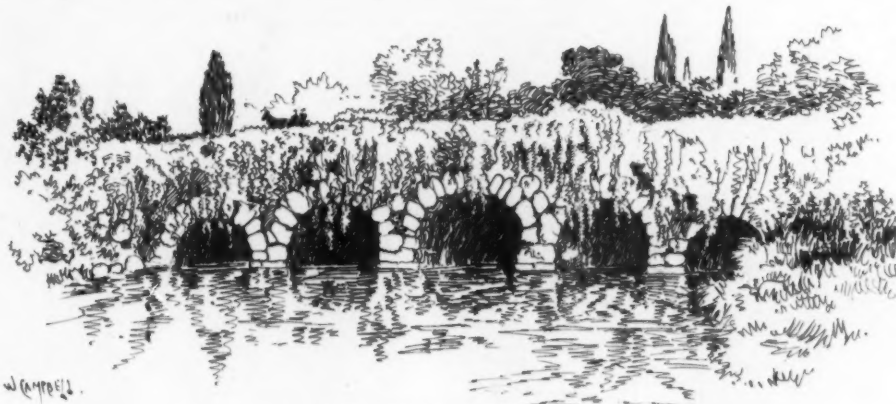
DELMONICO'S, NEW YORK, N. Y.
JAMES BROWN LORD, ARCHITECT.

REPRODUCED BY THE NEW YORK PUBLIC LIBRARY



COMPETITIVE DESIGN FOR UNITED STATES POST OFFICE AND CUSTOM-HOUSE, CAMDEN, N. J.
BAILEY & TRUSCOTT, ARCHITECTS.

DESIGNED AND BY THE AMERICAN ARCHITECT AND BUILDING NEWS CO.



FENWAY: AGASSIZ BRIDGE.



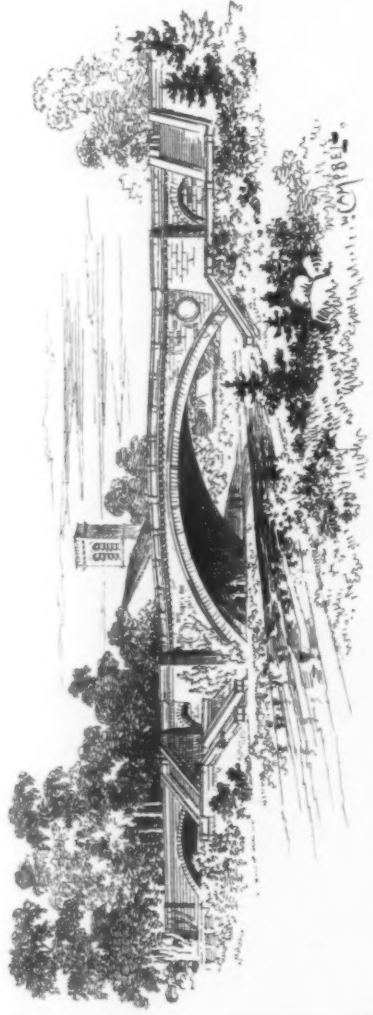
FRANKLIN PARK: ELLICOTT ARCH.



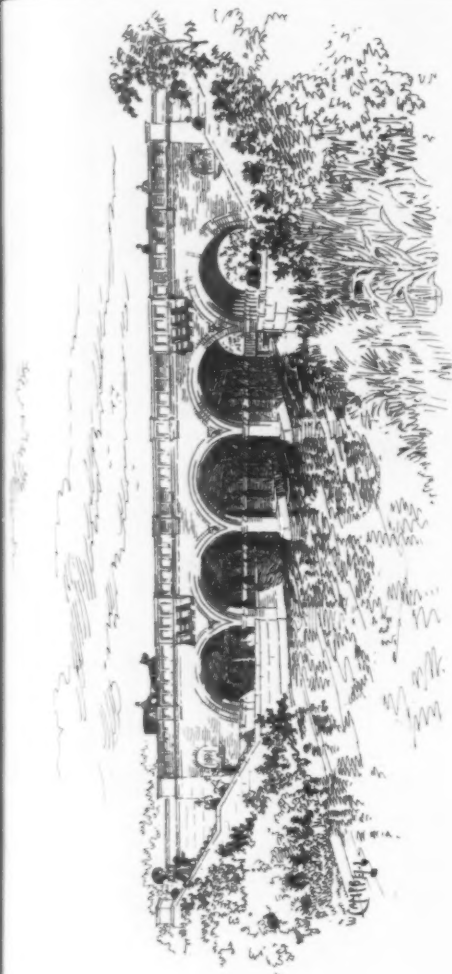
LEVERETT PARK: FOOT-BRIDGE AND CASCADE.

BRIDGES IN THE BOSTON PARKS.

ILLUSTRATED BY W. CAMPBELL



RIVERWAY: LONGWOOD AVENUE BRIDGE.

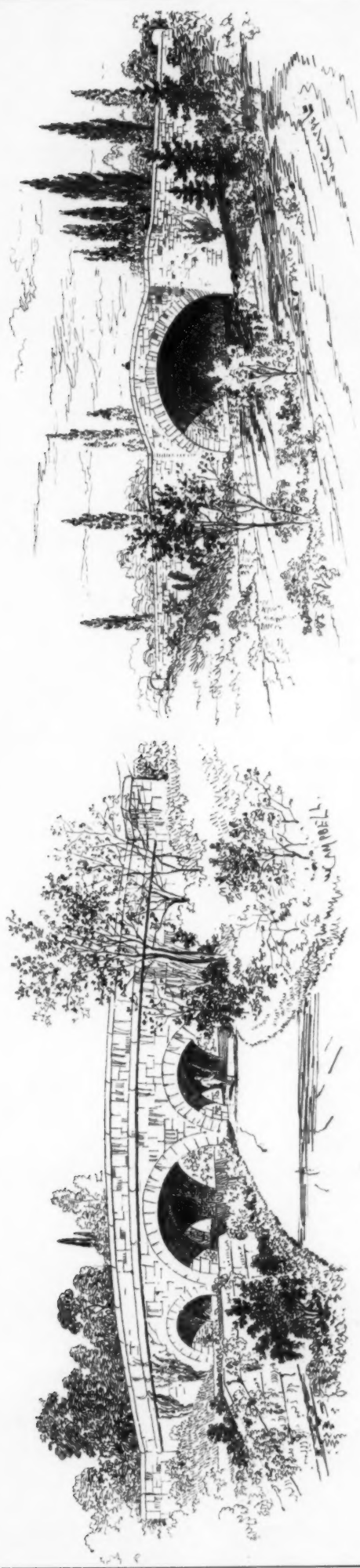


FENWAY: STONY BROOK BRIDGE.



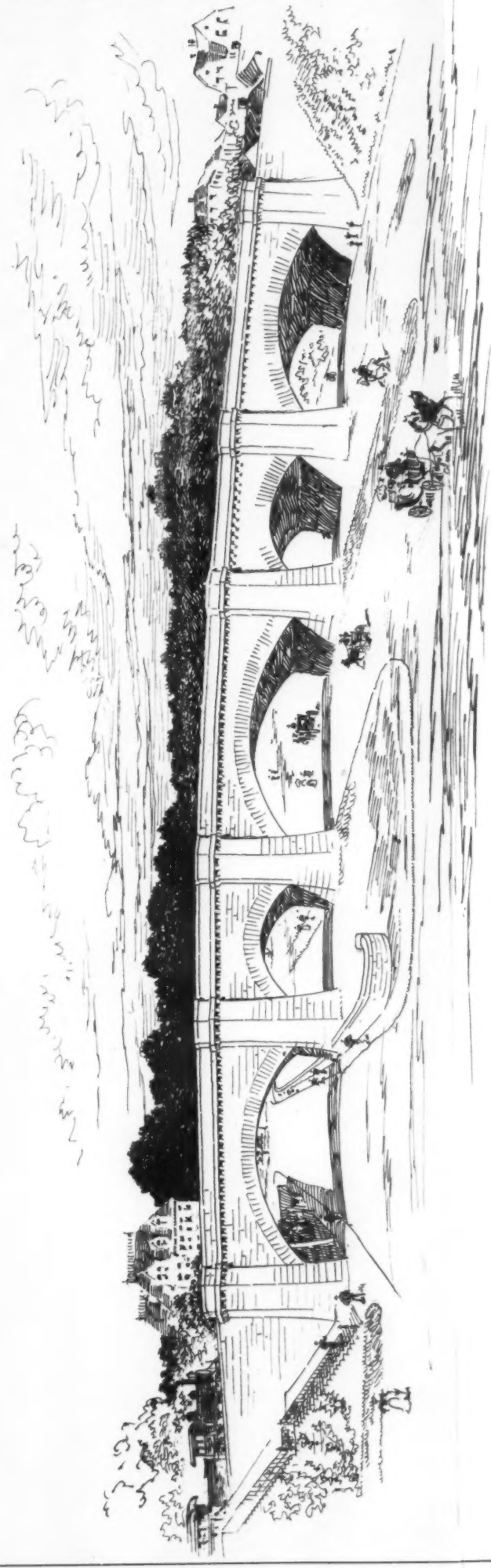
RIVERWAY: BRIDGES OVER RIVER AND SADDLE-PATH.

RIVERWAY: BRIDGES OVER RIVER AND SADDLE-PATH.



RIVERWAY: DOUBLE-DECKED BRIDGE.

FENWAY: BOYLSTON BRIDGE.



RAILROAD BRIDGE OVER THE ARBORWAY, FOREST HILLS.

BRIDGES IN THE BOSTON PARKS.

RELIQUARY PRINTING CO. BOSTON