

would naturally make the lower half predominate over the upper, or vice versa.

*Symmetry* is an element of great power and one not to be neglected, especially in monumental buildings. But we all have such a natural fondness for making an exact balance in the parts of a design, that there is danger of our having too much rather than too little symmetry. It is very well to have the front of a public building exactly symmetrical, the entrance being in the center and the two halves just alike, but if we treat a dwelling house in this manner we find that it looks stiff and formal and not at all homelike. A design may be well balanced without being symmetrical. A tower at one corner may balance a gable at another. As we give up symmetry we gain in the element which we call picturesque. A picturesque design should not be a haphazard affair. You will usually find a certain balance of parts even when there is apparently great irregularity. When all buildings are symmetrical and formal like Greek temples the effect is very wearisome and it is a relief to turn to a style of design in which a proper balance between the parts is maintained, not by making the two sides duplicates but by a skillful arrangement of dissimilar features.

Time will not permit going into many other principles of the treatment of design, but I must not fail to mention one, without which we can never attain to what is called style. By style I mean that quality in a design that gives it a peculiar character of its own. We speak of a lady's dress being stylish and we speak of another as having no style, although made of expensive materials and in an elaborate manner. Thus a building in any one of the so-called "styles" of architecture may fail to possess that peculiar and invaluable quality which we call style. If a tailor knows how to give style to a garment he is possessed of a valuable secret in his art. If an architect can know how to give style to his building it will be the keynote to all success in design. I do not propose to give away the professional secret on this point but I will state one principle without which I believe it is impossible to give style to any design, namely, unity. Whether the arrangement be symmetrical or irregular and picturesque, whether it be classic or gothic, or some new invention of our own, each building should be a unit in itself. There must be one prevailing idea to which everything in the arrangement and ornamentation conforms. Variety is important but variety should never go so far as to impair the unity of a design. On important works the architect calls in the aid of artists in special lines to design decorations and stained glass, metal work, etc., but all these branches must be under the control of the one who originated the idea of the building in order that the decorations and stained glass may harmonize with the architectural forms and heighten their effect. So, in the selection of decorative forms, if we should make a Corinthian capital in one place, a Gothic capital in another, the effect would be confusing and the building would fail to produce that clean cut, definite sort of an impression which goes to make up style.

Ornament should not be applied to a building in a promiscuous manner. To put on too much ornament is to cheapen it and spoil the whole effect. Ornament should be used to emphasize the important parts of a building. The principle of contrast points to this as giving the best effect. The ornamented portions appear the richer when contrasted with plain surfaces, and plain surfaces give repose and dignity to the building which it would lack if the whole surface were ornamented.

The foregoing principles apply to all materials which may be used in the construction of a building. It now remains to consider what special treatment we should give each material; and here we enter a field where mistakes are abundant. Let us state in the first place that every building material is good in its right place. Stone and brick are excellent building materials, but they would make very poor windows; glass is much preferable for this purpose. Plaster is a material largely used, misused and abused. In our climate it makes a much better wall surface on the interior of a house than stone or brick. Wood is not as durable for external use as stone. It does not resist fire as well as iron, but for doors and interior fittings of our dwellings and for furniture, it is indispensable, for these purposes much more valuable than stone or any of the metals. Therefore the common-sense principle is to use various materials in the parts of the same building. The difficulty comes when we attempt to treat these materials in an ornamental manner. In this case the correct method is so simple and obvious that it is hard to understand why it has been so much neglected and so often abused. The principle of truth or sincerity is the one fundamental idea to be kept in mind when treating special materials. Let stone be stone, brick be brick, let plaster be plaster and wood, wood. It is not necessary that we should make public all the secrets of construction. In a well proportioned human figure the bones do not protrude themselves upon our notice and there seems to be no reason why we should not construct the skeleton of a building of iron or wood and cover it with plaster or other suitable material to give the finished form. When we recognize the plaster as a covering material there is no deception and therefore no fraud. When we see a plastered wall we know that the whole thickness is not made of plaster, but as long as the plaster is good and honest plaster it is not an inartistic material; but when we begin to paint lines on that plaster in imitation of joints and make it appear like solid stone, then the whole thing is a lie and should be treated as we treat other lies.

Galvanized iron is a very useful material, but when made into a cornice, and painted and sanded to look like stone, it is a lie and a fraud of the most vulgar and pretentious description.

Perhaps I can find no better illustration of the right and wrong use of material than in the difference between the usual treatments of galvanized iron and copper in external architecture. The architect

who uses galvanized iron expects to paint it, and he usually paints it to imitate stone. The architect who uses copper knows that it is not necessary to paint it, and that it would be a waste of money to paint a material that looks better without paint. But copper if left unpainted turns a dark color and looks very unlike stone, therefore the architect does not attempt to make it like stone and he knows that if he makes it in the form of stone then the absurdity will be apparent to everyone. Therefore he ceases to use copper in places where stone or other material will be more appropriate and instead of constructing a whole cornice of copper in imitation of stone he uses stone, brick or terra cotta for the main members, and then adds a gutter of copper.

Now copper is perfectly adapted for gutters, whereas, stone and terra-cotta are very poor materials. Therefore, when we have a terra-cotta cornice with a copper gutter we have a sensible combination, and each material being used in its proper manner the effect will be artistic. The man who uses one material to imitate another not only perpetrates a fraud which pleases no one, but he is almost certain to overlook the valuable properties of the materials he is using. The man who grains pine molasses candy color, under the impression that he is imitating oak, forgets the fact that if he varnished the pine it would be handsome in itself, and he also forgets that he could have the genuine oak at about the same price as his imitation. Instead of imitating in one material the forms only appropriate in another we should attempt to bring out in each material those forms for which it is especially adapted. If the exterior of our house is made of coarse stone our moldings must be of bold outline, but if we finish the interior in mahogany it would be absurd to use the same kind of moldings when this wood will lend itself to the most delicate outlines. Let us rather produce on the interior woodwork effects which it will be impossible to secure with the stone. And so with each material there are forms for which it is peculiarly adapted and in which it will have a charm of its own.

(To be continued.)

## Women and Architecture.\*

BY LOUISE BETHUNE.

**M**ESDAMES—Chairman and Ladies of the Educational Committee: You have requested me to speak upon "Women in Architecture." The subject might, from a masculine standpoint, at least, be disposed of with the brevity which characterized the famous chapter upon the "Snakes of Ireland." In fact, in order to have any topic at all, we must talk of women and architecture, assuming a connection which it is hardly safe to assert.

When Cain built Eros, architecture began; but its authentic history dates from the two great river courses of ancient civilization, where Menes laid the foundations for Memphis and the architect King Uruk, fell heir to the throne of Nimrod. Its earliest records are Egyptian hieroglyphics and brick inscription tablets built into the foundations of Ur, the home of Abraham. In the thousands of years since then, what influence women have exerted over this most ancient and most lasting of all the arts, it is now impossible to estimate. The power of the woman of antiquity was seldom that of pure intellect, but of intellect combined with wealth, position and ambition. Given this accidental combination, and some palace, tomb or temple is usually its enduring witness.

Queen Hetasu's obelisk is the highest in all Egypt; of her inscriptions, defaced and often obliterated by her brothers and successors, enough remain to prove that she completed the temple of Amun-ra, begun during the lifetime of her grandmother, the famous Ethiopian Nefruari. This temple is near Thebes and forms the nucleus of the celebrated El Karnak group. A full dozen dynasties earlier, Queen Nitocris built the yet unidentified pyramid "Of the Soul," believed by some to be identical with the third pyramid of Gizeh.

Queen Artemisia built the first mausoleum, and Marc Antony met his death in another erected by his faithless queen. Voyaging up the Nile, you see the well-preserved and unincumbered temple of Athor, the Egyptian Venus, at Denderah. This and one smaller and more picturesque, near Thebes and the famous baths, were also built by Cleopatra. Even Zenobia found time to build a town on the river Euphrates.

From then to now the list might include every historic name, besides all those of the sainted women of Catholic Europe, who built and governed monasteries as well as nunneries, and who founded and endowed charities and schools.

During the reign of Queen Elizabeth the great architectural activity has given us a delightfully picturesque domestic style, transitional between the latest phase of English Gothic and the earliest of the classic revival.

A still later phase of English architecture is to be seen in the churches of Queen Anne, one of which (St. Dunstan's in the East) is thought to have been the design of the gifted and short-lived Jane Wren. The "real Queen Anne house" of the speculative builder is a serious practical joke about on a par with those perpetrated in the name of the much maligned Sir Charles Eastlake.

Architecture is seldom satisfactorily defined, perhaps never briefly and well. It is not construction in any of its various branches, nor is it arrangement of interior nor exterior, nor coloring, nor carving, nor profiling of moldings; neither is it acoustics, nor fenestration, nor sanitation, nor any one of a hundred other things. It is

\* Portions of a talk before the Women's Educational and Industrial Union, Buffalo, March 6, 1891.

the arranging and adjuncting, harmonizing and contrasting of all these and many other elements into a suitable and satisfactory whole.

When wants were simpler and before construction became a science, when every building was the natural sequence of its predecessors, the architect was often an amateur, frequently of the highest ability. Musicians, poets, painters, sculptors, emperors and kings expended wealth and talent on towers and domes, bridges and aqueducts that have outlived the memory even of their other achievements. To specify the causes of their success, as contrasted with the many pitiable failures of the modern amateur, would lead too far from our subject and necessitate a lengthy treatise on the antiquity of the model as a means of architectural representation or vehicle of design; its great value in the centuries before linear perspective was understood, and its final almost total disuse upon the adoption of the more intricate varieties of mechanical drawing. In fact, the abandonment of the model may be said to mark the line of separation between the amateur and the professional architect. Its use today would spare the blushing novice much confusion, particularly in that shibboleth of all amateurs, the staircase.

The professions of medicine and law were far advanced before the much needed and highly appreciated woman physician and lawyer appeared. Women have entered the architectural profession at a much earlier stage of its existence even before it has received legislative recognition. They meet no serious opposition from the profession nor the public. Neither are they warmly welcomed. They minister to no special needs of women, and receive no special favors from them.

The great architectural societies of the country, the American Institute and its state and city Chapters are all open to them upon proof of qualification. Thank, with me, the noble hearted men whose far-seeing polity and kindly nature has laid this stepping-stone.

With few exceptions the educational facilities are the same for men and women. The architectural department of the Columbia College School of Mines is however open to men only, though in the Metropolitan Art Schools women have access to classes, lectures and the Willard collection, considered first in America. Three or four young women have availed themselves of this opportunity, and one, at least, makes practical use of her training. The advantages of a large city with its libraries, museums and opportunities for studying general structural work can hardly be overestimated.

Among foreign schools that most affected by Americans is the École des Beaux Arts in Paris. There is a prospect that this school may be open to women before long, and French papers are now canvassing the subject in a manner that would be quite impossible elsewhere.

In Boston the School of Technology Architectural Course, partially modeled upon the Paris school, offers special advantages to pupils who have received previous office training. Two young ladies have been graduated from four and two years courses respectively, but none are now entered.

Cornell graduated the first university educated young woman in 1880, and since then four have completed the course that four more are now pursuing. Two of the graduates have since died.

Miss Parker, of Philadelphia, has sent me such information and many circulars concerning local art schools, none of which, however, seem to present the requisite facilities for a thorough technical education. The School of Design for Women is noticeable in this connection because it was founded in 1847 by Mrs. Sarah Peter, to whose endeavors the Cincinnati Academy of Fine Arts is also traceable.

One Philadelphia instructor writes that he is willing to receive women, but has never done so because he has been unable to give them separate lecture rooms, etc., but women cannot pursue architectural studies to advantage in a private apartment. Co-education is a privilege as well as a necessity.

I must not forget to tell you that Philadelphia published what was probably the first architectural book written in this country by a woman. From Mrs. Tuthill in 1848 to Mrs. Van Rensselaer in 1891, is a greater stride than progress usually makes in one half-century.

The Illinois University at Champaign, has graduated one woman who is a practicing architect and civil engineer in the far West; another will complete the course this year. Professor Ricker says that in architectural history women are his brightest pupils, but he finds the majority deficient in liking for the higher mathematics. Another instructor writes that a woman pupil submitted the boldest design of the year, while the most effeminate was the work of a man.

The total number of women graduates from the various schools of the country can hardly exceed a dozen, and most of these seem to have renounced ambition with the attainment of a degree, but there are among them a few brilliant and energetic women for whom the future holds great possibilities.

There are also a few women drafting in various offices through the country, and the only respect in which they fall below their brothers is in disinclination to familiarize themselves with the practical questions of actual construction. They shirk the brick-and-mortar-rubber-boot-and-ladder-climbing period of investigative education, and as a consequence remain at the tracing stage of draftsmanship. There are hardly more successful women draftsmen than women graduates, but the next decade will doubtless give us a few thoroughly efficient architects from their number.

So much for the past and the present. If in what I say of the future your personal prejudices are offended, pray remember that you have bound me by no previous confession of faith.

The objects of the business woman are quite distinct from those of the professional agitator. Her aims are conservative rather than

aggressive; her strength lies in adaptability, not in reform, and her desire is to conciliate rather than to antagonize.

The future of woman in the architectural profession is what she herself sees fit to make it. It is often proposed that she become exclusively a dwelling house architect. Pity her, and withdraw the suggestion. A specialist should become so from intrinsic fitness, not from extrinsic influence. Furthermore, the dwelling is the most pottering and worst-paid work an architect ever does. He always dreads it, not, as someone may have told you, because he must usually deal with a woman, but because he must strive to gratify the conflicting desires of an entire household, who dig up every hatchet for his benefit and hold daily powwows in his anteroom, and because he knows he loses money nearly every time. Dwelling house architecture, as a special branch for women, should be, at the present rate of remuneration, quite out of the question.

This brings us to another all-important point. The open sesame to the favor of our compeers and the respect of the public is "Equal Remuneration for Equal Service," and a strict observance of all the honorable traditions of our profession and its amenities of practice.

In response to questions concerning the Women's Fair Building Mrs. Bethune said: "Such a building is talked of, but the idea of a separate Women's Board Exhibit, etc., expresses a sense of inferiority that business women are far from feeling. The board desires a woman architect, and the chief of construction has issued a circular inviting competition, notwithstanding the fact that competition is an evil against which the entire profession has striven for years, and has now nearly vanquished; it is unfortunate that it should be revived in its most objectionable form on this occasion, by women, and for women.

"The building will cost about \$200,000, and the prize offered to the successful competitor is \$1,000. This is all she is to receive. That is, she renders 'personal artistic service,' and also prepares her competitive drawings, all for one-tenth of the regular rate for full professional service. The extremely equitable arrangement made with the appointed architects for the ten large buildings is that each renders his personal artistic service for \$10,000, all his drawings to be made at the expense of the commission. The sum total to be expended for the ten principal buildings is in the neighborhood of \$6,000,000, making an average of \$600,000 each. Thus each architect receives about one-third his regular full commission, for which he renders about one-third his full professional service.

"The proportion of remuneration to the architect of the Women's Building is about three-tenths of the average rate paid the already appointed architects for nearly similar service. It is an unfortunate precedent to establish just now, and it may take years to live down its effects."

#### Notes from Foreign Exchanges.

Professor Stier, of Hanover, has recently collected the statistics of all the competitions of Germany since 1868, the results of which he is shortly to inflict upon the public in book form. *La Semaine des Constructeurs*, for December 6, gives, however, the interesting points and the cream of all these investigations in a short form.

The 258 competitions that occurred brought out 11,256 designs, which were awarded 751 prizes, of a total value of \$232,500. Prof. Stier has been able to find the actual practical results in only 214 of the competitions. In 109 of these 214 the first prize was awarded the work, while in 31 others, the second or third prizes were given the commissions. Also in 31 other cases a prize design was carried out, but not by the author; while in 43 remaining cases none of the designs offered were used. In resumé, of 9981 designs presented—at the 214 competitions—only 171 of them were ever carried out and the buildings erected.

There has been formed at Paris a society for the encouragement in France of the building, either by private individuals, corporations or societies, of houses which shall be both sanitary and economical. This society called the French Society for Cheap Homes is now in full operation and has already commenced to realize some part of its objects, which are the three following:

*First:* To gather together and put at the disposal of all interested parties every kind of information that can be asked upon the question of cheap homes, such as plans, leases, etc.

*Second:* To inaugurate courses of lectures having for their object the popularizing of the ideas of the association.

*Third:* To establish from time to time competitions and to encourage in every manner the construction and sanitation of cheap homes.

This society publishes a bulletin in which there is an interesting description of some tenements recently erected at Paris.

The Philanthropic Society built in 1880, on rue Jeanne d'Arc, a building approximately 70 feet front and 33 feet deep, containing three stores on the ground floor and five apartments of two and three rooms each on each of seven stories above, or a total of thirty-two tenants. The price of rent per annum of each tenement is at the amazingly small average sum of \$45.40, or at the rate of less than one cent per superficial foot per month. Even at this low rate upon the total cost of land and building of over \$35,000, there is a net income of 3 $\frac{1}{2}$ % per cent upon the investment, as shown by a very minutely detailed table. And yet all these tenements are arranged in the most satisfactory manner from a sanitary point of view. The stairway is broad and well lighted and every room has outside light. Moreover, each tenement has its own water-closet, also with light from the outside. Other buildings of the same character are now in course of construction, both at Paris and in the provinces, which promise to be equally successful, both in a financial and sanitary point of view.