HOUSE BUILDING BY RITUAL.

BY COSMOS MINDELEFF.

The man who builds a home, be he white or red, appears to be the special target of all kinds of trouble and annoyance; but in the latter case, that is to the red man, there are certain requirements which make the task even more onerous, while on the other hand there are compensating advantages. The pueblo tribes of Arizona and New Mexico, alone of all the Indians, build permanent stone houses, quite equal to those of white settlers in that country, and they have developed a peculiar system of building of their own which is of interest to every house builder.

The pueblo Indians now number about ten thousand souls, living in thirty villages, principally along the Rio Grande in New Mexico, and several distinct languages are found among them, but their house structures are essentially the same throughout. The largest of the villages, the pueblo of Zuni, which has a population of sixteen hundred, has been often visited, and the seven villages of the Moki, in northern Arizona, are also becoming known through the periodical performance there of the celebrated snake dance. Both of these groups have been studied for some years by the assistants of the Bureau of Ethnology, and the results of their work are now being published.

The houses of these people consist of groups of rectangular rooms, built of selected stone, or in recent years of adobe brick dried in the sun but not baked. The rooms are arranged in connected rows or clusters. Some of the latter are of huge size, resembling in appearance a gigantic hive and containing several hundred separate chambers. These were at first supposed to be communal structures, but it is now known that while each cluster is the home of a certain clan or combination of clans, the different families who compose it each have their own quarters in it.

The clustering of rooms into huge hivelike structures grows directly out of certain rules of house building, which are the result of peculiar social conditions under which the people live. Among them descent is in the female line; the children of a marriage belong to the mother and are members of her clan and of her family. As a man is not allowed to marry within his own clan, he loses some of his rights when he takes to himself a helpmate, or more correctly when his helpmate takes him, for when he marries he goes to the home of his wife to live, and to a certain degree is adopted into her family.

From this it comes about that families in which there are many girls must necessarily increase and spread out over more area, while those in which the children are all boys become extinct in the second generation. But as the house cluster is the home of the clan, when it becomes necessary to erect additional rooms they are invariably added to and connected with those already occupied, and it is not unusual to see houses in course of construction at one end of a row while at the other end, or in an adjoining row, rooms are abandoned and going to decay. This odd condition misled the early explorers, who reported that the tribes were rapidly becoming extinct, whereas they are holding their own or increasing slightly in numbers.

The clans, which are great artificial families, all the members of which claim descent from some mythical common ancestor, are themselves subject to change from the same social conditions. Some grow and increase in size, while others wane and eventually become extinct. Thus in the Corn clan there are groups which claim to be of the stalk, leaves, grain, pollen, etc., and should the clan prosper, each of these subdivisions will develop into a full-fledged clan. It all depends on the number of girl children who are born into the clan.

In one of the Moki villages there is a little cluster of four or five rooms standing separate and apart from all other houses. It is the home of the remnant of the Butterfly people, now consisting only of an old woman and her young daughter, besides two sons. As the sons will eventually marry and go elsewhere to live, the future of the clan depends entirely on the young girl. Should she live to marry and have many girl children, it is quite within the possibilities that the Butterfly clan may spread out and cover the whole village; but should she die unmarried, the clan will become extinct, the house will be abandoned, and in a few years its site will be marked only by a few heaps of stone, for it is the custom under such circumstances for the relatives of the family to tear down the house and re-employ the material.

The position of the women in the tribe is all that any of them could ask. They do no field labor, other than assisting in the harvest, and are free to devote their whole time and energy to their domestic duties and the care of their children. In the house their sway is absolute and undisputed. The crops in the field are considered the property of the man of the house and he is required to work them; but when they are garnered and brought in they become the property of the woman, who is also the sole owner of the house in which they are stored. The status of the husband is merely that of an honored guest, and should he misbehave in any way, he can be sent back to his family or turned adrift to shift for himself. It is hardly necessary to add that the greatest affection prevails in the household, and that such a thing as wife beating or ill treatment of women is unheard of in the tribe.

When a family finds it necessary to build additional rooms, notice is sent to the priestess of the clan, who makes the necessary arrangements. This priestess is the social head of the clan, and no business connected with the house can be conducted without her aid. She has also the final say in all proposed marriages, etc. The men of the family are required to bring in the necessary material; broken and dressed stone for the walls, beams for the roof, clay for mortar, etc. As the villages of the Moki are all situated on the tops of the mesas, 600 feet or more above the valley, this is no small task.

When everything is in readiness, announcement is made from the housetops by a crier, for the building of a house is a social function participated in by the friends and relatives of the woman who is to build. As the women own the houses and exercise absolute control over them, they are also the builders. There is always a man or two about, however, to do the heavy work. This duty is generally assigned to some of the male members of the family, and is not always willingly performed.

The chief of the village provides four eagle feathers, with a short cotton string tied to the stem of each. These are sprinkled with sacred meal, and prayers are breathed upon them for the welfare of the proposed house and its occupants, and that the walls may take a firm hold of the ground. The feathers are called nakwa-kwoshi, meaning a breathed prayer, and the prayers are addressed to Masauwu (the sun) and other deities concerned in house life.

The feathers are placed at the four corners of the house and a large stone is placed over each one. The place where the door is to be is marked by bits of food placed on each side of it, with prayers that there may always be plenty of food within. The lines to be occupied by the walls are then marked by passing around the site from right to left, scattering on the ground particles of bread and other food mixed with native tobacco. This ceremony is accompanied by a song to the sun couched in archaic terms, the meaning of which the people have now forgotten.

After this ceremony, the women proceed to lay up the stones in the walls, the heavier ones being lifted into place by the men, who are there for that purpose. Mud mortar, from a pile nearby previously prepared, is used sparingly, and the stones are laid in it in irregular courses. When the walls reach a height of 7 or 8 feet the top is brought to a fair level and the roof beams are put in place.

The roof beams are often brought from great distances, as suitable timber does not grow near the villages. In the Moki traditions it is stated that the beams for the mission buildings erected for the monks in the early part of the seventeenth century were brought on the backs of men from the San Francisco Mountains, a distance of more than a hundred miles. Although the missions were destroyed in the insurrection of 1680, and never rebuilt, some of these old beams were used in other structures, and still can be seen there.

Above the main roof beams, which are about two feet apart, there is another series of lighter poles placed across them. Over these a layer of reeds or twigs is placed, and over this grass and brush. A layer of mud is then spread over all, and being covered with dry

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earth, is trodden down firmly. The women do all this work, and when it is finished, a floor is made inside with a thick coating of mud, trodden down in the same way; in fact, roofs and floors are much the same, and in the upper stories the floors of the rooms were once the roofs of those below. When the floors are done, the walls are plastered with mud, nicely smoothed with the hand. Sometimes they are finished with a wash of white clay, which gives them a very neat appearance. Formerly a custom prevailed of leaving a small space on the wall bare, a belief existing that one of the gods came and finished it; and although the space remained bare, it was supposed to be covered with an invisible plaster.

When the house is completed to this point, four feathers are prepared, similar to those used under the four corners of the house. These are tied to a short willow stick which is inserted over one of the central roof beams. The feathers are renewed every year at the feast celebrated in December, when the sun begins to return northward; that is, at the winter solstice.

The ceremony known as "feeding the house" is then performed. This is an offering to the sun, and consists of placing bits of food among the rafters, with prayers to the sun that he may smile upon the occupants of the house and not hasten the departure of any of them to the other world. After this, the women build a fireplace in one corner of the room under a hole left in the roof, and construct over it a chimney hood to confine the smoke to the proper exit. A binlike arrangement, or stone trough, is built in another corner, and three flat stones are mounted in it for grinding corn. The house is then ready for occupancy. The door is merely an opening, closed by hanging a blanket over it when necessary, and windows are merely holes left in the walls when they were constructed. In the cold winter weather these are closed by stone slabs, or built up solid with masonry, the filling being removed again in the spring.

The Mummy of a Pharaoh.

The greatest discovery of mummies ever made in Egypt, says Public Opinion, was in the year 1881, when the remains of thirty-nine royal personages were brought to light at Deir-el-Bahari, Thebes. One of these was proved to be the mummy of King Rameses II, the third king of the ninth dynasty and the Pharaoh of the Jewish captivity. This mummy was in a perfect state of preservation. The mummy case itself was of sycamore wood, plain and unvarnished, and without a spot or stripe of paint, something reckoned as unusual. The case was, however, carved to represent Rameses in the position of Osiris. The crossed arms rested upon the breast. In the right hand was the royal whip and in the left the royal book. The features were most delicately carved in the soft wood, and the whole was surmounted with the crown of Upper and Lower Egypt and surrounded by a carved representation of the uræus serpent. The name of Rameses was written in plain black characters upon the case, which bore no other text or representation whatever, strongly contrasting with the exaggerated dedications noted on almost all the other cases found in the same pit. The mummy itself was carefully wrapped in rose-colored and yellow linen of a texture finer than the very finest Indian muslin. In the different folds of this linen several dried lotus flowers and leaves were found. In the folds of one of the bands which passed across the grave clothes to keep them in shape was a folded papyrus bearing inscriptions which informed the reader that this, the mummy of Rameses II, was concealed in the pit where it was found at a time when a foreign army invaded Egypt. This quaint bit of information, which was probably written two thousand or two thousand five hundred years ago, is as plain as though it had been penned but yesterday.

A Nebraska International Exposition, 1898.

Congress has adopted a resolution to the effect that the President be authorized, if in his judgment it would not be incompatible with the public policy, to invite foreign nations to make exhibits at the Transmississippi and International Exposition to be held at Omaha, Neb., between June 1 and November 1, 1898. Congress has already recognized the Omaha exposition to the extent of appropriating $200,000 for a government department and exhibit. The States in the neighborhood of the Mississippi River district are making special preparations too, and Iowa, at the last session of the Legislature, made a preliminary appropriation. California is another of the States which is to take part, and Louisiana, by act of Legislature, has intrusted to the State board of agriculture the business of providing for a fitting display of Louisiana's products. The purpose of the Omaha exhibition is primarily to show "the products, resources, industry and civilization of the States and Territories west of the Mississippi," embracing, it is said, two-thirds of the area, one-third of the population, and one-half of the wealth of the United States. The Transmississippi and International Exposition is a corporation organized under the laws of Nebraska with a capital stock of $1,000,000.

The Field of Landscape Art.

We are constantly asked whether the profession of landscape gardening offers a promising field for young men who are looking for some calling in life which will be useful and remunerative. We have always felt obliged to reply that there is comparatively small demand for the counsel of landscape gardeners in this country, and we have added that until the true functions of these artists are more thoroughly recognized the call for their professional services will be limited. Most of the men who make inquiries on this point have themselves hazy notions as to what the legitimate field of a landscape gardener is. The prevalent idea is that his work is chiefly ornamental, and that his province is to do about the same thing for the surroundings of a house that the decorative artist does for its interior when he selects the furniture, rugs and hangings and decides upon color schemes and the like. That is, after an architect has built a house, it is considered proper to call in a landscape gardener to plant some ornamental trees and shrubs about it and lay out paths and flower beds in order to beautify the grounds. Now, it is true that the landscape gardener, like other artists, has to deal with beauty, but his first and fundamental study is to provide for human use, for comfort and for convenience. An architect of taste does not make a building and then hang ornaments upon it without and within. His structures will be beautiful, but this beauty is developed out of the design so as to be an essential part of it, and this is so profoundly true that the best architectural work will be beautiful primarily because it serves the purpose for which it was created. The same rule should hold in regard to the development of the grounds about a house. These should be primarily laid out for use and convenience, and their beauty should grow out of their perfect adaptation to the wants of those who are to use them. In short, as we have said a great many times, the house and grounds should be planned together, so as to make one picture; but, even beyond this, they should have a unity of design which is more than superficial. In fact, the beauty of the scene, which includes both the house and the grounds, should grow up from the general design and framework of the house and grounds, as a place where all the varied necessities of the family in the way of health and happiness and home life are the first things considered. This is the reason why no ready-made house plan is adapted to all sorts of ground and why any ready-made planting plan is not available for use with all sorts of houses.

The most hopeful symptom we know is that architects are inquiring more and more for competent designers in landscape to assist them. That is, they feel the need of advice from some one who is trained to the planning and modeling of ground, one who is skilled to see at once all the possibilities that lie in any situation, not only for appearance but for use; one who knows how to take advantage of any diversities of surface or differences of outlook so as to make them available for varied purposes. Such a man can be of assistance to an architect, not only in locating the house in such a way that it will appear to the best advantage, but also for placing it where the principal rooms will have a pleasing outlook. He will contrive facilities for access to it and agreeable lines of approach. The arrangement of different parts of the grounds for special uses requires thought and experience which are outside of the ordinary lines of the architect's study, and therefore the best architects have learned that the highest service which a landscape gardener can render is precisely at the point where the essentials of the combined design of house and grounds are being considered.

All this means that a landscape gardener ought to be much more than a mere decorative planter. The successful designing of public parks or of private grounds for daily occupation means first of all the study of human wants—the necessities of men and women and children of various circumstances and conditions. A good artist must be primarily a man of sound judgment, and he should have cultivated mind, wide sympathies and catholic tastes. Reading and travel and scholarship can do for the designer in landscape all that they can accomplish for the architect. A man may be able to mass a shrubbery effectively or arrange a border of herbaceous plants with skill and yet not have a particle of that profounder art which was seen in the grouping of the great buildings at the Columbian Exposition and the planning of that Court of Honor which was the crowning artistic success of Mr. Olmsted's life. This view of the case contemplates an ideal that is rarely attained, and it is because the work of real artists in this line is rarely seen and still more rarely appreciated that the very existence of such an art is practically ignored or denied. If city park boards realized what a trained park maker is capable of creating out of a given piece of ground, they would never content themselves with asking an engineer or surveyor or mere gardener to design a public pleasure ground. We ought to have reached a stage of civilization when it is no longer believed that any unskilled journeyman is competent to lay out a park or garden, or pass judgment on the plans of a park or garden. If any artist needs sound judgment united with taste and training, it is the man who studies public and private grounds and prepares them for the use and enjoyment of man.—Garden and Forest.

How Fire Causes Death.

A writer in the Hospital says: Those who lose their lives in conflagrations do not by any means always suffer physical pain. In many cases, no doubt, sharp terror is the one thing of which the victim is conscious, and in many more, strange as it may seem, consciousness plays no part, life ceasing painlessly and without a struggle. . . .

In great conflagrations gases are produced which have much the same effect [as chloroform or similar anesthetics], and it is a fact that of those who lose their lives in such catastrophes a considerable proportion pass into death without any evidence of having suffered. This result is produced especially when a fire has smouldered, when the access of air has at first been insufficient to cause complete combustion, and when that deadly gas, carbonic oxide, has sent its victims into lethal sleep before the actual flames have reached them.

Of those, however, who have evidently struggled and fought, and whose charred corpses are afterward found in attitudes suggestive of violent efforts made in attempting to escape, it must not be imagined that they have of necessity been burned alive and have died in the agony which such contortions are popularly imagined to express.

Death from agony is really death from shock, a condition in which the body is limp and helpless; whereas in death from suffocation struggling may go on even after consciousness has passed, and the strained attitude of the corpse may be expressive only of the final paroxysmal effort made in a state of entire unconsciousness.

Suffocation in a fire depends on something more than mere carbonic acid poisoning. It is the stoppage of the breathing by the stifling vapors which does the mischief. Carbonic acid would doubtless kill if it could be breathed, but any one who has attempted to enter a burning building will know that suffocation depends, not on the stuff one breathes, but on the fact that one cannot breathe at all. The lungs are as much deprived of their supply of oxygen as if the sufferer were plunged over head in water, and the struggle produced is much the same.

While then we must admit the horror of the moment, the terror, the fight for breath, and finally the death from suffocation, we must remember that all this is often a matter of short duration, and that it is something very different from the slow torture of being burned alive.

The writer reminds us that, owing also to the excitement of the moment, the body of one who is in a great fire is probably insensible to pain, just as it often is in battle. He says:

The instances are so frequent in which more or less severe and painful wounds have only been discovered after the necessity for action had passed away that we are driven to hope and to believe that, so long as all the energies are absorbed in the effort to escape, actual suffering, even from fire, may not be great—may even be unfelt.

Yet there is another, and not so comforting, side to the picture. Says the writer:

It must be recognized that, while all this is true, there are cases in which people are actually burned alive—consumed little by little until the heart stops from shock.

Familiar pictures of martyrs at the stake show us one of the conditions for such an event; the wind driving the smoke aside so that the head, the brain, and thus the consciousness, are left intact until the heart is stopped by sheer agony.

It must always be remembered that no one can live or retain consciousness when actually within the flames. But those who are caught and held fast in the full blast of fresh air which is being drawn into the center of the conflagration cannot be suffocated, they cannot make those violent efforts which would numb their consciousness of pain; they can but wait and suffer until, as the result of agony or terror, let us hope the latter, their hearts stand still. This is indeed a terrible fate.

Be Good to Yourself.

The Medical and Surgical Reporter gives the following practical advice: "Think deliberately of the house you live in—your body. Make up your mind firmly not to abuse it. Eat nothing that will hurt it. Wear nothing that distorts or pains it. Do not overload it with victuals or drink or work. Give yourself regular and abundant sleep. Keep your body warmly clad. Do not take cold; guard yourself against it. If you feel the first symptoms, give yourself heroic treatment. Get into a fine glow of heat by exercise. This is the only body you will have in this world. Study deeply and diligently the structure of it, the laws that govern it, the pains and penalty that will surely follow a violation of every law of life and health."