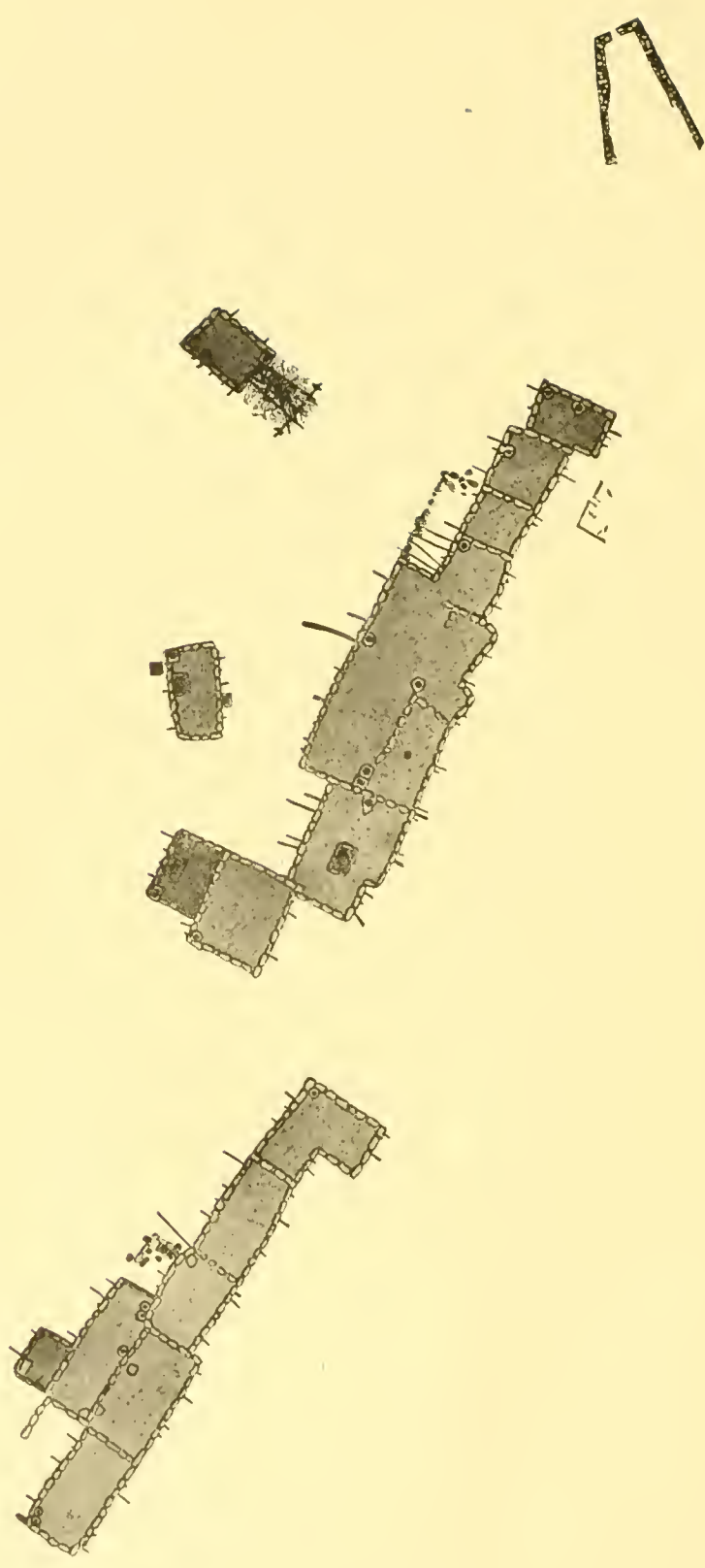

LOCALIZATION OF TUSAYAN CLANS

BY

COSMOS MINDELEFF

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PLAN OF SUMMER SETTLEMENT

LOCALIZATION OF TUSAYAN CLANS

By COSMOS MINDELEFF

Of the many problems which perplex the student of the cliff ruins and other house remains of pueblo origin in the Southwest, two are of the first importance and overshadow all the others. These are (1) the enormous number of ruins scattered over the country and (2) the peculiarities of ground-plan and their meaning. The two phenomena are so intimately connected that one can not be understood or even studied without the other.

The ancient pueblo region extends from Great Salt lake to beyond the southern boundary of the United States and from the Grand canyon of the Colorado to the vegas or plains east of the Rio Grande and the Pecos. Within this area of about 150,000 square miles ruins can be numbered almost by thousands. Such maps as have been prepared to show the distribution of remains exhibit a decided clustering or grouping of ruins in certain localities. Much of this is doubtless due to the state of our knowledge rather than to the phenomena themselves; that is to say, we know more about certain regions than about others. Yet from the data now in hand it is a fair inference that ruins are generally clustered or grouped in certain localities. There were apparently a number of such centers, each the source of many subordinate settlements more or less scantily distributed over the regions between them.

This distribution of ruins lends color to a hypothesis advanced by the writer some years ago, which affords an at least plausible explanation of the immense number of ruins found in the Southwest. The key to this problem is the extended use of outlying farming settlements. All lines of evidence—history, tradition, mythology, arts, industries, habits and customs, and above all the ruins themselves—agree in establishing the wide prevalence, if not the universal use, of such settlements, as much in the olden days as in modern times, and as much now as ever.

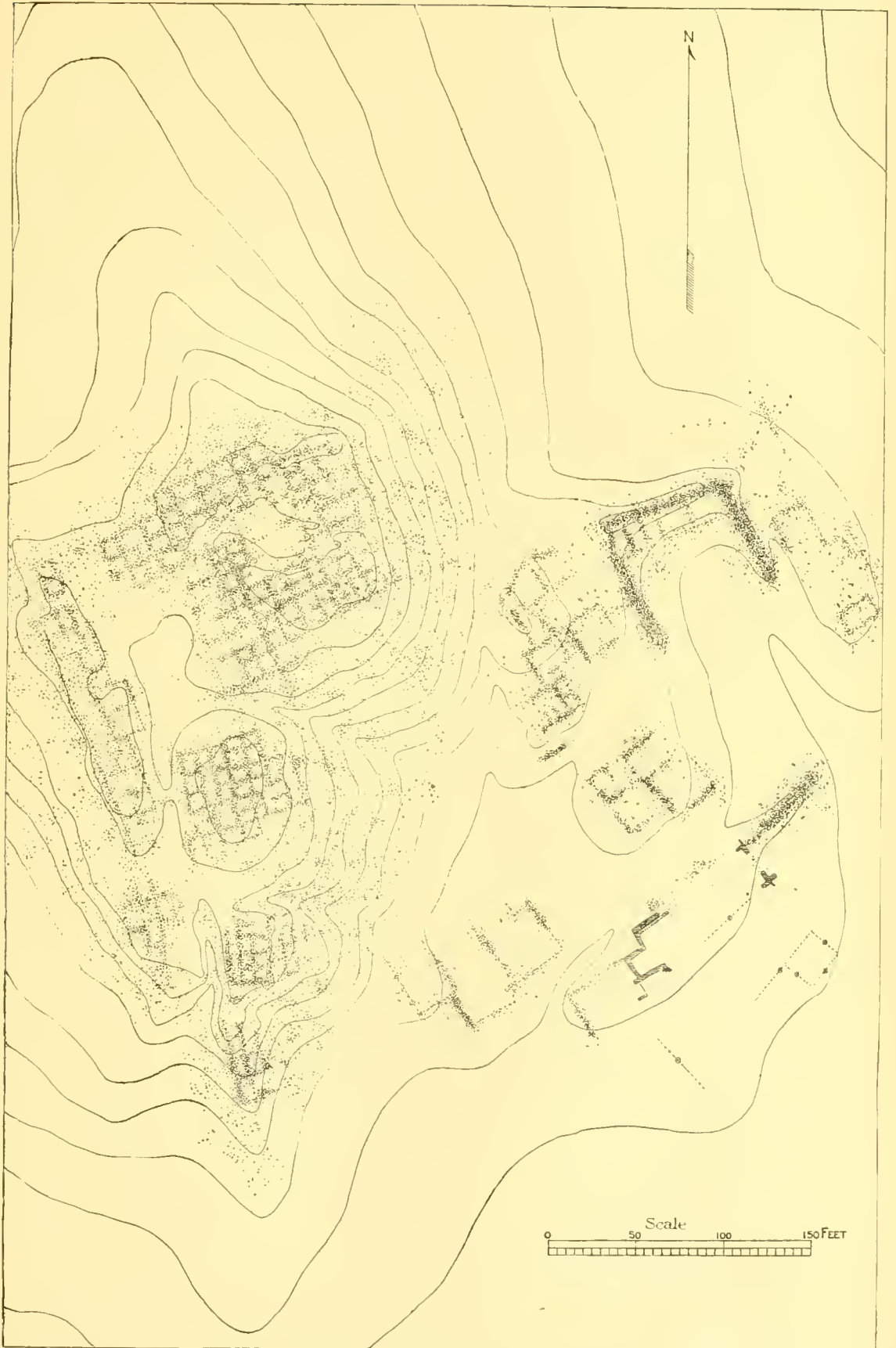
The ruins are of many kinds and varieties; no two are quite alike, but there are external resemblances which have led to several attempts

at classification. The results, however, are not satisfactory, and it is apparent that we must look further into the subject before we can devise a good classificatory scheme. It seems to the writer that all the plans of classification hitherto published have put too much stress on the external appearance of ruins and not enough on the character of the sites which they occupy or on the social and tribal conditions indicated by such sites.

Pueblo architecture is essentially a product of the plateau country, and its bounds are, in fact, practically coincident with those of that peculiar region popularly known as the mesa country. Peculiar geological conditions have produced a peculiar topography, which in turn has acted on the human inhabitants of the country and produced that characteristic and distinctive phase of culture which we call pueblo art. The region is in itself not favorable to development; in three essentials, cultivable land, water, and vegetation, it is anything but an ideal country, although blessed with an ideal climate which has done much to counteract the unfavorable features. But through a great abundance of excellent building material, the product of the mesas, and through peculiar social conditions, the product of the peculiar environment, whereby a frequent use of such materials was compelled, pueblo architecture developed.

It seems probable that in the early stages of the art of house building among these people they lived in small settlements located in or near the fields which they cultivated, for the pueblo tribes have always been an agricultural people, living principally by the products of the soil. In the olden days, before the introduction of sheep and cattle, they were even more agricultural than they are now, although at that time they had a food resource in their hunting grounds which is now lost to them. It seems probable that for several centuries the people pursued the even, placid course of existence which comes from the undisturbed cultivation of the ground, with perhaps now and then some internecine war or bloody foray to keep alive their stronger passions.

In the course of time, however, other tribes drifted into the region, and, being wild and accustomed to the hardy life of warriors, they soon found that they were more than a match for the sedentary tribes which had preceded them. The latter were industrious, and, being more or less attached to certain localities, were enabled to lay by stores against a possible failure of crops. At the present day in some of the pueblos the corn is thus stored, and sometimes great rooms full of it can be seen, containing the full crops of one or two years. Undoubtedly the same custom of storing food prevailed in ancient times, and the wilder tribes found in the sedentary villages and in the fields tributary to them convenient storehouses from which to draw their own supplies. If the traditions are at all to be trusted, there was no open war nor were there determined sieges, but foray after foray was made by the



PLAN OF RUIN SHOWING LONG OCCUPANCY

wilder spirits of the nomadic tribes: fields were raided when ripe for the harvest, and the fruit of a season's labor was often swept away in a night. It soon became unsafe to leave the village unguarded, as a descent might be made upon it at any time when the men were away, and the stores accumulated for the winter might be carried off. But the detail of a number of men to guard the home was in itself a great hardship when men were few and subsistence difficult to obtain. Such were the conditions according to the ancient traditions.

Under the pressure described the little villages or individual houses, located primarily with reference to the fields under cultivation, were gradually forced to aggregate into larger villages, and, as the forays of their wild neighbors continued and even increased, these villages were moved to sites which afforded better facilities for defense. But through it all the main requirement of the pueblo builder—convenience to and command of agricultural land—was not lost sight of, and the villages were always located so as to meet these requirements. Generally they were placed on outlying spurs or foothills overlooking little valleys, and it should be noted that at the time of the Spanish discovery and conquest, three centuries and a half ago, a considerable number of the villages were so located.

There seems to be little doubt that the first troubles of the pueblo builders, aside from those arising among themselves, which were not sufficiently important to influence their arts or architecture, were caused by the advent of some tribe or tribes of Athapasean stock. Afterward, and perhaps as late as the beginning of the eighteenth century, the Comanche extended their range into the pueblo country, and still later the Ute found profit in occasional raids over the northern border. It is quite probable, however, that in the beginning, when pueblo architecture was still in an early stage of development, none of the tribes mentioned were known in that country.

Eventually the housebuilders found it necessary to remove their homes to still more inaccessible and still more easily defended sites, and it was at this period that many of the mesas were occupied for the first time. The country is practically composed of mesas, and it was an easy matter to find a projecting tongue or promontory where a village could be built that would be accessible from one side only, or perhaps would be surrounded by cliffs and steep slopes that could be scaled only after a long and arduous climb over a tortuous and difficult trail. Building material was everywhere abundant and could generally be found within a stone's throw of almost any site selected.

Few of the villages at the time of the Spanish conquest were located on mesa sites, but numbers of them were on the foothills of mesas and sometimes commanded by higher ground. At that time Acoma occupied its present location on the mesa summit, one of the best if not the best and most easily defended in New Mexico, as the

Spaniards found to their cost after an unsuccessful assault. But this location was at that time unusual, and was doubtless due to the fact that the people of Acoma were, like the wilder tribes, predatory in their instincts and habits, and lived upon their neighbors.

When the little settlements of the first stage of development were compelled to cluster into villages for better protection, a new element came into pueblo architecture. The country is an arid one, and but a small percentage of the ground can be cultivated. Except in the valleys of the so-called rivers, arable land is found only in small patches here and there—little sheltered nooks in the mesas, or bits of bottom land formed of rich alluvium in the canyons. Easily defended sites for villages could be found everywhere throughout the country, but to find such a site which at the same time commanded an extensive area of good land was a difficult matter. It must be borne in mind that the pueblo tribes in ancient times, as now, were first and foremost agriculturists, or rather horticulturists, for they were not farmers but gardeners. Depending as they did upon the products of the soil, their first care was necessarily to secure arable lands. This was always the dominating requirement, and as it came in conflict with the clustering of houses into villages, some means had to be devised to bring the two requirements into accord. This was accomplished by the use of farming shelters, temporary establishments occupied only during the farming season and abandoned on the approach of winter, but located directly on or overlooking the fields under cultivation.

The ultimate development of pueblo architecture finds expression in the great clustered houses which remind one of a huge beehive. As the wilder tribes continued their depredations among the inoffensive villagers, and, with the passing of time, grew more numerous and more and more bold in their attacks and forays, the pueblo tribes were forced to combine more and more for protection. Groups of related villages, each offering a point of attack for savage foes and rich plunder when looted, were compelled to combine into a single larger pueblo, and as reliance was now placed on the size of the village and the number of its inhabitants, these large villages were located in wide valleys or on fertile bottom lands, the people again returning to their original desire to live upon the lands they worked.

Under modern conditions, when the depredations of the wild tribes have been terminated by the interference of a higher and stronger civilization, the houses are reverting to the primitive type from which the great pueblos developed. But so late as ten or twelve years ago the Hopi or Tusayan villages were under the old conditions and were subjected to periodical forays from their immediate neighbors, the Navaho. Young warriors of the latter tribe ravaged the fields of the Hopi, more perhaps for the pleasure it afforded them and on account of the old traditions than from any real necessity for food as they destroyed more

than they took away. If they found anyone in the fields, they would beat him, or perhaps kill him, merely for the amusement it seemed to afford. It was the Navaho method of "sowing wild oats." There is little doubt that the pressure which bore on the Pueblos for at least some centuries was of this nature, annoying rather than actually dangerous. No doubt there were also occasional invasions of the country of more than usual magnitude, when from various causes the nomadic tribes had either an abundance or a scarcity of food, and, knowing the character of the villages as storehouses of corn and other products, or impelled by old grudges growing out of former forays, a whole tribe might take part in the incursion, and perhaps try themselves by an assault on some village of considerable size. But such expeditions were rare; the pueblo tribes were annoyed rather than menaced. Eventually, however, they found it necessary to provide against the ever-present contingency of an invasion of their country, and the great valley pueblos were developed.

As aggregation of the little settlements into villages and of villages into great valley pueblos continued, the use of farming shelters grew apace. No matter what the conditions might be, the crops must be grown and harvested, for the failure of the crops meant the utter annihilation of the people. They had no other resource. They were compelled to combine into large pueblos containing often a thousand or fifteen hundred souls, a condition which was at variance with their requirements and manner of life; but they were also compelled to till the soil or starve. The lands about the home villages were never sufficient for the needs of the people, and in consequence a considerable portion of the population was compelled to work fields more or less distant from them. Thus, in the ultimate stage of pueblo development the use of farming shelters was as much or more in evidence, and as much a necessity to the people, as in the prior stages.

This sketch of the development of pueblo architecture exhibits a sequence: but it is a cultural, not a chronologic, one. The data in hand will not permit the determination of the latter now, but within a given group sequence in culture and sequence in time are practically synonymous. The time relations of the various groups, one to another, must be determined from other evidence.

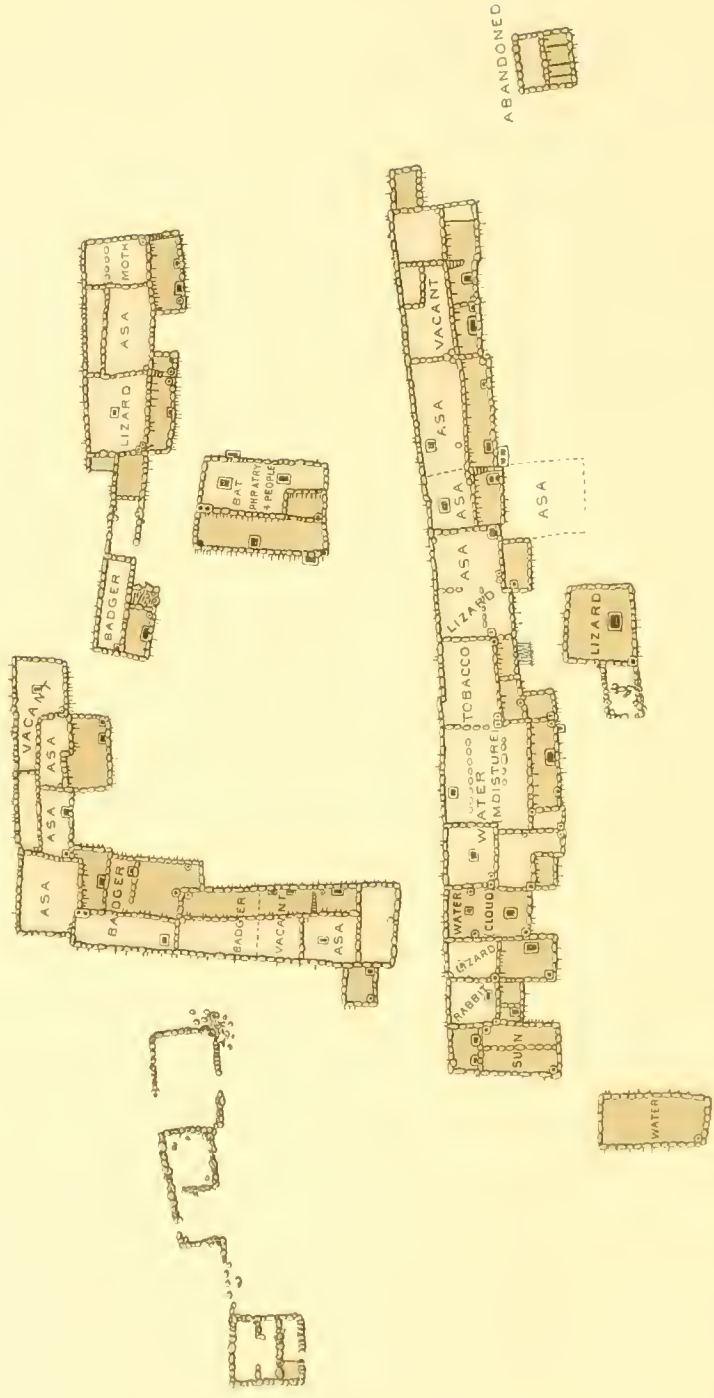
The use of farming shelters has been a most important factor in producing the thousands of ruins which dot the mesas and canyons of the Southwest, while another factor, the localization of clans, has worked with it and directed it, as it were, in certain channels. All the evidence which investigation has revealed, from traditions to the intrinsic evidence of the ruins themselves, concur in establishing the fact that the pueblo tribes were in slow but essentially constant movement; that movement has continued down to the present time and is even now in progress. Viewed across long periods of time it might

be regarded as a migration, but the term has not the same meaning here that it has when applied to the movements of great masses of humanity which have taken place in Europe and Asia. In the pueblo country migration was almost an individual movement; it was hardly a tribal, certainly not a national, exodus. Outlying farming settlements were established in connection with each important village. In the course of time it might come about that some of the people who used these establishments at first only during the summer, retiring to the home village during the winter, would find it more convenient to remain there throughout the year. At the present day some of the summer villages are fifteen miles and more from the home pueblo, and it must have been at best inconvenient to live in two places so far apart.

The home villages can be distinguished from the summer places by the presence or absence of the kivas, or sacred ceremonial chambers. For as practically all the rites and dances take place after the harvest is gathered and before planting time in the spring—that is, at the season when the men have some leisure—they are performed in the home pueblos, and only such villages have kivas.

When, from prolonged peace or for other reasons, some families allowed the inconvenience of moving back and forth to dominate over counter motives, and remained throughout the year at the summer place, they might build a kiva or two, and gradually, as others also decided to remain, the summer place would become a home village. As the population grew by increment from outside and by natural increase this village would put out farming shelters of its own, which in the course of time might supplant their parent in the same way. The process is a continuous one and is in progress to-day. The summer village of Ojo Caliente, 15 miles from Zuñi, and attached to that pueblo, has within the last decade become a home village, occupied throughout the year by several families, and during the farming season by many others. Eventually kivas will be built there, if this has not already been done, and Ojo Caliente will become a real home village and put out farming shelters of its own. Such is also the case with the pueblo of Laguna, which is gradually being abandoned by its inhabitants, who are making their permanent homes at what were formerly only summer villages.

It will thus be seen that a comparatively small band might in the course of a few centuries leave behind them the remains of many villages. In the neighborhood of the Hopi towns there are at least 50 ruins, all, or practically all, of which were left by the people who found their present resting places on the summits of the rocky mesas of Tusayan. And with it all it is not necessary to assume great periods of time: it is doubtful whether any of the ruins of Tusayan are much more than four hundred years old, and some of them were partly



PLAN OF SICHUMOVI SHOWING DISTRIBUTION OF CLANS

inhabited so late as fifty years ago. Including the present location, three sites of Walpi, one of the Hopi towns, are visible from the summit of the mesa. According to the native traditions the last movement of this village, only completed in the present century, was commenced when the Spaniards were in control, over two centuries ago. It is said that the movement was brought about by the women of the village, who took their children and household goods up on the summit of the mesa, where a few outlooks had been built, and left the men to follow them or remain where they were. The men followed.

Among the inhabited villages the home pueblo can be distinguished from the summer establishments by the presence of the kivas, and often the same distinction can be drawn in the case of ruins. In many of the latter the kivas are circular and are easily found even when much broken down. Aside from this the plans of the two classes of villages can often be distinguished from each other through their general character, the result of the localization of clans previously alluded to.

The migratory movements of a band of village builders often consumed many years or many decades. During this time subordinate settlements were put out all along the line as occasion or necessity demanded, and were eventually abandoned as the majority of the people moved onward. Hopi traditions tell of such movements and rests, when the people remained for many plantings in one place and then continued on. As a rule there was no definite plan to such a movement and no intention of going to any place or in any direction; the people simply drifted across the country much as cattle drift before a storm. They did not go back because they knew what was back of them, but they went forward in any direction without thought of where they were going, or even that they were going at all. It was a little trickling stream of humanity, or rather many such streams, like little rivulets after a rain storm, moving here and there as the occurrence of areas of cultivable land dictated, sometimes combining, then separating, but finally collecting to form the pueblo groups as we now know them.

There is no doubt that in addition to this unconscious drifting migration there were also more important movements, when whole villages changed their location at one time. Such changes are mentioned in the traditions and evidenced in the ruins. There is a multiplicity of causes which bring about such movements, many of them very trivial, to our way of thinking. While the climate of the pueblo country is remarkably equable and the water supply, although scanty, is practically constant over the whole region, local changes often occur: springs fail at one place and burst out at another; some seasons are marked by comparatively abundant rains, others by severe droughts. The failure of some particularly venerated spring would

be deemed good cause for the abandonment of a village situated near it, or the occurrence of several years of drought in succession would be construed as a mark of disfavor of the gods, and would be followed by a movement of the people from the village. Even a series of bad dreams which might be inflicted on some prominent medicine-man by overindulgence in certain articles of food would be regarded as omens indicating a necessity for a change of location. Such instances are not unknown. Toothache also is dreaded for mythic reasons, and is construed as a sign of disfavor of the gods; so that many a village has been abandoned simply because some prominent medicine-man was in need of the services of a dentist. Many other reasons might be stated, but these will suffice to show upon what slight and often trivial grounds great villages of stone houses, the result of much labor and the picture of permanence, are sometimes abandoned in a day.

But while such movements en masse are not unknown, they have been comparatively rare. The main movement of the people, which was a constant one, was accomplished through the custom of using outlying farming settlements. Such settlements were commonly single houses, but where the conditions permitted and the area of cultivable land justified it, the houses were grouped into villages. These were always located on or immediately adjacent to the land which was worked, and in some instances attained considerable size, but as a rule they were small. The practice was universal throughout the length and breadth of the pueblo country, and the farming shelters took various forms as the immediate topographic environment dictated. Even the cliff ruins are believed to be farm shelters of a type due to peculiar physical conditions, but as this idea has been exploited elsewhere¹ by the writer it need not be developed here.

The occupancy of farm shelters, whether individual rooms or small villages, was necessarily more or less temporary in character, and as the population moved onward the places would be finally and completely abandoned. It would often be difficult to obtain from the study of the ground-plan of a ruin, generally all that is left of it, any idea of the people who inhabited it and of the conditions under which they lived; but there is another element by the aid of which the length of time during which the village was inhabited and of the conditions under which such occupancy continued may often be approximated. This is the localization of clans, to which allusion has been made.

The constant movement of the tribe, due to the use of outlying farming settlements, which has been sketched above, has its analogue within each village, where there is an equally constant movement from house to house and from row to row. The clans which inhabit a village are combined into larger units or groups known as phratries: locally such

¹The Cliff Ruins of Canyon de Chelly, in the Sixteenth Annual Report of the Bureau of American Ethnology.

clans are said to "belong together." In the olden days each phratry occupied its own quarters in the village, its own cluster or row, as the case might be, and while the custom is now much broken down, just how far it has ceased to exercise its influence is yet to be determined.

In the pueblo social system descent and inheritance are in the female line. This custom is widely distributed among the tribes of mankind all over the world and has an obvious basis. Among the Pueblos it works in a peculiar manner. Under the old rule, when a man marries, not having any house of his own, he goes to his wife's home and is adopted into her clan. The children also belong to the mother and are members of her clan. In many of the villages at the present day a man may marry any woman who will marry him, but in former times marriage within the clan, and sometimes within the phratry, was rigidly prohibited. Thus it happened that a clan in which there were many girls would grow and increase in importance, while one in which the children were all boys would become extinct.

There was thus a constant ebb and flow of population within each clan and consequently in the home or houses of each clan. The clans themselves were not fixed units; new ones were born and old ones died, as children of one sex or the other predominated. The creation of clans was a continuous process. Thus, in the Corn clan of Tusayan, under favorable conditions there grew up subclans claiming connection with the root, stem, leaves, blossom, pollen, etc. In time the relations of clans and subclans became extremely complex; hence the aggregation into larger units or phratries. The clan is a great artificial family, and when it comprises many girls it must necessarily grow. Such is also the case with the individual family, for as the men who are adopted into it by marriage take up their quarters in the family home and children are born to them more space is required. But additional rooms, which are still the family property, must be built in the family quarter, and by a long-established rule they must be built adjoining and connected with those already occupied. Therefore in each village there are constant changes in the plan: new rooms are added here, old rooms abandoned there. It is in miniature a duplication of the process previously sketched as due to the use of outlying shelters. It is not unusual to find in an inhabited village a number of rooms under construction, while within a few steps or perhaps in the same row there are rooms vacant and going to decay. Many visitors to Tusayan, noticing such vacant and abandoned rooms, have stated that the population was diminishing, but the inference was not sound.

On the other hand, the addition of rooms does not necessarily mean growth in population. New rooms might be added year after year when the population was actually diminishing; such has been the case in a number of the villages. But the way in which rooms are added may suggest something of the conditions of life at the time of building.

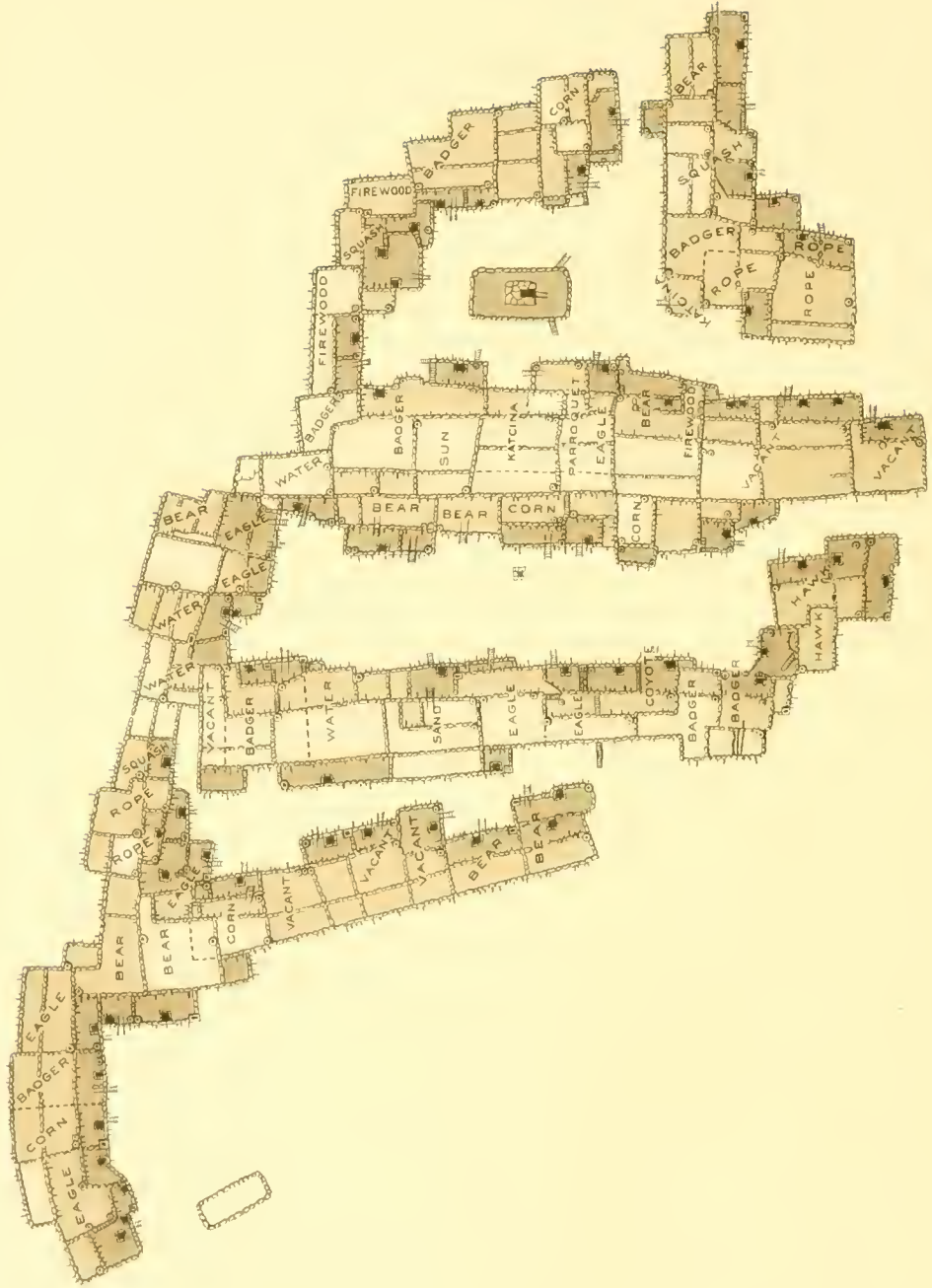
The addition of rooms on the ground floor, and the consequent extension of the ground plan of a house cluster, indicates different conditions from those which must have prevailed when the village, without extending its bounds, grew more and more compact by the addition of small rooms in the upper stories.

The traditions collected from the Hopi by the late A. M. Stephen, part of which have been published,¹ present a vivid picture of the conditions under which the people lived. The ancestors of the present inhabitants of the villages reached Tusayan in little bands at various times and from various directions. Their migrations occupied very many years, although there were a few movements in which the people came all together from some distant point. Related clans commonly built together, the newcomers seeking and usually obtaining permission to build with their kindred; thus clusters of rooms were formed, each inhabited by a clan or a phratry. As occupancy continued over long periods, these clusters became more or less joined together, and the lines of division on the ground became more or less obliterated in cases, but the actual division of the people remained the same and the quarters were just as much separated and divided to those who knew where the lines fell. But as a rule the separation of the clusters is apparent to everyone; it can nearly always be traced in the ground plans of ruins, and even in the great valley pueblos, which were probably inhabited continuously for several centuries, the principal divisions may still be made out. In the simpler plans the clusters are usually well separated, and the irregularities of the plan indicate with a fair degree of clearness the approximate length of time during which the site was occupied.

A plan of this character is reproduced in figure 3, showing a ruin near Moenkapi, a farming settlement of the people of Oraibi situated about 45 miles from that village. There were altogether 21 rooms, disposed in three rows so as to partially inclose three sides of an open space or court. The rows are divided into four distinct clusters, with a single room outside, forming a total of five locations in a village which housed at most twenty-five or thirty persons. The continuity of the wall lines and comparative regularity of the rooms within each cluster, the uniformity in height of the rooms, which, if the débris upon the ground may be accepted as a criterion, was one story, and the general uniformity in the character of the masonry, all suggest that the site was occupied a short time only. This suggestion is aided by the almost complete absence of pottery fragments. It is a safe inference that persons of at least five different clans occupied this site.

A plan of interest in connection with the last is that shown in plate XXI, which illustrates the modern village of Moenkapi, occupied only during the summer. Here we have two main clusters and two

¹A Study of Pueblo Architecture, in the Eighth Annual Report of the Bureau of Ethnology.



PLAN OF MISHONGNOVI SHOWING DISTRIBUTION OF CLANS

detached houses, but the clusters are not nearly so regular as in the plan above, nor are the wall lines continuous to the same extent. This place is spoken of by the people of Oraibi as of recent establishment, but it has certainly been occupied for a much longer period than was the ruin near it. It is apparent from an inspection of the plan that the clusters were formed by the addition of room after room as year by year more people used the place in summer. It will be noticed that the rooms constituting the upper right-hand corner of the larger cluster on the map, while distinct from the other rooms, are still attached to them, while two other rooms in the immediate vicinity

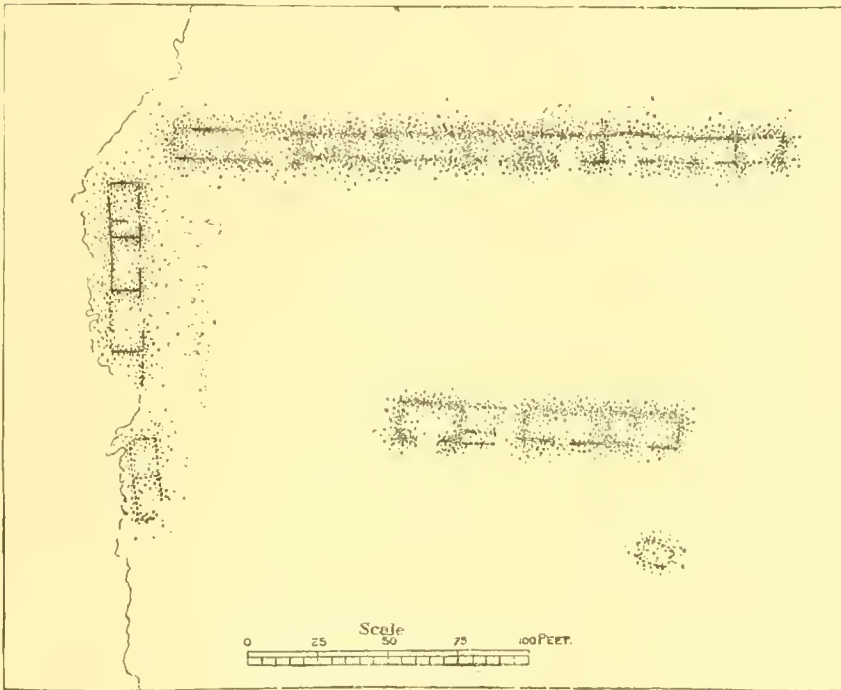


FIG. 3.—Plan of ruin showing brief occupancy.

are wholly detached. This indicates that the cluster was occupied by one clan or by related families, while the detached houses were the homes of other families not related to them. Thus we have in this village, comprising about the same number of rooms as the ruin first described, at least four distinct clans.

Detached rooms, such as those shown on these plans, always indicate a family or person not connected directly with the rest of the inhabitants, perhaps the representative of some other clan or people. A stranger coming into a village and wishing to build would be required to erect his house on such a separate site. In the village of Sichelumovi (shown in plan in plate XXIV) there are two such detached

houses directly in front of the main row. One had been built and was inhabited at the time when the map was made by a white man who made his home there, while the other, which had been abandoned and was falling into ruin, was built some years before by a Navaho who wished to live in the village. The former was subsequently surrendered by the white man and occupied by some of the natives. The localization of clans worked both ways. Not only was a member of a clan required to build with his own people, but outsiders were required to build outside of the cluster.

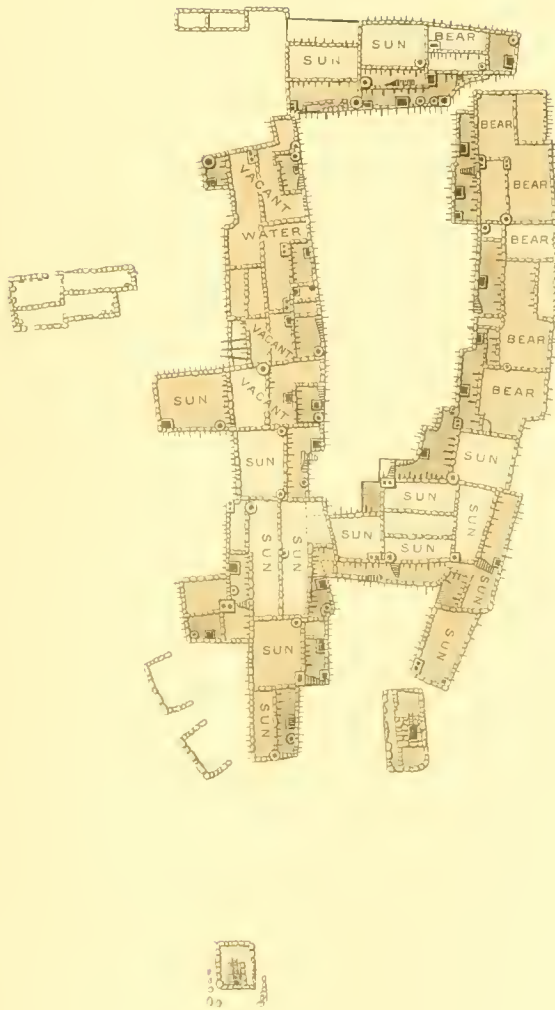
The same requirement is illustrated in plate xxii, which shows the plan of Hawikû, one of the ancient "Seven Cities of Cibola," near the present Zuñi. The standing walls which occupy the southeastern corner of the ruin are the remains of an adobe church, while the buildings which stood near and to the north of it, now marked only by lines of débris, were the mission buildings and offices connected with the church. They are pointed out as such by the natives of Zuñi to-day. All these buildings were set apart and were distinct from the village proper, which occupied the crest of the hill, while the buildings mentioned were on the flat below.

This was the first discovered city of Cibola,¹ the first pueblo village seen by the friar Niza in 1539, and the first village stormed by Coronado and his men in 1540. It was abandoned about 1670 (?) on account of the depredations of the Apache. The plan shows that the site was inhabited for a long time, and that the village grew up by the addition of room after room as space was needed by the people. Notwithstanding the fact that no standing walls remain, and that the place was abandoned over two centuries ago, six or seven house-clusters can still be made out in addition to the buildings erected by or for the monks in the flat below. Dense clustering, such as this, indicates prolonged occupancy by a considerable number of people, and probably two centuries at least would be required to produce such a plan. The long and comparatively narrow row to the left of the main cluster suggests an addition of much later date than the main portion of the village.

The maps of the villages Walpi, Sichumovi, Hano, Mishongnovi, Shipaulovi, and Oraibi, which are presented herewith, show the distribution of the clans at the time the surveys were made (about 1883). At first glance the clans appear to be located with the utmost irregularity and apparently without system, but a closer study shows that notwithstanding the centuries which have elapsed since the period covered by the old traditions of the arrival of clans² the latter are in a measure corroborated by the maps. It is also apparent that notwithstanding the breakdown of the old system, whereby related peoples were required to build together, traces of it can still be seen. It is a matter of regret

¹ See Hodge: First Discovered City of Cibola, in *American Anthropologist*, VIII, April, 1895.

² These traditions are given in detail in the preceding paper.—Ed.



PLAN OF SHIPALLOVI SHOWING DISTRIBUTION OF CLANS

that the data are incomplete. The accompanying table shows the distribution of the families within the villages at the time of the surveys, but some of the clans represented, which do not appear in the traditions collected, are necessarily given as standing alone or belonging to unknown phratries, as their phratral relations were not determined. The clustering of houses was a requirement of the phratry rather than of the clan.

Distribution of families

	Walpi	Sichumovi	Hanc	Mishongmovi	Shapantovi	Oratbi	Total families
Bear families.....			6	9	6	5	26
Rope families.....				5			5
Spider families.....	1					2	3
Snake families.....	5					1	6
Cactus families.....	1						1
Horn families.....	5						5
Flute families.....	2						2
Fire-wood families.....				3			3
Eagle families.....	1		8	8		6	23
Sun families.....	1	1	2	1	15	9	29
Hawk families.....				2		1	3
Kateina families.....	2			2		1	5
Paroquet families.....				1		10	11
Cottonwood families.....			3				3
Asa families.....	3	9	1				13
Badger families.....		3		8		13	24
Water (Corn) families.....	1		1	5		9	19
Water (Cloud) families.....	8	3	6	4	1		22
Reed families.....	6					25	31
Lizard families.....	1	4	1			14	20
Rabbit families.....	3	1				11	15
Sand families.....				1		8	9
Tobacco families.....	1	1	2				4
Siywap (Shrub) families.....	2						2
Coyote families.....	2		2	1		17	22
Owl families.....	2					9	11
Red Ant families.....	7						7
Bow families.....						4	4
Squash families.....				3		1	4
Snow families.....	3						3
Batkin families.....		1					1
Moth families.....		1				1	2
Crane families.....						1	1
Mescal-cake families.....						1	1
	57	24	35	53	22	119	340

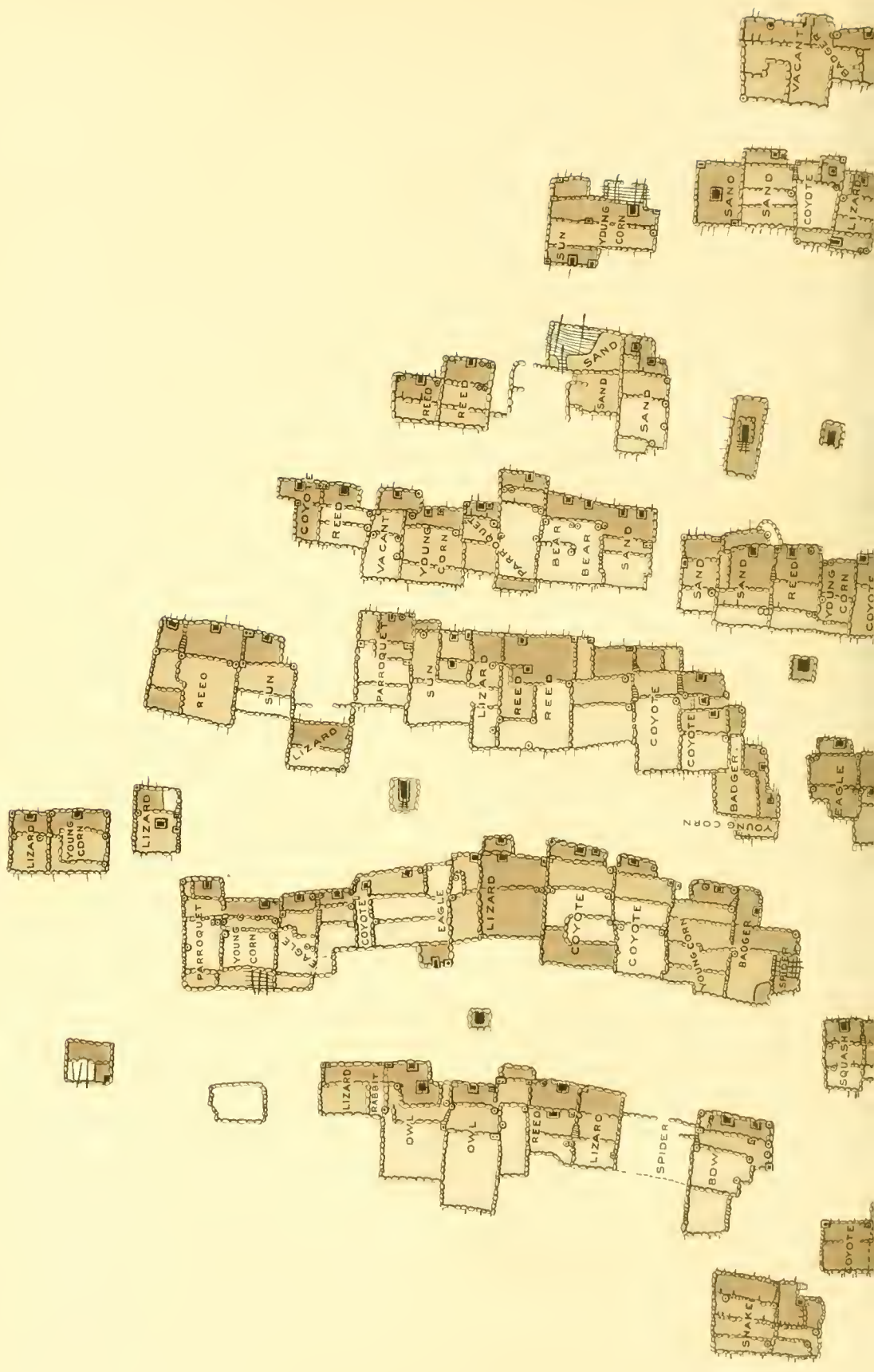
The determination of the clans shown on the maps was made by the late A. M. Stephen, whose qualifications for the work were exceptional. Doubtless there are some errors in it, for it is a difficult matter to

determine the relationships of nearly 400 families, and the work was brought to an end before it was entirely finished. But the maps illustrate a phase of life of the village builders which has not heretofore attracted attention, and which has had a very important effect on the architecture of the people.

Through the operation of the old custom of localizing clans, although it is now not rigidly adhered to as formerly, the plans of all the villages have been modified. The maps here presented show them as they were in 1883, but in a few cases known to the writer the changes up to 1888 are shown by dotted lines. If now or in the future new surveys of the villages be made and the clans be relocated, a mass of data will be obtained which will throw much light on some of the conditions of pueblo life, and especially on the social conditions which have exercised an important influence on pueblo architecture.

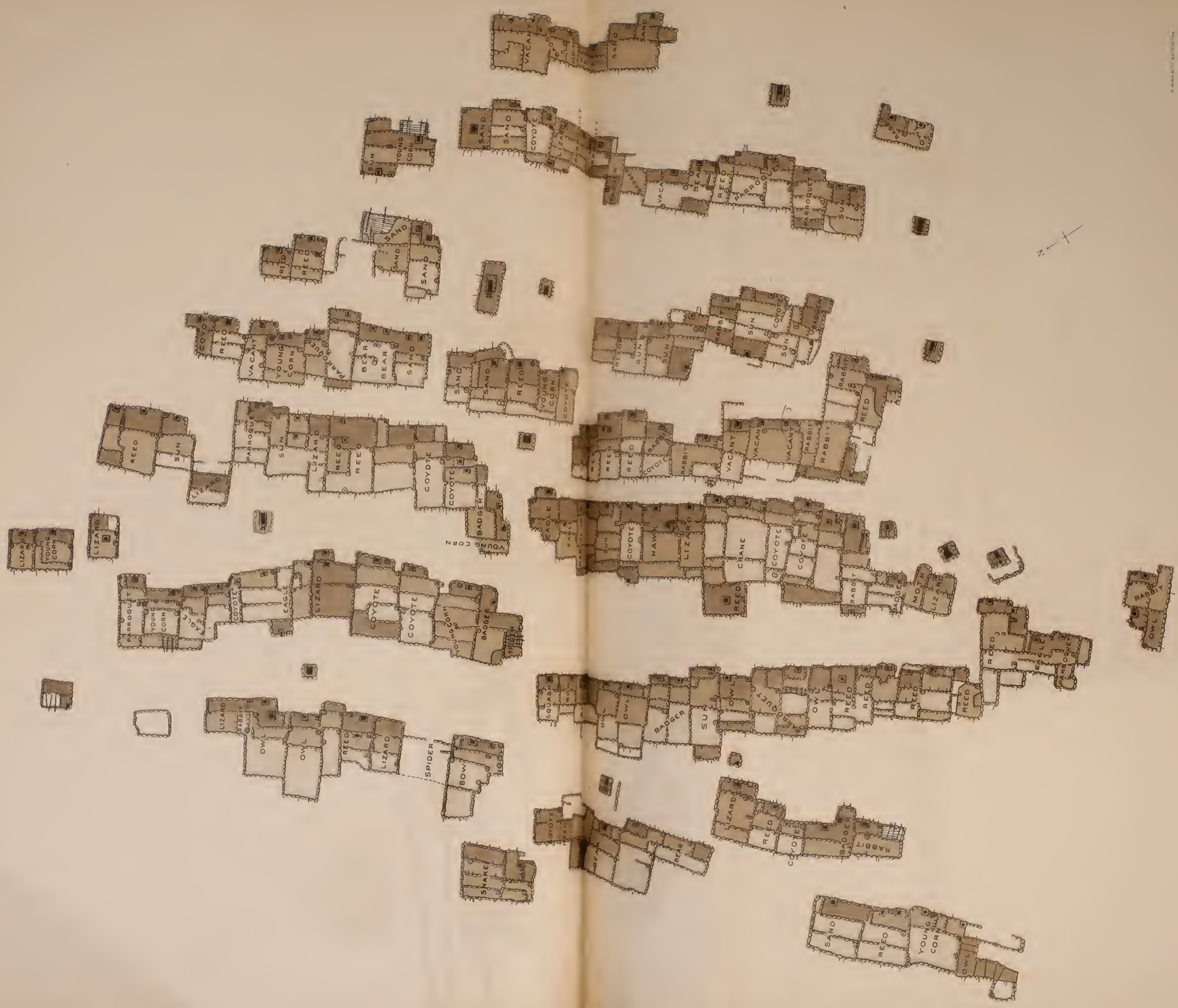
The table showing the distribution of families in the villages presents also the number of families. The most numerous were the Water people, comprising in various clans no fewer than 121 families, or over a third of the total number. These were among the last people to arrive in Tusayan and they are well distributed throughout the villages. It will be noticed, also, that while a scattering of clans throughout the villages was the rule, some of them, generally the older ones, were confined to one village or were concentrated in one village with perhaps one or two families in others. The Snow people were found only in Walpi, but these may be properly Water people and of recent origin. The Snake people were represented by 5 families in Walpi and 1 in Oraibi, although they were among the first to arrive in Tusayan, and for a long time exercised proprietary rights over the entire region and dictated to each incoming clan where it should locate. The largest clan of all, the Reed clan, was represented by 6 families in Walpi and 25 in Oraibi, a total of 31 families, or, by applying the general average of persons to a family, by 155 persons. In Oraibi, the largest village, there were 21 distinct clans, although 7 of them were represented by only 1 family each. In Shipaulovi, the smallest village, there were 20 families of 2 clans, and three-fourths of the inhabitants belonged to one of them. In addition there is one family of the Water people, and in fact in each of the villages one or more clans is represented by one family only. It will be noticed that in Shipaulovi the two clans were still well separated and occupied distinct quarters, although the houses of the village were continuous.

The scattered appearance of the clans on the maps is more apparent than real. It is unfortunate that the phratral relations of the clans could not be completely determined, and it is probable that were this done the clans would be found to be well grouped even now. Even the insufficient data that we have appear to show a tendency on the part of the clans to form into groups at the present day, notwithstand-





PLAN OF ORAIBI SHOWING DISTRIBUTION OF CLANS



PLAN OF ORAIBI SHOWING DISTRIBUTION OF CLANS

A. H. S. P. 1894, P. 104, FIG. 104.

ing the partial disintegration of the old system. At the present time the house of the priestess of the clan is considered the home of that clan, and she has much to say about proposed marriages and other social functions. There is no doubt that in ancient times the localization of clans was rigidly enforced, as much by circumstances as by rule, and the ground plans of all the ruins were formed by it. As has been before suggested, a resurvey of the villages of Tusayan and a relocation of the clans, after an interval of some years, would probably develop data of the greatest value to the student of pueblo architecture, when compared with the plans here presented.