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Moorhead school officials found concrete met their many requirements, including fire safety and long-term economy.
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(Cover — Pueblo Bonito, Chaco Canyon
New Mexico Department of Development)

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NMA May - June 1967
The Alumni and Friends of the Department of Architecture

An organization formed in 1967 to promote excellence in Architectural Education through communication, interactivity and harmonious relationship between the University of New Mexico Department of Architecture and alumni, architects and members of the construction industry through the creation of this organization. This organization through membership dues, cooperative and voluntary donations will create funds for use by the Department of Architecture to supplement scholarships, promote research in design, construction methods, and material uses and for the application of this knowledge in improving our environment through building expertise and design excellence.

An organization called “The Alumni and Friends of the Department of Architecture of the University of New Mexico” has been formed in joint cooperation between the UNM Department of Architecture, alumni, and practicing architects. The objectives and goals of this organization are stated above.

With national accreditation for the Department of Architecture pending in May, it is imperative that such an organization be initiated and that it be successful. In the interest of the citizens of New Mexico, it is important that more well-trained architects be educated in New Mexico.

All architectural schools in the country have outside sources of financial help for student scholarship programs. The University of New Mexico must have such a source of continuous funds, and the Department of Architecture is committed to the National Architectural Accreditation Board to raise a minimum of $2500 in outside funds this first year. All contributions to this organization will be fully deductible.

We respectfully suggest that your annual contribution as a friend of New Mexico architecture be $10. Of course, a larger donation will be most gratefully accepted. In order to make the program successful and continuing, we would appreciate it if you could budget each year at least as much as you contribute this first time. Your check should be payable to the Greater UNM Fund, AFDA.

A well attended “kick-off” banquet and program featuring the internationally renowned architect, Louis Kahn, was held for members of the Alumni and Friends on April 22 in conjunction with the Annual Architectural Scholarship Banquet. Mr. Kahn is considered by many to be America’s greatest living architect. It is hoped that the gathering of Alumni and friends will become an annual event.

In addition to financial assistance, we invite your active participation in the program, and we would like to hear any comments from you.

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NMA May-June 1967
Mr. James M. Murray, III, President
New Mexico Southern Chapter
New Mexico Society of Architects
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Dear Mr. Murray:

The Southeastern Section of the Colorado Chapter AIA invites you and the members of the Southern Chapter of the New Mexico Society of Architects to the 16th Western Mountain Regional Conference.

The Conference will convene on Sunday, November 5th at the Broadmoor Hotel in Colorado Springs. From then until the close of the conference on Wednesday, November 8th, we will present a provocative, entertaining and memorable schedule of events.

The theme, "THE TOWN AROUND US" will guide us through an examination of the sources of waste and ugliness which surround us and how the Architect is avoiding his responsibilities to his community.

We would appreciate the publication of this information in your Society's newsletter, and are looking forward to seeing you in November.

Sincerely,
John B. Ten Eyck, AIA chairman
16th Western Mountain Regional Conference

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The following letter of notification, dated March 14, brought news of Max Flatow's well-deserved appointment as an AIA Fellow.

The American Institute of Architects desires to confer upon you the honor of Fellowship and membership in the College of Fellow, in accordance with the action of the Jury of Fellows at its recent meeting, for your notable contribution to the advancement of the profession in Public Service.

Your presence is requested at the 1967 Convention of the Institute to be held in New York City, May 14-18. Those who have been advanced to Fellowship will receive their certificates and medals at the Annual Dinner on the evening of Thursday, May 18, 1967, in the Grand Ballroom, New York Hilton Hotel. Presentation will be with appropriate ceremony and it is highly desirable that each of the newly advanced Fellows be present.

The Officers of the Institute and the Jury of Fellows join in the request that you come to receive this honor in person. Please send your response to the Institute at an early date.

Rex W. Allen, FAIA
Secretary

---

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Members of New Mexico Concrete Masonry Assn. and National Concrete Masonry Assn.
The national office of AIA has requested that New Mexico Architecture bring this most important matter to the attention of its readers.

1. In response to a survey by Institute staff, AIA spokesmen in 20 key states reported that the 1966 edition of A201 is being used successfully in their areas, and that no difficulties with contractors have been encountered. Contrary to reports that have appeared elsewhere, the AIA chapters which were contacted stated that contractors are complying with the provisions of Paragraph 4.18 revised. Insurance is now generally available to all qualified contractors. In a few localities reports indicate some continued lack of understanding of the 1966 edition by contractors who urge the use of the 1963 edition.

2. The Institute urges members who have not done so to begin immediately to use all of the 1966 editions of the AIA documents. These documents include A101, Owner-Contractor Agreement, A201, the General Conditions of the Contract for Construction and B131, Owner-Architect Agreement. These bear a September 1966 edition date.

3. Recent news items in the trade press have given inaccurate and erroneous impressions concerning the "document controversy" and actions taken at the recent AGC national convention with respect to the documents.

One story said that (AGC) "membership action effectively scrapped the entire 1966 revised edition of AIA Document A201." The fact is that the convention passed the following resolution:

"Be it resolved that the Associated General Contractors of America assembled in its 48th Annual Convention, March 6-9, urges the AIA-AGC Liaison Commission to reexamine carefully the 1966 edition of (A201) in the light of the many questions and objections raised throughout the country; and

Be it further resolved, that this convention assembled requests the National Officers of both AIA and the AGC to continue negotiations on an urgent priority basis to create a workable, equitable and clearly understandable Document A201 so that the AGC may endorse the use of the 1966 edition, as so revised."

4. Negotiations by the AIA-AGC and the Insurance Industry reached agreement in January on the "harmless provision", 4.18, which has been widely publicized. AIA First Vice President Robert L. Durham and AGC Senior Vice President Fred W. Mast began discussions well in advance of the AGC convention on other phrases and words in various parts of AIA Document A201 which AGC still has reason to wish modified. These discussions are continuing and represent implementation of AGC's convention resolution.

5. In the viewpoint of AIA's Vice President Durham the requested further changes are minor compared with the major improvement in the whole document, and present no insurmountable difficulties in the path of reaching agreement. The final resolution of the items under discussion will be handled at the National level through the regular procedures of action by the Committee on Documents Review with advice of legal and insurance counsel, and subsequent approval of the Board. Any modifications so approved will appear in a scheduled reprinting of the Documents, with ample and timely notification to the AIA membership.

6. In view of the confusion caused by local rumors and erroneous news items, all AIA members are reminded again:

(a) The Standard Documents of the AIA are developed by experts at the national level to aid all architects in all regions with the complexities of present day practice.

(b) The September 1966 edition of the AIA Documents have been completely updated to deal with problems of legal and insurance liabilities of the parties to the Contract.

(c) Chapters should not enter into discussions or "negotiations" with other local groups for the expressed purpose of developing revisions to the AIA documents. Chapters have no authority to make any changes to the AIA documents. To attempt to do so would only result in chaos and risk to architects in the area.

(d) The Institute requests that all suggestions for revisions to the AIA documents be forwarded to the Administrator, Department of Professional Services, American Institute of Architects.


AIA Documents are copyrighted and permission to reproduce the documents must be secured from the Institute. Members are urged to notify the Institute of any violation of this copyright.

8. Practitioners are also cautioned that through continued use of the 1963 edition of A201 they may be exposing themselves to liabilities not covered under their present professional liability insurance policy. Serious financial loss may also be incurred by the owner because of the inadequacies of the 1963 edition of A201.

The 1963 edition of A201 does not provide protection for the owner or the architect in regards to third party liability suits resulting from injuries or damages...
arising out of the contractor’s operations during the construction phase.

9. To reiterate: all practitioners are advised to use the September 1966 editions of the documents to ensure protection for not only themselves but the owner and contractor as well as a result of the changes in the current legal and insurance liability climate.

10. Revision of the AIA Documents is a continuing and orderly process. The design professions, the AGC, the insurance industry and others are regularly consulted. The documents have been revised many times in the past and will be revised many times in the future to keep pace with the changing climate of architectural practice.

REVISION OF SUBPARAGRAPH 4.18.3

The General Conditions of the Contract for Construction

Subparagraph 4.18.3 as it appears in the September 1966 edition of A201 has been revised (see below). This revision has been approved by the AIA, AGC, and representatives of the insurance industry. The revised wording removes the reluctance on the part of some insurance interests to provide insurance coverage under the present document for their contractor insureds.

This revised Subparagraph 4.18.3 is to be substituted for the present wording. The revised Subparagraph should be incorporated into the document by Addendum, Supplementary Condition, Change Order, or other appropriate method.

The revised Subparagraph follows:

“4.18.3 The obligations of the Contractor under this Paragraph 4.18 shall not extend to the liability of the Architect, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, his agents or employees provided such giving or failure to give is the primary cause of the injury or damage.”

The next printing of AIA Document A201 will contain the new wording above and a revision notice to this effect will be printed at the bottom of page 1. However, orders for A201 will be filled with the present September 1966 Edition of A201 which will include this instruction notice to modify the September 1966 Edition of A201 (see attached) until stocks are exhausted. PLEASE NO NOT RETURN YOUR A201 STOCK FOR EXCHANGE. Substitute revised paragraph above when using the present document.

ARCHITECTURE of the ANASAZI PUEBLO CULTURE

Charles L. Hall, AIA

Every story must have a beginning. This one begins many centuries ago during the last stages of the Pleistocene age. Although the North American continent was generally glaciated during this period, many open areas occurred. Among these open areas were the lowlands bordering the Bering Sea and the Arctic coast, the great central plain in Alaska, and parts of the main North American continent. These unglaciated avenues made possible the migration of men across Siberia, over the Bering Strait, and onto the North American continent. Moving south along the Rocky Mountains and dispersing eastward and westward in the mountain valleys to establish population centers over the continent, a steady influx of Asiatic people expanded continuously southward in search of new lands. Man's inborn inquisitiveness must have spurred on this drive to untouched frontiers. Ultimately the prehistoric people reached the region of the present southwestern United States, and evidences of these early people have been unearthed at several locations.

The most well known of these prehistoric sites is the Folsom Culture found near Folsom, New Mexico. Discovered in 1926, the Folsom complex has produced artifacts indicating man lived in that area between 10,000 and 25,000 years ago. Other notable sites producing supporting evidence of such early cultural development are found near Clovis, New Mexico, Yuma County, Colorado, Gypsum Cave, Nevada, and Ventana Cave, Arizona. Nevertheless artifacts of this era are extremely limited in number and provide a comparatively small knowledge of the people.

Evolving from these sketchy beginnings are three main cultural regions within the Southwest. One group known as the Anasazi dwelt in the northern plateau region. The name Anasazi means "old people." The second group, the Hohokam, meaning "those who have gone," occupied the region of the central mountains. The final cultural group called the Mogollon, resided in the southern desert and environs.

The architecture of these groups covers a broad range of adaptation as related to both time and technology, but many similarities exist in their methods of providing shelter for themselves. Though each culture represents distinctive concern for the regional ecology, there are many parallels in the development of their buildings.

To do justice to the subject this paper will be limited to the culture group known as the Anasazi who occupied the region we now call the Four Corners Area of Arizona, New Mexico, Colorado, and Utah.

Much work has been done in past decades to learn about these people through diggings, but it was not until 1927, when a group of archaeologists met at Pecos, New Mexico, that a uniform method of classifying the development of the cultures of the southwest was agreed upon. The original classification underwent changes and modifications as it was applied by various archaeologists with many sub-classifications used by individuals in their own work. To solidify the concept and to insert some uniformity into archaeological work, Roberts in 1935 suggested some revisions to the original classifications. His revisions have subsequently been accepted by many archaeologists and they provide the parameter for this study.

Basketmaker BC-450 AD replaced Basketmaker I
Modified Basketmaker 450-700 replaced Basketmaker II
Developmental Pueblo 700-1100 replaced Pueblo I and II
Great Pueblo 1100-1300 replaced Pueblo III
Regressive Pueblo 1300-1700 replaced Pueblo IV
Historic Pueblo 1700-present replaced Pueblo V

The people involved in the Basketmaker period were originally nomadic who developed a semi-agricultural economy consisting mainly of corn and squash. Hunting and gathering added to their diet, the meat of mammals locally obtained. For use in their hunting excursions and for defense the spear and atlatl were developed. The atlatl is a spear device developed to give additional leverage in throwing a spear. The name Basketmaker applied to this cultural group stems from their ability in basketworking and weaving. Superb examples of these crafts have been uncovered at many sites through the Southwest.

The Basketmaker people lived primarily in caves, though it should be pointed out that the locations they occupied were not our usual concept of a cave. Generally they were shallow shelters carved in the cliff face by the action of the sun, wind, and water. Although the cave house was the most common form of Basketmaker residence, some evidence has been uncovered of their knowledge of construction. Cists were built in the caves for the storage of corn and often served as burial places. These cists were oval or circular pits dug in the floor and sometimes lined with stone slabs or adobe mud. Covers for the pits varied according to the size. Smaller pits were simply covered with a stone slab while larger ones were enclosed with a roof construction built of wood and adobe. Sizes as large as four feet deep and eight across are not uncommon for these storage cists.

Further evidence of their construction was uncovered near Durango, Colorado when excavations revealed a group of well developed Basketmaker houses. Tentatively dated in the early part of the fourth century, these houses were generally saucer
shaped pits lined with adobe (Fig. 1). Walls were constructed by laying logs horizontally around the circular form of the house, layer on layer; cracks between the logs were filled with adobe mud producing a strong sturdy wall. The roof was a cribbed construction using logs, this also covered with adobe. No interior vertical supports were used, and entrance locations could not be determined since the perishable materials used in construction have long since disappeared. A small heating pit was located in the center of the room and storage cists frequently occurred in the floors.

The Modified Basketmaker period, 450-700 AD, is marked by the transition to a sedentary farming life and the establishment of regular permanent communities. Villages consisted of irregularly grouped houses with granary structures clustered around them. Although sometimes built close together, the dwellings were not contiguous. Houses were of the pit type and generally circular, but eventually they evolved into a rectangular form.

These early houses were entered through a horizontal passage leading down to the main floor level which was sometimes five feet below the ground. Occasionally an ante room was located at the outside end of the passage. The pits were lined with adobe or, more often, with slabs of stone. Enclosing superstructures were built over these pits. This superstructure was supported by four posts set in holes in the floor which carried a platform-like structure of horizontal timbers. Other poles were set into the ground around the rim of the pit and leaned in against the platform. Then a layer of brush and mats was added over the entire exterior surface and topped off with an earth covering. A smoke hole was provided in the center of the horizontal roof structure directly over the fire pit. Later developments in the house form saw the narrowing of the horizontal entrance to a simple ventilator shaft. Entrance to the house was then gained through the roof smoke hole (Fig. 2).

The floor covering was generally hardened clay though a covering of stone slabs was occasionally used. An upright stone slab or adobe baffle was placed just inside the ventilator shaft to serve as a deflector for the cold air being drawn in. The fire pit in the center of the room was ringed by a rim of adobe or stone.

Another hole, known as the sipapu, appears in the floor to the side of the fire pit. Usually quite small, being only a few inches across and a few inches deep, this represents the mythical place of emergence of the first people who came to the earth from the underworld. Shabik’ Eshchee village in the Chaco Canyon area of New Mexico is a good example of Basketmaker building.

As might be expected, some surface houses appear near the end of this period indicating the beginning of the transition to a later house form. This was particularly true in southwestern Colorado.

Although not conclusive, it has been suggested that a new group of people arrived in the Basketmaker country about 700 A.D. Cultural absorption took place, and emerging from this contact is the Developmental Pueblo culture, 700-1100. People continued to be sedentary farmers whose main crops were corn and squash. Hunting and gathering supplemented this diet. The transition between Basketmaker and Pueblo culture is particularly important in the realms of architecture. The surface type house form, mentioned in conjunction with the Modified Basketmaker period, becomes the major architectural statement although there is considerable variety in house construction.

Three basic types of structures served the Pueblos as residences during this period. The first was the pit house with sloping walls similar to a Modified Basketmaker residence. Construction was generally a pole, brush, and adobe superstructure over a pit; main supports in the form of four vertical posts inside the perimeter of the room was prevalent.
The second type embodied variations of the earlier pit House. Floors were less depressed; some in fact were built as surface houses or with only slightly dished floors. The superstructure was of *jacal* construction with the enclosing vertical walls. Simply described, *jacal* construction consists of closely spaced vertical poles plastered over with adobe mud. With the onset of vertical enclosing walls the interior supporting poles disappeared from the room and were incorporated as an internal part of the wall construction.

Excavations in the Piedra district of southwestern Colorado have revealed house structures of both types. Small masonry storage rooms independent of the main house also make their appearance in the Piedra district. Generally four-sided in shape, these structures were lined on the floor and wainscoting with stone slabs or adobe.

*Jacal* construction is replaced by stone masonry walls in the third Developmental Pueblo house type. Some structures were of conventional coursed masonry work while others were adobe with stones imbedded in the mud. Interior poles were no longer used since massive stone walls served as the primary roof support. The pit form of house gave way to a single room masonry unit built above ground, but these in turn yielded to houses with a small number of contiguous rooms. These ultimately evolved into the multi-room, multi-story structures called the unit house or sometimes the clan house. Examples of the cultural period are found at the Ackmen-Lowry region of southwestern Colorado, Kiatuthlana in Arizona, and Alkali Ridge in southeastern Utah.

During this period a new cultural form known as the Kiva appears. Apparently derived from the earlier pit houses, the Kiva is a specialized religious structure. In fact the word Kiva mean "old house." Circular in plan with the pit walls lined with masonry, the Kiva was excavated so that a bench was formed around the perimeter. Pilasters were incorporated around the sides, generally six in number. Roof structures were normally cribbed and, as in the pit house, the entrance was through the smoke hole in the roof. Prominent features of the Kiva include the ventilation shaft, the deflector, the fire pit, the *sipapu*, the bench and pilasters. Considering these similarities and recalling that the earlier pit house had its own worship center, it is possible to speculate that the Kiva derives from this house form. The significant difference is that the Kiva is generally entirely subterranean.

The Great Pueblo period, 1100-1300, was the golden age for the Pueblo culture. It was the period of the Cliff Dwellers at Mesa Verde and the great communal complexes at Pueblo Bonito. Again a significant change is made in the architecture of the times. Although unit houses continued to be built, startlingly large communal complexes containing hundreds of rooms and ranging up to five stories in height were constructed. There was a general trend toward a coalescence of the population. The great houses were generally situated for easy defense as exemplified in the Cliff Dwellings and the walled communities in Chaco Canyon. As there was no significant change in the type of building, the major advance came in the joining together of large numbers of rooms.
One of the oldest and most amazing of these conglomerate structures is Pueblo Bonito in the Chaco Canyon of New Mexico (Fig. 3). A free standing complex built in the shape of a large “D,” Pueblo Bonito covered approximately three acres and contained at least eight hundred rooms. It is estimated that it housed 1200 people and was the world’s largest apartment building until 1882 when, at the outset of the skyscraper boom, it was surpassed by a building in New York. Pueblo Bonito appears to have been a carefully planned structure with rows of rooms grouped around a center court. With each succeeding row of rooms away from the central court the height increased one story. Kivas were located in the center court as well as incorporated into the building mass (cover). In addition to numerous small Kivas large circular Kivas ranging to sixty feet in diameter and ringed with a concentric row of rooms have been found in Pueblo Bonito as well as other Chaco communities. Known as great Kivas, they are believed to have served as ceremonial chambers for the entire community whereas the small Kivas were exclusively used by the clans and societies (Fig. 4)
Great solidity of construction appears in the massive stone walls of the village. Wall thickness decreased in successive stories for the Bonitians recognized a reduction in stress placed on upper walls. Various types of masonry construction appear in Chaco Canyon, but the most characteristic manner consisted of a core of stone and adobe faced on two sides by a veneer of horizontally laid thin stones (Fig. 5). These were so carefully fitted that only a minute crack is visible between stones. On top of these stone walls great log beams were placed to cover the rooms. These beams were carefully stripped of their outer bark and remarkably well dressed. Small poles which were similarly finished were laid at right angles across these beams. Over these lay carefully fashioned mats of peeled willow, a layer of cedar splint, and finally a thick coat of earth. This formed a roof for the room below as well as the floor for the succeeding story. Interior walls of the rooms were frequently plastered with adobe mud and decorated.

A second location of spectacular pueblo architecture of this period is the Mesa Verde of southwestern Colorado. In contrast to the Chaco Canyon concept, cliff dwellings are exemplified here. Mesa Verde is a large plateau in the drainage of the Mancos River. In great caves protected by overhanging cliffs were built communal residential complexes. While similar in many ways to Pueblo Bonito and other free standing pueblos, these structures seem to have grown by accretion rather than by fixed plan. A dictating factor in the shape of the cliff dwelling naturally is the cliff cave itself.

The largest pueblo in the Mesa Verde is famous Cliff Palace. This structure is a terraced building reaching four stories in height containing over one hundred secular rooms and twenty-three Kivas (Fig. 6). There are four plaza levels in the complex with portions of the structure on each. Cliff Palace was divided into four quarters: the Tower Quarter at the south end, the Plaze Quarter next moving north, the Old Quarter, and finally the Northern Quarter. The Plaza and Old Quarters appear to be the oldest portions of the pueblo.

Walls are constructed of stone masonry, but generally they are not as massive as those found in the free standing pueblos. This can be attributed to the limitations placed on the sizes of the structure by the cliff cave. Although the general appearance of the mass as a whole was not massive the individual stones were quite large. Huge blocks were shaped
and stones were carefully fitted together with little use of mortar. Walls were solid rock with no center rubble fill. Roof structures consisted of large log beams covered with poles, brush and adobe. Interior walls of the rooms were plastered and often decorated with well-painted designs. Entrance to the rooms varied from roof top openings to regular doorways.

The Kivas were small structures with masonry walls. Six pilasters of stone supported a cribbed roof, and one finds the usual encircling bench as well as the ventilator shaft, the fire pit, and the sipapu.

Between 1276 and 1299 a mass exodus from the plateau region took place leaving magnificent cities such as Pueblo Bonito, Cliff Palace, Spruce Tree House and Aztec completely abandoned. Many reasons are cited for this exodus, none of which have been conclusively proven. Most popular among the hypotheses advanced is an unfavorable development in the climate and a loss of life-sustaining rain. Other speculations include the arrival of nomadic enemy tribes who besiege the pueblo villages and drive them away, or the desertion of the people by their gods, thus leaving the region unfit for occupation. An interesting proposal was made by Frederick L. Hoffman that the dust which accompanied their every day life caused lung infections, and the people sought a more healthful environment. In any event these great cities were deserted in what appears to be a sudden withdrawal.

The Regressive Pueblo period, 1300-1700, follows the exodus from the plateaus and is characterized by a general decline from the previous cultural peak. The center of population shifted with the great migration, and important new communities developed along the Little Colorado and the Rio Grande River. The new trend was toward much larger houses and in some cases they covered as much as ten acres of ground. Walls contained extremely fine masonry, and pueblos generally were built with the rooms in long rows facing a central plaza. As before, roof construction was of wood beams covered with poles and adobe. The pueblo of Tuyoniyi in El Rito de Los

**FIGURE 7. FRIJOLAS CANYON RUINS**
Frijoles is a fine example of the architectural work of the people of this period (Fig. 7). These people were basically sedentary farmers whose main crop were corn, beans and squash.

Contact with the European civilization occurred in 1540 with the coming of the Spanish under Francisco Vasquez De Coronado. There was a resultant clash between the two cultures. The Spanish looked on the Indians as subjects and proceeded to exploit them. Minor skirmishes occurred but it was not until 1680 that a successful revolt took place. Under the leadership of Popé, the Pueblos ejected the Spanish from the territory. In 1692 the Spanish retook the area in a bloodless conquest and the Pueblo people remained under Spanish influence until 1821 when Mexico gained independence from Spain. Finally the New Mexico Territory of the United States was established in 1848.

Fine examples of Pueblo architecture are still to be seen in areas of the southwest. A high degree of authenticity regarding historic and prehistoric pueblo architecture can be realized since these buildings are currently occupied by Pueblo descendants. Since Spanish domination following the conquest of 1692 the Pueblos have appointed a governor who serves in name only. In reality the pueblo government is theocratic in practice and is run by the societies within the social structure. This governmental arrangement has permitted the Pueblos to resist significant acculturation, and even today visitors to Taos, San Ildefonso, Acoma and many other settlements can experience Pueblo architecture and culture much as it was centuries ago (Fig. 8).

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