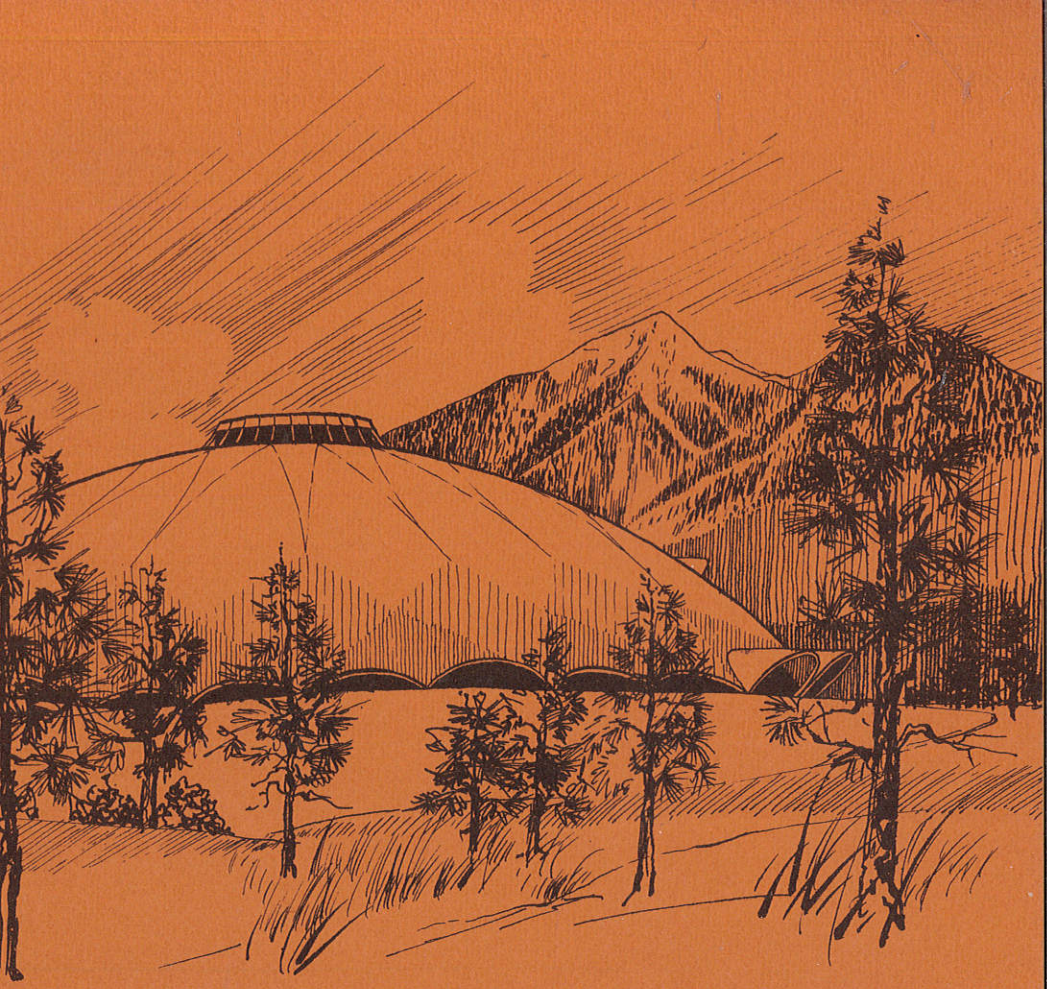

THE BUILDING OF THE NAU DOME

A Brief History

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Northern Arizona's unique, multipurpose Dome, the largest laminated wood beam structure of its kind in the world, is the work of many minds and hands directed and coordinated by one man — Dr. J. Lawrence Walkup, the president of Northern Arizona University since 1957.

This fact emerges clearly from any historical review of the origin and development of the Dome concept, with its basic purpose of providing an economical, all-weather sports, recreational, educational and entertainment facility for NAU's thousands of students as well as for the citizens of Arizona who live, work, or play in Arizona's Northland.

The relatively few individuals who were in at the beginning, as well as the hundreds who joined in the project and helped bring it to reality, unanimously agree that without Dr. Walkup's effective leadership and great expertise, there would be no such facility as the Dome on the NAU campus today.

Even the doubters, and there were many of them, concede President Walkup's dominant role in achieving what many once thought of as an impossible dream.

Dr. Walkup himself, on the other hand, has frequently emphasized the work of many other people in the planning and implementation of the Dome project over a span of just seven years.

These individuals, he points out, represent a wide segment of the total Arizona community, and reflect the broad base of support that Northern Arizona University has received over the years. They include many NAU alumni, particularly in the Phoenix-Scottsdale-Mesa and Flagstaff areas; Flagstaff businessmen, NAU's students, faculty and administrators; members of the State Legislature and the Arizona Board of Regents; other state and local officials, the press media, and the architects, contractors and their superintendents and employees.

THE FIRST CONCEPTS

Two other factors contributed significantly, if indirectly, to the building of the Dome.

One of these was the instant success of Idaho State University's 12,000-seat "Minidome," built with $2.8 million in student revenue funds and opened in the fall of 1970. This convinced Dr. Walkup and others that such a large multipurpose project was both educationally and economically feasible.

The second was the Flagstaff area's sometimes awesome winter weather, for this provided a sound rationale for the project. Flagstaff winters in general made it necessary to provide a covered, all-weather facility for major athletic, entertainment and recreational events, and NAU's steadily growing enrollments progressively compounded this need. Any doubt on this score, in fact, was inundated under a record 210 inches of snow that fell on Flagstaff during the winter of 1972-73. By the time the snow had melted, though some large problems remained, the Dome was on its way.

J's Dome, as it stands today, however, was originally conceived as something erent, something smaller and more specialized—a fully-enclosed ice rink for key and recreational skating that would allow the University to capitalize on tial for winter sports activities.

idea had its inception at an alumni gathering, including Mr. Russell Jackson Dwight Patterson, at the home of Dr. and Mrs. Walkup on the evening of 1970, following NAU's 20-0 loss that afternoon to the University of Montana first football game as a member of the Big Sky Conference. It is notable here, that the same two teams clashed on Sept. 17, 1977, in the first event ever to n the Dome, with NAU winning 25-24 before 12,800 fans, the largest crowd ssemble under one roof in Flagstaff's history up to that time.

alumni at the gathering were naturally disappointed over NAU's defeat by , and were concerned over NAU's depressed athletic fortunes in general, but re not overly discouraged. They came up with several constructive ons.

Jackson recalls it, one of these was that NAU should "concentrate on g in which we can excel—winter sports...and particularly ice hockey...." Walkup listened and offered encouragement. On Dec. 28, 1970, he invited sons, Pattersons, the Clifton Harkinses, along with nine other alumni couples hoenix area to a meeting at the Phoenix Country Club to explore such ons further. At this meeting, the group formed into an Ad Hoc Committee to winter sports in general and ice hockey in particular at NAU. Patterson was hairman; Harkins, vice chairman; Jake C. Bracker of Phoenix, secretary; and , treasurer. Other members, Jackson's records show, included Mr. and Mrs. A. Townsend, Mr. and Mrs. Gerald Chilton, Mr. and Mrs. John Allen, Mr. and dy Lavik, Mr. and Mrs. Frank Armstrong, Mr. and Mrs. John Sullivan, Mr. . Matt Hanhila, Mr. and Mrs. Lee Thompson, and Mr. and Mrs. Leighton Mr. and Mrs. George Babbitt of Scottsdale soon joined the group.

ing 1971 and 1972, the Ad Hoc Committee held seven meetings at various the Phoenix area, and two additional gatherings on the NAU campus, hosted Walkup. Usually Dr. Lewis J. McDonald, then President's Coordinator for ty Relations, and Robert Crozier, Alumni director, also attended these s, and from time to time, other administrators or faculty members joined the

committee, Jackson says, first began to "dream" and then to gather ion on how to make the dream come true. Dr. Walkup indicated to the ee from the outset that while NAU's athletic program was competitively n relation to other Big Sky Conference Schools, the University would still additional funds to support intercollegiate sports.

ally, the Ad Hoc Committee's "dream" involved an ice rink facility on the mpus suitable for both ice hockey and social skating, with glassed-in warming nd spectator areas. The committee talked first of a cost of $375,000, with the group, the NAU student body, and the University each being responsible for third of this amount. Somewhat later, this cost went up to $800,000, with Dr. indicating that the University would meet the alumni halfway, that he would ise half the required funding if the alumni would raise the other half. By 1973, was talking in terms of an "Ice Palace" in which ice show spectaculars could d, and a cost of $1.5 million. At this point, however, the President cautioned cost of such a specialized facility was getting too high in view of the fact that no r an "Ice Palace" had materialized as yet from the committee's activities.

ding, as Dr. Walkup realized from the very first, was the key problem and the committee's enthusiasm along this line, funding for an ice rink facility d elusive.

Throughout the committee's work, Dr. Walkup provided expert counsel and full cooperation, hosting meetings and arranging, through the NAU Foundation, for credentials and expenses for the Jacksons' information gathering activities. But the committee was still only an ad hoc group, and the board of directors of the NAU Alumni Association had never endorsed either the concept of an "Ice Palace" or the idea of concentrating on ice hockey in lieu of more traditional sports. The Alumni board, however, heartily endorsed the broader concept of a multipurpose Dome.

Importantly during this period, enthusiasm if not funds were generated in another way and indirectly through the University and its students. In 1971, Dr. Gerald Caple of the Chemistry faculty, an ice hockey enthusiast, became advisor of a newly-formed NAU Hockey Club. He began coaching a team, skating in the new Flagstaff municipal rink, that soon made NAU a leader in collegiate club hockey in the West. Interest in Caple's winning teams quickly grew, both among the students on campus and in the community of Flagstaff. In 1973 Dr. Walkup arranged to make a number of scholarships available for members of the hockey club team. In the four pre-Dome years from 1973 to 1977, the NAU Hockey Club posted an overall record of 86 wins, 14 losses, and one tie, against the best hockey teams the West had to offer.

THE WINTER OF 1973

The year 1973 is a key year in the history of the Dome. For early in March — the snowiest and coldest March on record in Flagstaff — another movement to obtain a major all-weather facility was launched which frankly took its cue from Idaho State University's successful "Minidome."

This movement, centered in Flagstaff and far broader in scope and concept than the Ad Hoc Committee's work, grew out of a suggestion by Jesse McMahon, long-time member of the Flagstaff Townjacks booster club, to Dr. Walkup and Flagstaff Schools Superintendent David A. Williams at a luncheon at the Flagstaff Elks Club. McMahon, the President recalls, "indicated that it would be a great idea if Northern Arizona University would build a 'minidome' I suggested that it would be a nice facility for the whole community and that certainly the University would be willing to lease such a facility for sufficient time during the year to carry about two-fifths of the bonded indebtedness incurred in building it."

McMahon immediately initiated discussions of the idea within the Townjack group and particularly with two Flagstaff businessmen, Russell G. Pinkerman and Joseph P. Riordan, the latter an NAU alumnus.

These discussions had barely begun, however, when the "minidome" idea received its first statewide publicity, in the form of an eight-column headline in the *Arizona Republic* for Sunday, April 22, 1973, which proclaimed: "Flagstaff, NAU eye merits of grid-sized Minidome." The story, by sports writer Bill Nixon, credited McMahon with the idea of building such a facility in Flagstaff, and said that he had asked Norman Johansen, then NAU's athletic director, to research details of such a project. The *Arizona Daily Sun*, the following day, quoted McMahon as saying "there is no doubt that we're going to try to get it, but we're just in the stages of researching and talking about such a facility at the moment." Dr. Walkup, the *Sun* added, declared that "naturally, if the community wants to develop such a facility, we're behind it." The President noted, however, that at this time the "minidome" proposal was a community, rather than a university sponsored project.

Nonetheless, Dr. Walkup now took the lead, calling a luncheon meeting of all interested persons on May 17, 1973, at Flagstaff's Continental Country Club to discuss the idea. Townjack president Pinkerman presided, and two major developments emerged from the session. First, Riordan announced that the Arizona Lumber and Timber Co. would donate a 26-acre parcel of land, located on the west

outh Milton road and convenient to both the University and downtown as the site for a "minidome." Secondly, attorney Douglas J. Wall suggested onstruction might be financed through a combination of revenue bonds and cent city "room tax" on hotels and motels, and thus might be built at no cost 's property taxpayers. A five-man steering committee headed by Pinkerman ed to pursue the matter further.

uly, parenthetically, the Arizona Board of Regents approved President request for a total of $8,650,000 in capital outlay expenditures for the 1974- which included an item for a "multipurpose building." The Legislature, had other ideas as it turned out, and NAU's Dome would eventually be built ny directly-appropriated tax monies.

CITY COOPERATION SOUGHT

nwhile, the "minidome" steering committee decided to incorporate as a non- agstaff Minidome Building Corporation" and to take its case for financing the the Flagstaff City Council. Riordan and the Arizona Lumber and Timber also brought in architect George Schoneberger of the Phoenix firm of erger, Straub, Florence and Associates to draw up a master plan for g 500 acres of land west of South Milton road, including the 26-acre site or a "minidome."

se developments were publicly revealed on Oct. 16, 1973, at a meeting at s Little America attended by some 30 persons. Pinkerman, in announcing steering committee would seek City Council approval and financing for the old the group that "we can't do anything without getting financial backing. to get this thing moving." He pointed out that a "bed and booze" tax would pproval of the city's voters, but added that he felt the project could win at the ause of its multipurpose conception. It was not being planned, he stressed, as just for football."

days later, on Oct. 18, 1973, the Flagstaff Minidome Building Corporation ally incorporated with six incorporators, all of whom had been active leaders lagstaff-based movement to build a "minidome." These individuals were J. Wall, Russell G. Pinkerman, Jesse A. McMahon, James W. Fox, J. Flournoy, and Joseph P. Riordan. Pinkerman was president, Fox, "the voice mberjacks" on radio station KCLS, was vice president; and McMahon was -treasurer. Flournoy, long active as a Townjack, served as attorney for the ing the incorporation papers.

decision to incorporate, Flournoy has recalled, was made after studying ulti-purpose municipal corporations in Yuma and most notably in Phoenix e device had been used succcessfully to build the Phoenix Civic Plaza. The ped to follow the Phoenix pattern of cooperative leasing agreements with the financing coming from revenue bonds backed by the city's taxing power and from the "minidome" itself, a procedure that had been upheld by several Supreme Court decisions.

Oct. 23, 1973, the new corporation with Pinkerman as spokesman presented sals to the Flagstaff Council. The "minidome," he reported, would cost an d $5.2 million and should be financed through revenue bonds underwritten by ent tax on motel, restaurant and tavern sales. Both the bonds and the tax, he ould require voter approval which he felt could be obtained.

e discussion that followed, the question was raised whether the annual from a "minidome" would be sufficient to retire the bonds, and Joseph Jr., the city's bond counsel, pointed out that with income from concessions NAU's use of the facility, the annual revenue could reach $500,000 to $700,000 over and above the tax-generated support. At the end of the discussion, however, the Council unanimously endorsed the concept of a "minidome," but declined to take any other action pending further study of the financing of the project.

One week later, incidentally, the Flagstaff Innkeepers, an association of hotel and motel operators in the city, also unanimously endorsed the "minidome idea" in principle while remaining reluctant to give an unqualified endorsement to the proposed two per cent tax to finance it. The president of the Innkeepers, Mrs. Alma Stegmeier, presided at the meeting at which Leon Melville and Winifred Hutchison were appointed representatives to the "minidome" group.

The Flagstaff City Council took up the matter of the "minidome" again at its meeting on Nov. 13, 1973. Vice Mayor Richard McDonald declared that he had talked to a number of city residents and had found they did not favor the "minidome" group's proposals. Councilman A.J. (Tony) Lee said he felt the "minidome" project might impair the city's overall bonding capacity to finance other needed projects for a number of years in the future. And another councilman pointed out that the proposed two per cent tax on motel, restaurant and tavern sales might jeopardize the city's existing sales tax, which was scheduled to come up for re-approval by the voters in 1974 under a ten-year limitation mandated by the original sales tax measure. The Council took no action on the "minidome" proposal at this meeting, nor did it seriously consider the proposal again. The door to financing through cooperative agreements with the city remained closed, and for a while at least, the prospects for the project appeared very dim indeed.

EARLY STUDENT SUPPORT

But President Walkup, meanwhile, had been busy. At this time, he recognized not only the need for such a facility, but the desire on the part of many students for some kind of large, recreational structure on the campus that could house a wide variety of activities. Associated Students' president for 1973-74 Craig Blakey, he remembers, "was very supportive of it. He could visualize the use of such a facility and what it could mean to the students. And he indicated that the student body would be willing to use the $110,000 or so which the University provided to run the student government to help pay off bonds for such a project if, in return, the students would be allowed to use it for fund-raising entertainment and other promotional programs. Student leaders felt they could perhaps double the funds available to the student government this way, and could earn far more than the University was able to provide each year for this purpose."

As a result of this interest on the part of the student leadership, Dr. Walkup also brought in a Phoenix psychologist, Dr. Anita Montague, to make an impartial study of student opinion on the matter. She found that students generally were interested in an ice skating rink, a large entertainment facility, and a swimming pool, in that order. The following semester, Dr. Robert C. Dickeson, vice president for Student and University Relations, made the most extensive survey of student opinion ever undertaken at NAU up to that time, circulating questionnaires during major class hours, and confirmed Dr. Montague's findings.

The "minidome" idea was, in fact, very far from dead during the winter of 1973-74. Young Howard Taft Jr., an NAU graduate, put together a slide show centered around Idaho State University's Minidome, and Pinkerman and other leaders of the Flagstaff "minidome" project presented it at service club meetings and to various other organizations in the city. In January 1974, for example, Pinkerman promoted the project before the Kiwanis Club, noting that the cost was now put at $5.5 million and adding that his group was hoping for a fall 1975 completion date for the facility. The thinking, he explained, was to finance the structure by issuing $6 million in revenue

5 per cent interest, to be retired in ten years. With a two per cent bed and , he added, up to 90 per cent of the cost would be borne by tourists. "What on," he declared, "is a total community-recreation-civic complex."

e City Council continued to turn a deaf ear to these efforts, however, others ning. Shortly after his appointment to the Board of Regents in January 1974, Bilby, prominent Flagstaff businessman and civic leader, called a meeting at e "minidome" project was considered in detail. At this meeting, it was decided J would bide its time as far as the project was concerned until July 1 to see if njack group and the city could find some way of implementing the project. date was picked because in that month, Dr. Walkup would present the y's capital outlay fund requests for the subsequent fiscal year to the Board of

situation remained quiet on the "mindome" front for the rest of the winter, pril 1974, a surprise development in the Legislature focused statewide on the project briefly. Rep. John F. Wettaw, one of Coconino County's two s of the lower house with Rep. Sam A. McConnell Jr. of Williams, tacked an ent on a bill, originally designed to authorize $5.5 million in revenue bonds for nsion of the University of Arizona football stadium, that provided an l $3.5 million in bonding authority for NAU as well. Wettaw specified no r project, but it was widely assumed in the news media at the time that he had idome" in mind in making the amendment. The amended measure was l before the end of the legislative session.

1, 1974, arrived without any further action by the city to aid the "minidome" and consequently, Dr. Walkup drew up a capital outlay request for tion to the Regents and the Legislature that included a $3 million item for a ltipurpose facility. "The thinking was," he recalls, "that since the State of had built the McKale Center at the University Arizona and an Activity Center na State University, both at a cost of more than $8 million, it should be willing rt up to $3 million for some facility at Northern Arizona University.

NAU President had already been considering various kinds of covered s for a multipurpose facility, and had earlier visited the Pocatello Minidome, built like a huge Quonset hut with a steel-supported, arched roof, and had th both the contractor and key Idaho State University officials. He learned, that the price of steel was high in relation to other construction materials st certainly would go higher. In fact he was told by more than one contractor s impossible to get a price commitment for steel at that time because of the n in the cost of steel and the fact that the demand was greater than the teel companies would only quote a price on steel at the time it was laid down onstruction site. This type of arrangement, the President noted, made it e to build a state building from steel since the Attorney General's office quire a firm commitment on the cost of the building as well as a guarantee that s were available to build the building before a contract could be signed by icials. Thus he began seeking other possible and more economical tion techniques.

intriguing proposal he considered during the summer and fall of 1974 was Dr. David Geiger of Geiger-Berger Associates of New York City, who had the domed U.S. pavillon at Japan's Expo '70, and the Detroit Lions' Pontiac in Michigan. Geiger advocated an air-supported, cable-restrained covering ass material. Geiger presented his idea to "minidome" backers on Sept. 5, breakfast meeting called by Dr. Walkup and presided over by Regent Bilby America. Student leaders, along with Coconino County's legislative n, including State Sen. Tony Gabaldon of Flagstaff, and Reps. Wettaw and ll attended.

A SIGNIFICANT PROPOSAL

Early in October, Dr. Walkup and Dr. Wendell Rossman of the Scottsdale architectural firm of Rossman + Partners, flew to Cedar Falls, Iowa, to inspect the air-supported "Unidome" then under construction on the University of Northern Iowa's campus. As a result of this trip, Rossman made a significant proposal. This was, as Dr. Walkup remembers it, "that I will design you a geodesic wooden supported dome at a price equal to the air-supported dome. The dome I will design will be larger, and if the dome I design doesn't come in within the amount available to build it when the bids are opened, the University will have no further obligation to Rossman + Partners."

The NAU President considered this offer "extremely valuable" to the University. Rossman's proposed laminated wood beam construction was attractive, too, he recalls, as the wood product market at the time was somewhat depressed, and the price of material for such a structure was thus competitive, and permitted a cost only about two-thirds that of more conventional, steel-supported domed arenas. Rossman spent the fall of 1974 working on plans for such a facility.

Meanwhile late in September, the Board of Regents had approved Dr. Walkup's "top priority" request to seek $3 million in capital outlay appropriations from the Legislature for a multipurpose facility. The money, he explained to the board, with the $3.5 million in revenue bonds authorized by the lawmakers the previous spring, was expected to cover the estimated $6.5 million cost of the project.

During the fall 1974 semester, the problem of priorities for a multipurpose structure came up. "The activities on campus now began to have input from the outside," Dr. Walkup later noted. "There were those who wished to have the students think ice hockey first. There were those who wished to have the students think football first, and there were those who wanted the students to think in terms of a large arena. Moreover the student leadership had changed, and Stuart Gerrich was now president of the Associated Students of NAU."

Gerrich had campaigned for the office on a pledge to work to obtain a swimming pool on the campus, and he now indicated that he could only support a multipurpose facility if it included a swimming pool. This, as Dr. Walkup pointed out at the time, "pushed the cost of the whole project up." His position then was that legislative support for the project might be jeopardized by piling on additional costs, and that it would be better, and more feasible, to make a swimming pool a separate project to be built at a later time. Subsequently, he included the swimming pool project in his annual capital budget requests to the Regents and the Legislature.

To clarify the matter of priorities, the President convened a meeting of the University's Long-Range Planning Committee in October and invited Gerrich and other student leaders to attend. After a full discussion, the committee and the students voted overwhelmingly to make construction of the basic building the first priority, with an ice skating rink and a swimming pool as second and third priorities. The committee also decided that the facility should have at least 12,000 spectator seats and enough floor space to accommodate football on a roll-away artificial turf, as well as a host of other recreational activities. Dr. Walkup recalls that the matter of seating was a major issue among the few student dissenters to the project. "A few students thought it was ridiculous to talk about a dome with more than 8,000 or 10,000 seats. But those of us who have been around the University for a while realized that you don't build a facility just for the size of present crowds, but you must look to the future." In this connection, it may be noted that NAU's first Homecoming football game in the Dome, on Oct. 15, 1977, drew a standing-room-only crowd of 15,988 persons.

Despite the participation of student leaders in the Long-Range Planning

Committee's decisions, however, the multipurpose facility project continued to draw persistent criticism from the student newspaper, *The Lumberjack*, then under the editorship of Patti (Vessels) Felix. Even a long, reasoned explanatory letter to the editor by NAU Sports Information Director Wylie Smith failed to temper the editorial opposition.

To set the record straight, Dr. Walkup called an open meeting of students in the Creative Arts Theatre in December at which both he and Dr. Rossman outlined the philosophy and plans for the Dome in great detail. The President emphasized that the basic building must be the first priority, and that the costs of the facility must be kept within reasonable limits if it was to win the necessary legislative support. He also stressed that the facility would provide a wide variety of recreational activities for the students in general, and not just be for varsity sports events. Dr. Rossman explained the unique design of the proposed Dome and the substantial construction economies this design permitted.

At the conclusion of this meeting, the President called on the students present to stand up if they favored the Dome project as outlined by himself and Dr. Rossman. Almost all of the nearly 300 students present stood, with only about a half-dozen, including Mrs. Felix and Gerrich, remaining in their seats. After this overwhelming vote of confidence, however, Gerrich hurried up to the stage to tell the students that the President had worked very hard on the project, and to urge everyone to get behind him and the Dome.

Late in November 1974, Dr. Walkup formally presented his proposal for a domed multipurpose facility to the Board of Regents, displaying Dr. Rossman's sketches of the structure and explaining the economies that could be achieved by using a laminated wood beam grid to support the roof, and supporting the domed roof at ground level, on the rim of a natural, circular depression at the proposed site, rather than at the top of an expensively-buttressed wall, as in conventional domed structures.

The Regents were enthusiastic and gave the President authority to seek approval for use of the revenue bond authority for the Dome project from the Joint Legislative Budget Committee, of which Rep. McConnell of Williams was a key member.

THE PROBLEM OF FINANCING

Despite these optimistic developments, however, Dr. Walkup realized that the prospects of obtaining the necessary $3 million capital appropriation from the Legislature at the session beginning in January 1975 were not overly bright. The entire nation was then in the grip of a severe economic recession, and the outlook for funding large construction projects by the state appeared very bleak indeed. "The legislative leaders had put out the word that there would be no money for brick and mortar," he has recalled.

Nonetheless, the President intensified his efforts to inform people in the community and the state of the need for, and the feasibility of the Dome project. Through the winter of 1974-75, he became a familiar figure at luncheons, dinners and organization meetings, displaying Dr. Rossman's handsome sketches and telling the Dome story.

The economic picture, however, continued to darken. In March 1975, Governor Raul H. Castro issued a call to all state agencies, including the universities, to cut back their current operating budgets by five per cent to help alleviate a serious cash flow situation in the state. By the spring of 1975, all hope of obtaining the necessary $3 million appropriation for the Dome project had vanished. There was no comfort in the fact that additional capital funds being sought by NAU's two sister universities for major expansions of their football stadiums were also caught in the "economic

But there were those in the Legislature who realized that if some way could be found to finance these projects, they would not only meet the needs of the universities and their students, but they could contibute substantially to an economic recovery in the state, particularly in the severely depressed constructon industry.

The House Appropriations Committee, whose vice chairman was Rep. McConnell, took the lead now, and in April approved a bill to increase existing revenue bonding authority at all three universities to $6 million, thus adding $2.5 million to NAU's bonding authority, and $500,000 each to that of the other two universities. The measure received strong support from Arizona's District 2 legislative delegation — Reps. McConnell and Wettaw and State Sen. Gabaldon — and with their help it moved steadily through the complex legislative process. Senate President Bob Stump, a close personal friend of President Walkup's, pressed the bill forward in the Senate.

Because of the strong backing for the measure among the lawmakers, the Board of Regents at its May 31, 1975 meeting, conditionally approved Dr. Walkup's request to use the expanded bonding authority for the Dome project. It also authorized the President to advertise the project as soon as the bonding bill cleared the Legislature, and to open bids as soon as legally possible thereafter. In addition, Dr. Walkup was authorized to make arrangements for the sale of up to $5 million of the revenue bonds for the Dome project. The balance of the cost was to come from local funds of the University.

On June 13, 1975, the Legislature completed action on the expanded bonding authority bill and sent it to Governor Castro, who signed it into law immediately.

Dr. Walkup and his key administrative aides were ready. The call for bids went out, and bid opening was set for July 11, 1975. When the bids were opened, however, all were above the total $6.7 million available for the project. The Mardian Construction Co. of Phoenix was low bidder at $6.6 million, but this brought the cost of the project up to $6.9 million.

Again President Walkup was ready. The very next day, July 12, the Board of Regents met on the NAU campus and granted his request to use $300,000 from the University's contingency reserve fund for the architect's fees for the Dome. And with other adjustments in the project's cost, he was able to bring the total cost within reach of the Mardian bid.

At this same meeting, the board approved Dr. Walkup's request to seek a $3 million capital appropriation from the Legislature for the 1976-77 fiscal year, $1.5 million of which was earmarked for furnishing and equipping the Dome. The President had received assurances from legislative leaders that because NAU had received no capital appropriation at all for 1975-76, at least the $1.5 million for equipping the Dome would be forthcoming. The lawmakers were as good as their word.

On July 18, the Joint Legislative Budget Committee approved NAU's request to use funds from the sale of revenue bonds for the Dome project, and the way seemed clear for awarding the base contract for building the Dome in mid-August. But procedural matters delayed the sale of the bonds for another two weeks.

Finally, on August 28, 1975, at a special meeting of the Regents in Phoenix, the board approved the sale of $4.5 million of the revenue bonds, at an interest rate of 7.7965 per cent, to the brokerage firm of Merrill Lynch, Pierce, Fenner and Smith, and then awarded a $6.6 million contract to Mardian Construction Co. to build the Dome.

The original call for bids, parenthetically, included a number of alternatives for furnishing and equipping the Dome, and these were not immediately accepted, as available funds would only cover the base bid for the structure itself. Under the contract with Mardian, however, NAU had until June 30, 1976, to accept Mardian's bids for these alternatives and this provision, as it turned out, proved to be beneficial both to NAU and to the state's taxpayers in terms of the overall cost of the Dome.

NAU'S 'DOME-RAISING'

September 4, 1975, Mardian Construction Co. crews moved in on the site, h of Sinclair Wash between the North and South Academic Centers on the and the actual construction of NAU's Dome began.

U celebrated the occasion by holding a gala "Dome-raising" ceremony at the n key members of the Legislature, the Board of Regents, local officials, es of the Mardian firm and, of course, Dr. Rossman, as honored guests. or Castro stopped off briefly at Flagstaff Airport just prior to the ceremony, route to a meeting, to congratulate Dr. Walkup and to declare that the Dome he greatest thing that ever happened to Northern Arizona University and all ern Arizona!"

weather for the "Dome-raising" festivities quietly underscored the need for ity, for during the luncheon for the guests at the nearby South Campus Union, it began to rain, and the stormy skies prevented Senate Majority Alfredo Gutierrez from flying to Flagstaff to join in the celebration. His part, House Majority Leader Burton Barr of Phoenix was on hand, however, ded a sizeable delegation of legislators who were introduced to a crowd of n 300 persons by Rep. Wettaw and State Sen. Gabaldon. Regents Margaret ty of Sedona and Ralph M. Bilby of Flagstaff were also on hand to pay tribute Valkup and the Dome.

n Mardian of the Mardian Construction Co. presented special "hard hats" to ators, the Regents and to Dr. Walkup and Dr. Rossman. In addition, he gave cator and the architect each a shiny, chrome-plated shovel which Dr. promptly used at the conclusion of the program to turn a symbolic first of earth at the site for photographers.

umber of dignitaries present spoke briefly to mark the occasion. Barr told the ed crowd that the Dome would not only benefit NAU's students but would opportunities for all Arizonans to visit Flagstaff and enjoy the major athletic, ment and cultural events that it would make possible. McConnell pointed legislators from both parties and from throughout the state had cooperated in nting the Dome project. State Sen. Arthur J. Hubbard Sr. of Window Rock e rationale for the Dome in the need of NAU's students and expressed the t NAU would continue to grow and hold its "people-oriented" philosophy. h Dr. Walkup and Dr. Rossman came in for high praise from the various s. Regent Christy declared that "an awful lot of credit should go to Dr. Walkup people who worked with him to get this project through." Regent Bilby, noting Dome "makes NAU a complete university," pointed out that Dr. Rossman e what I consider to be a truly remarkable job. He spent hundreds of hours usands of dollars before he was assured of the project," he said.

ents Bilby and Christy themselves, Dr. Walkup has noted, put in hundreds of planning and studying the Dome project, meeting numerous times at NAU ewing the plans and designs, the status of various University local funds which ovide some of the funding, and giving "very valuable" advice as to just what uld be presented to the full board from the standpoint of the tremendous of data relating to the project that was at hand.

Rossman himself described the unique design elements of the Dome for the And Sam Mardian outlined what, weather and other factors permitting, the or expected in the way of a construction schedule. As it turned out, the first the Dome — Lumberjack football with the University of Montana — was held s and twelve days after the "Dome-raising."

sident Walkup also spoke briefly, discussing the broad concept of service to dents and the public that gave rise to the Dome, and emphasizing that it would be a truly multipurpose facility that would serve a wide variety of student and community interests.

The "Dome-raising" received extensive coverage and highly favorable comments in the news media throughout the state. The *Arizona Daily Sun*, two days after the event, called on the Board of Regents to recognize Dr. Walkup's many contributions, not only to the Dome project but to the entire University through the years, by "naming the Dome to honor Dr. J. Lawrence Walkup — unless, of course, the board has something even more deserving in mind to honor the man mostly responsible for NAU as it is today."

A name for the Dome, parenthetically, was then and later the subject of considerable discussion both on and off the NAU campus. Dr. Rossman had dubbed the concept "Ensphere" in his original drawings and plans, and some people favored this name. Others thought it should be called "Skydome" in recognition of NAU's membership in the Big Sky Athletic Conference, or to identify it with northern Arizona's bright, smog-free blue sky. Other names suggested included "Stardome" and "Snowdome." At Dr. Walkup's suggestion, Vice President Dickeson polled the student body and gleaned more than 5,000 names, a few of them inevitably frivolous or humorous or even irreverent, but most of them reflecting mature thought on the part of the students. Dr. Walkup, too busy building it to worry about naming it, did not give his preference, at least publicly, and consistently referred to the facility only as "the Dome." He explained that he felt the people who used it and enjoyed it would eventually provide it with a suitable name.

The "Dome-raising" marked a major milestone for the Dome project, but it did not mark the last mile. There was still a distance to go, as the *Arizona Daily Sun* pointed out editorially on September 8, 1975, in calling on northern Arizona's citizens to support their representatives in the Legislature in their efforts to obtain the $1.5 million in capital appropriations that was necessary to equip the new Dome, and make it operational.

Early in October, members of the House Appropriations Committee spent a day on the NAU campus, and questioned Dr. Walkup closely about the possibility of using local University funds to equip the Dome, rather than appropriating such funds. The President explained that such local funds as remained had priority uses, that they were collected in local funds for these specific purposes. "If we use these funds to equip the Dome, what are we to do about these other things?" he asked. "We have to have some money to operate when something unexpected comes up." And committee member McConnell added that the local funds "are needed to provide the services they were collected for."

At the conclusion of the session, Dr. Walkup was commended by the legislators for "his forthright answers and detailed presentation." As one committee member put it: "It is obvious that Dr. Walkup runs a tight ship."

NAU GETS A 'BARGAIN'

How well the President had presented the case for a $1.5 million appropriation to equip the Dome is, perhaps, reflected in the fact that early in January, before the regular legislative session convened, the House Appropriations Committee, chaired by Rep. Tom Goodwin of Tucson, agreed to sponsor the bill appropriating that amount to NAU for the Dome. The measure duly went into the hopper, cleared the Appropriations Committee late in March, and passed the full House in April. It was approved, significantly as it turned out by a better than two-thirds majority, helped by the support of House Speaker Stan Akers and by Majority Leader Barr.

The bill then went to the State Senate where, to the growing dismay of Dome backers, it languished for many weeks. There was concern that the measure might get

lost in the last-minute rush of legislation that has traditionally marked the final days of a legislative session. The time element was crucial, too, as Dr. Walkup kept reminding legislators, for as the weeks wore on, the deadline for accepting the Mardian concern's bids on alternatives to the base contract loomed closer and closer.

Finally, in the last week of May, the measure began to move. State Senator Ed Sawyer of Safford, chairman of the Appropriations Committee, assigned it a high priority, and Senate President Bob Stump of Tolleson, soon to be elected to Congress from Arizona's Third District, moved it ahead a full week on the Senate debate calendar. On Tuesday, June 8, it passed the full Senate, again by better than a two-thirds majority, and the following day, Governor Castro signed it into law at a brief ceremony at the State Capitol attended by District 2's legislative delegation—Sen. Gabaldon and Reps. McConnell and Wettaw.

Later that same day, Dr. Walkup notified the Mardian firm that the University would accept the bid alternatives it had submitted eleven months earlier along with its base bid, and the equipping and furnishing of the Dome was assured at what could be considered bargain prices. Because of the large majorities for the appropriation bill in both houses of the Legislature, the measure's emergency clause applied, and it became effective immediately with Governor Castro's signature, rather than after 90 days, the usual course of legislation. Had the 90-day provision applied, Dr. Walkup pointed out, the deadline for accepting the Mardian bid alternatives would have passed, and the entire time-consuming procedure of advertising and opening bids would have to be carried through all over again. And given the high rate of inflation, new bids were certain to come in far higher than Mardian's original alternate bids.

"The prompt action of the Legislature and the governor made it possible for us to complete the Dome at last year's prices," Dr. Walkup said at the time in praising legislative leaders and the governor for their support of the Dome. "Because of this strong support, we were able to meet the deadline for the bid alternates, and to move ahead at a great saving in both time and money for the state and its taxpayers."

By June 1976 construction of the Dome, was, in fact, somewhat ahead of schedule, and architect Rossman reported to the President that "80 per cent of the construction problems are already behind us . . . . From an architect's standpoint, we're over the hump." On June 9 — the day Governor Castro signed the $1.5 million appropriations bill — supervisors and crews from Western Wood Structures, Inc., of Portland, Oregon, subcontractor for roofing the Dome, joined Mardian's men at the site, and thereafter the precise, geodesic framework of wooden beams for the domed roof began to rise steadily over the site.

There were still problems, of course, and they would delay the opening of the Dome some six months beyond the most optimistic estimates of the time of its completion. In July 1976, a statewide work stoppage in the construction industry slowed progress by nearly a month. There was also some difficulty involving the timing of the delivery of the precision pre-fabricated sections of the Dome's roof grid, and this added to the delays. The weather, which had been highly favorable during the first year of construction, now also became a problem but, despite extensive summer rains, the roof grid was completed and given its basic covering before the first snows fell in the fall. By early December, the Dome was under a roof. For the next ten months, crews of the Mardian firm and more than a dozen subcontractors worked at installing equipment, completing the thousands of details required to make the facility usable—painting, plumbing, installing electrical circuits and heating system and otherwise putting the finishing touches on the structure. Four electronic scoreboards, furnished by the Valley National Bank, were installed at the ends and sides of the arena, and a press box was suspended on steel rods from the huge beams of the roof grid.

Meanwhile, Dr. Walkup and University officials were equally busy, selecting and ordering equipment for the Dome, including the appurtenances for the 200-by-85 foot ice rink built into the Dome's Tartan playing floor, a portable stage for entertainments, a portable hardwood basketball court to be used for Lumberjack varsity games, and other athletic and recreational equipment for use by NAU's students. In June 1976, and thereafter, Athletic Director Hank Anderson and his staff conducted an intensive drive to sell V.I.P. seats with specials backs in the Dome at prime locations for football and basketball games to Lumberjack fans. The sales went briskly.

By August 1977, with the start of the fall semester and with the opening of the football season less than a month away, this work was nearly completed and, although some major tasks were still unfinished, such as the final surfacing and painting of the roof and the installation of refrigeration equipment for the ice rink, University officials began preparing for the Dome's opening.

NATIONAL PUBLICITY

Interest in the Dome by this time was running high, not only in Flagstaff and around the state, but nationally, as a result of the extensive publicity the structure had received because of its uniqueness in sports pages of major newspapers, and in the electronic media, throughout the nation. Some ninety major metropolitan newspapers and national magazines had featured the Dome in their pages, and the unique structure was also featured on network television. The big question now was no longer "if" but "when?"

The ideal occasion, Dr. Walkup realized, would be on September 17, 1977, when the NAU Lumberjacks were scheduled to meet the University of Montana Grizzlies at Flagstaff in a vital Big Sky Conference football game. Under their new coach, Joe Salem, Lumberjack gridders had broken out of their long series of losing seasons the previous year, and were looking forward to bigger things under the Dome in the 1977 season.

But as August waned, Dr. Walkup realized that the Dome would not be fully completed, inspected and accepted by NAU officials, and turned over to the Board of Regents and University by the Mardian firm by that date, and this posed a legal problem. Until this had been accomplished, the Dome remained legally under the jurisdiction of the prime contractor.

Sam Mardian and the Mardian Construction Co., however proved to be enthusiastically cooperative, and after conferences with Dr. Walkup, agreed to allow the University to use the Dome for the Montana game. Under this agreement, NAU, its gridiron Lumberjacks, and its football fans would all be, in effect, "guests" of the Mardian concern for the game.

For the next few weeks, work in and around the Dome proceeded at a hectic pace as crews from Mardian, under construction superintendent John Grider, and from various subcontracting firms, redoubled their efforts to get the Dome ready for use. Among the final chores during the week before the game was rolling out and marking of the turf for the football field, and the installing of equipment, electric and telephone circuits in the Dome's spacious press box for the large number of press media representatives expected to cover the Dome's opening event, including a 10-member crew from Flagstaff's television station, KOAI-TV.

Through the hard work and cooperation of literally hundreds of persons, all the necessary final preparations for the Dome opening were completed on time, although work continued right up until 6 p.m. on the night of the Montana game when the Dome's doors were opened to the public for the first time.

Dr. Walkup himself spent many hours each day in the Dome during these final weeks, conferring with construction supervisors and NAU officials concerned with the operation of the new facility, and making crucial decisions.

The crowd that showed up on that historic Saturday night totaled 12,800 persons — the largest number of people ever assembled under one roof up until that time in the history of Flagstaff and northern Arizona.

HOMECOMING IN THE DOME

It was an occasion of celebration for all, and of recognition for many. During the festivities, which included a thrilling, come-from-behind 25-24 victory by the Lumberjacks, Dr. Walkup paid tribute to more than a score of distinguished guests who had been instrumental in the building of the Dome.

They included members of the Board of Regents which had met earlier that day on the NAU campus, and notably Regents Patterson, Bilby, and former Regent Mrs. Christy; Dr. Rossman and some of his associates, and Sam Mardian, John Grider and other officials of the Mardian concern. At the three subsequent NAU regular-season football games played in the Dome during the 1977 season, the President singled out key individuals in various alumni and community groups who had worked long and effectively for the building of the Dome for special tributes.

Everything went beautifully for the opening of the Dome, and the following Monday, construction crews went back to work to finish up the final work, while University officials began planning with confidence for what would prove to be by far the biggest and greatest Homecoming celebration in NAU's history.

Plans for this event, set for October 15, 1977, included not only the traditional Homecoming parade and a night football game in the new Dome against California State University at Fullerton, designated a Big Sky Conference foe for the occasion, but a two-hour appearance by the master comedian Bob Hope, certainly the most famous entertainment figure to ever perform in Flagstaff. The tragedy of the death of Bing Crosby, Hope's close friend and long-time colleague, on the day before Homecoming, abruptly upset these plans, but fortunately another great comedian, Bill Cosby, agreed to make a special trip to Flagstaff to take over. More than 11,500 people pushed through the turnstiles of the Dome on Homecoming afternoon to be regaled by Cosby's dry, pungent humor.

Homecoming night, the Dome set a record that would not soon be surpassed. A total of 15,988 persons, the largest crowd ever to gather indoors anywhere in Arizona, jammed into the huge facility and cheered lustily as Dr. Don Wolf and the Lumberjack Band, along with ten other Arizona high school bands put on a pre-game precision drill on the broad, artificially-turfed arena. They cheered even more lustily as coach Joe Salem's Lumberjacks chopped Cal State-Fullerton's Titans down to size, 24-9. And they cheered loudest of all when Dr. Walkup's name was mentioned over the Dome's booming public address system.

Once firmly esconced in the Dome, coach Salem and his Lumberjacks went on to NAU's winningest football season in 18 years, chalking up a 9-2 season record, and winning a berth in the Division II regional NCAA gridiron playoffs — a post-season battle against Jacksonville (Alabama) State University that was to be played in NAU's new Dome. The Lumberjacks fought valiantly against what was clearly a superior team and before a crowd of 7,500 abbreviated by the Thanksgiving holiday. Jacksonville prevailed 35-0, however, and went on to the Division II NCAA finals.

A MULTIPURPOSE FACILITY

But, as President Walkup and others had stressed throughout the building of the Dome, the new facility was designed not just for football, but for a multipurpose function. Flagstaff's two high schools, Flagstaff and Coconino, played the last half of their fall 1977 home football schedules under the Dome's lights on Friday nights, marking the first non-University use of the big arena. Now, on December, 15, 1977, the portable hardwood basketball court was set up, and coach John Birkett's basketball Lumberjacks initiated cage action in the Dome, soundly tromping the University of Alaska at Anchorage 101-76, thus topping the 100-point mark in their first outing in the Dome. The crowd of 4,000 that watched this event was larger by some 500 persons than the standing-room-only capacity of Lumberjack Gym, the cage Axers' former home court.

Through the long 1977-78 Christmas break, workmen put the finishing touches on the Dome's 200-by-85 foot ice rink, and its refrigeration system, and on January 13, 1978, Dr. Walkup dropped the first puck into the blue-lined center circle of the rink to start NAU's first hockey game in the new facility. The NAU Hockey Club team, the winningest athletic team on record at the University, responded by roundly defeating the Los Angeles Junior Kings icers 10-6. Thereafter, hockey became a regular Dome event, and soon Dome officials had established classes in figure skating, and set up regularly-scheduled sessions of recreational skating for students, and members of the faculty and staff.

In December 1977, regular use of the Dome by students began, and by the start of the spring 1978 semester student athletic and recreational activities had become almost routine. Basketball, tennis, volleyball and a host of other activities henceforth were available to students on almost a daily basis, interrupted only by the necessity of preparing the Dome for some major, all-University function.

Through the winter and into the spring of 1978, the big arena was also the scene of major entertainment and nationally prominent figures, such as singers Johnny Cash and Donna Fargo, and consumer advocate Ralph Nader.

On May 19, 1978, the University held its first Commencement in the Dome, a colorful, impressive ceremony with more than 2,000 black-robed graduates and more than 600 faculty members in full academic regalia seated on the arena floor before Dr. Walkup and other dignitaries on the Dome's portable stage, and nearly 7,000 parents, friends and well-wishers watching the solemn proceedings from the Dome's spacious stands.

The long-held dream of President Walkup, and of many others for whom the University has a special place in their lives, had come true.

THE NAU DOME

hern Arizona University's Dome is the largest wood-supported dome, and largest rigid domed structure in the world — only such huge, steel-roofed ial arenas as the New Orleans Superdome and the Houston Astrodome are

laminated wood beam geodesic grid supporting its roof has a clear span of ises to a maximum height of 142 feet, and covers an area of 272,000 square 2 acres. It is thus large enough to accommodate collegiate football on a zip- ial turf with 15,300 spectators in Olympic-style fiberglass seating.

artan playing floor has permanent markings for ten basketball and courts and eight tennis courts, includes a fully-equipped 200-by-85-foot ice ink and pits for such field events as the pole vault and long jump, and is ed by a five-lane, one-fifth mile running track with a six-lane, 100-meter way. Other equipment includes a portable hardwood basketball court, and e SICO stage used for major entertainment programs and such events as ommencement.

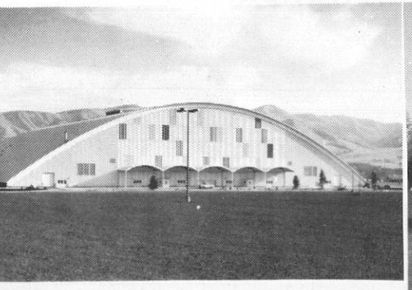
ious concourses under the stadium seating on the east and west sides offices, meeting and rest rooms, concession stands and telephone areas. locker room facilities are provided at playing floor level beneath the west e.

ing for the arena is supplied by 164 special, 1000-watt high pressure sodium nged in eight banks suspended from the Dome grid. The accoustic design is it provides near-concert level sound quality. Fresh air and heating is piped ome through nineteen large ducts and a temperature of 68 degrees F can be ed even in near-zero outside temperatures.

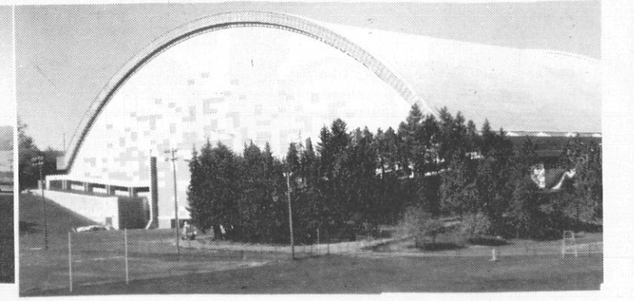
ss to the Dome is through no less than 144 doors around the circumference ucture, and parking areas for nearly 4,000 vehicles surround the Dome.

outhern yellow-pine laminations orm the dome of the multipurpose stadium at Northern Arizona University in Flagstaff. To eliminate walls, the playing level nd part of the seating were placed below ground level. The stadium was put together in only six months, at a cost of just $8.3 illion. The roof, which spans 502 feet, is designed in a latticework pattern called Varax; it was prefabricated in New York State by Unadilla Laminated Products. Architect: Rossman & Partners; consulting engineer, J. K. Parsons & Associates.

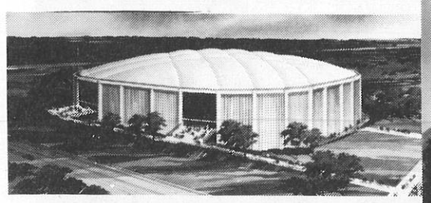
THE NATION'S COLLEGIATE DOMES



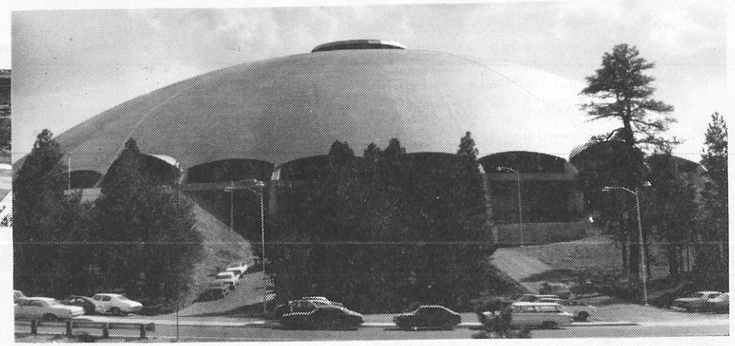
IDAHO STATE: Opened 1970 with 12,000 permanent seats and a 2,000 portable capability. 108 feet high, 420 feet long, 400 feet wide (covered area 4.5 acres). At the time, the only other arena housing indoor football was the Astrodome in Houston. ISU plays football, basketball, indoor track plus a wide range of other activity. Football turf (Uniturf), Basketball Floor (Hardwood) Track (Wooden, 220-yards).
NAME: Minidome Roof: Metal



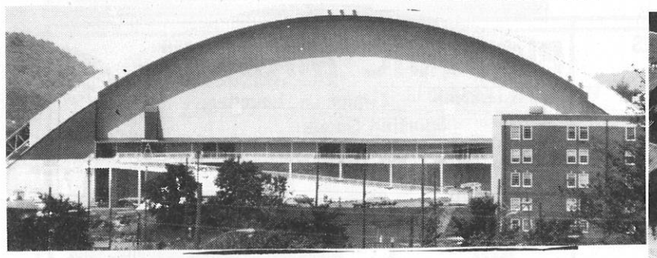
UNIVERSITY OF IDAHO: Opened in 1975 with 16,000 permanent seats and has a 4,000 portable seat capability. 150 feet high, 400 feet wide, 400 feet long (covered area 4.1 acres). Second dome in Big Sky. Activity includes football, basketball, track and field. Football turf (Tartan), Basketball (Tartan), Track (Tartan, 330 meters).
NAME: Kibbe Dome Roof: Metal and Wood



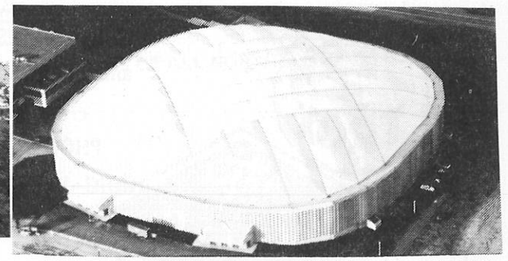
SOUTH DAKOTA: Scheduled to open in fall of 1978. Will seat 10,362 -- 6,302 permanent. 125 feet high, 400 feet long, 400 feet wide (covered area 4.2 acres). Activity includes football, basketball, track and field. Football turf (Astroturf), Basketball (Hardwood), Track (220-yard, Tar
NAME: DakotaDom
Roof: Air Support



NORTHERN ARIZONA: NAU became the third Big Sky school to open a multi-purpose domed stadium. NAU beat Montana 25-24 in first game on Sept. 17. 15,300 permanent seats with a 4,500 portable seat capacity. 502-foot inside measurement from center to any side, 142 feet high, (covered area 6.2 acres). Activity includes football, basketball, track and field, ice hockey, tennis, volleyball and badminton. Football turf (Astroturf), Basketball (Hardwood), Track (Tartan 352 meters) and the ice hockey area is full regulation size.
Roof: Laminated wood



EAST TENNESSEE STATE: Opened fall 1977 and seats 12,000. 105-feet high, 420 feet long, 400 feet wide (covered area 4.5 acres). Activity includes football, basketball, track and field. Football turf (Astroturf), Basketball (Tartan), Track and field (1/6th mile, Tartan).
NAME: Memorial Center Roof: Aluminum



NORTHERN IOWA: Opened 1976 with 16,400 seats. 125 feet high, 400 feet long, 400 feet wide (covered area 4.1 acres). Activity includes football, basketball and track and field. Football turf (Astroturf), Basketball (Tartan), Track (220 yard, polyurethane).
NAME: Uni Dome Roof: Air Support

Northern Arizona's Dome Ready for Big Sky Action

BY BOB RAST

FLAGSTAFF, Ariz. (AP) — Grand Canyon move over. With some initial help from mother nature, workmen here are putting the finishing touches on the world's largest clear span wooden dome arena.

And officials of Northern Arizona University located in this mountain city of 35,000 hope to stage their Big Sky Conference football opener inside the 18,000-plus seat dome against Montana Sept. 17.

In its present state, the 142-foot-tall Sky Dome or Enaphere — there's still

freezing systems. The rink takes up less than half the floor surface.

About 272,000 square feet under roof, 97,000 square feet of it activities area.

Two softball fields, a field hockey field, a la crosse field, 10 basketball courts and 10 tennis courts.

Rossman Plus Partners Architects, who designed the dome, tagged it the Enaphere, but according to Richard O. Davies, dean of NAU's College of [illegible] and Environmental Services it more likely to be called the Dome.

the architects had allowed for five inches.

NAU President Dr. J. Lawrence Walkup is the dome's key force. In 1973, he and other administrators called in a Phoenix psychologist to evaluate student wants on the campus.

A sampling of 2,000 students showed they wanted first a recreational skating rink, then a place to showcase student talent. The [illegible]

but most of it changed to anticipation as the facility grew.

Several student athletes worked on the dome.

Curt Golden, a 20-year-old fullback from Hollywood, Fla., was the Big Sky's leading rusher last year and an All America honorable mention. As he [illegible]

Instead, he likes to dwell on the intramural and recreational aspects of the $6.4 million structure.

"You and I grew up going to the movies," he said, "but kids today want live entertainment. But the only way they can afford it is before large crowds, nearly and indoors — because of our weather."

Dr. Walkup strongly resisted suggestions that NAU follow Weber State's lead and build a huge arena or stadium where a football field was constructed and then covered.

"We needed a multi-purpose facility with a maximum of uses," he said. "Football pays for our athletic programs, so obviously you can't leave it out.

"And in Flagstaff, the biggest crowds ever gathered — even larger than competitive events — have been football

as I've pointed out many times, [illegible] perhaps twice a year and [illegible] northern Arizona Northern Arizona is doing it again this year, but the [illegible] Lumberjacks are hoping for an even better showing in [illegible]

JAY COLEMAN

NAU upgrade is obvious

ATTER A weekend outing in Flagstaff, it's obvious there are a lot more things changing than the leaves.

Northern Arizona University successfully has made the metamorphic transition from caterpillar to butterfly with the completion of its multipurpose activity center, tentatively known only as "The Dome."

And, with impeccable timing, Saleem's 4-1 Lumberjacks are keeping pace championship-caliber po

It's an exciting period [illegible] the city and the state

The Jacks opened in [illegible] 12,000 fans, and then [illegible] 15,000 spectators [illegible] the largest crowd to [illegible] sporting event on Arizona

Seemingly everyone agrees that the building [illegible] "The only controversy" is [illegible] dome thing.

The Arizona Daily Sun, [illegible] newspaper, editorially [illegible]

Only suggestions [illegible] Dome, Notre Dome, [illegible] Arizona Dome (with the [illegible] the state's rich [illegible]

Obviously, Sky Dome [illegible] appropriate.

From a journalistic [illegible] Dome lifts headlines [illegible] sphere, the other popular [illegible]

Besides, Sky Dome is [illegible] tive, but easy to remember. NAU's membership in the [illegible] ference and suggests the [illegible] massive ceiling.

Whatever title the school [illegible] finally the dome probably [illegible] as Walkup Pavilion for N[illegible] Dr. J. Lawrence Walkup.

And rightfully so.

In Dr. Walkup's 20-[illegible] NAU enrollment has [illegible] and campus buildings nav[illegible] ble for the school's growth [illegible]

Call the dome what you [illegible] the Lumberjacks great.

In three years Salem has [illegible] national Division II contender [illegible] former conference doormat. As [illegible] the dome, the future should [illegible] nothing but improvement.

Whenever I think of NAU's [illegible] program, I immediately [illegible] Salem's first game as an NAU coach. An [illegible]

Sunday

MORNING AFTERNOON

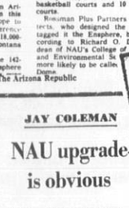
[illegible]

SEPT. 11 — 1 ELTE EEKS TV
2 SESAME STREET—Children
AFTER 3 NFL FOOTBALL
Return [illegible]
4 MOVIE—Comedy [illegible]
5 [illegible]
6 [illegible]
7 [illegible]
8 [illegible]
9 [illegible]
10 [illegible]
11 [illegible]
12 [illegible]

NFL FOOTBALL

[illegible]

SEPT. 12 — 1 COLLEGE FOOTBALL
2 [illegible]
3 YE SHALL KNOW THE TRUTH
4 DEL 1 ON
5 SIGN OUT
6 [illegible]
7 [illegible]
8 CHURCH SERVICE—Baptist
9 SESAME STREET—Children
10 PTS ON PARADE



Sports Editor
VERNE BOATNER

Big day for the big dome

SATURDAY IS an historic day for Flagstaff.

Although the much-ballyhooed domed stadium at Northern Arizona University won't be complete for an official dedication, it will be put to its first real when the Lumberjack football team hosts Montana indoors.

Pyle is leaning out all over the dome over the project. Naturally, the man who has pulled its fortune — NAU President Dr. J. Lawrence Walkup — is an exception.

"The first time you arrived on campus 21 years ago, when student enrollment was only 4,500, when president 13 years later it became president, 15 years later when it was time to only 1,500 and can now look at the sprawling campus of 12,000, even such a monumental venture as the "Skydome" can be taken in stride.

"To begin with, the magnificent structure is a dome. What's more, [illegible] hurry for

60 MINUTES

Mike Wallace
Morley Safer
and Dan Rather
cover stories
the way no one
else covers the

NAU prepar

FLAGSTAFF, Ariz. (AP) — Grand Canyon move over. With some initial help from mother nature, workmen here are putting the finishing touches on the world's largest clear span wooden dome arena.

And officials of Northern Arizona University located in this mountain city of 35,000 hope to stage their Big Sky Conference football opener inside the 18,000-plus seat dome against Montana Sept. 17.

In its present state, the Dome or Enaphere — there's still controversy over what to call it — a target grey flying saucer nestled in a natural bowl in the [illegible] Ponderosa pine on the plat

At 502 feet across, the ro[illegible] is just two feet shorter th[illegible] Astrodome. But the size of t[illegible] apparent until you step ins[illegible] it's carved 32 feet into the sol[illegible] natural bowl-shaped gully, [illegible] above sea level.

NAU officials say they built [illegible] million structure for the studen[illegible] that intercollegiate athletics wil[illegible] take up 15 per cent of its use time.

There are a lot of "world's larg[illegible] about this dome. It's big enough to [illegible] at least 10 high school-sized basket[illegible] games going at once. Among other thin[illegible] it has:

—The world's largest indoor track surface — a 352-yard, (321 meter) oval.

—A football field of Monzanto S22 Astroturf, with a ¾-inch base and ¼-inch "grass". The turf is rolled out by a machine called the Grasshopper in 6 hours. It takes 8 hours to pull it up.

—A $500,000 professional-sized ice rink featuring the latest in freezing systems. The rink takes up less than half the floor surface.

—About 272,000 square feet under roof, 97,000 square feet of it activities area.

—Two softball fields, a field hockey field, a la crosse field, 10 basketball courts and 10 tennis courts.

Rossman Plus Partners Architects, who designed the dome, tagged it the Enaphere, but according to Richard Davies, dean of NAU's College of [illegible] and Environmental Services [illegible] likely to be called the [illegible]

The do[illegible] perfe[illegible]

Newest Dome Nearly Ready

By BOB RAST

FLAGSTAFF, Ariz. (AP) — Move over, Grand Canyon.

With some initial help from Mother Nature, workmen here are putting the finishing touches on the world's largest clear span wooden dome arena.

And officials of Northern Arizona University hope to stage their Big Sky Conference football opener inside the 18,000-plus seat dome against Montana Sept. 17.

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NAU OFFICIALS say they built the $8 million structure for the students and that intercollegiate athletics will only take up 15 per cent of its use time.

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—Two softball fields, a field hockey field, a lacrosse field, 10 basketball courts and 10 tennis courts.

NAU Unveils Dome

FLAGSTAFF — A new era of intercollegiate athletics will arise on the Northern Arizona University scene Saturday night when NAU plays host to the University of Montana in a Big Sky contest to be staged in NAU's new domed multipurpose stadium.

The opening of NAU's 15,300-seat dome will mark the first indoor football game ever played in Arizona and it will give the Big Sky Conference three domed stadia, the others being at Idaho State and the University of Idaho.

NAU will take a 2-0 mark into the game as the Lumberjacks rallied to take a hard-earned 28-7 road win from Idaho State University last Saturday night in ISU's dome in Pocatello, Ida.

Montana opened its season at home last week and lost a 15-13 heartbreaker to the University of Nevada-Las Vegas [illegible]

Big Sky? Nort[illegible] schoo[illegible] be o[illegible]

Prescott Courier 4-15-77

NAU opens play in domed stadium

FLAGSTAFF, Ariz.— A new era of intercollegiate athletics will arise on the Northern Arizona University scene Saturday night when NAU plays host to the University of Montana in a Big Sky contest to be staged in NAU's new domed multipurpose stadium.

The opening of NAU's 15,300-seat [illegible]

Idaho State University last Saturday night in ISU's dome in Pocatello, Ida. NAU won its season-opener 31-30 from Augustana, S.D., College.

Montana opened its season at home last week and lost a 15-13 heart-breaker to the University of Nevada-Las Vegas [illegible] on a last-[illegible]-ld goal.

[illegible]ow Montana [illegible]nt a lot of [illegible] for us as they [illegible] the largest [illegible]ses in college [illegible] They proved [illegible] they could [illegible] football [illegible] NLV," said [illegible] coach Joe Salem. "Also the Montana defense. They will be a tough opponent for us, but then I expect every Big Sky football game this fall to be a tough test," added Salem. UNLV completed 12 of 26 passes for 185 yards against Montana. Montana picked off three UNLV passes and the Rebels managed to rush for 200 yards.

NAU's defense limited Idaho State to 129 yards total offense and 10 first downs while its offense generated 301 yards total offense against ISU. Almost half of that came in the final seven minutes of the contest.

"We still have a ot of work to do offensively," added Salem.

NAU up front in Big Sky

United Press International

Northern Arizona is doing it again this year, but the Lumberjacks are hoping for an even better showing in [illegible]

pause. In non-conference contests, Montana State hosts powerful Fresno State—the only team to beat the Bobcats last year—Idaho travels to Hawaii, Boise State [illegible] Eastern Montana, Idaho travels to Nevada-Las Vegas, and Montana opens at home against Nevada-Las Vegas, and Montana is host to Portland State.

[illegible] win from [illegible]

Missoula MONTANA August 21, 1977

NAU's Dome Brings The Big Sky Indoors

By VINCE DEVLIN
Missoulian Sports Writer

You'd think the people at Northern Arizona University had put a bubble top on the Grand Canyon.

NAU's new domed stadium [illegible]

Historic Evening In Flagstaff

Tomorrow evening will be an historic one in Flagstaff, Northern Arizona, and the entire state.

The first event in Northern Arizona University's new domed stadium is Saturday evening when our Lumberjacks entertain the University of Montana Grizzlies in a Big Sky Conference football clash. Chances are, it might just attract the largest crowd ever to watch a football game in Flagstaff, though that record is likely to be broken later this season.

starting offensive linemen who watched that game from the sidelines. They'll be in there this year, and that will make a big difference.

While it may be an honor for the

the dome is set for Oct. 15, homecoming, and its dedication is slated Nov. 5. However, die-hard gridiron fans could care less about the pomp and ceremonies. They're anxious to get a first look at the dome and a second look at the Lumberjacks.

The dome is a giant [illegible] of which all of Arizona [illegible] proud. It will be an [illegible] boost to Flagstaff [illegible] strengthen the ties [illegible] the community and [illegible]

The facility is [illegible] tribute to the untiring [illegible] of NAU President Dr. [illegible]

There's even a 30-second shot clock for basketball, should the NCAA ever adopt the rule.

It will have 10 basketball courts, 6 tennis courts, two softball fields, a field hockey field, and a lacrosse field.

The football field is made of Astroturf, which will be rolled out by a machine called The Grasshopper six hours, and will take eight hours to remove.

The world's largest indoor track surface — a 351-yard oval — will be available.

And there will be a $500,000 professional-size ice rink.

It all means that the Big Sky Conference has become, as Spokesman-Review Sports Editor Gary Missildine put it, the "domed-stadium conference in the land."

The National Football League can boast of only one more domed stadium than the Big Sky Conference.

This should double or triple our [illegible]

Sun., August 7, 1977 Los Angeles Times

RAPID CITY SOUTH DAKOTA 8-6-77

Arizona dome will be huge

[illegible]FF, Ariz. (AP) — Move [illegible] Grand Canyon.

[illegible] some initial help from mother [illegible] workmen here are putting the [illegible] touches on the world's largest [illegible] wooden dome arena.

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At 502 feet across, the roof of the dome is just two feet shorter than Houston's Astrodome. But the size of the thing isn't apparent until you step inside because it's carved 32 feet into the solid rock of a natural bowl-shaped gully, 7,000 feet above sea level.

NAU officials say they built the $8 million structure for the students and that intercollegiate athletics will only take up 15 per cent of its use time.

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—An Astroturf football field with a three-quarter inch base and one-quarter inch "grass." The turf is rolled out by a machine called the Grasshopper in six hours. It takes eight hours to pull it up.

—A $500,000 professional-sized ice rink, featuring the latest in freezing systems. The rink takes up less than half the floor surface.

—About 272,000 square feet under roof, 97,000 square feet of it activities area.

—Two softball fields, a field hockey field, a lacrosse field, 10 basketball courts and 10 tennis courts.

PRIDE OF NORTHERN ARIZ.—Work is nearing completion on the Northern Arizona University wooden dome arena nestled in a natural bowl on the NAU campus. The dome is expected to be ready for the Flagstaff school's Big Sky Conference football opener with Montana Sept. 17.

NAU's super dome built

Casa Grande Dispatch

NEW WONDER IN ARIZONA: A WOODEN-DOME ARENA

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NAU BIG SKY NCAA Football Notes

By Wylie Smith,
NAU Sports Information Director

All season long, Northern Arizona University has drawn votes in the NCAA Division II national rankings and one the Axers cracked the top 10, -- holding down the No. 8 spot before losing at Nevada-Las Vegas 20-16.

If NAU wins its final three games, the Axers could be in contention not only for a top 10 ranking, but a playoff berth in the NCAA Division II playoffs. Boise State is ineligible to go because it plays at Idaho Nov. 26, the first day of the playoffs.

Other teams in the West who could be playoff possibles include Cal-Davis (7-0), Cal Northridge, Montana State and Nevada-Reno (7-1).

New Hampshire, the nation's top ranked Division II team last week fell from the undefeated ranks last weekend in a 21-20 loss to Rhode Island and coach Bob Griffin, who coached from 1972-75 at Idaho State.

Only three NCAA Division II schools are undefeated and untied -- Cal-Davis 7-0-0, Tennesses Tech 8-0-0, and Winston-Salem of North Carolina 9-0-0.

NAU's pass defense has given up an average of 179.9 yards a game through eight games -- but the Axers have faced three of the nation's top four aerial attacks! Nevada-Las Vegas is second nationally in Division II passing with 256 yards a game while Weber State is third with 251.6 and Augustana is fourth with 243.4. Portland State is the national leader with 321.4 yards a game.

Last week two NAU players were among the national leaders as senior Tom Jurich was 10th in scoring with a 7.6 point-per game average which leads the Big Sky. Jurich could become the first kicker-only to win the Big Sky scoring title. Junior strong safety Ray Smith is fifth nationally in punt returns with a 13.5-per return average and he is the Big Sky leader in that stat. He won the Big Sky crown last season and finished third nationally.

With 15 field goals, Jurich needs just four more in the final three games to tie the Big Sky and NCAA Division II national mark of 19 set in 1971 by Weber State's Jaime Nunez. Don Bitterlich of Temple set the All-Division field goal record of 21 in 1975.

Jurich holds several NAU kick-scoring records, including most career points (129), most career field goals (23), most points kicking in a season (61), most field goals in a season (15), most 50-yard field goals in a season (3), most points kicking in a game (12) and most field goals in a game (3, on two occasions).

A high school teammate of Jurich's at Arcadia, Calif., High -- senior quarterback Herb Daniel also holds several NAU career marks: Most TD Passes (22), most passing yardage (2,611), most total offense (2,719), pass completions (192) and pass attempts (395). Daniel also holds the mark for most TD passes in a game (5). Daniel came to NAU as a junior, so all of his career marks have been set in less than two years.

No team under the Northern Arizona University banner has ever won as many as seven games in back-to-back seasons. NAU received its current name in 1966. Last year NAU was 8-3 and by winning against Montana State tonight, this would give NAU a 7-2 mark. The last time a Lumberjack football team had back-to-back seasons with as many as seven wins was the 1957 team which went 8-1 and the 1958 team which holds the best ever mark of 11-1 -- those were recorded under the name of "Arizona State College at Flagstaff."

LOG JAM SOLUTION

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L		F				16 T	E			N				
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A				E	R	R	E	L	L			I		D
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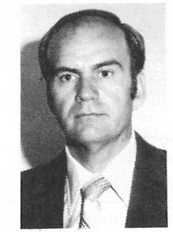
B		M			E		I			31 W	T	S		C
32 Y	E	A	T	E	S		D			O				H
		N				33 P	E	N	A	L	T	I	E	S
34 F	A	K	E	S		K				F				

MEET NAU'S DEANS

DR. CAL JAMES
Applied Sciences

DR. CHARLES LITTLE
Arts and Sciences

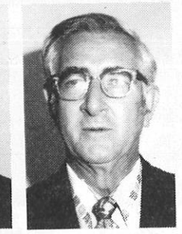


DR. FRANK BESNETTE
Business

DR. CHARLES AURAND
Creative Arts

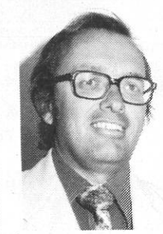
DR. HOWARD ROBERTS
Education

DR. JOSEPH MEHRHOFF
Engineering



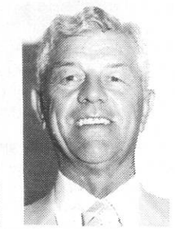
DR. CHARLES MINOR
Forestry

DR. MILT SCHROEDER
Admissions and Records



DR. RICHARD DAVIES
Public and
Environmental Service

DR. RICHARD BEAL
Graduate College



JOE ROLLE
University Services

SOME AREAS OF STUDY AT NAU

APPLIED SCIENCES

Dietetics
Home Economics
Interior Design
Industrial Education
Occupational Therapy
Police Science & Administration

ENGINEERING

Air Force ROTC
Applied Science
Computer Science
Engineering
Engineering Technology

ARTS AND SCIENCES

Applied Plant Science
Aquatic Biology
Astronomy
Biological Sciences
Chemistry
Entomology
English
Geology
History
Law Office Administration
Mathematics
Modern Languages
Philosophy
Physics
Political Science
Pre-Dentistry
Pre-Medicine
Pre-Veterinary
Pre-Law
Spanish Immersion Program
Weather Anal. & Forecasting

FORESTRY

Straight Forestry Degree

PUBLIC AND ENVIRONMENTAL SERVICES

BEHAVIORAL SCIENCE

Anthropology
Cartography
Corrections
Geography
Linguistics
Social Work
Sociology

HEALTH SCIENCES

Dental Hygiene
Radiological Technology
Nursing
Medical Technology
Microbiology

BUSINESS

Accounting
Business Education
Data Processing
Economcis
Finance
Law Office Administration
Marketing
Management
Hotel, Motel, & Food Service
Secretarial Sciences

INTEGRATED STUDIES

American Enterprise
American Studies
Environmental Science
Environmental Studies
Southwest Studies

PUBLIC PLANNING & SERVICES

Public Management & Planning
Transportation Planning

CREATIVE ARTS

Art
Creative Arts Management
Humanities
Journalism
Music
Speech Pathology
Speech-Theater

GRADUATE COLLEGE

Master of Arts
Master of Science
Master of Business Administration
Master of Forestry
Master of Music
Master of Music Education
Master of Arts in Education
Educational Specialist
Doctor of Education
Doctor of Philosophy

EDUCATION

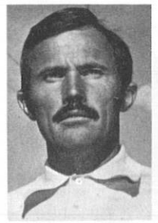
Early Childhood Devel.
Elementary Education
Physical Education:
Dance
Music
Recreation
Psychology
Library Science
Secondary Education
Special Education

OTHER NAU HEAD COACHES AND STAFF

DR. LYLE MULLENS
Fac. Ath. Representative
Wayne State(Neb.) 1940

DR. JAMES TOPP
Director, Physical Education
Northern Arizona, 1953

JOHN BIRKETT
Head Basketball
Loras College, 1958

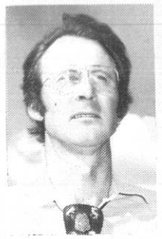


ALAN FLITCRAFT
Head Baseball
Florida State, 1965

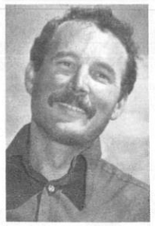
LEO HABERLACK
Track, Cross Country
Minot State, 1958

WES BROWN, JR
Wrestling Coach
Northwestern, 1939

MIKE NESBITT
Head Trainer
Idaho State, 1968



DR. JIM HOLDER
Team Optometrist
So. Colorado Optometry 1963



DR. GEORGE HERSHEY
Team Physician
Phila. Osteopathic, 1968

DR. ART DALPIAZ
Geam Dentist
Univ. Missouri, KC 1963

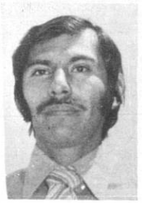
BARRY BRAUN
Equipment Manager
Montana State

TONY ARMENTA
Public Address
Northern Arizona, 1968

MARVIN PATTON
Physical Plant Dir.
Oklahoma State 1965

LARRY LOVEN
Dome Director
Northern Colorado, 1963

BOB CROZIER
Director, Alumni Relations
Northern Arizona, 1953



ERNIE ALMARAZ
Business Manager
Northern Arizona 1969

DR. DON WOLF
Band Director
Univ. Miami, 1949

WILLIAM G. HOYT
Director, Public Information
Northern Arizona, 1966

WYLIE SMITH
Sports Information
Northern Colorado, 1966

AXER CHEERLEADERS -- Front, left, Lee Ann Strohowski, Bryan, Tex.; Jack Jones, Flagstaff (Coconino); Dan Garner, Farwell, Tex.; Guy Hoover, Springfield, Ill.; Tom Blackman, Phoenix (Washington) and Marsha Soberg, Phoenix (Washington). Back left, Cheryl Joy, Sierra Vista (Buena); Patty Waddell, Phoenix (Cortez); Cathy Christy, Phoenix (Dysart); Resa Rankin, Casa Grande and Marianna Ochoa, Tucson (Palo Verde).

NAU's spectacular new dome

Monster of the Northwoods

This aerial photograph, showing the way the domed roof was constructed with wood, was taken by the architect, Dr. Wendell Rossman.

While Arizona State and the UofA have been winning and losing national championships the past two years, Northern Arizona University has been quietly building a monster. Not an amphibian creature out of science fiction, but a 272,000 square-foot monster made of steel, cement and wood. When completed it will steal more than a little Sun Devil/Wildcat thunder.

The all-purpose dome structure will emerge on the Arizona sports scene September 17 and should impress all who venture inside for the inaugural game against the University of Montana. It is the largest wooden dome in the country, dwarfing the next largest, the University of Utah facility, by almost 35%. Built by Mardian Construction Co. of Phoenix, the structure was the brainchild of two men. First, and most importantly, it was the foresight and administrative drive of NAU's president Dr. J. Lawrence Walkup, that made the whole project possible, and secondly, it was the architect, Dr. Wendell E. Rossman, who designed the complex and gave the "Ensphere" concept to the world. Rossman is the principal in the firm of Rossman & Partners, Phoenix.

Rossman is not as hard a man to understand as he is to find. If he is not rummaging around in the Ensphere checking and rechecking the specifications for a building that is 90% completed, he is in some other corner of the state checking up on one of the other three under-construction buildings his company designed. And if he isn't at any of these spots, you might find him mending a fence on his ranch/cabin "somewhere in Flagstaff," or at the home he designed for himself and his family in Phoenix.

The name Wendell E. Rossman is not one even the most ardent sports trivia buff would know. It will never spring up in a crowded, smoky bar, not will Al McCoy conjure up ungodly numbers of "how about that" around his accomplishments. In an indirect way, though, Rossman has carved a significant, if anonymous, niche for himself among sports figures in the state. He designed the first domed stadium in Arizona.

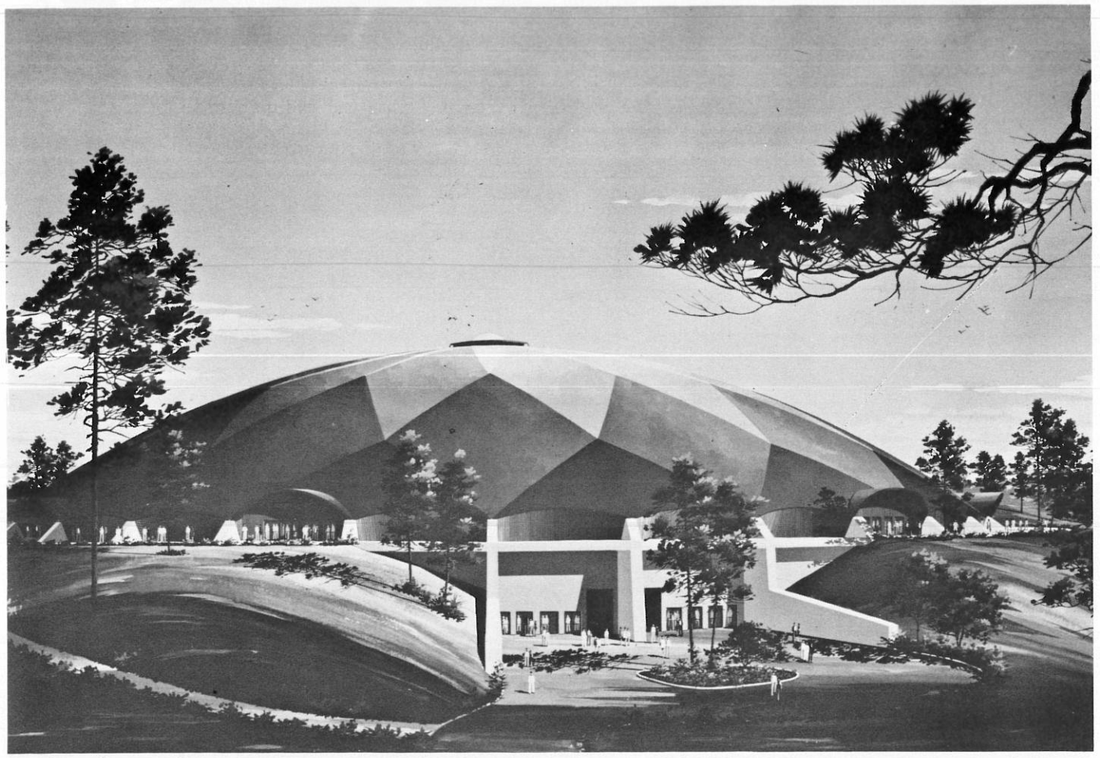
Rossman was born and raised in Switzerland, where he studied engineering and architecture because "that's how you learned architecture then, with engineering and a lot of fine art history." When he arrived on North American shores in 1948, he got a job as an architect with the Canadian government. Much of his craft he had to relearn, as well as a new language. A few years later he migrated to Arizona for his wife's health.

Because of other buildings he had designed in the Flagstaff area, including the student dining hall and two dormitories on the NAU campus, Rossman was a solid choice when Walkup convinced the regent in that area of the college's need for a facility of the Ensphere's capabilities. After meetings with Walkup, Rossman did as he always does with new commissions. "I sit at the drafting board myself for a few days and analyze things. Once done, I know exactly what I want. I will design all the major elements because I know they are incredibly important. Other details are then taken over by other designers."

Rossman's unique Ensphere concept, with engineering strengths that belie its simplicity, is a radical departure from conventional domes. The Astrodome in Houston, the Superdome in New Orleans and the Kingdome in Seattle all have what engineers call a dome-ring-wall system. They are convex-domes, each supported by a ring built on a wall that is buttressed to carry the weight and pressure. The larger the dome, the more it weighs and the greater the pressure applied, resulting in the need for more powerful walls. Consequently, the bigger the dome, the greater the cost.

In 1965 Judge Roy Hofheinz of Houston built the Astrodome, heralded at the time as the "Eighth Wonder of the World." It cost $45 million, a quarter of which was required for the domed roof. By today's standards, the building is considered a steal. The Ensphere, on the other hand, cost a grand total of $8.1 million.

(next page)



Why the discrepancy? Two basic reasons–intelligent design which minimized construction costs and a different 'use' philosophy. The Ensphere was built to give minimum–but prime–spectator space and maximum surface area for athletes and performers.

The playing surface has an Astroturf field that can cover the whole area, or can be zipped up to half-size, allowing use of the built-in skating rink. Hockey-size, the rink has a new IT&T system with cooling coils on top of the cement to enable the system to work more uniformly. It also saves on operating costs.

In keeping with the original concept of a multi-purpose facility, the dome can house as many as 18 tennis courts at once, or a soccer field, or a football field, or a hockey rink. It is an enormously flexible stadium, for the school and the community.

In fact, the people of Flagstaff have been more involved in the building of their dome than most communities in other locales. According to sources working in the dome, people have been constantly dropping by.

"It's hard to keep them away," said one of the on-site engineers. "They seem to really have an interest in how this thing is shaping up. And they try very hard not to get in the way. They really pride themselves in the accomplishment."

This is just one indication of the civic pride that Walkup and his aides have begun to develop around the dome. Walkup has been on his soap box locally since speculation about the feasibility of the dome began.

Because of its relative simplicity of design and construction, the Ensphere will bypass many of the initial problems encountered by other, more spectacular stadiums. It will hardly need the 37 full-time administrative officers and economic advisors employed by the Superdome in New Orleans. It won't even come close to the 23 people that the supposedly "stream-lined" Astrodome employs, and that facility has had 11 years to iron out its difficulties.

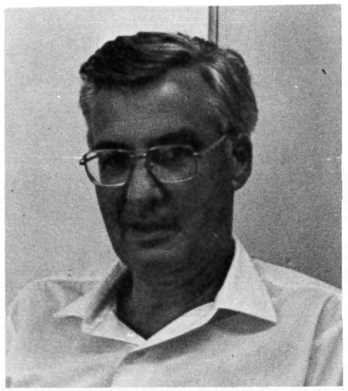
Dome bureaucracy has a way of scaring potential promoters away because of the red tape. Says Barry Mindler, general manager of the NBA's New Orleans Jazz, "The Superdome is the greatest facility in the world, but it needs to be intelligently run." The Jazz plays 35 dates a year in the Superdome, making them the facility's most regular customer, yet time and again they're inconvenienced. Said former head coach Butch Van Bredakoff, "The New Oreleans school system isn't the greatest, but our kids all know at least one big word–malfunction."

Superdome blunders are legendary. Folks in the Bayou state still laugh and cry about the planning miscues that only became evident after ribbon cutting. Like the sorry case of the general admission windows. All 64 were especially tinted to coordinate with the metallic facade of the stadium. Yet when customers lined up for tickets it was discovered the windows were built without holes for the purchaser and the salesperson to talk through, making communications virtually impossible unless they bent down to the exchange hole at the base of the window. Cost to the taxpayer for replacement–$18,000.

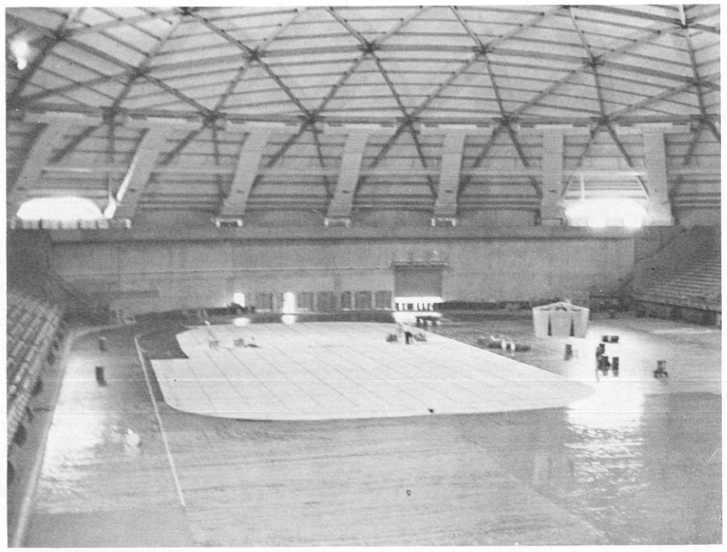
The dome's smaller seating arrangement is also a reaction to the problems encountered by other super stadiums. The 15,000 fixed-seat capacity is more realistic in relationship to the university and community needs.

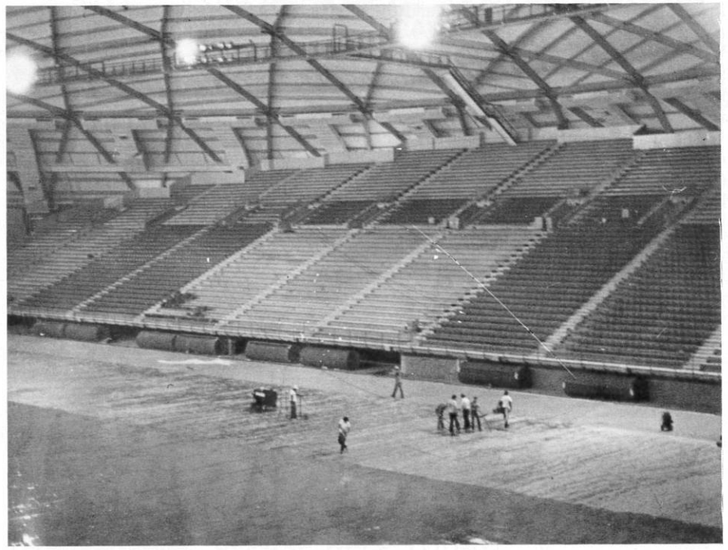
Additionally, NAU officials are asking very little of the dome in terms of payback. Where the other domed stadiums won't be paid off till the turn of the century, the Ensphere should be running in the black by the early 1980's. This is a conservative estimate, if you look at Walkup's master plan.

Walkup and Rossman both agreed at the outset that the important thing was to build the dome itself as large as possible and to let the particulars of the inside follow later. They plan to let civic and



Left, architect Wendell Rossman. Below, interior shots showing the refrigerated piping pattern for the ice rink, and laborers laying a section of the floor.



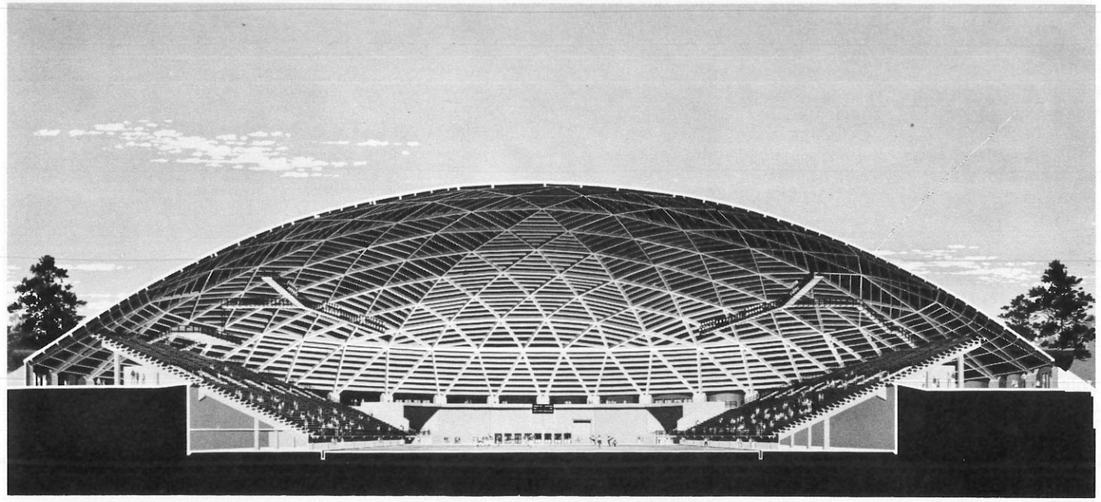


academic needs stimulate further growth. The original plans called for 35,000 square feet of undeveloped space. Part of that has since been developed into classrooms, but in the years to come, the space could prove a tremendous saving.

By building into the land instead of up, a number of other advantages were gained. First, the enormous cost of conventional free-standing walls was eliminated. Secondly, the area maintains its backwoods feel despite the fact that a building approaching the size of the Astrodome looms over the horizon. Third, by planting the ring to which the dome is built into bedrock, the engineers were actually saving more money and building as solid a foundation as there can be.

by a pre-stressed concrete tension ring. Says John K. Parsons, structural engineer of record in the project, "The base of the buttresses is the tension ring, approximately four feet wide by three feet deep with approximately 2.5 million pounds of post tension cord in it. Where the dome lifts off the buttresses, its diameter is 502 feet."

The grid system of the dome is also unique. More than a million board feet of lumber was fabricated into structural glued laminated timber (called glulam) for use in the unique connector system that was employed. This patented system, developed by Varex Engineering of Portland, Oregon, uses steel hub to connect each group of six triangular sections in the dome's timber grid. There are 120 such hubs in the dome.



This cross section drawing shows the structural framing and the relationship of the internal elements. The dome rises from 36 concrete buttresses supported by a prestressed concrete tension ring at the perimeter. All beams are curved to the same radius and frame the dome in a triangular fashion. In standard geodesic domes, the beams are not curved.

The biggest construction cost saving is in the wooden dome construction and the absence of the usual load-bearing walls. Where other domes glide high into the sky, NAU's is more gently sloped and fits more agreeably into the pine-laden surroundings of Northern Arizona.

In fact, viewing the dome from the outside gives absolutely no clue to the enormous size it possesses. All that's visible is the domed room itself. The rest of the structure is below ground.

Energy conservation also played a large role in both the nature and the construction of the dome. According to Rossman, heating bills for air-support domes (like the translucent dome on Pontiac Stadium) could have been as much as five times the amount considered tolerable by the university. Heavy snow loads in winter also were also a factor against an air-support structure.

"There were also some serious questions as to the need for air conditioning in an air structure in the summer," Rossman commented. "Because of its translucency, heat build-up could be great enough to require the installation of a 500-ton refrigeration plant. The initial cost of that, along with regular operating costs, put matters completely out of hand."

The dome is connected at the perimeter by 36 concrete buttresses supported

Built between 15,000 fixed seats, which could easily go to 32,000 should the demand develop, is a 97,000 square-foot playing surface. To give you some idea of that proportion, Walkup could put Phoenix Memorial Coliseum on display and play tennis at both ends of the dome at the same time.

On Sept. 17 the public can judge for itself just how popular the Ensphere will be. John Parsons has tickets for both the dome inaugural and the Sun Devil opener in Tempe against Northwestern. He hasn't decided yet which game he'll attend. A better testimony cannot be given to the impact the Ensphere may have on the entire state. ■

THE NAU DOME

Waiting for the Dome to open

And for all seasons

A Dome of Many Uses

Football, ice hockey, basketball, track, tennis, volleyball, or Frisbee throwing — you name it.

Northern Arizona University's new $8.1 million Dome can handle all this and more — major entertainment shows featuring such renowned stars as Bill Cosby, Johnny Cash, Roy Clark, and Bob Hope, nationally prominent speakers such as Ralph Nader, and important mass convocations such as NAU's annual Commencement. The Dome's multipurpose function also includes its use for physical education classes and, more than 60 hours a week, for student recreation.

NAU's Dome is the largest wood-supported dome, and the fourth largest rigid domed structure, in the world. Only such huge commercial arenas as New Orleans' Superdome and Houston's Astrodome are larger. It is also the largest indoor athletic, recreation and entertainment facility in Arizona of any kind.

The laminated wood-beam geodesic grid supporting its roof has a clear span of 502 feet, rises to a maximum height of 142 feet above the playing floor, and covers an area of some 272,000 square feet, or about 6.2 acres. It can comfortably accommodate intercollegiate football games on a zip-up, roll-away artificial turf with 15,300 spectators in Olympic style fiberglass seating.

Its Tartan playing floor contains a fully-equipped, 200-by-85-foot ice hockey rink, pits for such field events as the pole vault and long jump, and is surrounded by a five-lane, one-fifth mile running track with a six-lane, 100-meter straightaway. The playing floor also has permanent markings for ten basketball and volleyball courts and eight tennis courts. Other facilities include a portable hardwood basketball court for varsity games, and a portable SICO stage for a wide variety of other events.

Spacious concourses under the stadium seating on the east and west sides contain offices, meeting rooms, rest rooms, concession stands and telephone areas as well as ample corridor space for the movement of large crowds of people. Extensive locker room facilities are provided at the playing floor level beneath the west concourse, while equipment can be stored under the east stands.

Lighting for the arena is supplied by 164, 1,000-watt high pressure sodium lamps ranged in eight banks suspended from the Dome's roof grid. The accoustic design is such that it provides near concert-level sound quality. Fresh air and heating is piped into the Dome through nineteen large ducts, permitting a temperature of 68°F even in near-zero outside temperatures.

One hundred and forty-four doors permit quick, convenient access and egress from the Dome by a capacity crowd within a few minutes. Parking areas for more than 4,000 vehicles conveniently surround the structure.

As a multipurpose facility serving NAU students, the northern Arizona community, and all Arizona, NAU's Dome is unique.

President Walkup breaks ground for Dome

from the air

Plenty of room for people

From dream to reality

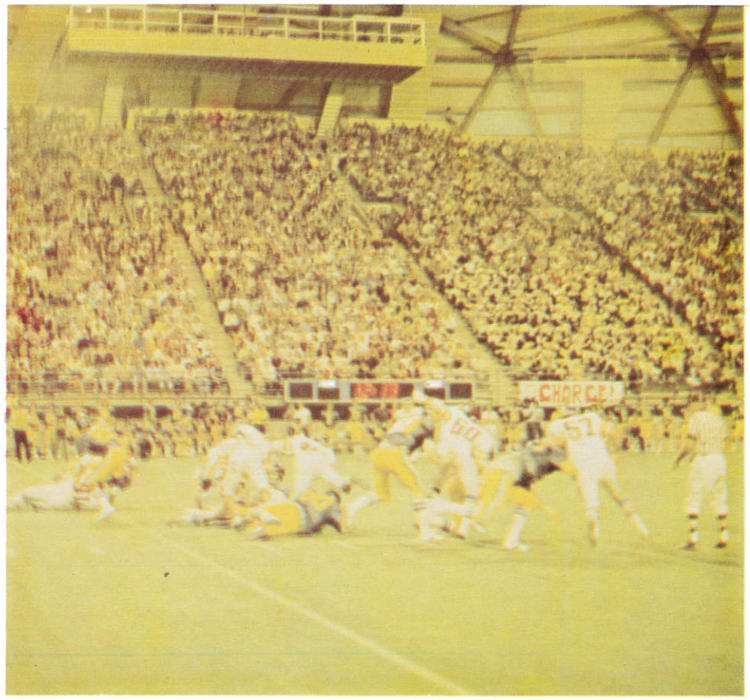
The Origin of the Dome

NAU's unique Dome had its origin in Flagstaff's sometimes awesome winter weather and the need for a large, all-weather sports-recreation-entertainment facility for NAU's burgeoning student body. The dream was implemented in March 1973 — the coldest, snowiest March on record in Flagstaff. Then, Flagstaff businessman Jesse A. McMahon, a longtime Lumberjack booster, suggested to NAU president Dr. J. Lawrence Walkup that NAU build a "minidome" similar to the one built by Idaho State University at Pocatello. Dr. Walkup responded by asking that the community explore the idea first and by pledging NAU's support.

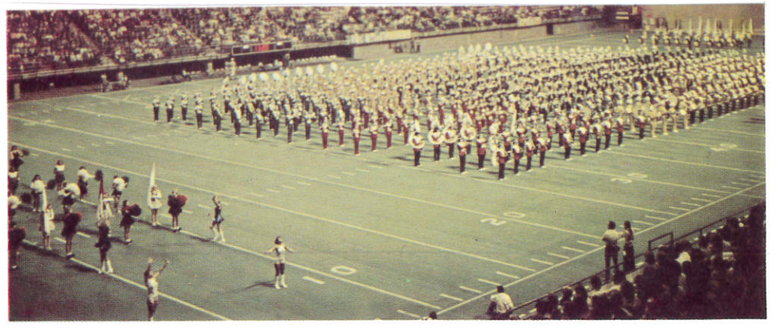
A "minidome" as a community project soon ran into problems, mostly financial. Thus, in 1974, Dr. Walkup began working to obtain such a facility for the NAU campus. Within a year, he had obtained approval from the Board of Regents and the Legislature for the Dome project to be financed through revenue bonds and local funds, rather than state tax dollars.

On Sept. 4, 1975, construction of the Dome began, and on Sept. 17, 1977, more than 12,000 persons — the largest crowd ever to assemble under one roof in Flagstaff up to that time — watched as NAU's gridiron Lumberjacks defeated the University of Montana 25-24 in a Big Sky Conference season opening game.

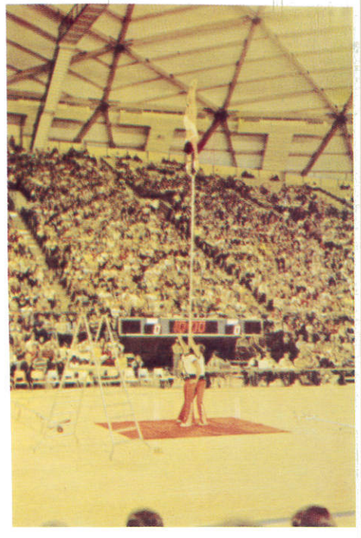
Since this auspicious debut, the Dome has become a recreation center for NAU's more than 13,000 students as well as a hub for athletic and entertainment activities for the entire northern Arizona area.



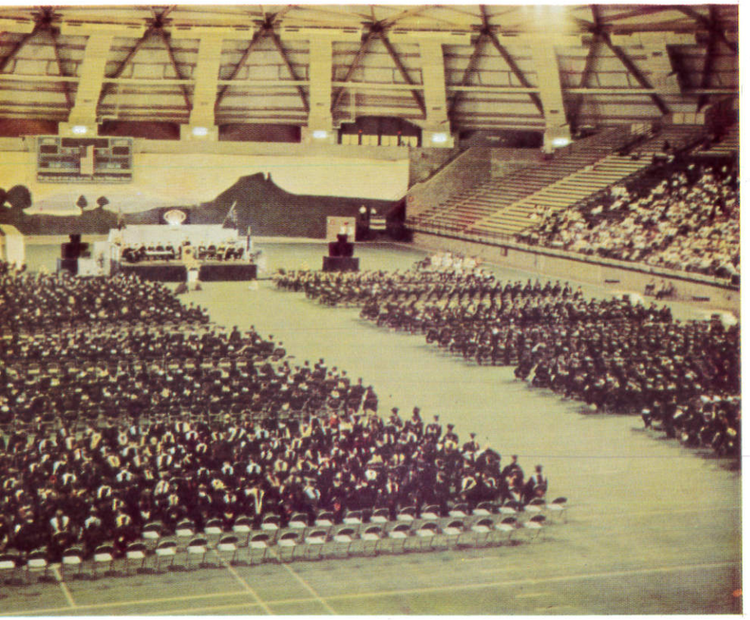
Versatility is the word for NAU's Dome. Football and ice hockey are regular, major attractions



The Dome provides a home for all major NAU events — basketball, above; football, and band performances, right.



The nation's top entertainment stars shine in NAU's new Dome — Bill Cosby and Roy Clark, left; the Aztec Indian dancers, above; and even acrobats, above right.



The spacious NAU Dome is the scene of annual Commencements, attended by up to 10,000 people. Below, Dr. Walkup presents honorary degree to U.S. Sen. Barry Goldwater in Dome

Innovative, Economical

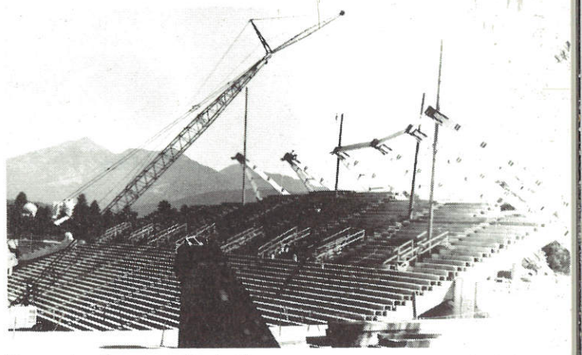
Dome Concepts Unique

The design of NAU's multipurpose Dome embodies several unique concepts which make it highly efficient, economical and esthetically pleasing.

Architect Dr. Wendell Rossman of Rossman + Partners of Scottsdale assured construction economies by setting the basic compression ring for its domed roof on the rim of a small box canyon rather than atop an expensively buttressed wall as in other well-known domed structures, thus taking full advantage of the topography of NAU's South Campus area. The elimination of an extensive wall system sharply reduced materials costs and cut construction time for the domed roof to less than six months. The design also permits relatively low operating costs by allowing more efficient energy use than in conventional domed arenas.

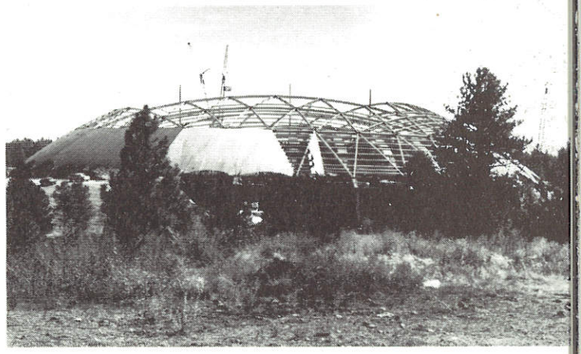
Dr. Rossman also urged the use of laminated wood beams rather than expensive steel girders to support the domed roof, and this substantially reduced materials costs while providing a strong, and more attractive support structure for the Dome.

NAU's Dome was built and equipped for a total cost of only $8.1 million — unbelievably low in an era of $50 million plus stadiums and $10 million-plus stadium expansions. Moreover, the basic $6.6 million construction contract for the Dome itself was financed entirely without state tax funds. NAU's Dome is indeed a bargain for all Arizona's taxpaying citizens.



Dome rises from massive buttresses

Framework of Dome's roof nearly complete

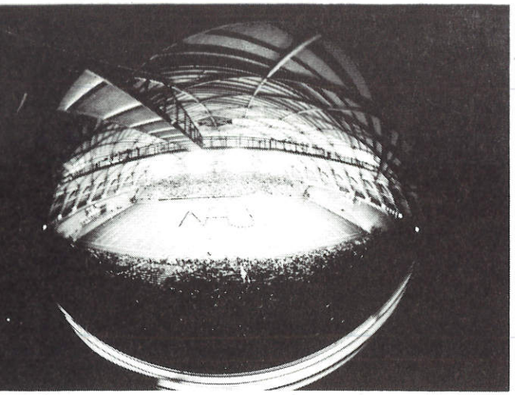


me of the Dome

AU-Center of Learning

Northern Arizona University is a fully-accredited, purpose university which emphasizes undergraduate ction and offers graduate programs for master's and ral degrees in a wide range of fields.

NAU's more than 13,000 students study on a 646-acre us at Flagstaff, a city of 35,000 on the 7,000-foot-high nino Plateau and a major gateway to the Grand Canyon. Arizona's highest point — the 12,661-foot San Francisco — are a few miles to the north, and the campus is unded by the largest continuous Ponderosa pine forest in



ome in action - fisheye lens view

the world. The University's nine colleges and professional schools include the only School of Forestry in the Southwest.

NAU is unique, too, in that it is located amid the largest concentration of Native Americans in the country, and enrolls more Native American students than any other public college or university in the nation.

The University offers many unique programs, such as the Allied Health Sciences and Legal Assistant programs in its College of Public Health and Environmental Service, the recreation management program in its College of Arts and Science, the arts organization management program in its College of Creative Arts, and hotel, motel and food service management program in the College of Business Administration.

NAU's faculty, headed by President J. Lawrence Walkup, numbers approximately 650 men and women, seventy-five percent of whom hold an earned doctoral degree.

Management of the Dome

NAU's Dome operates under the direction of a general manager with a permanent staff of nine persons. The general manager, in turn, functions under the jurisdiction of the University Dome Policy Committee, composed of key administrators, faculty members and students.

For full information regarding the Dome and its use, contact:

General Manager,
NAU Dome,
Box 15096,
Northern Arizona University,
Flagstaff, AZ 86011

The Dome enhances its surroundings

The Dome at a Glance

DIMENSIONS - Clear span: 502 feet; height above arena floor; 142 feet; covered area: 272,000 square feet (6.2 acres); arena area: 97,000 square feet (2.2 acres).

ACTIVITIES - Football, soccer, basketball, ice hockey, volleyball, handball-raquetball, track and field, student recreation, major entertainment, cultural and public service events; conventions, convocations and commencements, etc.

EQUIPMENT - Zip-up, roll-away football-soccer turf; portable hardwood basketball court and basketball backboards, portable SICO stage, built-in 200-by-85-foot ice rink with dashers, built-in pole vault and long jump pits, five-lane, one-fifth mile running track with six-lane, 100 meter straightaway; floor marked for basketball and badminton.

ACCESS - From intersection of Interstate Highways 40 and 17 to the west, from Lone Tree road to the east and south, and from the NAU campus to the north.

PARKING - Space for more than 4,000 vehicles in paved, lighted parking areas surrounding the Dome.

LIGHTING - Arena lighted by 164, 1,000-watt high pressure sodium lamps in eight banks, four on each side of arena.

SOUND, SCOREBOARDS - Public address system, and four electronic scoreboards, one at each end and each side of arena, controlled from Press Box. Dome designed for near-concert level accoustics.

CLIMATE CONTROL - Carrier "Air Handler" system ,with heating and fresh air piped into Dome through 19 ducts, which can maintain temperature of 68° F even in near-zero outside temperatures.

PRESS BOX - Capacity 45. Four broadcast-spotter booths. Full telephone hookups and electric conduits for radio-television equipment.