



RESEARCH IN REVIEW

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VACATION JOBS AND SPANISH RUINS

Six College Students Earned Expenses and Helped Uncover
New Details About the Apalachee Missions in a Summer Dig

What appeared to be a friendly call in the familiar Apalachee Indian tongue led Father Fray Manuel de Mendoza to the door of the Franciscan mission convent of San Pedro y San Pablo de Patali during the night of June 23, 1704.

When the friar opened the door a gunshot rang out in the darkness and he fell dead. Hostile Indians, most of them from the nation in present-day Georgia that the Spaniards called Apalachicolas, swarmed over the mission, captured Apalachee Indians, burned the convent and then hurriedly left.

Two days later a reconnoitering party from the Spanish presidio at San Luis de Talamali mission, some ten miles away in present-day Tallahassee, "found the convent burned, all fallen in," as one soldier put it, and the half-burned body of Mendoza in the ruins, his hands still clutching a partly melted crucifix.

The recovery of the body of Father Mendoza was the last recorded event at the convent until an archaeological crew spent eight weeks in the summer of 1971 digging into the mission ruins. Even the location was a mystery until recently, for a battle near Patali two weeks after

Mendoza's murder brought down the curtain on an Apalachee mission system once numbering eighteen doctrinas among 8,000 Indians. After Patali the Spaniards vacated and burned remaining missions, the Indians went away and only abandoned "old fields" marked a once rich agricultural province.

Six students, the crew members in a dig directed by archaeologist B. Calvin Jones of the Florida Division of Archives, History and Records Management, not only earned \$14 a day to help with growing college expenses, but also learned archaeological techniques and helped bring to light valuable new knowledge about the Apalachee mission period (1633-1704).

For Donna Fichtner of St. Petersburg, a sophomore anthropology major at Florida State University, the greatest thrill came in the discovery of a corner post of what appears to have been the convent. Eight feet long, the four-inch square pine post lay just, apparently, as it had fallen when the building caved in. Miss Fichtner personally discovered the posthole where it stood.

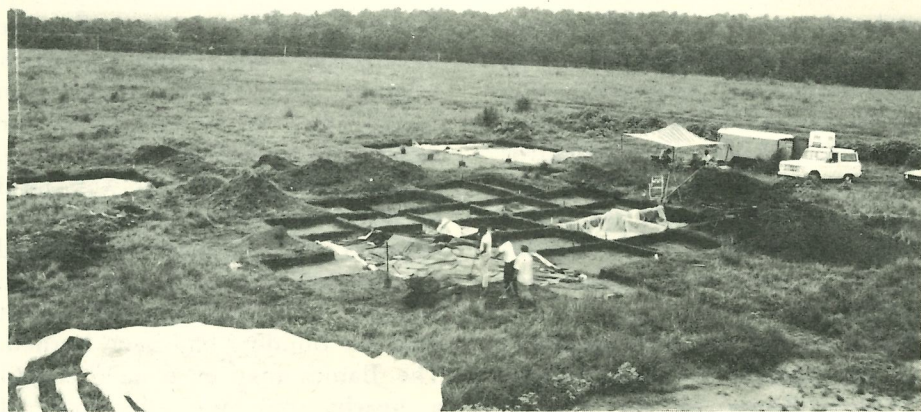
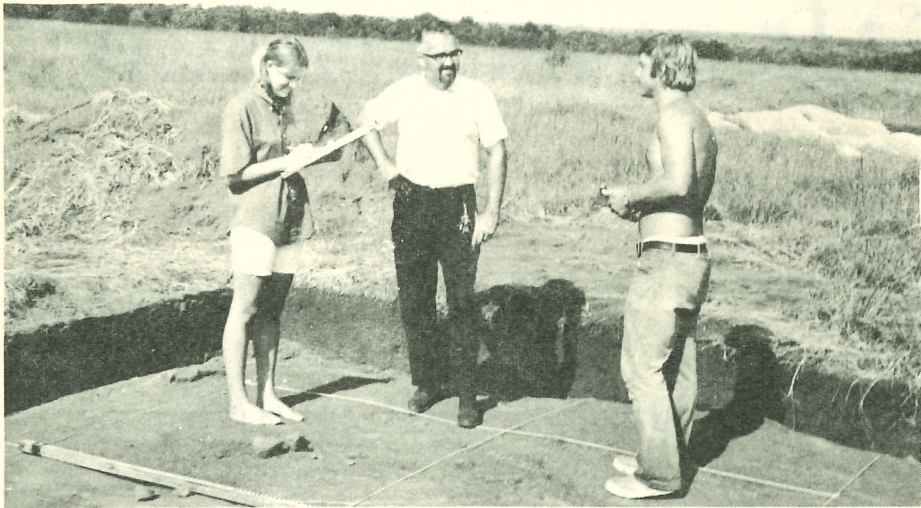
The building was about 20 by 15 feet, erected on a baked clay floor which was found intact 10

inches underground. Its walls were of "wattle and daub" (narrow wooden cross pieces had been lashed to the studs and the intervening spaces filled with clay). Hand-wrought iron nails were used to fasten the wall studs and rafters together. No evidence was found of the fatal doorway but charred remains indicated beyond doubt that the building had been burned. The flames may even have caught a nearby oak with its load of acorns, for charred remnants of these were found.

Some 40 feet behind the convent was found the floor of what evidently was a cookhouse, about 15 feet square, with a litter including discarded pots, broken olive jars and a three-tined fork around it.

Dan Cring of Jacksonville, a Florida State senior majoring in anthropology, noted that, unlike the convent, there was no evidence of wall fall and so, he said, it may be assumed that the walls had been built of thatch or similar less permanent materials.

To John Pennman of Jacksonville, a graduate student in anthropology, every day of the eight-week dig held exciting new discoveries. He valued the experience particularly for the training it



Top, student Donna Fichtner kept records and student John C. Killian helped as archaeologist B. Calvin Jones directed a dig to the baked clay floor of Patali mission buildings. After the convent (top center of middle picture) and cookhouse (left) were dug, the crew dug the cemetery (foreground). Bottom, some of the graves (such as these two) had been dug through the floor of an old church believed to have been destroyed in 1647.

provided in historical archaeology.

In addition to the three FSU anthropology students, the summer crew was composed of John Stewart, Jr, of Lakeland, a second year law student at FSU; John C. Killian of Amherst, Mass., a senior in biology at Cornell University; and Dean R. Smith of Baton Rouge, a junior in oceanography at Louisiana State University. In addition to her pay Miss Fichtner earned credit in an anthropology course by keeping maps and records.

The crew found no evidence of the furious battle that had occurred on a plain a mile away nor of the terrible aftermath of this battle. After defeating the Spaniards and their Indian allies the Apalachicolas took 16 prisoners to the Patali village plaza and burned them to death tied to stations of the cross.

The events that preceded and followed Father Mendoza's death are documented in historical records brought together 20 years ago by the late Mark Boyd of Tallahassee. At that time, Hale Smith, chairman of the Anthropology Department at FSU, and John W. Griffin, now director of the St. Augustine Historical Commission, excavated what since has been identified as the mission of La Concepción de Ayubale and San Luis de Talamali, respectively. The three brought their report of the end of the mission period together in *Here They Once Stood* (Univ. Fla. Press, 1951).

The missions were visited in 1674 by Bishop Gabriel Calderón of Cuba, who reported that the province of Apalachee (present Leon and Jefferson counties) served as granary for the Florida capital of St. Augustine. Soon after this the Apalachee Indians were caught up in rivalry between the English in South Carolina and the Spanish in Florida.

The English settled Charlestown in 1670 and soon their traders had pushed westward to the Chatta-

hoochee River (home of the Apalachicolas or Lower Creeks) and farther. After the French (who became Spanish allies) gained control of the Bioloxi-Mobile coast, Spanish Florida increasingly became obnoxious to the Carolinians. With the outbreak of Queen Anne's War an army under Carolina Gov. James Moore captured and burned St. Augustine in 1702 but was unable, even after a month's siege, to capture the fort.

On January 25, 1704, Colonel Moore (no longer governor) led an army of fifty Carolinians and 1500 Lower Creeks against the mission village of Ayubale in present Jefferson County. He defeated the force there in a nine-hour battle and afterward a force sent from the headquarters blockhouse at San Luis. More than 200 of the Spanish and Apalachees were killed or captured and some of latter were burned at the stake. After destroying several other villages Moore left with several hundred Indian prisoners, some of them to become slaves.

When the Apalachicolas returned in June 1704, in fewer numbers, they were joined by numerous Apalachee deserters. Following the murder of Father Mendoza on June 23, the raiders seized the entire population of nearby San Juan de Aspalaga, then encamped in the deserted village of Patali, now joined by a few Carolinians. On the night of July 3 forty Spanish soldiers and 200 Apalachee Indians set out from San Luis and early in the morning of July 4 battled the English, Apalachicolas and turncoat Apalachee near Patali. Many of the Apalachee on the Spanish side fled the field. Half of the Spanish force was captured and on a few of these, along with several of their Indian allies, was inflicted a frightful retribution.

One Spanish witness reported the torture of a soldier, Balthazar Francisco, a native of the Canary Islands:

Immediately following his capture, they cut out his tongue and eyes, cut off his ears, scalped him and put a crown on him, which in Indian style is placed on the Indian warriors when they dance, and which they call *tascayas*. And they tied him to another cross, and slashed him all over and placed burning splinters in the wounds and as soon as they set him afire, they mocked and insulted him, laughing on hearing what the said Balthazar told the pagans in the Spanish and Apalachian languages, while he called on the Most Holy Virgin to help him, for she would carry him to God with much pleasure from knowing that he would go to enjoy his holy glory

Jones says the site of the excavations, a hilltop on Buck Lake Road, perfectly fits the distances between Patali and other missions whose sites are known, as reported by Bishop Calderón. In 1969 Jones drilled several test holes there into the clay floor of what subsequently was identified as the mission church.

Residential development of this area began meanwhile and bulldozers destroyed part of this church site in March, 1971, before Jones could put a digging crew in

Apparently just as it had fallen when the convent caved in on Father Mendoza in 1704, students Killian and Fichtner found this corner post.



the field. Enough was found, however, to indicate that this building of about thirty-five by seventy feet probably occupied the northwest corner of a rectangle on whose southwest corner was the convent. The structures were about 150 feet apart. Within the rectangle was the village plaza, with a cemetery.

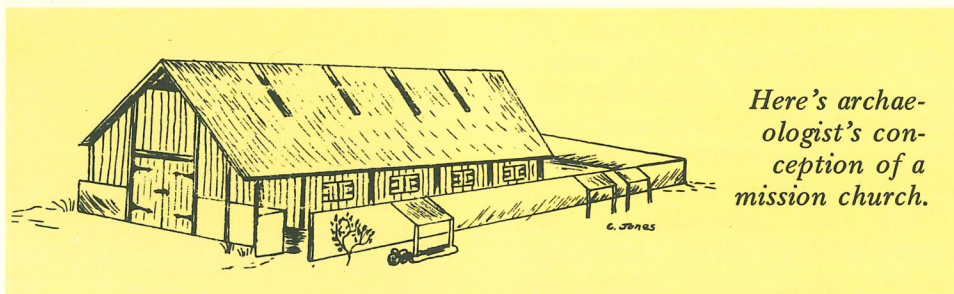
It would appear that the floors of the church, convent and cook-house found in early stages of the dig were those of buildings there when the mission was destroyed in 1704. As the dig progressed, said Jones, it became evident that these buildings had been superimposed on what remained of an earlier Spanish church and convent. He thinks these may have been destroyed in 1647 when there was an Indian revolt throughout Apalachee resulting in the death of three friars and the military commander and in the destruction of all of the seven churches and convents.

The discoveries during the late summer led Jones to continue the dig during the fall (only Pennman, among the original crew, remained for the fall excavations). These discoveries showed what clearly was a former church floor several inches below the level of more recent buildings, with ashes indicating it had been burned. The church was thirty by sixty feet. In its daub floor were found the socket holes for a front door and at the other end there was a raised area, evidently the altar, also with socket holes for a door and flanked by two small fonts, with a branched floor drain leading from them to the outside of the building.

This earlier church floor was discovered when the crew explored the cemetery in the mission plaza, between the more recent convent and church. Sixty-two graves were found, some dug through the old church floor. "This seems understandable," said Jones, "in light of it having been the original church

location and therefore having probably been revered as 'Holy Ground.' "

The cemetery had, in fact, been laid out in a rectangle roughly coinciding with the lines of the old church, although it covered a larger area, thirty by sixty feet. One puzzling feature was that the cemetery was apparently covered over by a roof or arbor, supported by heavy timbers. The cemetery was bordered by immense posts, six to twelve inches thick, which had been placed in holes four to six feet deep. The earth had been cut slant-wise from the outside of the postholes, evidently to slide the posts into place and pry them into an upright position. The entire cemetery was divided by other posts into forty-eight ten-



Here's archaeologist's conception of a mission church.

foot squares, and there was evidence that this grid had been compartmentalized by wattle and daub walls, possibly for clan or family burial plots, as well as having been covered over.

Were the giant posts of this burial ground, eight along each side and six along each end, the uprights used in the torture of prisoners? There's no way of knowing but Jones said the posts had been burned. Of equal interest was the discovery of aboriginal ceramic types indicating occupancy of the village, at least part of the time, by allied non-Apalachee Indians.

Three years ago the Archives and History Division's Bureau of Historic Sites and Properties, under the direction of Ross Morrell (an anthropology research asso-

ciate at FSU), began a systematic program of locating and excavating the unexplored Apalachee mission sites. All but a few of the onetime eighteen sites have been located.

Morrell and Jones extensively dug the already discovered, and partially destroyed, site of San Juan de Aspalaga mission in 1968.

Subsequently, the construction of Interstate 10 through Leon and Jefferson counties uncovered other sites. San Cosmo y San Damian de Escambe, only a Spanish league from San Luis, was extensively excavated in 1970, producing many Spanish metal artifacts. The most interesting discovery was a cemetery with 143 graves.

Likely to become the most fruitful site is that of San Lorenzo de Ivitichuco, the easternmost of

the Apalachee missions. Jones discovered this in 1968 near the community of Lamont. In a wooded and relatively untouched area, the village once had the largest population of any mission village, about 2500. A town of the same name was the first Apalachee town visited by DeSoto in 1539.

The Patali site is on land that until recently was open agricultural land, used in recent times for pastures. Practically the entire mission complex lies today in the front yard of the home which State Comptroller Fred Dickinson has been building. He graciously allowed the archaeologists to dig up the site but there will be no way of permanently preserving it.

WHERE DO THE FACULTY LIVE?

By Morton Winsberg
Associate Professor of Geography

To a geographer there is no more important model of the world than a map. He may have to draw many and, consequently, he is eager to utilize any device promising to facilitate and make more economical his cartographic analysis.

The computer has proven to be of enormous value to cartographic analysis, and several computer mapping programs are available. The most flexible, easiest to use and most economical employs the line printer and though the final results are not cartographic masterpieces they are invaluable for cartographic analysis.

The FSU Computing Center, through the efforts of Raymond Soller, has made operational SYMAP, a program developed at Harvard University. Simultaneously the author of this article has

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STANLEY MARSHALL, President
ROBERT M. JOHNSON, Dean
CLIFTON PAISLEY, Editor

Second-class postage
paid at Tallahassee

introduced in the Department of Geography a course in Computer Graphics.

The four maps accompanying this article illustrate use of the contour map, one of three types generated in this computer program. The same type is used at the University of California-Riverside in the Statewide Air Pollution Research Center, which generates as many as ten maps daily showing levels of air pollution over Los Angeles. The Florida Geological Survey is experimenting with computer contour maps to generate preliminary water table maps.

The maps in this issue of *Research in Review* showing where faculty live in the Tallahassee metropolitan area, represent a cartographic theme of interest to FSU personnel as well as serving to illustrate computer mapping.

I first plotted location of faculty on a master map, then gridded the map into 256 equal area units, each of them representing 2000 feet square. The number of faculty, by academic rank, was counted for each unit. Then a computer map was digitized and 256 data points, representing the center for each unit, were located. Since digitizing was done by hand, the time consumed in preparing the base map was about twelve hours, including keypunching, but electromechanical digitizing probably can cut the time. The finished maps can be completed economically—approximately \$4 each in computer time for the four used in this article. SYMAP maps also can be easily and economically updated; instead of redrawing a map manually, only data cards have to be replaced.

Once the faculty distribution maps were prepared, geographical curiosity stimulated me to make some simple interpretations of the raw data. I found, to begin with, that FSU faculty live within a confined area of metropolitan Tallahassee—an average of seventy-one per cent of the statistical units used for the computer map had faculty within them, with little variation between professional rank.

When differences associated with rank were examined it was found that assistant professors and professors tend to concentrate more than associate professors and considerably more than instructors.

The reason for the diffused distribution of the associate professors is difficult to ascertain. However, it possibly reflects the intermediate position of the rank. Some associate professors continue to live in areas that are primarily associated with the rank they previously held, while others concentrate in areas with high densities of professors, perhaps in anticipation of promotion.

A glance at the maps confirms the agglomeration of assistant professors and professors. Actually, forty-four per cent of all professors live in areas designated as the most dense category, compared to twenty-seven per cent of the assistant professors and only sixteen per cent of the associate professors.

To facilitate geographical interpretation, Tallahassee was divided into forty-two regions based on subdivisions, and in the case of the inner city, four large divisions. These inner city divisions were

drawn with Monroe Street as the north-south axis and Tennessee Street-Mahan Drive as the east-west axis. Eighty-eight per cent of the 1194 faculty members plotted on the base map were found to live within seventeen subdivisions and the inner city.

Several subdivisions are clearly identifiable as being associated with one faculty rank. Professors

were overwhelmingly dominant in Durwood, followed by Woodland Drives (Country Club), the Live Oak Plantation area, and Betton Hills. Associate professors grouped in Holly Hills and Parkside. Subdivisions and sections of the inner city with large concentrations of assistant professors are Town 'N Country, Brandt Hills, Mahan Circle, the SW and NW quadrants of

the inner city and University Heights. Waverly Hills and San Luis Ridge have high concentrations of both associate professors and professors, with relatively small numbers of assistant professors. Instructors are concentrated close to the university in the apartment complexes and in Alumni Village.

There are several parts of the city with a relative distribution of faculty rank approximating that of the university. The Lakeshore area to the east of Lake Jackson most closely fits the University distribution. Other areas which fit closely are the NE and SE quadrants of the inner city, Indianhead Acres, Forest Heights, Piedmont Park, and probably to the surprise of some, Killlearn Estates.

GRANTS AND CONTRACTS

(Received or renewed between July 1 and September 30, 1971)

By U. S. Agencies

AGENCY FOR INTERNATIONAL DEVELOPMENT: \$65,000, renewed 16 months, R. Morgan (*Ed. Res.*), analysis of applications of technology in education, Korea; \$77,000, renewed 9 months, R. Morgan (*Ed. Res.*), ed. systems support, Latin America.

U. S. OFFICE OF EDUCATION: \$14,992, 1 year, N. Dodl (*El. Ed.*), FSU teacher centers project; \$17,646, 14 months, R. Morgan (*Ed. Res.*) tr. program, instr. development multipliers; \$42,500, renewed 1 year, R. Pavalko (*Sociol.*), sociol. of ed.; \$262,050, renewed 15 months, L. Schendel, J. Foshee and G. Crawford (*Habil. Sci.*), training pro. personnel, areas of speech, hearing, vision and mental retardation; \$149,283, renewed 15 months, L. Schwartz (*Habil. Sci.*), a training model & evaluation design, special education; \$94,290, renewed 17 months, H. Goldstein (*Libr. Sci.*), fellowships for ed., librarianship; \$30,000, 1 year, R. Johnson and T. Northcutt (*Grad. Res. Off.*), planning implementation, statewide co-op. ed. programs; \$21,721, renewed 1 year, L. Schwartz (*Habil. Sci.*), special institute, leadership personnel in special ed.; \$6,038, 9 months, R. Spencer (*Ed. Res.*), application of a hierarchy to sequence

instruct. program; \$21,400, renewed 15 months, K. W. Hunt (*Eng.*), grad. training, res. in lang. development; \$50,000, 1 year, J. G. Foshee (*Habil. Sci.*), revision of master's degree program.

DEPARTMENT OF THE INTERIOR: \$69,910 3 years, G. Choppin, (*Chem.*), effects of water structure, reverse osmosis membranes.

DEPARTMENT OF LABOR: \$223,991, 21 months, J. Hedl (*CAI Center*), upgrad-

ing workers via computer assisted instruction; \$7,770, 1 year, G. Terry (*Sociol.*), female employment and fertility.

LAW ENFORCEMENT ASSIST. ADMINISTRATION: \$178,786, 2 years, G. Waldo (*Criminol.*), work release: an evaluation of two state programs; \$8,993, 1 year, E. Czajkoski (*Criminol.*), criminal justice training games.

NAT. AERO. & SPACE ADMIN.: \$10,000, renewed 1 year, S. Hess (*Mete-*

orol.), participation in development, 1975 Mars lander; \$25,000, renewed 11 months, S. Blumsack and P. Gierasch (*GFDI*), numerical investigation, Martian atmospheric circulation; \$25,000, renewed 1 year, H. Gaffron (*Chem.*), photobiology and photochemistry.

NATIONAL ENDOWMENT FOR THE HUMANITIES: \$20,000, 1 year, R. Spivey and R. Allen (*Religion*), preparation of media, learning about religion in public education.

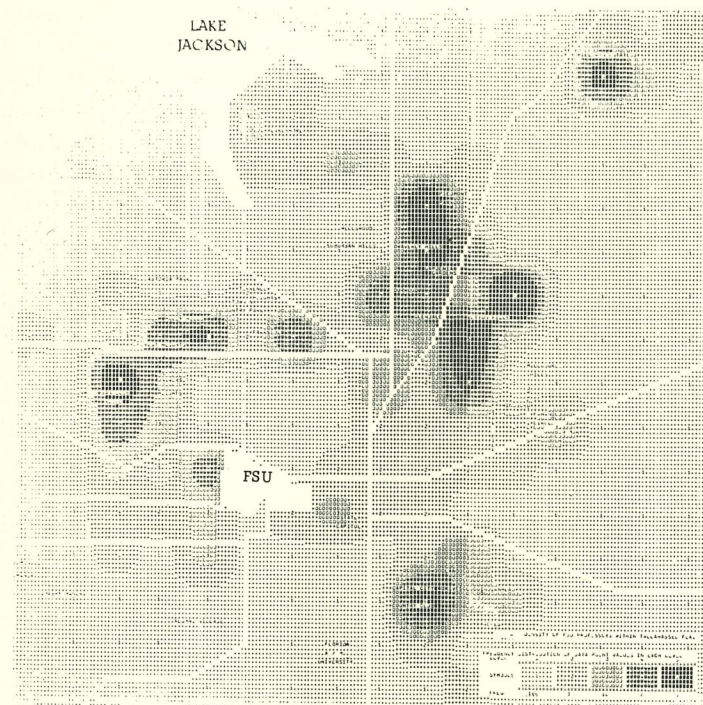
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION: \$33,096, 1 year, J. Petersen (*Meteorol.*), analysis of surface rainfall and wind, 1971 cumulus seeding program.

NATIONAL SCIENCE FOUNDATION: \$24,800, 18 months, C. Hunter (*Math.*), applied mathematics; \$319,700, renewed 1 year, E. Burkman (*ISCS*), intermediate sci. curriculum study; \$10,600, 9 months, E. Burkman (*Sci. Ed.*), conferences on multi-year multi-disciplinary high school sci. program; \$45,000, 30 months, D. Kenshalo (*Psychol.*), behavioral and electrophysiological investigations of temperature sensitivity; \$4,900, 18 months, F. H. Cramer (*Geology*), silurian palynomorphs of Kentucky and Tennessee; \$36,000, 18 months, W. F. Herrkind (*Bio. Sci.*), emigrations of spiny lobsters.

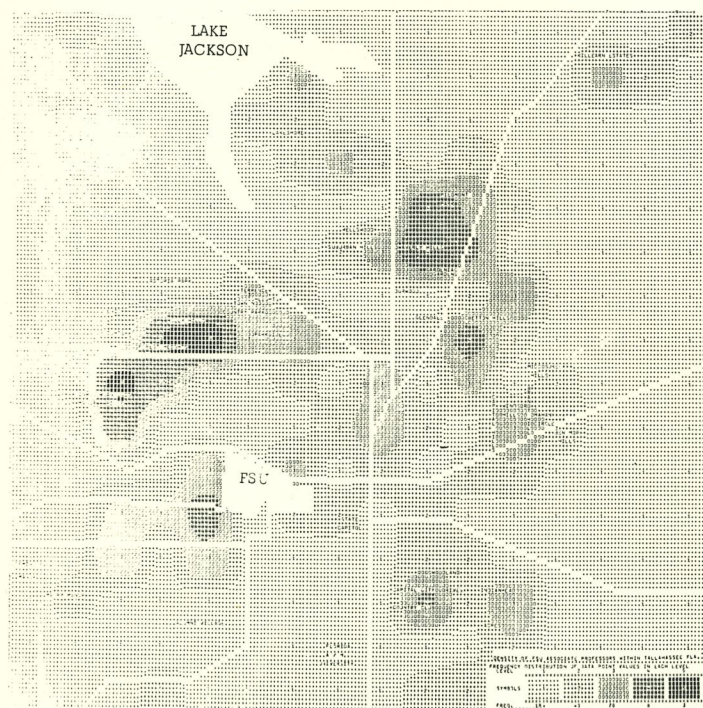
OFFICE OF NAVAL RESEARCH: \$80,000, 19 months, R. Bradley (*Statist.*), quality evaluation & naval probabilistic applications; \$56,000, renewed 2 years, D. Hansen (*CAI Center*), computer-assisted instruction.

PUBLIC HEALTH SERVICE: \$30,082, 1 year, J. Fisher (*IMB*), control of xanthine dehydrogenase levels; \$93,753, renewed 1 year, J. Grosslight and D. Hansen (*Psychol.* and *CAI Center*), school psychol. training program; \$102,541, renewed 1 year, E. McClure (*Urban & Reg. Plan.*), comprehensive health planning speciality in urban & regional planning; \$34,591, renewed 1 year, E. Hincker (*Sch. of Nursing*), professional nurse traineeship program—long term; \$88,031, renewed 1 year, L. Biedler (*Bio. Sci.*), sensory biology res. center; \$7,500, renewed 1 year, E. Frieden (*Chem.*), fellowship for R. H. Broyles; \$88,655, renewed 1 year, E. Frieden (*Chem.*), biochemistry; \$24,657, renewed 1 year, R. J. Light (*Chem.*), metabolism, structure and function of lipids; \$12,272, renewed 1 year, D. Tucker (*Bio. Sci.*), neural responses and odor properties.

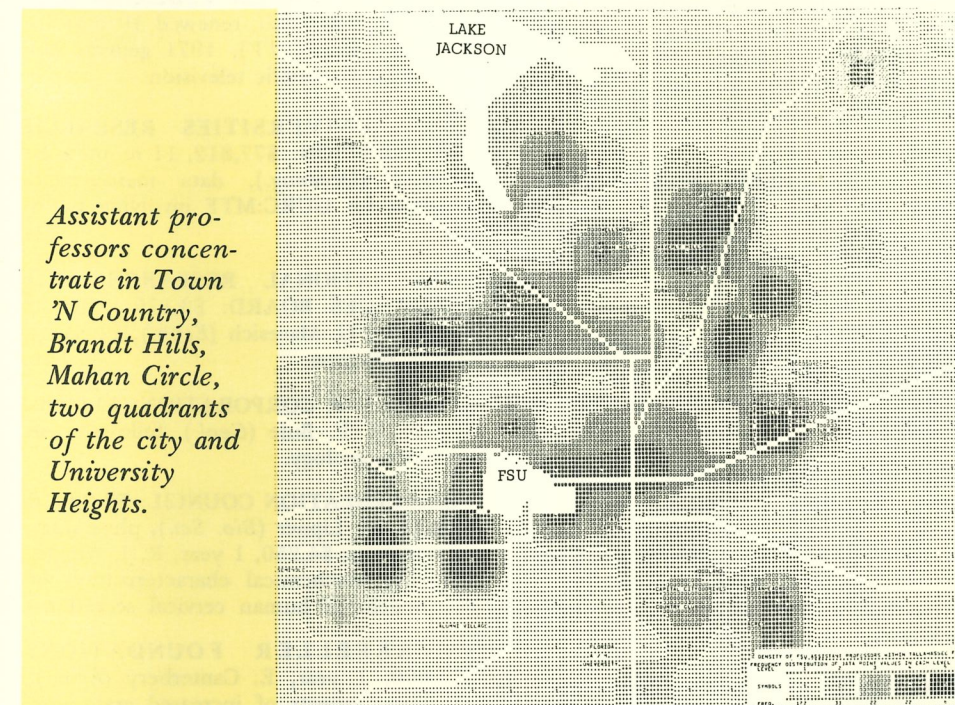
REHABILITATION SERVICES ADMIN./DHEW: \$84,112, 1 year, M. Tucker (*Soc. Work*), evaluation of state plans in



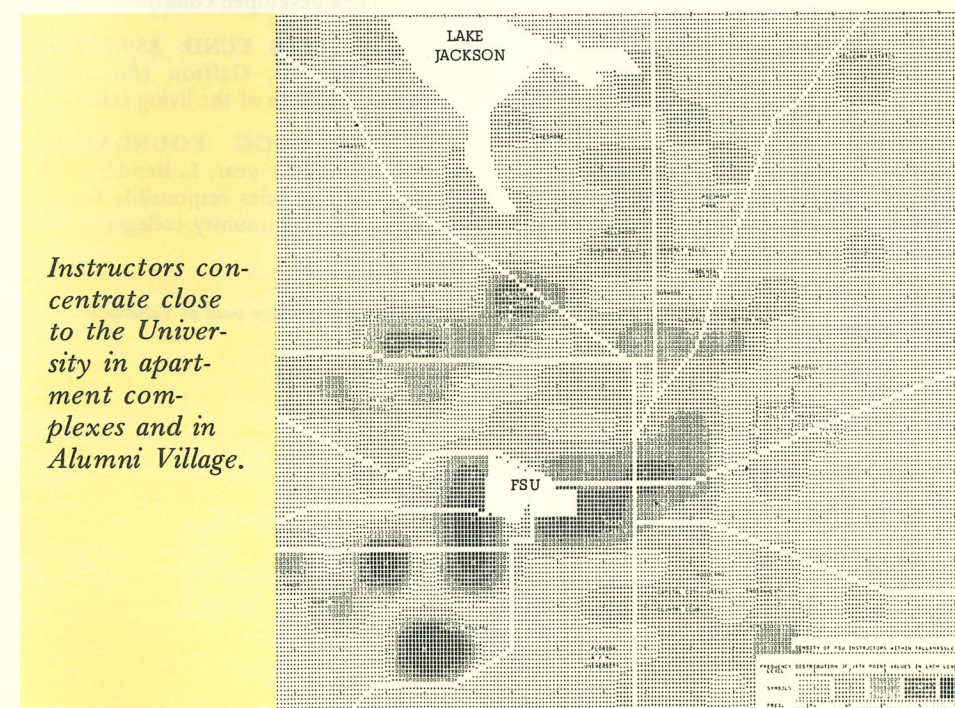
Professors dominate in Durwood, Country Club, Live Oak Plantation area, Betton Hills, with many in Waverly Hills and San Luis Ridge.



Associate professors like Holly Hills and Parkside and share Waverly Hills and San Luis Ridge with professors.



Assistant professors concentrate in Town 'N Country, Brandt Hills, Mahan Circle, two quadrants of the city and University Heights.



Instructors concentrate close to the University in apartment complexes and in Alumni Village.

developmental disabilities; \$134,351, renewed 1 year, F. Echols (*Habil. Sci.*), teaching grant & traineeships, rehabilitation counseling; \$11,772, renewed 1 year, F. Clay (*Soc. Work*), teaching grant and traineeships, social work.

SOCIAL & REHABILITATION SERVICES: \$14,200, renewed 1 year, L. Schendel (*Habil. Sci.*), traineeships in speech pathology & audiology.

By State Agencies

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES: \$6,675, 1 year, W. Mazek (*Econ.*), fellowship for Jeffrey C. Donahue.

BOARD OF REGENTS: \$27,764, 1 year, J. Sundeen and B. Massialas (*Soc. Studies Ed.*), family planning and population studies institute, summer 1971; \$14,054, 6 months, L. Hafner (*El. Ed.*), development of teacher training procedures & materials; \$21,013, 11 months, R. Ingham (*Adult Ed.*), a computer-managed course for disadvantaged parents; \$25,000, 1 year, D. B. Hoffman (*Psychol.*), Wadesboro community tutorial project; \$21,276, 11 months, E. McClure (*Urban & Reg. Plan.*), short course program in housing, renewal, and social service.

DEPARTMENT OF EDUCATION: \$6,195, 1 year, S. Hand (*Cont. Ed.*), summer workshop, home econ. ed.; \$10,920, renewed 1 year, R. Gallington (*Voc. Ed.*), continuation of part-time research position, industrial education; \$9,974, renewed 1 year, R. Gallington (*Voc. Ed.*), implications of research for industrial teachers; \$26,932, renewed 1 year, R. Gallington (*Voc. Ed.*), off-campus inservice individual instruction & coursework; \$26,685, renewed 1 year, A. Ridley (*Home Econ. Ed.*), development & evaluation, consumer ed. teach. materials; \$26,978, 1 year, G. Aker (*Adult Ed.*), evaluation of adult basic ed. in Florida; \$74,984, renewed 1 year, J. Heggen

(*Indust. Arts Ed.*), project LOOM: K-6 elementary program; \$13,160, 1 year, R. Gallington (*Voc. Ed.*), upgrading & prep. for trade & indust. ed. teachers; \$8,912, 1 year, J. Geil (*Indust. Arts Ed.*), summer 1971 workshops; \$22,477, renewed 1 year, M. Litton (*Higher Ed.*), middle manpower utilization; \$33,335, 1 year, R. H. P. Kraft (*Ed. Admin.*), training voc. tech. ed. planning specialists; \$5,168, 1 year, H. Glenn (*Home Econ.*), support for teacher education program; \$9,455, renewed 1 year, I. R. Jahns (*Adult Ed.*), leadership development for public school adult education through internship training; \$7,857, renewed 1 year, H. Hinely and R. Gallington (*Indust. Arts and Voc. Ed.*), travel expenses, attendance professional meetings, conferences, etc.

GAME AND FRESH WATER FISH COMM: \$57,845, 3 years, R. Harriss (*Marine Facilities*), studies of water quality & biological productivity of lakes Talquin and Jackson.

GOVERNOR'S COUNCIL ON CRIMINAL JUSTICE: \$21,500, 1 year, T. A. Edmonds (*Law*), prosecutor internship program.

DEPARTMENT OF HEALTH & REHAB. SERV.: \$12,400, 1 year, J. Grosslight (*Psychol.*), contracts for services of field training supervisors for 1971-72; \$19,600, renewed 1 year, B. Scher (*Soc. Welfare*), purchase of services of two field training supervisors.

DEPARTMENT OF TRANSPORTATION: \$14,980, 3 months, E. McClure (*Urban & Reg. Plan.*), public transportation and the elderly in Florida.

By Other Agencies

ALFRED P. SLOAN FOUND.: \$20,400, 2 years, J. Saltiel (*Chem.*), Alfred P. Sloan research fellowship.

AMERICAN CANCER SOCIETY: \$36,300, renewed 1 year, R. Winzler (*Chem.*), the biosynthesis of glycoproteins by neoplastic tissues.

AMERICAN CHEMICAL SOCIETY: \$7,500, 3 years, S. Safron (*Chem.*), molecular beam studies: reaction of alkali ions with alkyl halides.

BROWN UNIVERSITY: \$5,310, 3 months, R. Weller (*Sociol.*), immigration and urban growth in Latin America.

CORPORATION FOR PUBLIC BROADCASTING: \$17,500, renewed 10 months, E. Herp, (*WFSU-TV*), 1971 general support grant for public television.

GULF UNIVERSITIES RESEARCH CORPORATION: \$77,812, 11 months, R. Menzies (*Oceanog.*), data management program for GURC:MTF involving biology.

INTERNATIONAL RESEARCH AND EXCHANGES BOARD: \$3,175, renewed 6 months, G. Macesich (*Econ.*), exchange scholar program.

J. M. HUBER CORPORATION: \$13,200, 1 year, B. F. Buie (*Geol.*), fellowship in economic geology.

THE POPULATION COUNCIL: \$7,200, 6 months, H. Lipner (*Bio. Sci.*), physiology of ovulation; \$4,250, 1 year, R. J. Winzler (*Chem.*), biochemical characterization of the mulcin of human cervical secretions.

ROCKEFELLER FOUNDATION: \$15,000, 1 year, E. Canterbury (*Econ.*), economic aspects of increased grain production in less developed countries.

SAMUEL S. FELS FUND: \$39,777, renewed 1 year, H. Gaffron (*Bio. Sci.*), growth and function of the living cell.

W. K. KELLOGG FOUNDATION: \$80,500, renewed 1 year, L. Bender (*Higher Ed.*), state agencies responsible for the development of community colleges.

Second-class postage paid at Tallahassee



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Florida State University
Tallahassee, Fla. 32306