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5-8-26-81	Chinese Course (C. E.)	4					4		Harvey Del Palmer
6-8-26-81	self-counseling (C.E)	4					4		Harvey (Deb Palmer)
7-8-26-81	mest course (E.E)	4					4		Harvey (Del Palmer)
8-8-26-81	Kinderseule.	4					1		Larrie (Dr. alexander)
9-8-26-81	mule deer (Fred Bryant)	4	4	7					Duncan (ag. list, Waco)
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DATE  20-8-28-81  21-8-28-81  22-8-28-81	Stories and Cutlines  Mussum fors A. Brown Strain (Mesach)  Classes	I V Locals	Reg. Dailie	Reg. Weekl	50 M's	Reg. Radio	X-List	Adj. Count	Hometowner	S. VSd Chery	Explanations  Sl (machanal Boss  yl (Palmer)

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UNIVERSITY NEWS AND PUBLICATIONS/P.O. BOX 4650/TEXAS TECH UNIVERSITY/LUBBOCK, TEXAS 79409/(806) 742-2136 CONTACT: Duncan McDowell

LUBBOCK--The red imported fire ant, a quarter-of-an-inch long species native to South America, known for its powerful sting, is spreading in the United States, a Texas Tech University entomologist said.

Professor Oscar F. Francke of Texas Tech's biological sciences and entomology faculties said the insect is now found in nine southern states including Texas and is still extending its domain.

Outdoorsmen who have been stung by the pest want it eradicated. So do farmers, who note that the huge mounds built by the red imported fire ants damage equipment and impede harvesting, Francke said.

Red imported fire ants are prodigious builders, Francke said.

Their mounds are 1½ feet high, with diameters of up to 3 feet, and an underground sector as far as 8 feet deep. When necessary the red imported fire ants will burrow 20-25 feet to reach the water table in certain areas.

This has been proved by core samples from newly drilled water wells, he said.

Francke and other Texas Tech researchers are studying the imported red fire ant to find ways to eliminate it. Francke, for instance, is testing chemical agents for killing imported fire ant colonies. Other Texas Tech scientists are looking for natural enemies that will destroy the pest. So far, none has been found, he said.

Entomologists do not know how far west the red imported fire ants can go and still survive arid conditions or how far north they can go and survive the cold winters. Francke and his associates are investigating the temperature and humidity conditions under which red imported fire ants can survive so that they can accurately predict how far the insect will spread.

#### Fire ants/add one

The Texas Department of Agriculture needs this information to know how far north and west quarantine measures against red imported fire ants should be extended, he said.

"Can they go as far as the dry areas of far west Texas or Arizona?" Francke asked. "Will they survive in the High Plains of Texas? We do not know. At present no red imported fire ants have been sighted on the High Plains, probably because of the cold winters."

Red imported fire ants are now found south of a shifting line running west from South Carolina to the Red River between Texas and Oklahoma, where average January temperatures are 32 degrees Fahrenheit or higher. The red imported fire ants' western flank is a line running from Dallas to Bandera, just west of San Antonio, Francke said.

By staying inside the mounds fire ants are able to survive outside temperature and humidity extremes that might be lethal, the Texas Tech scientist said. When ground temperatures rise, the ants simply go deeper below the ground. When day temperatures in the summer are too high, the ants come out at night for foraging. In winter, they venture forth during the warmest time of the day.

A big market for chemicals that will kill red imported fire ants exists, Francke said.

A highly effective chemical used against fire ants in the 1960s called Myrex was later banned by the government, he said. Its characteristics, however, are important to investigators like Francke who are developing new, acceptable insecticides to combat fire ants.

Myrex was broadcast aerially, so that large tracts of land could be treated, he said. Because fire ants like greasy foods, corn grits were treated with soybean oil containing a pesticide. The grits act like a sponge to the oil-pesticide mixture.

### Fire ants/add two

The fire ants would pick up the oil-treated corn grits and take them back to the nest, where, it was hoped, the queen ant and other ants would eat them and be killed. A slow-acting pesticide is much preferred over a fast-acting one so that the ants will have time to take the bait into the nest, Francke said.

Another important consideration in developing pesticides is to find something that will cover large areas economically, he said.

The Texas Department of Agriculture has been supporting Texas Tech's work with red imported fire ants with grants of \$100,000 per year. Five faculty members, five graduate students, one technician and several part-time undergraduate student assistants are employed at any given time in the fire ant research, now in its fourth year. Dr. Darryl P. Sanders, chairman of Texas Tech's Entomology Department, is principal investigator in the red imported fire ant project.

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UNIVERSITY NEWS AND PUBLICATIONS/P.O. BOX 4650/TEXAS TECH UNIVERSITY/LUBBOCK, TEXAS 79409/(806) 742-2136 CONTACT: Cheryl Duke

LUBBOCK--A funny thing happened on the way to the Moon; the stars got in the way.

A new planetarium show based on this theme opens Sept. 1 (Tuesday) at the Moody Planetarium of The Museum of Texas Tech University. The show, "Starbound," explores man's search for the stars from the 17th century through the 1950s, '60s, and '70s and peers into the future of astronomy.

Shows will be at 2:30 p.m. weekdays; 7:30 p.m. Thursdays; and 2 p.m. and 3:30 p.m. Saturdays and Sundays. Admission is \$1 for adults and 50 cents for children. The show will be at the planetarium through Nov. 23.

"Starbound" takes the audience back to the year 1610 to look at the skies over Padua, Italy, with Galileo. He discovers Jupiter's four largest moons and confirms to the world that the earth is not the center of the universe. The discovery gives birth to the age of technology and the intellectual and scientific revolution.

which Galileo studied. The winter sky revealed the star patterns of Orion, the might hunter; Orion's dog; Taurus the bull; the Seven Sisters; Auriga, the charioteer; the bright star Capella; and the Twins or Gemini.

During the spring, stars appearing included the Little Bear and the Great Bear, to be called the Little and Big Dipper by later generations; Arcturus, the bear chaser; Leo the lion; and Spico, the precious gem of Virgo.

Summer skies followed with the Swan Cygnus or the Northern Cross; the Vulture of Heaven, now called Lyra the harp; Vega and Denab; Aquila the Eagle, Hercules, Scorpius, fiery Antares; and Sagittarius, the centaur-archer.

### Flanetarium/add one

Galileo began to see Pegasus, Cassiopiea, Cepheus, Andromeda and Perseus as fall came.

From the 17th century, the show jumps 345 years to view the universe of the 1950s, an age when most astronomers thought all the questions about the stars had been answered. It was common knowledge that earth's sun was actually a star and that stars were basically similar. Telescopic photos revealed that there were far more stars than anyone had imagined before the dawn of the 20th century.

Some forbidden questions about other stars with families of planets and life on those planets remained untouched during the decade.

In the 1960s as man attempted to detect solar-produced x-rays from the Moon, the stars again got in the way and man discovered that some stars were brilliant and had x-ray power. The doors were opened for a new astronomy.

The last segments of the planetarium show explore the new astronomy as part of the technology explosion which resulted from man's trip to the moon.

Astronomers designed exotic star-observing spacecraft which enable them to view the universe in a brand new way. The show explores the new star patterns of each season through the x-ray eyes of the spacecraft. New discoveries include black holes, cosmic bursters and exploding stars of supernova.

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CONTACT: Harvey Landers

LUBBOCK--An eight-week review course for anyone planning to take the Graduate Record Examination will be offered by the Texas Tech University Division of Continuing Education beginning Sept. 1.

The "GRE Review Seminar" will meet 7-9 p.m. in the Conference Room of Continuing Education Building X-15, south of the Municipal Coliseum parking lot. Participants may choose to attend either Tuesday or Wednesday sessions. Fee for the course is \$35.

Students will spend one hour each on review of the math and English sections of the GRE at each class session.

Shirley Rekers and Ellen Harris are the instructors for the seminar. Rekers is a high school correspondence math instructor for the Division of Continuing Education and Harris is a high school reading specialist with the Lubbock Independent School District.

For more information, call Joyce Abbott at 742-3797.

CONTACT: Harvey Landers

LUBBOCK--A math review course will be offered by the Texas Tech University Division of Continuing Education, Sept. 3 through Nov. 19.

The "Basic Math Review Shortcourse" will be 7-9 p.m.

Thursdays in the Conference Room of Continuing Education

Building x-15, south of the Municipal Coliseum parking lot.

The course will review fractions, decimals, percentages, exponents, radicals, inequalities, algebra and graphing. The fee is \$40.

Shirley Rekers, course instructor, teaches basic math skills to returning college students and high school correspondence courses for the Division.

For more information, call 742-2354.

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CONTACT: Harvey Landers

LUBBOCK--A beginning course in Chinese will be offered

Sept. 8 through Dec. 15 by the Division of Continuing Education

at Texas Tech University.

The course will teach verbal and written Mandarin Chinese and introduce students to the culture of the People's Republic of China. The course begins with simplified characters, standard grammar and pronunciation.

Course instructor, Bolao Liu, a Texas Tech graduate student, has taught English at Sichuan University in China.

The course meets 6-9 p.m. on Tuesdays in the Conference

Room in Continuing Education Building X-14, located south of the

Municipal Coliseum parking lot.

The registration fee is \$85. For more information, call Joyce Abbott, 742-3797.

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CONTACT: Harvey Landers

LUBBOCK--A course in rational self-counseling will be offered in three sessions this fall by Texas Tech University.

The course offers a self-help technique for reducing individual stress and frustration. The first session is 8:30 a.m. to 5 p.m. Saturday, Sept. 12. The second session meets 7-9 p.m. Thursdays, Sept. 17 through Oct. 22. The final session will be 8:30 a.m. to 5 p.m. Saturday, Nov. 14.

All sessions will meet in Room 109 of Holden Hall on the Tech campus. Participants may attend one, two or all three sessions. The fee is \$30 per session.

Sponsored by the Division of Continuing Education, the course will be taught by Dr. Paul Knipping. For more information, call 742-2354.

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CONTACT: Harvey Landers

LUBBOCK--"Selection, Care and Cookery of Meats," a course for consumers, will be offered this fall by Texas Tech University's Division of Continuing Education.

The course will provide practical information about purchasing, storing and cooking beef, lamb, pork and poultry. The course covers meat cutting, bulk buying and freezing, and includes analyses of actual meat samples and cooking demonstrations.

The course will be 7-9:30 p.m. Thursdays, Sept. 10 through Oct. 29, in the classroom of the Continuing Education Building X-15. Course instructors are Dr. C. Boyd Ramsey and Dr. Gordon W. Davis of Texas Tech.

For more information, call 742-2354.

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7-8-26-81

CONTACT: Lorena Lee

LUBBOCK--German jingles, songs, games and puppetry are a few things elementary students will learn in Texas Tech University's Kinderschule which begins Sept. 15.

The 22nd annual German program for children will meet 4:30-5:40 p.m. Tuesdays through Dec. 8 in the Qualia Room of the Texas Tech Foreign Languages Building. An enrollment fee of \$5 may be paid at the first class meeting.

The program will accommodate a limited number of students, Prof. Theodor W. Alexander said.

Children in second and third grades may register for one class and those who will be in fourth, fifth and sixth grades may register for another class.

Parents interested in registering their children in the program may call the Department of Germanic and Slavic Languages 8 a.m. until noon and 1-5 p.m. The number is 742-3282.

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CONTACT: Duncan McDowell

ATTENTION: Outdoors editors

LUBBOCK--Mule deer in the Texas Panhandle are likely to concentrate in juniper breaks, such as those along the Canadian River, and in winter wheat fields when available, a Texas Tech University range management expert says.

Professor Fred C. Bryant of Texas Tech's range and wildlife management faculty has been overseeing studies on mule deer in the Panhandle since 1978. Working under Bryant, graduate assistant Benjamin H. Koerth Jr. of Waco recently completed a study on the habitat use and seasonal movements of these animals.

"We found that mule deer select juniper breaks over any other kind of habitat," Dr. Bryant said. "The deer sought the roughest, steepest topography where the juniper provided screening cover."

Koerth studied mule deer seasonal movements in two locations. One study area, on the western side of the Panhandle, was on the Masten and Spring Creek ranches in Oldham County. The other study area, on the eastern side of the Panhandle near Clarendon, in Donley County, included parts of the Robinson and Lovell ranches.

After tracking for a whole year, the Texas Tech researchers found significant differences between the seasonal movements of mule deer in the western and eastern portions of the Panhandle.

"Ranchers on the eastern side of the Panhandle grow winter wheat,"

Bryant said. "The deer concentrate on the wheat, so their home range in winter is small."

In sharp contrast, mule deer on the western side of the Panhandle were forced to use a larger range in winter, feeding primarily on juniper. The wildlife expert explained that juniper, locally called "cedar," is a marginal forage of low nutritional value.

Winter forage in Oldham County also includes sand sagebrush, skunkbush sumac and halfshrub sundrop, all considered marginal to poor forage,
Bryant said. This lack of high quality winter forage in the Panhandle means that the area is marginal for good mule deer production.

In his study of habitat use by mule deer, Koerth found that juniper breaks was the only vegetation type selected by deer all year around in Oldham County. The area is crossed by the Canadian River and two of its tributaries, Minneosa and Trujillo creeks. Elevations along the rough breaks dropping sharply to the river bed ranged to over 4,000 feet.

In an area such as Oldham County, where winter forage is sparse, range management should be emphasized by ranchers who are concerned about their deer, Bryant said. This would mean pulling cattle out of areas inhabited by mule deer during critical times of the year, like winter and spring. Even though cattle and deer are not directly competitive, there is a shortage of all kinds of forage during this time, he noted.

In the Clarendon area the vegetation types preferred by the deer varied according to the season of the year.

In summer the Clarendon area mule deer preferred riverside vegetation, plentiful in the area, which is drained by Mulberry, Troublesome, Hall, McCullom and Cottonwood creeks. Several vegetation types are found along the creek bottoms and adjacent upland areas. In fall and winter deer preferred the cultivated fields and juniper breaks. In spring they favored juniper breaks and riverside vegetation, with no deer observed on cultivated fields after March 20, Koerth reported, as native vegetation was budding by then.

#### Mule deer/add two

Mule deer in both study areas generally favored north and east facing slopes close to a canyon rim, allowing quick escape. They preferred thick cover, steep slopes and minimal human and livestock activity, Koerth said.

The investigators studied mule deer habitat use by trapping eleven deer and fitting all of them with color-coded ear streamers and nine of them with radio transmitters attached to special collars. A portable receiver was used to determine home range, movements, and habitat use by marked deer.

The study was cooperatively funded by Texas Tech University and the Rocky Mountain Forest and Range Experiment Station, a unit of the U.S. Department of Agriculture's Forest Service.

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Editor's note: Benjamin H. Koerth Jr. is the son of Mr. and Mrs. Benjamin H. Koerth Sr. of Route 2, Waco.

9-8-26-81

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# TexasTech News

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CONTACT: Cheryl Duke

LUBBOCK--A new financial award has been established in the Texas

Tech University Department of English to honor the memory of two former

Texas Tech English professors.

The Allan L. Carter and Olga Meloy Carter Memorial Award is to be given to an outstanding English student yearly beginning in September, 1982.

Carter was the second chairman of the Texas Tech English Department, coming to the school in 1927 from Pennsylvania State University. He remained in the position until his death Oct. 11, 1939, at the age of 48. His widow began teaching in the department at that time and taught at Texas Tech until her retirement as an assistant professor in 1960.

Mrs. Carter moved to Houston in 1966 to be closer to her daughter. She died there Oct. 13, 1975.

The award was founded by the Carters' children, William H. Carter of Midland, Maisie Carter Cole of Houston and Giles F. Carter of Ypsilanti, Mich.

The award is to serve as a memorial, to encourage and recognize scholastic excellence in the study of the English language and literature at Texas Tech and to enhance Texas Tech as a center for learning and academic excellence.

The cash award will be offered to a senior or graduate student majoring in English at Texas Tech. The student must have a 3.5 grade average and exhibit creativity, a talent for self-expression, enthusiasm, and the ability to inspire others.

The recipient will be selected by a committee of at least three professors who are thoroughly familiar with the student and his or her achievements.

### English memorial/add one

Dr. Carter was acclaimed during his lifetime as a dedicated scholar.

He was well versed in German and English literature and was a widely recognized authority on Shakespeare. He was fluent in the Latin, German and French languages and had a knowledge of Danish.

He earned a bachelor's degree in modern languages at Clark University in 1913 and a doctorate in German literature in 1919 at the University of Pennsylvania. In 1920, he bacame assistant professor of English at Pennsylvania State University. He had taught at Ohio University and worked as a civilian employee of the U.S. Navy during World War I, before receiving a Harrison Fellowship for graduate study.

At Penn State, he met and married Olga May Meloy who was teaching English at the university.

Receiving the American-Scandinavian Foundation Fellowship to study English in Copenhagen, Denmark, and Oxford, England, Carter went overseas in 1923. He returned to teach at Penn State until he accepted the Texas Tech position.

Mrs. Carter graduated from Dickinson College at Carlisle, Penn. with an education degree in 1916. From 1916-1919, she taught a variety of subjects in high schools including mathematics, English, history and art and served as an assistant high school principal.

She earned a master's degree in sociology at the University of Chicago in 1921 while teaching English at Pennsylvania State University. She taught 21 years at Texas Tech and was active in numerous Lubbock organizations.

CONTACT: Harvey Landers

LUBBOCK--A series of workshops for people in marital and family therapy-related fields will be offered Fridays, Sept. 4 through Oct. 30, by Texas Tech University.

The workshops, called "Nine Fridays in Marital and Family Therapy," are designed to help train professionals and graduate students in family-focused therapy. The fee for the workshop series is \$250 or \$35 per workshop. Graduate students may attend for \$25 per workshop.

Instructors for the series are faculty members of Texas Tech's Department of Home and Family Life: Dr. Russell Crane, Dr. Judith Fischer, Dr. Harvey Joanning and Dr. William Quinn. Drs. Crane, Joanning and Quinn are members of the American Association for Marriage and Family Therapy and are in private practice.

Workshop topics will be: Structural Family Systems Therapy:
Exploring Intergenerational Issues and Techniques in Becoming Active
(Quinn, Sept. 4); Sex Role Issues in Marital and Family Therapy
(Fischer, Sept. 11); Sex Therapy: Assessment, Techniques and Tasks
(Joanning, Sept. 18); Behavioral Marital Therapy: Assessment and
Treatment Planning (Crane, Sept. 25).

Also, Strategic Family Systems Therapy in Alleviating Symptoms:

Giving Behavioral and Paradoxical Tasks (Quinn, Oct 2); Marital

Enrichment Programs--Enhancing Intimate Relationships (Joanning, Oct. 9);

Behavioral Marital Therapy--Intervention Strategies (Crane, Oct. 16);

Divorce Adjustment Program--Resolutions and New Beginnings (Joanning,
Oct. 23); and Building Family Strengths--Utilizing the Family's Resources

to Build Mechanisms for Coping with Family Stress (Quinn, Oct. 30).

### Therapy workshops/add one

Participants are encouraged to bring case materials for discussion. Registration material must be received by the Monday prior to the date of each workshop or by Aug. 31 for the series. Each workshop begins at 8:30 a.m. in the lobby of the Home Economics Building tower.

For further information call 742-2354.

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11-8-26-81

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UNIVERSITY NEWS AND PUBLICATIONS/P.O. BOX 4650/TEXAS TECH UNIVERSITY/LUBBOCK, TEXAS 79409/(806) 742-2136 CONTACT: Duncan McDowell

ATTENTION: Education editors

LUBBOCK--Accurately measuring independent living skill aptitudes of the mentally handicapped is no easy task, but Texas Tech University researchers believe they have hit upon a sure-fire system.

Using a non-verbal test called the street survival skills questionnaire, in which respondents point at the correct answer, the researchers are able to test mentally retarded young people in nine different areas of independent living skills.

Dr. Lawrence T. McCarron, research director, and Christine Clement, research associate, both with Texas Tech's Research and Training Center in Mental Retardation, are working on a project to teach independent living skills to the mentally retarded in secondary schools. The street survival skills test is an assessment tool that will help in developing the curriculum.

Approximately two thirds of all mentally retarded people should be able to live in a structured community residential facility that allows independent living and relieves taxpayers of the heavy burden of institutional care for the retarded, McCarron said.

Clement said the questionnaire represents a break-through in assessment tools needed to prepare the mentally retarded for living in such facilities.

"When students take this test, they do not have to read or write," she said. "Previous tests required paper and pencil work."

The test measures basic concepts, such as color identification, spatial relationships, ability to identify signs with symbols and words, tool identification and use, food and clothing management, health and safety knowledge, understanding of public services such as bus and telephone, time units and money transactions, and measurements of temperature, volume and length.

Dr. McCarron has developed a special edition of the street survival skills test for the deaf.

The Texas Tech rehabilitation experts have also devised a perceptual memory test to determine which one of a subject's senses—sight, hearing or touch, or some combination of the three—is the primary avenue for learning. By using cards with carefully arranged colors and designs, the perceptual memory test also determines how well subjects can organize sequences in their minds.

A third use of the perceptual memory test is to assess the functions of the right and left halves of the brain, which control the left and right sides of the body, respectively. When adapted to simultaneously employ the senses of sight, hearing and touch, the test can be used with stroke patients who have suffered brain damage, autistic persons or with psychiatric patients being tested for readiness for release, Clement said.

After the researchers develop a test they run their own clinical trials with it before releasing it to other diagnosticians for field testing and feedback to McCarron and Clement. Then it is released for widespread use in school testing centers, providing a large national sample for normative data. McCarron uses the data for writing a manual for the test. Upon publication of the manual, the test is ready for full use.

"Developing a test is both a science and an art. We use a lot of intuition, then rigorously check it out," he said.

### Mentally handicapped/add two

The street survival skills questionnaire and the perceptual memory test, as well as other earlier tests developed by McCarron for evaluating motor and sensory skills in the mentally retarded, will ultimately be used by the Texas Tech researchers to develop a suitable curriculum for mentally handicapped students.

The curriculum will include skills for living in addition to reading, writing and arithmetic, as state law now requires schools to teach pre-vocational living skills for the handicapped and provides that retarded students aged 14-21 are to remain in school, Clement said.

Because of the already high level of interest in the project, the researchers anticipate wide use of their assessment tools and curriculum development strategies by educators working with the mentally retarded, McCarron said.

Working with McCarron and Clement in the project are Dr. Gerard J. Bensberg, director of the Research and Training Center, and doctoral students William E. Danley, special education, and Elson M. Bihm, clinical psychology.

The project is funded by the National Institute of Handicapped Research.

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CONTACT: Cheryl Duke

LUBBOCK--Texas high school salutatorians enrolling at Texas
Tech University this fall will receive scholarships from the
Texas Tech Ex-Students Association.

Because of the success of the association's endowment trust drive, the association's scholarship program has been expanded to include salutatorians. The association has been awarding scholarships to valedictorians from accredited Texas high schools since 1975.

Both valedictorians and salutatorians must register with the Bursar's office at the beginning of the fall semester and will be given the scholarships after enrollment.

The \$200 scholarships will be given in \$100 awards each semester of the freshman year.

The scholarship program was established to recognize excellent scholarship achievement. The valedictorian scholarships are given in conjunction with the valedictorian scholarships of the State of Texas which provide tuition waivers for high school valedictorians during the first year of college.

For more information contact John Edwards, coordinator of new student relations for the Office of Admissions and Records, (806) 742-1480.

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CONTACT: Duncan McDowell

ATTENTION: Recreation Editors

LUBBOCK--With visitors at Guadalupe Mountains National Park now numbering approximately 100,000 annually, water resources in the park remain free of contamination and ecological hazards, Texas Tech University scientists report.

The welcome news for outdoor enthusiasts was given in a recent report by Professors Ernest B. Fish and Marvin J. Dvoracek of Texas Tech's park administration and agricultural engineering faculties, respectively. Fish, Dvoracek and other Texas Tech scientists have completed an extensive study of the impact of recreational use on the park's natural water resources.

"Our data indicated that recreational use of the park is not significantly affecting or degrading the water quality of the springs," Fish said.

The park, located on the southern end of the Guadalupe Mountains in southwest Texas approximately mid-way between El Paso and Carlsbad, N.M., is accessable primarily via U.S. Highway 62-180. Texas' highest elevation, Guadalupe Peak (8,749 feet above sea level), is contained within the park's boundaries, one of several features drawing many visitors.

The park's only year-around stream, which flows through McKittrick Canyon, receives the heaviest human impact of any water source in the park. Between 12 and 15 thousand people annually visit the canyon, Fish said. In addition, visitors have some contact with the eight major springs found in the park. Three other smaller springs receive little human contact.

### Guadalupe national park/add one

The researchers credited current park management policy with the success in maintaining high quality water resources in the park.

"Regulations, such as requiring park visitors to walk only along designated trails and not permitting them to camp around the springs or in McKittrick Canyon, are helping to insure minimal disturbance of the water sources in the park," Fish said.

The Texas Tech researchers sought first to establish the baseline water quality characteristics in the national park under natural conditions—before human impact. Secondly, they wanted to assess changes in the park's water chemistry resulting from human use, such as possible contamination of the McKittrick Canyon stream by sewage from the cesspool at Pratt Lodge.

The results from chemical analysis on water samples from various test sites showed conclusively that spring and stream water in the park has not been endangered by an altered chemical composition.

Even the well at Pratt Lodge, the park's only domestic source of water, was found to be safe, with no detectable amount of contamination from the cesspool, located 165 feet away.

The researchers recommended a continuing water quality monitoring program for the park that would provide management alternatives to park administrators faced with changes caused by either the varying intensity of visitor use or environmental factors such as flooding.

The research was funded by the federal Office of Water Research and Technology and Texas Tech University.

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UNIVERSITY NEWS AND PUBLICATIONS/P.O. BOX 4650/TEXAS TECH UNIVERSITY/LUBBOCK, TEXAS 79409/(806) 742-2136

CONTACT: Duncan McDowell

ATTENTION: Business and agriculture editors

LUBBOCK--As groundwater supplies on the High Plains decline, residents of the region will find their bank accounts dwindling as well.

That is the conclusion of Texas Tech University agricultural economist Arthur L. Stoecker, who is conducting an input-output study on the impact of High Plains irrigation.

The 50 percent of the region's million cultivated acres now under irrigation produces two-thirds of the value of High Plains crop production.

As water availability decreases and that production declines, all sectors of the High Plains economy, not just agriculture, will be adversely affected.

"Each dollar of output from irrigated agricultural production results in three dollars of total output in the High Plains economy," Stoecker said. "The total output includes further processing of the products, plus the output generated in fertilizer sales and credit services."

A decline in production from irrigated cropland results in a decline in the total output of economy, Stoecker said.

"The impact would be most directly felt by households, processors of agricultural chemicals, producers of agricultural chemicals, utilities companies, and banking and credit institutions," the agricultural economist explained.

Using 1977 as the base year, Stoecker has constructed a model of the High Plains economy, based on a survey of business firms in the area. Information on the economic output of these firms was compared with expenditures for raw materials and unfinished goods to determine the interrelationships with the farm sector and other segments of the economy.

### High Plains economy study/add one

The results of Stoecker's 1977 economic model study will be used by the Texas Department of Water Resources to make regional projections of the economic impact caused by changes in irrigation and in petroleum and natural gas production. Those projections, in turn, will be given to the High Plains Study Council and to the Economic Development Administration of the U.S. Department of Commerce, which is assessing the impact of changes in agricultural and petroleum production for the six-state area sharing the Ogallala Aquifer. Affected states are Texas, New Mexico, Oklahoma, Kansas, Nebraska and Colorado.

"Land, groundwater and petroleum are the three basic natural resources of the area," Stoecker said.

The 54-county area that Stoecker and research associates Joe L. Lovell, Eluned Jones, David R. Booth and David A. Pyles studied extends from the Texas-Oklahoma line southward to Pecos and Reeves counties and includes a million residents. The area's largest cities are Lubbock, Amarillo, Midland and Odessa. Of the region's total work force, ll percent is directly employed in agriculture and 19 percent is involved in the production of inputs for agriculture or the processing and trading of agricultural products, Stoecker said.

Approximately 30 percent of the area's manufacturing is related to processing of agricultural products, including textiles, meat, food and grain

The Texas Tech researcher pointed out that although the 54-county region lost 34,000 people between 1960 and 1970, the '70s saw an increase of 50,000 residents.

"A major source of growth in the last 10 years was the development of the irrigated feed grains-feedlot-meat processing complex within a triangle running from Lubbock to Muleshoe to Amarillo," Stoecker said. "Of the region's 65,000 new jobs created in 1967-77, more were created in meat processing than in any other industry."

### High Plains economy/add two

He traced the construction of new feedlots and meat packing plants to the availability of feed grains in that area.

"The seven or eight top Texas counties in agricultural receipts are in this triangle, and they produce a very significant part of total agricultural production in Texas," Stoecker said.

"Previous projections have shown that, under current practices, by the year 2000 irrigation will have decreased in this area by 50 percent, which means a decline in crop production of \$300 million in 1977 dollars. This is a total decline in the economy of \$900 million."

"We do not have to have a total decline in the economy, if we continue to increase the efficiency of the water we use in agriculture and if we use our current economic base to attract industries which are less dependent on irrigated agriculture," Stoecker said.

A decline of 50 percent in irrigated agricultural production would result in a direct loss of 7000 jobs and a total loss of about 18,000 jobs, he said.

"This is how the economy will go if we do not alter our production techniques and compensate by growing in another direction," Stoecker predicted.

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Editor's note: Joe L. Lovell is the son of James R. and Laura Lovell of Dumas; David R. Booth is the son of Donald B. Booth, Route 2, Huntsville; David A. Pyles is the son of Mr. and Mrs. Wilford Pyles, Murry Route, Graham and Eluned Jones is the daughter of T. Gruffydd and Elizabeth S. (Nan) Jones of Wales, United Kingdom.

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CONTACT: Cheryl Duke

LUBBOCK-Six television courses will be offered this fall by the

Texas Tech University Division of Continuing Education via KTXT-TV, channel 5

South Plains residents may take the courses for extension or resident credit. Extension fees are \$90 per course. Resident fees vary depending on the number of hours taken.

An additional television course in general psychology will be offered for resident credit only. The course will be taught through the university's closed-circuit cable television system.

Channel 5 courses include: "Family Relations 2324 - Parenting,"
"History 4327 - The American Frontier in the Trans-Appalachian East: As
Seen Through The Eyes of Native Americans," "Religion 339 - "World
Religions," "Religion 233 - Christian Ethics," "Child Development 2303 Child Growth and Development," and "Health Education 133 - Patterns of
Healthful Living."

Registration is open until the orientation session of each course. Participants must attend the orientation or contact the instructor to make other arrangements.

The family relations course orientation will be at 10:30 a.m. Monday (Aug. 31) in Room 124, Home Economics. Instructor is Terry Waldren and the television series "Footsetps" will be used for the course.

The history course, to be taught by Dr. John R. Wunder, will have orientation at 10:30 a.m. Monday (Aug. 31) in Room 104, Holden Hall. The television series and programs on "The Native American Perspective" will be part of the course.

### TV courses/add one

The two religion courses will be taught by Steve Moore. Orientation for "World Religions" will be at 10:30 a.m. Monday (Aug. 31) at the Wesley Foundation, 2420 15th Street. Course participants will view the television series "The Long Search."

The "Christian Ethics" course will include the series, "Hard Choices" and "Directions" and the programs, "Speaking of Love" and "On Being Human." Orientation for the course will be at 6 p.m. Wednesday (Sept. 2) at the Wesley Foundation.

The orientation for the child development course will be at 9 a.m.

Tuesday (Sept. 1) in Room 169, Home Economics. The course will be taught

by Dr. Paul McGhee and supplemented with the television program, "The

Growing Years."

The orientation for the health education course will be at 7 p.m.

Tuesday (Sept. 1) in Room 109, Holden Hall. "Contemporary Health Issues"

will serve as the television program for the course, instructed by Dr.

Paul A. Knipping.

For additional information on the six courses or the general psychology course, contact Nancy DiBattista, (806) 742-2404, or Fred McClung, 742-2209.

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UNIVERSITY NEWS AND PUBLICATIONS / P.O. BOX 4650 / TEXAS TECH UNIVERSITY / LUBBOCK, TEXAS 79409 / (806) 742-2136

CONTACT: Cheryl Duke

LUBBOCK--The television series, "Contemporary Health Issues," dealing with topics from dieting to parenting, will begin Wednesday (Sept. 2) on KTXT-TV, channel 5.

Two half-hour programs aimed at promoting health and preventing disease will be aired back to back Wednesdays at noon and repeated at 5 p.m. Thursdays, 11 p.m. Fridays and 10 p.m. Sundays.

The series is part of a new instructional television course in health education offered by Texas Tech University. Students may earn undergraduate extension or resident credit for the course, to be taught by Dr. Paul A. Knipping.

Extension students will meet for orientation at 7 p.m. Sept. 1 (Tuesday) in Room 109, Holden Hall.

Resident students will meet 10:30 a.m. to noon Tuesdays and Thursdays, Sept. 1-Dec. 10 in Room 154, Holden Hall.

Programs in the series include: "Living and Dying,"

"Prescriptions and Over-the-Counter Drugs," "How Safe is Our
Food?" and "Alcoholism."

For more information, contact Nancy DiBattista, (806) 742-2404.

CONTACT: Cheryl Duke

LUBBOCK--"Working: Changes and Choices," a 15-week course by newspaper, will appear in Sunday editions of the Lubbock Avalanche-Journal, beginning Sept. 6.

Offered through the cooperation of the Texas Tech University Division of Continuing Education and the Avalanche Journal, the course will focus on work-related conflicts and analyze personal and public choices for resolving conflicts.

The course is offered for extension credit only and costs \$90.

Participants who want college credit should enroll in "Sociology

4308 - Contemporary Social Issues." Instructor will be Dr. Walter

Cartwright.

A specific class shedule will be arranged during the orientation session at 4:30 p.m. Sept. 2 (Wednesday) in Room 77, Holden Hall.

Courses by Newspaper is an educational project of University
Extension at the University of California, San Diego. It was started
in 1973 and has been funded primarily by the National Endowment for
the Humanities.

For more information, contact Nancy DiBattista, (806) 742-2404.

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CONTACT: Harvey Landers

LUBBOCK--"Italian for Travelers," a beginning course in the Italian language and culture will be offered this fall by Texas Tech University's Division of Continuing Education.

The class will meet Wednesdays, Sept. 16 through Nov. 4, in the classroom of Continuing Education Building X-15, south of the Municipal Coliseum parking lot. The fee for the course is \$40. Enrollment is limited to 25 persons.

The course teaches practical conversational skills and examines Italian life. The lectures will be supplemented by color slides.

Dr. Aldo Finco, course instructor, is a Texas Tech professor of classical and romance languages and a native of Italy.

For more information or to register, contact the Division of Continuing Education, (806) 742-2354.

CONTACT: Cheryl Duke

LUBBOCK--The Museum of Texas Tech University will have new public hours beginning Sept. 1.

The Museum will be open year-round 9 a.m. to 4:30 p.m. Monday through Saturday; until 8:30 p.m. Thursday; and 1-4:30 p.m. Sunday.

Dr. James A. Goss, museum director, said the new hours reflect times when the museum draws more people.

He said the institution is growing and needs to have regular, permanent hours that can be recognized by the public.

In addition to the new hours, a museum holiday schedule has been announced.

The Museum will be closed for Labor Day Sept. 7; for the Thanksgiving Holiday, the afternoon of Nov. 25 and all day Nov. 26; Dec. 24 and 25 for the Christmas holiday; and Dec. 31 and Jan. 1 for the New Year's holidays.

Next year, the museum will be open July 4 from 1-8:30 p.m. because the Independence holiday is a good museum visiting time, Goss said.

The Museum will be open afternoons for other official university holidays, Nov. 27-29, Dec. 23, Dec. 26-30, Jan. 2-3, and spring break, March 18 and 19.

The Museum will be closed April 11 (Easter Sunday) and May 31 (Memorial Day).

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CONTACT: B. Zeeck

LUBBOCK--John W. Strain, assistant director of the Independent Study Program at Ohio University, will assume duties Sept. 1 as assistant director for correspondence and extension with the Texas Tech University Division of Continuing Education. Dr. Michael Mezack, director of continuing education, made the announcement.

At Ohio University, Strain had served within the Independent Study Program as coordinator of instructional materials and acting assistant director as well as coordinator of student services, later becoming assistant director.

He earned a master's degree in international affairs at Ohio University. His bachelor's was awarded by Kent State University. He is a member of the National University Continuing Education Association.

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CONTACT: Cheryl Duke

LUBBOCK--Hypnosis, music literature, public speaking, photography, piano, understanding children's behavior and medical Spanish are among courses offered this semester by the Texas Tech University Division of Continuing Education.

"Educational Psychology 5349 - Strategies of Hypnotic Intervention," will begin at 6 p.m. Monday (Aug. 31) in Room 323, Administration Building. The course is designed for persons with at least a master's degree in the behavioral sciences including professionals in the fields of psychology, scoial work and family therapy and doctoral students.

Registration for the hypnosis course is open through the Sept. 14 class meeting. The course will be taught by Dr. Matt Stricherz, counseling psychologist and clinical professor of psychiatry at the Texas Tech Health Sciences Center School of Medicine.

A music literature course designed for nonmusic majors will be offered Sept. 3-Dec. 17. The "Heritage of Music" course will be taught by Paul Ellsworth of the Texas Tech music faculty. Classes will meet 7-10 p.m. Thursdays in Room 206 of the Music Building.

A course designed to help participants improve their public speaking skills is planned Sept. 14-Nov. 16. The "Effective Speaking: Improving Your Communication Skills" class will meet 7-9 p.m. Mondays in the Testing Room of Continuing Education Building X-15.

"Beginning Photography" will be taught 6:30-3:30 p.m. Mondays in Room 109, Mass Communications Building, Sept. 14-Oct. 12. Professional photographer Harvey Madison will teach the course. Fee for the course is \$30 and a 35 mm camera would be helpful but is not required. No previous photography experience is necessary. —more—

### Continuing ed/add one

"Fun and Leisure Time Piano," a course for adults with keyboard experience, will be taught by Betty Tolley of the Texas Tech music faculty, Sept. 14-Nov. 2. The course will be 7-9 p.m. Mondays in Room 222 of McClellan Hall. The \$100 registration fee includes costs of the required textbook, audio-visual materials and a supplemental tape or recording.

Dealing with children's common problem behaviors will be the subject of the course "Understanding Children's Behavior," offered 7-9 p.m. Mondays, Sept. 14-Oct. 26. Fee for the class is \$25 per parent or \$35 per couple.

Member of the West Texas Society of Adlerian Psychology, Dr. John Meehan, pediatrician, and Mary Meehan, will teach the course which is based on Adlerian principles of democratic problem-solving and positive reinforcement. Education Prof. Dr. Welborn K. Willingham and home and family life Prof. William H. Quinn will be resource persons.

A newly-developed "Medical Spanish" course for people in health care careers will be taught Tuesdays, 7-9:30 p.m., beginning Sept. 17. Designed to provide a working knowledge of Spanish, the course will emphasize a core vocabulary and listening comprehension skills. Instructor is Dr. Lorum Stratton, chairman of the Department of Classical and Romance Languages.

For more information on the courses and fees, contact the Division of Continuing Education, (806) 742-2354 or write the Division of Continuing Education, Texas Tech University, P.O. Box 4110, Lubbock, 79409.