



CHATTER BOX

Follow us on CACTUS TRAILS that lead to the heart of Mexico; to magnificent Big Bend Park in Texas; to fascinating Boyce Thompson Arboretum, now a part of the University of Arizona Desert Biology Station; to Pinal County's little known but enticing Box Canyon. Become better acquainted with our experienced and inspiring "guides" who are, in order of the above places:

Alan Blackburn, Arizona-Sonora Desert Museum; Alan W. Morrison, retired from the U. S. Forest Service and an ardent naturalist and conservationist; Dr. E. Lendell Cockrum and Mr. Prior Thwaitts of the Desert Biology Station; Hugh Sloan, pharmacist-botanist and explorer of the unusual and the rare in Nature.

President Alan Blackburn has appointed another member to the Haag Memorial Cactus Garden Committee. Mr. Charles Trimble will now serve with Mr. Joseph Brick, Mrs. Alice Wanner and Mr. Ray Doss.

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Prospective subscribers to Cactus Capital Chatter please note: make all personal checks to the order of Tucson Cactus and Botanical Society. Thank you.

All members of Tucson Cactus and Botanical Society are hereby reminded again to turn in to the editors of Cactus Chatter, Josephine Shelby and Hugh Sloan, reports of interesting trips made, items of general interest to the membership and any other material which they think might be usable in this publication.

Tucson Cactus and Botanical Society welcomes back to its membership this year, its founding president, Dr. William G. McGinnies and Mrs. McGinnies. Dr. McGinnies, a native of Colorado, is a graduate of the University of Arizona where he taught Botany and Range Ecology from 1926-1935. He holds a Ph. D. degree from the University of Chicago. His great interest in research led him into the Guayule Project in the U. S. Forest Service during World War II years. He spent three years on the Navajo Reservation in the Soil Conservation Service. He served as Director at Forest and Range Experiment Stations in the Central States, Rocky Mountain and Southwest Forest regions for twenty years. In 1960, he returned to the University of Arizona where he was Director of the Tree Ring Laboratory. A year and a half ago he became Project Leader of Arid Lands Research of the University of Arizona, which embraces all the deserts of the world.

BOOKS FOR THE SUCCULENT PLANT ENTHUSIAST

Alan Blackburn, our knowledgeable president, offers for your choosing the following books from a list published by The Desert Botanical Garden Book Store:

1. Book of Cacti and Other Succulents, by C. Chidamian. Excellent on the growing, propagation and insect control of cacti and succulents.
2. Cactaceae, by Marshall & Bock. A 1963 reprint of the 1941 printing. An excellent book for the cactus fancier and student.
3. Cacti, by Borg. The only one volume work containing most of all the cacti species. Invaluable to the ardent amateur and keen student.
4. Cacti for the Amateur, by Haselton. Outstanding book with the answers to your questions on cultivation, propagation, etc.

EXPLORING TEXAS' WILD LIFE PARADISE

Just before dawn on January 22, 1966, a cold clear morning, the four families of our Carousel Trailer Caravans scraped the frost from their automobile windshields and were on their way to Texas for a winter's visit. We arrived at Rockport, Texas, the first objective of our trip, after spending a frigid weekend in El Paso. Rockport is on the Gulf of Mexico about 30 miles north of Corpus Christi. Unless one is a fisherman or a bird watcher, Rockport may ring no bells for you. Our interest is with birds and bird photography. In spite of great cloudiness, we did some photographing and enjoyed looking for birds--always with the hope that some rare or unusual specimen might be observed.

Located immediately north of Rockport is the Aransas Wild Life Refuge which is under the administration of the U. S. Fish and Wild Life Service. Embracing perhaps 47,261 acres of land and coastal inland waters, its principal purpose is to provide a winter home for the now rare whooping crane. These cranes spend the summer in Canadian Arctic areas. However, the land areas provide a sanctuary for many forms of wild life. In one day's visit to the area, we observed 300 white tail deer, javelina, wild turkeys, European wild boar, armadillos and thousands of snow and Canadian geese, as well as many species of song birds. Later, we took a boat up the inland waterway and sighted a number of whooping cranes. Two years ago when we visited this area, there were but 32 of these rare birds in existence in the world. However, this year their population has increased to 42.

We proceeded next, to the agricultural area of McAllen, Texas, and in a few days we arrived at Big Bend National Park. The magnificence of this park defies description. I can but urge that those of you who have not yet been there to put this park high on your priority list of interesting places to visit. We parked at centrally located Panther Junction which is near the park headquarters. As many as five coyotes came at dusk to within 75 feet of our trailer to get food that we put out for them. Occasionally a couple of javelinas also arrived for a handout, but always in the absence of coyotes. Many other forms of wild life may be observed in the Park. Equally interesting is the plant life, and prominent in this category are the many forms of cactus, inside the Park as well as in surrounding areas.

Since collecting cactus within the Park is prohibited, several side trips outside the Park were made. The trip to Presidio located on the Rio Grande River about 90 miles west of the Park was very interesting. We left Panther Junction early, in order to have time to collect. The trip proved to be fruitful from this standpoint. Among the species we collected were: *Echinocereus dasyacanthus* (Texas rainbow); *Echinocactus uncinatus* and *hamatacanthus* (Texas fishhook); *Mammillaria pottsii*; *Escobaria tuberculosa* and *dasyacantha*; *Thelocactus bicolor* var. *tricolor*. Another day we spent in the Study Butte area in the immediate vicinity of the west entrance of the Park. There we collected *Echinocactus horizontalis* (Turk's head); *Echinomastus dasyacanthus*; *Echinocereus stramineus*, as well as some of the same species found on the Presidio trip.

On February 26th, somewhat regretfully, we hooked up our trailers to depart from this wonderful area. We were heading for Alpine, Texas, the home of Homer Jones. Most members of the Tucson Cactus and Botanical Society are not acquainted with Homer. He was a good friend of Cactus John Haag. He is a wholesale dealer in cactus. I spent two pleasant evenings visiting with him. It was through his help that we were able to make the maximum use of four days that we spent there.

A trip to the Hovey area about 20 miles north of Alpine, proved quite fruitful. There we collected *Homalocephala texensis* (horse crippler); *Echinomastus dasyacanthus*. There were many Turk's head, but we had already collected all that we needed of these. Quite interesting was the discovery of an *Echinocereus* sp., resembling the rainbow group but having fewer ribs. As yet, these plants remain unidentified, but since I have several with buds, possibly the flower will be the key to our problem.

On another trip, to Fort Davis, we collected a number of *Echinomastus intertextus*. In general however, that area seemed to be rather well stripped of good plants. Good things always must end all too soon. So it was with our trip to Texas, which ended on March 2nd. Inevitably I find myself anticipating another exploration of the wild life paradise of Texas and the Big Bend National Park.

-----Alan W. Morrison

CACTUS FOR TODAY

Mammillarias of Arizona, described by Paul Shaw, continue the botanical emphasis in our Society programs for 1966. Mr. Shaw presented the following informative outline on Sub-Tribe 6. Coryphanthanae. Choosing Genus 13. Mammillaria, he specialized in his remarks on Mammillarias of Arizona. "Mammillaria Handbook" by Craig describes 238 species. The key and outline are easy to follow. The subject is treated thoroughly. This book is recommended to persons seriously interested in Mammillaria.

SUB-TRIBE 6. CORYPHANTHANAЕ

Key to genera.

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|----------|------------------|----------------------------------|
| | ψ / - υ / μ | |
| Genus 1. | Ancistro cactus- | (an-sis-tro-kak-tus) |
| | | No. of species - 3. |
| " 2. | Neolloydia - | (nē-ō-loi-dī-ā) |
| | | No. of species - 5. |
| " 3. | Thelocactus - | (thē-lō-kāk-tūs) |
| | | No. of species - 27. |
| " 4. | Echinomastus - | (ē-kī-no-mas-tūs) |
| | | No. of species - 7. |
| " 5. | Mamillopsis - | (mām-i-lōp-sis) |
| | | No. of species - 2. |
| " 6. | Cochemiea - | (kō-chē-mē-ē-ā) |
| | | No. of species - 5. |
| " 7. | Coryphantha - | (kō-rī-fan-thā) |
| | | No. of species - 56. |
| " 8. | Neobesseya - | (nē-ō-bēs-ē-ā) |
| | | No. of species - 7. |
| " 9. | Escobaria - | (ēs-kō-bā-rī-ā) |
| | | No. of species - 11. |
| " 10. | Pelecypora - | (pēl-ē-sīf-ō-rā) |
| | | No. of species - 2. |
| " 11. | Porfiria - | (pōr-fī-rī-ā) |
| | | No. of species - 1. |
| " 12. | Solisia - | (sō-lē-sī-ā) |
| | | No. of species - 1. |
| " 13. | Mammillaria - | (mām-i-lā-rī-ā) |
| | | No. of species - 210. |
| | 1. | Bartschella - (bārt-shēl-ā) |
| | | (included in Mams) |
| | | No. of species - 1. |
| | 2. | Phellosperma - (fēl-ō-spūr-mā) |
| | | No. of species 1. |
| | 3. | Dolichothele - (dōl-i-kō-thē-lē) |
| | | No. of species 3. |

MAMMILLARIA MICROCARPA FISHHOOK CACTUS

A tiny plant from 3 to 6 inches high. Most widely spread small cactus in the Southwest: Arizona, California, Nevada, New Mexico, Texas, Utah and northern Mexico. The flowers are the most beautiful when they occur in full circles in July and August. The curved central spines are responsible for the name "fishhook cactus".

Color Photo by R. C. Proctor

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At our March meeting, the members were given plastic eggs as planters to start cacti seeds.

The directions are: throw away the paper separator; soak the seeds overnight in water; put 3 tablespoons of water into the mixture; spread the seeds on the mixture; press the seeds into the mixture; expose the planted seeds to sunlight for a minute or two; replace the top and keep the egg at a temperature of 75-80 degrees until the seeds germinate.

They can grow in this egg for the first few months or until next spring if necessary. After the seeds show their spines, add a spoonful of water with a weak solution of plant food. Any balanced plant food will do, as the seedlings must never become completely dry.

Get your seeds started, and we will have a contest to see who has the best seedlings in 3-4 months. Pros like Lou Fodor, Paul Shaw and Alan Blackburn will be the judges.

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THE UNIVERSITY OF ARIZONA DESERT BIOLOGY STATION

The Boyce Thompson Southwestern Arboretum is currently operated as a part of the University of Arizona Biology Station. It consists of a large collection of unusual plants from the hot, arid, and semiarid sections of the world. These plants and the natural geologic beauty of the region combine to make the Arboretum a mecca for thousands of visitors each year, with many returning year after year.

The Arboretum was conceived by the noted mining magnate, the late Col. William Boyce Thompson. Throughout his life, Col. Thompson strongly believed that the conservation and proper utilization of plant resources were the obligations of every individual. He deplored the careless destruction of vegetation, particularly of forest and grazing cover. He noted that the dry-climated plants, especially, had received little attention. As his contributions to mankind, Col. Thompson established and endowed the Boyce Thompson Institute for Plant Research in Yonkers, New York. This institute is devoted to conducting basic research in the biology of plants. Later (1927), Col. Thompson established and endowed an arboretum for the study of arid land vegetation under natural conditions. This arboretum was incorporated under the Laws of the State of Arizona and officially dedicated as the Boyce Thompson Southwestern Arboretum on April 6, 1930. Here were to be brought together, for growing and study for possible utilization, plants of the semiarid and arid regions of the world.

The acreage in this Desert Biology Station comprises deeded land and Tonto Forest land, approximately a total of 1100 acres. Among the very interesting plant areas are the following:

The Southwestern Native Area containing trees and shrubs of Arizona, New Mexico, Texas and Southern California.

The Australian Area.

The Economic Tree Area supporting walnut, pecan, persimmon, olive, pistachio trees, among others.

The Succulent Greenhouse where South Africa succulents are the main plants.

The Eucalyptus Grove where the Rostrata has been shown to thrive in Arizona better than all other varieties.

The Conifer Grove where none of the conifers are native. All are two needle pines.

Mammillarias of Arizona

M. Heyderi

var. maddougall

var. applanata

M. Oliviae

M. Mainiae

M. Wrightii

Var. wilcoxii

Var. viridiflora

M. Tetrancistra (formerly Phellosperma tetrancistra)

M. Microcarpa

Var. milleri

Var. auricarpa

M. Fasciculata

M. Lasiacantha

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In 1965, the University of Arizona entered into an agreement with the Board of Directors of the Boyce Thompson Southwestern Arboretum to establish and operate the Desert Biological Station. This Station is designed to serve a threefold educational function: (1) The Boyce Thompson Southwestern Arboretum is to be kept open as a public education facility where people can learn about desert plants of both the Old World and the New World; (2) a research center for biologists interested in the desert; and (3) a training center for advanced students in the biological sciences.

Located on U. S. Highways 60 and 70 just three miles west of the town of Superior and 65 miles east of Phoenix, the Arboretum is readily accessible to many people. Being physically located within the Tonto National Forest, the area contains a fine stand of the vegetation native to Arizona's deserts. The attractiveness of the area has been increased by the addition of many hundreds of species of plants from the deserts of other regions. The Arboretum is located in the northern part of the Arizona Desert, as that portion of the Sonoran Desert east of the Colorado River and lower Gila River drainages is called. Altitudinally, this desert ranges from 1000 feet on the western border to between 3500 and 4000 feet on the northern and eastern borders. The Arizona Desert differs from the other Southwestern deserts in having an abundance of arboreal and succulent plants. Here the well-known giant cactus, the saguaro, attains its maximum size and population densities. On the eroding mountain slopes and the upper bajadas of the Arizona Desert saguaros are associated with small trees such as palo verdes, desert ironwood, and crucifixion thorn, as well as with a host of cacti and shrubs of the legume and sunflower families.

At and above the upper limits of the saguaro, where minimum winter temperatures become effective in limiting the distribution of frost-sensitive plants, the vegetation on rocky slopes is dominated by shrubby members of the lily and amaryllis families.

Here thrive such plants as the yuccas, agaves, bear grass and sotol, and the leguminous acacias and mimosas. On the broad intermountain plains, the ubiquitous creosote bush dominates the landscape except along the drainage patterns where larger shrubs and trees, such as the mesquites, catclaw and blue palo-verde occur. In the major canyons and washes skirting the higher mountains along the eastern and northern borders of the Arizona Desert are mixed groves of larger trees including Arizona sycamore, Arizona ash, Arizona walnut and Fremont cottonwood.

The Desert Biology Station region is the haven of many different species of animal life. A preliminary check list shows 70 species of mammals. Many of these are active only at night, and thus are not seen by the usual visitor to the area. The javelina (or collared peccary) is often seen, as are deer, coyotes, gray fox, ringtail cat, and an occasional bobcat. Pack rat nests abound; cliff chipmunks, Harris ground squirrels and rock squirrels are common.

The bird fauna is extensive. A total of 144 species has been recorded on the "Field Check List of Birds of the Desert Biology Station," issued in July, 1965. Gambel's Quail, Gilded Flickers, Cactus Wrens, Curve-billed Thrashers, and Black-throated Sparrows are abundant resident species, as are many other Lower Sonoran birds. The extensive irrigated areas of native and exotic trees and shrubs provide food and shelter for countless winter visitants and transients.

A number of reptiles and amphibians occur in the region, most of which are nocturnal. Diurnal species that are commonly seen during the warm months include: gopher snakes, red racers, patch-nosed snakes, horned "toads", whip-tailed lizards, zebra-tailed lizards, tree lizards, giant toads, and tree frogs. On rare occasions a rattlesnake may be seen.

No animals are maintained as captives at the Desert Biology Station. To those who wish to see native animals in captivity, we recommend a visit to the Arizona-Sonora Desert Museum west of Tucson.

-----Courtesy of Dr. E. Lendell Cockrum, Professor of Zoology, University of Arizona, and Director of the Desert Biology Station; and Mr. Prior Thwaites, Resident Supervisor of the Desert Biology Station.

CONQUEST OF PINAL'S BOX CANYON

At about 9:00 A.M. on March 17th, Hugh Sloan's party of ten, traveling in two cars, started north on Oracle Road, bound for Box Canyon in Pinal County. Beyond Oracle Junction, the roadsides were fringed with Blue Lupine, Filaree, Lesquerella, Phacelia, and a few California Poppies. Approximately one mile north of Florence, a few rods from the railroad tracks, we took a dirt road to the right, through irrigated farms nestled in the basin of the Gila River. At one point, we passed a dam under construction by the U. S. Army Engineers. This reservoir will conserve an estimated 50,000 acre feet of water annually for the Bureau of Indian Affairs, San Carlos project in Pinal County. Through this area there are many fantastic saguaros: some, unusually tall; others with uncountable arms; one, very unique with the top broken off and with the arms projecting in opposite directions like steer horns.

We soon began to climb slightly, through low foothills covered with chollas, saguaros, and desert shrubs. Then we entered the mouth of the canyon. The entrance is actually the exit of the stream at the lower end of the gorge. The view is truly magnificent: light brown walls studded with myriads of lichens and a large variety of flora. It is a rock hunter's, a botanist's, and a photographer's paradise. This narrow chasm measures from 50 to 100 feet in height, with a small stream trickling through the bottom. It is still a miracle how we traversed the canyon in ordinary passenger cars. Apparently, recent melting snows and spring rains had washed away the finer sand and left exposed bedrock for the roadbed, and boulders between which we inched our way slowly and carefully. However, we emerged with no human or car damage. In the deepest part of the gorge we passed several side canyons unmarred by the progress of civilization. We saw small barrels growing in crevices, and a fragrant chia (*salvia carnosa*) rooted in a niche of rock. We also noted Pink Penstemon, Encelia, Phacelia, *Streptanthus*, Tackstem, Lupine, Filaree, Lesquerella, Fairy Duster (*Calliandra*), Pygmy Daisy, Yellow Monkey Flower, desert Mallow, and many more.

After leaving the gorge, we traveled over a winding roller coaster road, for several miles. We found a nice place to eat our lunches by the roadside, after which we all felt much better. In the vicinity we found many hedgehogs, mammillarias, chollas and many shrubs. Traveling a few more miles, we approached the Phoenix-Superior Highway where we left behind, our magnificent scenery and the beauty of that gorgeous gorge.

—————Hugh Sloan.

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A SEARCH FOR CACTI IN MEXICO IN JULY 1961 (Continued from Vol. 1, No. 5)

July 6th—off to an early start. From Irapuato to Mexico City the country is all farm land under cultivation. Plant collecting is not too good although we stopped at spots where no cultivation has been done. On one hillside, we found a large robust cereus and two big clumps of *Mam. magnimamma* and also quite a few seeds of *M. magnimamma*. This hill is 8 Km. west of Queretaro; the altitude is 5800 feet. While we were there, a man came up to us, holding a small rabbit and asking if we cared to buy it. Manuel asked him about the cacti of this area and how work was. This man operated a rock crusher for the highway department, working a 14 hour day, for 13 pesos. Outside Queretaro on the way to San Juan del Rio, Betty found a beautiful specimen of a coryphanta which may be *cornifera*; also, more *M. magnimamma* and *Ferocactus latispinus*. South of San Juan del Rio on the toll road to Mexico City, on a hillside, we found *M. magnimamma*, *Fero. latispinus*, *stenocacti*, and a long nipped *mam.* with a hooked central spine which keys out with *Mam. zephyranthoides*.

We arrived in Mexico City at 1:30 P.M. where we were met by an enterprising youngman, who, for 10 pesos, directed us to a quiet motel on New York Street, called Beverly Motel. The owner was from Yucatan, and Manuel was born in Yucatan. So, we decided that the motel would be all right. Shortly, we went to the Gardens of Chapultepec Park. As far as we are concerned, it is another zoo and botanical garden much in need of repairs. No plants were labelled, for example. Upon our return to the motel, Manuel called Mrs. Hella Bravo-Hollis at the University of Mexico. We were invited to meet her the next day at 10 A.M.

The following morning, we went to the University without Manuel who was ill, to keep our appointment with Mrs. Helia Bravo-Hollis. She was very gracious but spoke very little English. She arranged for Mr. Maximilian Mirandez, a retired teacher now in research at the University, to go with us. He showed us through the botanical gardens started two years ago and still under construction. These gardens are being built in and among the lava beds of a volcano. This will be a beautiful setting for the gardens. We hope to see them again ten years later. After going through a large greenhouse, we went to the Library. While we were in the gardens, Dr. Bravo gave Alan a plant that he admired (*Tretona uvarra* or *kniffolia*). *Tretona* has a beautiful red and yellow flower somewhat like an aloe. Mr. Mirandez gave Betty a cutting of *Senecio praecox*. Agaves from which pulque and tequila are made are labelled. *Atrorvensis*, a wide leaf variety, is used for pulque, and *A. tequillana* is used for tequila. It has a long, narrow leaf. Both grow quite large. The base of the plant is used for these beverages.

The next day, we left after breakfast. After climbing a 10,000 foot mountain, the road dropped down to a high plateau around 8000 feet in altitude. Good farm lands lie along the way, but occasionally we spied a hillside or a pasture that had not been cultivated. We stopped to search for cacti. When we started this trip, Manuel remarked that he would like to find a good *Mam. elegans*. On one limestone hill, Alan found an *elegans*, and, on searching further, found three more. We went about ten miles further, and on a hillside close to the road, we found *Mam. elegans* all over the hillside. At our next stop, we found *Ferocactus robustus* in great, huge mounds, three feet high and four to five feet across. We also found a *coryphanta* and *Mam. collinsii*.

Along the way, not too far from Tehuacan, we saw fences made from *Lemaireocereus marginatus* and another *cereus* which we do not know. It has a red flower similar to *marginatus* but larger. A large yucca began to appear, and Alan stopped to take pictures of it and large mounds of *Ferocactus robustus*. He also found *Coryphanta pectinata* there.

Five miles or so, west of Tehuacan and about a mile south of the road, we saw a high mesa where yucca were growing and what looked like a *beaucarnea* at the top of the mesa. We planned to investigate later and continued on to Tehuacan where we took rooms at the Hotel Mexican. Manuel and Alan planned to hunt cacti the next day. After dinner, we unpacked all the plants collected; brushed all the dirt from the roots; gave them a final inspection; and left them out in the air to dry while we were in Tehuacan.

The next day, the girls stayed in town to take in the shops while Manuel and Alan went cactus hunting. They took the road to Vera Cruz and went about twenty miles into the mountains before running into heavy fog. They turned back and worked the canyon, the hillside and down to the valley, collecting *Agave potatorium*, *mams.*, small *echinocactus* and some *coryphantas*.

Back in Tehuacan by noon, Manuel and Alan took the road south towards Oaxaca that winds over high hills and valleys. On this road grows the tall white *Cephalocereus hoppenstedtii*, along with many other smaller plants. Here grow the small *Mammillaria viperina* in large clusters under the small bushes in sandy washes. Plants were collected of each species, including *hechtias*, *dykias*, orchids, *tillansias*, and *echevarias*. The *C. hoppenstedtii* have their cephaliums on the side that receives the most sunlight. Another very interesting plant is the *beaucarnea* some of which grows to a height of twenty-five to thirty feet, having a bulbous base six to eight feet in diameter.

When Manuel and Alan returned to Hotel Mexico, they cleaned and packed all freshly collected plants, as well as those they were drying. All plants were packed in the rack on top of the car, in preparation for departing in the morning.

We were up at 5 A.M. ready to go south on the road to Oaxaca to show the girls the *beaucarnea* and *C. hoppenstedtii*. After this, we departed for Puebla where we intended to remain during the night, in order to see the volcano peaks in the early morning before the clouds formed about them. Although

It was the middle of July, and we were at an altitude of 7500 feet, it was so cold that we wore our winter jackets which felt comfortable until midday. Arriving at Puebla, we had the car serviced; then, we shopped for a few trinkets and returned to Hotel Lastra. Nearby is the baseball stadium, and Manuel and Alan went to a game between Puebla and San Antonio, Texas.

Up at 4 A.M., we drove to a park to prepare coffee and watch the mountain volcano peaks at sunrise. The clouds covered the peaks so thickly that we could not see them. Leaving Puebla, we drove toward Pachuca on a road through good farm lands and valleys, but there were some spots where the collecting was good. We lunched south of Pachuca and found *Coryphanta erecta*, *Ferocactus nobilis*, *Coryphanta pectinatas* and others. Continuing, we came to the top of a long hill and looked back. We saw the peaks of both mountains, Popo and Sleeping Lady, outlined against the sky. Both were snow-covered. Alan took pictures, then drove through Pachuca toward the valley where grow the old men. This road leaves Pachuca at about 600 feet altitude, climbs to 8500 feet, and then drops down 4500 feet in Hasteca Canyon where are to be found the old men. They are truly beautiful plants and should be protected from collectors. We took pictures and two small cuttings. On the hillside, coming down, we collected *Mammillaria geminispina* which grows on an 80 degree slope among the rocks in rich leaf mold. Betty does not enjoy high roads, and this one was certainly not to her liking. We retraced our road to Pachuca and then headed for San Juan del Rio.

On the way there, we traveled through valleys and hills where there are large plantations of agave *atrilvirens*. A juice for making pulque, a fermented drink, is extracted from these agaves. We took pictures of a pulque collector getting the juice from this plant. He cut the center stalk out of the plant, and shaped the heart of the plant like a bowl. Here the juice collects. It is collected twice a day. Each time, the bowl is lightly scraped in order to prevent the tissue from hardening. Eventually, the bowl becomes 8-10

inches deep. The collector carries a large gourd about three feet long, and having a small hole in each end. The gourd is thrust into the bowl, and the juice is sucked into the gourd. The juice is retained in the gourd by holding a finger over the bottom hole. After going from plant to plant until the gourd is full, the collector empties it into a small barrel slung on the back of Mexico's beast of burden, the burro. These agave plants last about four months.

In San Juan del Rio, the cactus we had collected on the day before, we cleaned and packed. Then we packed them on the top rack which was full by now. Again, on our way, we visited Willie Wagner, a cactus grower and collector in Cadereytera which is near Queretaro. Back in the latter town, we were parked on the street, wondering where we could get something to eat, when a Mr. Stevens, a former Tucson resident, now living in Queretaro, stopped to talk to us because he knew by our auto license that we were from Tucson. When he learned that we were looking for a restaurant, he called a friend of his who has a boarding house with lovely rooms and mineral baths in an old Spanish home. She very kindly consented to have her cook prepare a meal for us. We had bollitos, tortillas, scrambled eggs, steak, coffee, chocolate, pan dulces, strawberry jam, hot relish and good drinking water, all for 10 pesos each, which is less than one dollar American money. Then, we were shown through the rooms and the mineral baths. Alan admired a small flower pot, and asked where he could buy one. She insisted that he take the one she had. We then drove to Irapuato, collecting along the way.

Next morning, early, we drove to Guanajuato. Above the town in the hills, we collected *Mam. gigantea* with two different spine formations. Guanajuato is a beautiful town located in a valley between high mountains. It would be a good place to spend a week's vacation. There is good cacti hunting in the surrounding areas.

Leaving Guanajuato by Route 45, and having very little room left, we decided to go to Durango and then over the mountains to Mazatlan and home. We collected a few plants on the road between Guanajuato and Fresnillo: *Ferocactus latispinus*, a *stenocactus*, *Mam. uncinata*, *Cory. pectinata*, and *Cory. magnimamma*. We arrived in Durango in mid-afternoon, traveling 143 miles in six hours. We made stops along the way and hiked over hillsides, collecting nothing except a large mam., either *ap-plantata* or *phaeacantha* which we will key out at home.

.....Alan Blackburn
concluded in next issue