

**THE
ARIZONA
NATIVE
PLANT
SOCIETY**

Flagstaff
Phoenix
Prescott
South Central
Tucson
Yuma



**THE
PLANT
PRESS**

Vol. 11 No. 1 Spring 1987

Editor: Barbara Tellman

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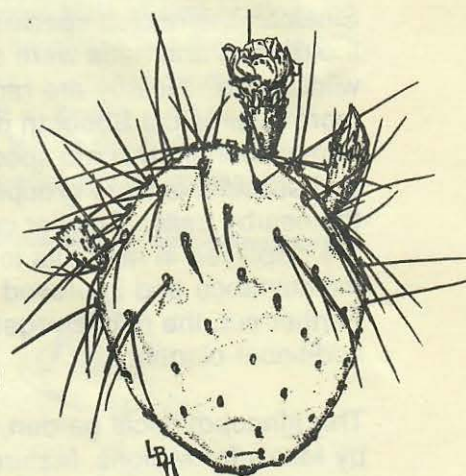
LUCRETIA HAMILTON

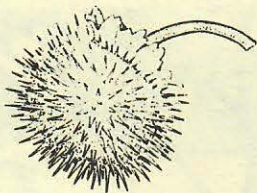
The Native Plant Society lost a valued member and the world lost an outstanding botanical illustrator with Lucretia's death last summer. She illustrated such books as Arizona Weeds, Plants that Poison, and Trees and Shrubs of the Southwest Deserts. She was working on illustrations for a new book on allergenic plants at the time of her death. It is hoped that the book will be published soon.

Lucretia has been nominated for the Arizona Women's Hall of Fame. If accorded this honor, she would be the first scientist so honored. You can help by writing to endorse her nomination: Arizona State Library, 1700 W. Washington, Phoenix 85007.

Identify that Plant Contest

The drawings in this issue are excerpts from Lucretia's work (with apologies for loss of subtlety in offset printing.) The award for the first person who correctly identifies all the plants from which the drawings were made is to learn what Lucretia's favorite music to draw by was. Anyone who can correctly identify the non-native cultivar will be told the story of her adventure with that plant.





CREATING A DESERT CORNER

Matt Johnson, Curator

Tohono Chul Park (Tohono O'odham for "desert corner") is a non-profit, privately funded 35 acre preserve near Oracle and Ina Roads in northwest Tucson. It was started in 1980 as a small nature trail by Jean and Richard Wilson adjacent to their "Haunted Bookshop". Its purpose is to give the public an opportunity to learn about and experience the desert, promote the conservation of arid regions and encourage the use of arid-adapted plants in landscaping.

Since its dedication in 1985, the park has grown to include nature trails winding through native Sonoran desert vegetation, demonstration and ethnobotanical gardens, collections totalling over 475 species, exhibit gallery, gift shop and offices, with over 150 volunteers assisting.

Plants from the Sonoran and Chihuahuan deserts and Sinaloan and Tamaulipan thornscrub are featured. Very little planting had been done when I started at the park in 1983 except for a riparian areas in the demonstration garden. The new addition to that garden was planted with somewhat cold-tolerant Sinaloan thornscrub species. The margins of the garden and beds were seeded with native wildflowers. Nearby are regional plantings of more subtropical Sonoran desert plants and Tamaulipan thornscrub species. Hardy cacti and succulents were grouped by genus along the nearby trails. Smaller cacti and succulents are displayed in ramadas to allow for ease of maintenance and improved public viewing. Farther out, the native vegetation will have no additional plantings.

The ethnobotanical garden, originally begun by Meals for Millions, features traditional crops (using seeds from Native Seeds/ Search) and spanish introduced crops cultivated by peoples of southern Arizona and Sonora.

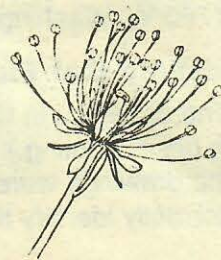
Acquiring many of the plants now cultivated at Tohono Chul was a challenge. While some are available commercially, many others were generously donated by other botanical gardens, mainly the Desert Museum, and by individuals. Others were grown from plant material collected on trips to northern Mexico. We make many of the less common species available to the public through plant sales to encourage their use in landscaping.

Irrigation and rodents have been the principal obstacles to getting plants established. Drip irrigation was installed in the demonstration and ethnobotanical gardens and exhibit building patios. Plants along the trails are watered by hand until they are established. Most plants in areas without drip irrigation should be able to survive on rainfall when well established, but occasional irrigation in especially hot, dry weather will be continued to maintain a healthy appearance.

Cottontail rabbits, black-tailed jackrabbits and other rodents are serious problems requiring the use of chickenwire cages around almost all plants until they become well established and either grow large or develop unpalatable properties. Even this was not enough to prevent problems when several javelina moved in and we had to live-trap and remove these interesting but destructive visitors.

A few plants at the park are only marginally cold hardy and can suffer damage in cold winters. Most of these recover rapidly in the spring but we have to wrap or cover some plants during severe freezes. These plants are interesting and valuable enough to warrant this effort.

The park has become a special retreat amid the rapid growth in northwest Tucson.



YUMA DEPOT ART CENTER NATIVE PLANT GARDEN

Plants from the Sonoran, Mohave and Chihuahuan deserts are featured at the old Yuma train depot in a garden developed by the Yuma Chapter of ANPS. A trail guide is available as well as a slide show and guided tours are held one Sunday a month in the winter.

This fall, the group added the following species to its collection of 74 species: Nolina bigelovii, Yucca elata, Opuntia erinacea, Cereum schottii, Zauschneria latifolia, Opuntia fulgida, Acacia greggii, Dalea greggii, Tecoma stans, Cercidium microphyllum and Leucophyllum frutescens. Cat's claw acacia and cholla were planted along the fence by the railroad track to discourage transients. Plants are marked by numbers painted on a rock which is embedded in buried concrete-filled gallon cans. So far they are all still in place.

The Yuma ANPS chapter is trying to obtain more land from the Railroad to expand the garden. Work parties are scheduled one weekend a month. The garden has two unidentified species, a lycium and a ruellia. Call Pat Callahan (627-2773) or Kathryn Michel (627-2410) for information.

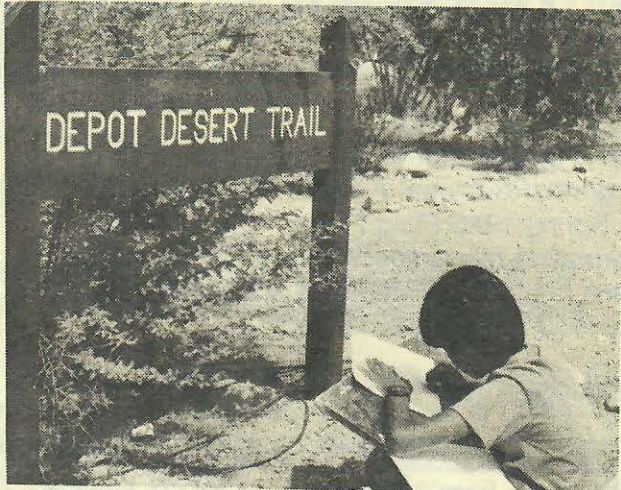


Photo: Pat Callahan



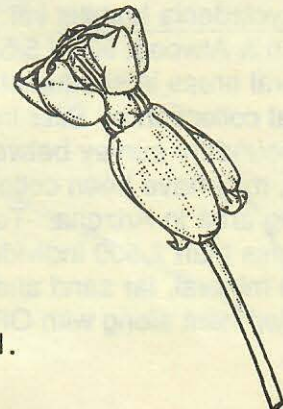
All ANPS members are invited to the college on May 16 at 10 a.m. for a special Pima Indian food experience, tour and project workshop. For information call Lew Ehrlich at 466-5107.

FIRED CLAY & NATIVE PLANTS

South Central Chapter has an imaginative project labeling the interesting plants on the Central Arizona College campus, first landscaped by ANPS President, Bill Kinnison. This is much more than just sticking a tag on a plant. Bimonthly workshops are held by members to make the fired clay plates which are hand lettered before firing. This turned out to be better than their original plan of embedding metal letters in the clay. The plates are then glued onto donated 17" long concrete slabs (finding a suitable glue was a project in itself.) and securely embedded in the ground. When the first 24 are complete, a self-guiding leaflet will be available.

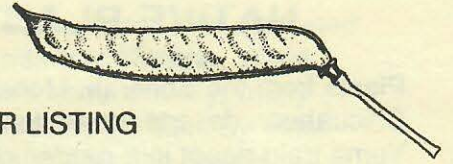
INCREDIBLE INSECTS

An 8' tall preying mantis highlights an unusual exhibit from the Oakland Museum now visiting the only museum in the U.S. devoted entirely to arthropods. Sonoran Arthropod Studies, Inc. (SASI) has ambitious plans to increase appreciation of arthropods by various means including educational programs in the schools, field trips, speakers, library, gift shop travelling exhibits and the museum. A native plant garden designed to attract insects is on the drawing boards. The spring issue of SASI's Backyard Bugwatcher has a useful article on what to plant in your garden if you want to attract useful and interesting insects. For information contact Steve Prchal at the museum, 2437 N. Stone, Tucson 85701.



ENDANGERED PLANTS IN ARIZONA - AN UPDATE

Andy Laurenzi - Arizona Nature Conservancy



This is an addendum to "Endangered Plant Program in Arizona: A Summary", printed in the Spring 1985 Plant Press. The following information refers specifically to changes in the status of officially listed taxa and those taxa proposed for listing since then.

ENDANGERED

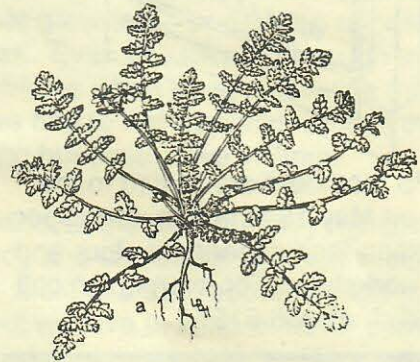
1. Carex specuicola, J.T. Howell; listed 5/9/85. Known only from 3 seep-springs on the Navajo Nation in Coconino County. Threats include livestock grazing and water development. Only one of the remaining populations is protected due to its inaccessibility. Total population less than 500 individuals. Under study by the Navajo Natural Heritage Program.
2. Tumamoca macedougalli, Rose; listed 4/29/86. A monotypic genus associated with Sonoran desertscrub communities of northern Sonora and south central Arizona. Threatened by habitat destruction from urban and agricultural development and the C.A.P. Studied by Reichenbacher & Associates of Tucson.

THREATENED

1. Coryphantha robbinsorum, (Earle) A.D. Zimmerman; listed 1/9/86. Known from several isolated hills in Cochise County and adjacent Sonora. Threats include collecting, livestock grazing and trampling and oil and gas and mineral development. Long-term studies by Dr. A.D. Zimmerman, Chihuahuan Desert Research Institute in Alpine, Texas.
2. Cycladenia humilis var. jonesii (Eastwood) Welsh & Atwood; listed 5/5/86. Known from 3 general areas in southeastern Utah. An historical collection by Siler in 1882, made before the boundary survey between Arizona and Utah, may have been collected in the Pipe Spring area in Arizona. Total known population less than 7,500 individuals. Threats include mineral, tar sand and oil and gas development along with ORV use.

PROPOSED FOR LISTING

1. Hedeoma diffusum, Greene, proposed as threatened 6/23/83. In 1985 the USFWS delisted Hedoma diffusum due to the large number of additional populations which were found by Coconino National Forest biologists and consultants who conducted extensive surveys in response to the listing proposal. Coconino National Forest continues to manage this species as a Sensitive Species and has developed a Habitat Management Plan for the species to ensure the maintenance of minimum viable populations.
2. Mammillaria thornberi, Orcutt; proposed as threatened 4/24/84. A final rule has not been published but prevailing opinion indicated that the species does not merit listing at this time due to the presence of protected populations on the Tohono O'odham (formerly Papago) Nation lands. Species will probably retain Category 2 status to encourage conservation of the species.



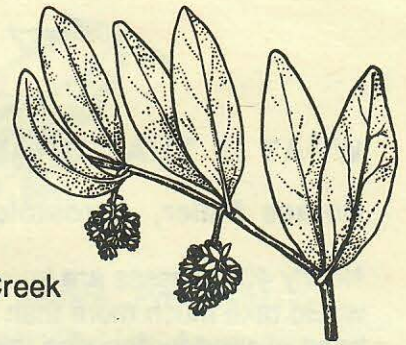
Prescott Seed Exchange

The Prescott Chapter has initiated a seed exchange among members. When sufficient quantities accumulate and sowing time is right the exchanges will take place, accompanied by needed information on planting and care. They also distribute copies of the Arizona Native Plant Law for \$.50 each to encourage responsible collecting.

CONSERVATION COMMITTEE NEWS

Kent Newland, Conservation Committee Chairman

The Conservation Committee continues to be very active in plant conservation across the state with the Mt. Graham Observatory environmental review and work on the impacts on Cowania subintegra, Burro Creek cliffrose habitats and Dead Horse Ranch State Park.



The field trips sponsored by the Committee (see calendar insert) through the summer and fall will give ANSP members first-hand experience with plant conservation issues across the state.

Hopefully, the production and publication of Rare and Endangered Plants by Art and Barbara Phillips will serve as a much needed field guide to Arizona rare plant conservation for years to come. This publication is expected to be out within a year. Funding for this project has been partially secured, with assistance from ANPS. Additional funding is still being sought.

The review of wilderness lands in Arizona by the federal government now underway may offer the best hope for many Arizona endangered plants and biotic communities.

The adoption of the conservation policy statement by the ANPS board gives direction to the Conservation Committee and the Society. The future of plant conservation in Arizona will give the Society many challenges and opportunities. New committee members are always welcome - call Andy in Tucson at 327-4478 or myself in Phoenix at 585-3630.

ANPS CONSERVATION POLICY

The purpose of the ANPS Conservation Committee is to provide leadership on issues related to the conservation of plants indigenous to the State of Arizona. Emphasis is placed on the following areas:

1. Increasing public awareness of conservation issues involving Arizona native plants.
2. Fostering a cooperative working relationship with public and private landowners and plant conservation agencies to conserve native Arizona flora.
3. Collecting and disseminating scientific information related to the conservation of Arizona native plants.
4. The conservation of rare, uncommon and endemic Arizona plants, fragile environments and biotic communities in the state of Arizona.
5. Promoting the use of local Arizona native plants in revegetation projects.

The ANPS board is considering a bylaw change to make clear the Society's commitment to water conservation and preservation of water supplies for habitats such as riparian areas dependent on a threatened water supply.

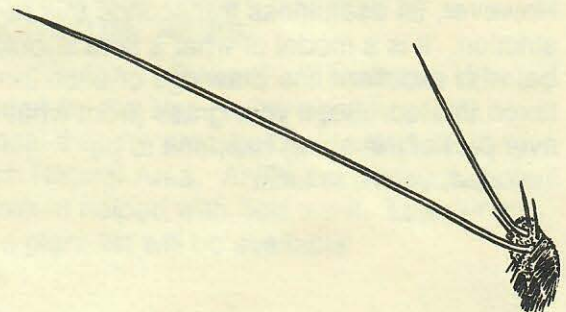
SUMMER READING SUGGESTIONS

Saguaro, Gary P. Nabhan, Southwest Parks and Monuments Association 1986 (a description of the saguaro community.)

Seasons of the Wind, Janice Bowers, Northland Press, 1986 (deals in detail with dune plants.)

"Clouds, Spires and Spines" by Muffin and Tony Burgess, in Tucson: A Short History, Southwest Mission Research Center, 1986. (describes the unique ecology of the Tucson Valley.)

"Flora and Vegetation of the Rincon Mountains, Pima County, Arizona" in Desert Plants, v. 8 #2, Janice Bowers, 1987 (a detailed description and plant list for this area.)



WHAT IS THAT GRASS?



Horace Miller, Agrostologist

Nearly 400 grasses are found in Arizona. It would take much more than the page I have been allotted to describe the procedures and nuances of identifying them. Here are some suggestions about what texts to use and why.

Grasses of the Southwestern U.S., Frank Gould, U of A Press, 1951. Despite the title, this book applies specifically to Arizona. It has full descriptions of each taxon and drawings of most.

A Catalogue of the Flora of Arizona, Harry Lehr, DBG, 1978. Since 1951 when Gould, op. cit. was published, agrostologists have not been idle and many taxonomic changes and additions to Arizona's grasses have occurred. These you will find in Lehr's book or the two supplements published in the Journal of the Arizona-Nevada Academy of Science, v. 15 #1 and v. 17 #1.

Seed Plants of Northern Arizona, W.B. McDougall, Museum of Northern Arizona, 1973. If your grass was found in northern Arizona, start with this book and proceed to Gould and Lehr above if necessary. It has a good key and describes each taxon.

A Manual of the Grasses of the U.S., A.S. Hitchcock, Dover reprint, 1951. This is still the standard text on U.S. grasses. It needs considerable revision, but it does have a drawing and description of each U.S. grass known to exist in 1951.

Intermountain Flora, Arthur Cronquist, Columbia University Press. Strictly speaking, the "intermountain region" covered in this work includes only a small part of Arizona. However, its usefulness transcends this restriction. It is a model of what a flora should be, with excellent line drawings of each taxon treated. So, if your grass (from whatever part of the state) happens to be included, you're in luck.

Herbaria - To make certain of your identification, check it out in an herbarium. Nothing beats looking at the plant itself, even though it is dried and pressed. In Arizona, the principal herbaria are: Flagstaff - NAU and Museum of Northern Arizona; Phoenix - ASU and Tucson - U of A.

Concluding Ruminations

With perseverance and perhaps some luck, you should be able to track through the above texts and arrive at a plausible binomial for your grass. However, one further consideration should be pointed out. Except for Cronquist, all the books mentioned group grasses into six subfamilies, 23 tribes and 122 genera. For comparison, the "old classification" of Hitchcock and Chase made do with 2 subfamilies, 14 tribes and 123 genera.

Some of the criteria employed in modern classification are non-morphological (e.g. based on cytology, histology, embryology, etc.) So things are getting complicated. But don't despair. For practical reasons, determination of genus and species is still made on the basis of artificial keys, using morphological characters one can see and are not significantly different from the keys in the "basic texts" above.

An excellent introduction to the new agrostology is: Grass Systematics by Frank Gould, McGraw Hill, 1968. An example of a grass flora using the new classification is Gould's The Grasses of Texas, Texas A & M Press, 1975.

And finally, we too will have an up-to-date grass flora sometime in the future. A committee of botanists under the chairmanship of Frank Crosswhite is busy on a revision of K & P. Its completion will be a great day for Arizona botany!

(Ed. Note: And if you still can't name your grass, just ask Horace.)



CHAPTER NEWS

Yuma - Pat Callahan, President

Yuma's major project continues to be the Depot Garden (see page 3). They also had a successful plant sale. Unsold plants went into the garden along with 7 burseras from the U. of A.

Everything in the garden was blooming during the Yuma County Annual Flower Show - the Depot Garden was a show in itself. Yuma would appreciate suggestions from groups who have done fall plant sales. Call Kathryn Michel or Pat Callahan (numbers on page 3).

Tucson - Stephanie Meyer, President

Tucsonans have been on the go this spring, sometimes accompanied by members of other chapters. In January members went skipping along the crest (sic) of the Tucson Mountains led by Chuck Hansen and Meg Quinn. Gene led members to the endangered Echinocactus horizonthalonius in the Waterman Mountains where the cacti may be in jeopardy due to mining. These trips make us all aware of the unique plants that can so easily be destroyed by one bulldozer.

February found members in the Pinacates in northern Sonora. In spite of a lack of flowers the views were superb. John Weens invited members to Kino Bay, Mexico to see the halophyte project at the Environmental Research Lab.

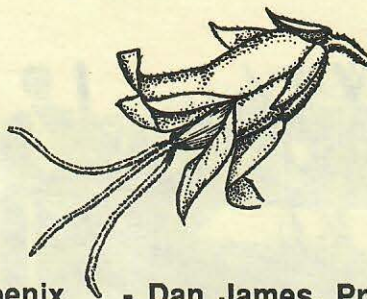
A trip to the Algodones dunes was cancelled because of lack of flowers. Even though displays in this area weren't outstanding, there have been many wonderful areas. Mariposa lilies, phacelia, Arizona onion, larkspur and many hedgehogs made April a delight. Now it is paper flowers, cholla, ocotillo and palo verde, with saguaro starting to bud.

South Central - Lewis Ehrlich, President

Please see page 3 for the major activities of this chapter.

Flagstaff - David Hayes, President

No news? (Deadline for the next issue is August 1, David.)



Phoenix - Dan James, President

Phoenix chapter 4-wheeled into Agave arizonica county for a conservation trip where Bob Breunig found Agave arizonica #43. Also located were the very prevalent Agave toumeyana bella and Agave chrysantha. We fenced in four specimens to prevent cattle from eating the flowers.

Another day was spent working on the Plants and People of the Sonoran Desert exhibit at DBG. We dug holes, planted palo verdes and cholla, fine-tuned the habitat and prepared timbers for the ramadas.

A small group spotted bighorn sheep in the Kofas in February and viewed the native palm.

WELCOME PRESCOTT

The Annual Meeting of ANPS was held in Prescott July 1986. Since that time the chapter has gained momentum. They have published their newsletter, The Leaflet, and have a very nice field trip schedule for spring and summer. The enthusiasm at the Prescott chapter is a pleasure to see. Welcome to our newest chapter and its officers Karen McDowell, President; Carma Koester, Sec./Treas; and Mary Franks, Publicity/Program.

This year's Annual Meeting will be in Sedona in October (to catch the fall colors). If you have time to give or ideas, please call Andy Laurenzi on logistics 327-4478; Muffin Burgess on speakers 622-1370; Karen Reichart about entertainment or the photo contest (952-2427)

Membership has increased by 83 since September (Flagstaff 2, Phoenix 17, Prescott 8, South Central 5, Tucson 47, Yuma 4)

ARBORETUM NEWS

The vegetation of Picket Post Mountain is being recorded by the Nature Conservancy with the proposal that the area be designated a Research Natural Area. ANPS and Friends of the Arboretum helped with field work. Later in the year a plant list will be available.

Photo: Renee Haip



"TREES HAVE TO BE STRONG..."

to produce fruit, diamonds and baseballs," according to an essayist in the Arbor Day essay competition coordinated by ANPS at Safford Magnet School last February. The festivities, chaired by Greg McPherson, featured an essay contest, planting of a mesquite tree on the school grounds, ceremonies with distinguished dignitaries and presentation of acacia tree seedlings to each of the 600 students (with planting and care instructions). As part of the project, the U of A. Department of Landscape Architecture is preparing a design for the school's environmental classroom. Many groups cooperated in this successful project."

If you ever see a tree, please do not despair; go ahead and thank a tree, for that they'll clean your air.
From "Trees in the Desert", a prize-winning essay by 7th grader, Jimmy Lovaas

P.S.

The Southwest Research Station in Portal is seeking volunteers between March 10 and November 30. If interested, contact Wade Sherbrooke at the Station, Portal 85632.

Kent Newland, as Water Conservation Director for the City of Phoenix has useful publications on xeriscapes. If you don't know what they are, call his office for that and other information - 256-3370.

ANPS is having a display board professionally produced, which is lightweight and easily transportable. It will debut at the New Mexico NPS meeting in June and will be available for all chapters to borrow. For information, call Stephanie Meyer at 296-4385.

An ANPS slide show on Sonoran wildflowers photographed mainly by Jim Honcoop and Barbara Tellman will be available this summer on loan to ANPS chapters. Call Barbara at 792-4515 for info.

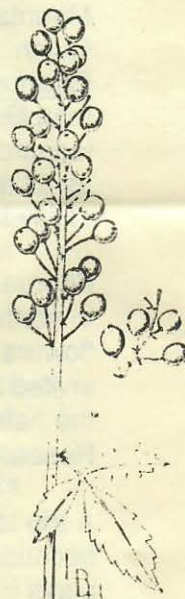
ANPS has funds to help local chapters with projects. For information call Stephanie. Proposal deadline Sept. 1.

From the Alaska NPS. "An exciting trip is being offered this summer to study the natural history of the Denali Parks of Alaska. Travel is by train and river rafts on this 12-day expedition. \$450 total cost. Write John Wenger, Pres. of ANPS, P.O. Box 240171, Anchorage 99524.

Gene Joseph is looking for group photos of the old car in the Pinacates. If you've been there with us, you'll know what he means. Let Gene know if you have any - he didn't say what he was going to do with them! 628-8773.

Biological expedition to Madagascar July 2 -22 with Pierre Fischer and Peter Warshall. If interested, call Campbell Travel 323-1958.

Last call for items for the Fall Plant Press. If you'd like to see something different, write it or get someone else to. P.O. Box 864, Tucson 85702 - 792-4515. Comments and letters to the editor encouraged.



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