

NEWSPAPER ARTICLES  
OUTSIDE MARICOPA COUNTY

007.119

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**0** - First Column is for the assigned newspaper article numbered in red

**Year** - Articles are all sorted by year

**Title of Newspaper Article** – Name of article

**X** – Separator between columns

**Key Words** – Key words in article

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1	October 7, 1961	Three routes to Aquifer Recharge, Drawbacks to All	X Recharging Groundwater, Gravel Pits, Surface Water, Seep Away, Bottom, Colloids, Sediment, Bacterial Growth, Infiltration, Blocked, Chemical Problem, Electrical Charge, Pit Recharge, Sol D. Resnick, U of A Hydrologist, Annual Watershed Symposium, George Maddox, Recharge Experiments, Maricopa County Municipal Water Conservation District Canal, Beardsley, Large Gravel Lenses, Infiltration, Peoria, Ill., Four Pits, Thin Film, Gravel, Solids, Upper Level, Chlorination, Kill Bacteria, Expensive, Desert Flood Waters, Arizona Experiment Station, Water Spreading, Injected, Wells, Clogging Aquifers, Arizona, Full Investigation, Sibility, Nuclear Explosions, Loosen Underground Formations, Permeable, Bed, Santa Cruz, Desert Floods, Underground Storage, Evapotranspiration, Groundwater Bank,
3	December 15, 1962	Some Aid for Flooded Farms - Pima, Pinal Victims Apply for ACP Disaster Relief - They'll Wait and See about FHA Credit	X Federal Aid, Flood-stricken Farmers, Pinal, Pima Counties, Agricultural Stabilization and Conservation Service, Farmers Home Administration Loan, FHA, Disaster Relief, ASCS, Casa Grande, Tucson, Rehabilitation Cost, Limitation, Washington, Land Releveling, Repair, Concrete Ditches, Restoration, Pumpback Systems, Rebuilding Dikes, Pump Repair, Irrigation Pumps, September Floods, Cotton, Damaged
2	December 19, 1962	Estimates Raised By Engineers - Cost of Flood Control Jumps to \$11.4 Million - Completion Expected in 1965	X Cost, Flood Control, Tucson Diversion Channel, U.S. Corps of Engineers, Pima County, Federal Government Share, Joint Project, City of Tucson, Flood Runoff, Concrete Surfaces, Davis-Monthan AFB, Channeling, Water, Santa Cruz River, Board of Supervisors, City Council, Detention Basin, Construction, Railroad, Pedestrian Bridges, Excavation, Ajo-Country Club Rd., Bridges, Alvernon Way, Northwest Corner of DM, Major Bridges, Country Club Rd., Ajo-Park Ave. Intersection, Federal Government, Build, Channel, Concrete Lined, DM to Craycroft Rd., Julian Wash, Benson Hwy., 12th Ave., Relocation of Utilities, Washes, 1952 Tucson Flood Control Project, Existing Structures, Congress, Tucson Diversion Channel Project, Nogales, Palo Verde Overpass
4	December 20, 1962	After Thorough Check - Recommended City Site for General Hospital - New \$12 Million County Unit to Center Project	X City of Tempe, Papago Park, Supervisors, Offered, Maricopa County General Hospital, Phoenix, Curry Road, Tempe, Maricopa County Board of Supervisors, Chamber of Commerce, U.S. Department of Interior, Milton Gan, Chairman
8	August 13, 1963	Water-Stealing Plants Plague Western States, Engineer Says	X Western United States, Water-stealing Plants, Phreatophytes, U.S. Geological Survey, T.W. Robinson, Soil Conservation Service Hydraulic Engineers, Nonbeneficial Plants, Consume 25 to 30 Million Acre Feet Water, Annually, Flow, Colorado River, Lake Mead, Salt Cedar, Major Culprit, Ground Water, Mediterranean, 100 Years Ago, Threat
9	August 13, 1963	More About - Phoenicians Battle Water -	X Howard Nutter, Copper State Road Runners, Deep water, W. Sunset Drive, Flooded Homes, Mrs. Raymond Stockton, Flood, Rain Water, Road
5	August 20, 1963	Floods Force Scores from Prescott Homes (& Picture)	X Prescott, U.S. Weather Bureau, Thundershowers, Red Cross, 4 Inches, Rain, Yavapai County Sheriff's Office, Flash Floods, Evacuees, Inundated Streets, John Carson, Copper Basin Road, Wall of Water, Little Sonora, Little Long Beach, Flash Flooding, Water Cascading, James M. Stephenson, Mr. and Mrs. Peter Rooks, Mr. and Mrs. John Sanchez, Ar. and Mrs. Alfred Martinez, Miller Valley, House, Fair Street, Washed Off Foundation, Water Marks
6	August 20, 1963	Floods Force Scores from Prescott Homes - Continued - 4-Inch Deluge -	X Tremendous Barrage, Thunder, Lightening, 3 Feet Water, Rooms, Little Long Beach, Prescott, Floating Debris, Gas Line, Lloyd Reeser, Storm, Blackout, Creeks, Washes, Flooding, Granite Creek, Street Damage, Flood Waters, Dirt Fill, Chuckholes, Power, Yavapai County Hospital, Miller Valley, Potts Creek, Miller Creek, Lapping Over Bridges, Don Bell, Roads, Closed, Cleaning Up, Damage, Rainfall, Mayer, Chino Valley, Cordes Junction, Arizona Highway 79, Flash Flooding, Heavy Rain, Oak Knoll Village, Mrs. B.P. Lindley, Phoenix, Flagstaff, Ft. Huachuca, Grand Canyon, Winslow, Hail Storm, Superior, Magma Copper Co., William F. Humphries, Manager Arizona Public Service, Blowing Dust, Wind Gusts, 36 Miles per Hour, Sky Harbor, Valley, National Park Service, Lee Ferry, Stranded, Paria River, Trapped, Kane Creek, Page
10	August 23, 1963	No Title - Article is From Wickenburg Sun (& Picture)	X Brass Cylinder, Rains Collected, Official Government Rain Gauge, Catches Rainfall, Empties, Narrow Cylinder, Spilled, Larger Tank, Weather Bureau, Phoenix
11	August 23, 1963	3-Inch Rain Closes Beeline Highway, Isolates Payson	X Storm, Arizona, Payson, Closing, Beeline Highway, Torrents, Swollen Rye Creek, 60 Foot Middle Section Out, Steel Bridge, 3.17 Inches of Rain, Eight Hours, Roads, Washed Out, Arizona Highway Patrol, Detour, Mud, Cave-ins, Rancher, Tom Hughes, Tumbling In, Heavy Cloudburst, Globe, Train Derailment, Southern Pacific
38	August 23, 1963	Rains Boost Runoff in Arizona - Beeline Bridge is Out	X New Rains, Watersheds, Salt River Project, Washed Out, Bridge, Beeline Highway, Reservoirs, Salt and Verde Rivers, Rye-area, Rye Creek, Ox Bow Hill, Tom Hughes, Earth Gave Way, Dr. Chester Lathers, Botany Department, Arizona State University, Arizona Highway Patrol, Bridge Washed-out, Phoenix and Payson, Tonto and Verde Rivers, Flood Waters, Roosevelt Lake, Salt River, Verde Impounded, Bartlett and Horseshoe Dams, Granite Reef Dam, Valley, Phoenix Area, Thunderstorms, Soaking, U.S. Weather Bureau

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39	August 23, 1963	Dramatic Moment Recorded on Film (& Picture)	X Raging Floodwaters, Washed, Beeline Highway, Rye Creek Bridge Rains, Water, Spill Over, Lowlands, Dr. Chester Lathers, Arizona State University, Botany Department, En Route to Payson, Tom Hughes Fall, Swirling Water, Downstream
12	July 1, 1964	Water Conservation Need Cited by U of A Speaker	X Conserve Water, Water-hungry Southwest, Dr. A.L. McComb, Department of Water Management, University of Arizona's College of Agriculture, 59th Annual Meeting of American Dairy Science Association, Reduction in Waste, More Efficient handling, Reservoirs, Stock Ponds, Water Saving, Evaporation, Lake Mead, Colorado River Basin, Lee's Ferry, Transmission of Irrigation Water, Farming Areas, Salt River Valley Water Users' Association, Central Arizona, Concrete Pipe, Efficient Use, Evapotranspiration, Watershed, Irrigation Distribution System, Phoenix Area, White Mountains, Mogollon Rim, Stream Channels, Salt Cedars, Cottonwood, Phreatophytes
13	July 23, 1964	Irresponsible Reporting - Republic Sends a Boy Up to Do a Man's Job	X Flood, Constellation Road, Damage, Powder House Wash, Rampage, Red Cross, Beverly O'Leary, Wickenburg, Flood Waters, Irresponsible Reporting, Arizona Republic, C.E. Philbeck, Stage Coach Motel, Desert Cypress Trailer Ranch, Exaggeration, Herb Cameron, Lawns, Roadways, Associated Press, Washed Down, Hassayampa River, Second Street and Van Buren, Phoenix
7	July 25, 1964	Magma Flood Control Project in Pinal Co. At Completion Point (& Picture)	X 5.5-mile Dam, Magma Flood Control Project, Soil Conservation Service, Pinal County, Arizona, Farmland, Protected, Floods, Terrible Destruction, Uncontrolled Flood, Detained, Long Dike, Release, Culverts, Gila River, Detention Dam, Joe and Forrest Cooper, Channel, New Pueblo Contractors Inc., Tucson, Rights-of-way, Magma Flood Control District, Florence-Coolidge Soil Conservation District, East of Maricopa County, Queen Creek District, Detention, Replenishing, Ground Water Aquifers
14	October 31, 1965	Controlling the Floods - Platte Dam Economically, Physically Feasible (& Picture)	X Denver Area, South Platte Basin, Chatfield Dam, Plum Creek, Proposed for Flood Control, Army Corps of Engineers, Missouri River Division, U.S. Geological Survey, This Article Primarily Deals with Colorado Flood Protection
20	November 30, 1965	Trees at River to be Yanked Out	X Cottonwood Trees, Verde River, Camp Verde, Bill Warskow, Salt River Project Watershed Division, Remove, Town of Cottonwood, Water gained, Project to Denude, 40-mile Stretch, Arizona land Department Watershed Division, Arizona Water Resources Committee, Cottonwood Wash, Mohave County, Doubling Flow, Rivers, Streams, Norman Johnson, Watershed Division manager, Sedona Area, U.S. Indian Bureau, Cibecue Creek, Clearance Method, Burning, Water Guzzler, Ponderosa Pines, Kel Fox
16	December 23, 1965	Flood Threat Acute at Safford - Officials Move 75 Families	X Floodwaters, Threatened, Southern Arizona, Snow, Flood Situation, Safford, Lowland, Little Hollywood, Gila River, Highway Patrol, 75 Families Evacuated, Graham County, Dump Trucks, Dirt Levees, Block Rising Water, Home, Flooded, Storm Waters, San Francisco River, Crest, Phoenix, Communities, Isolated, High Waters, Gila River Bridge, Pima, Impassable, Damage, Tucson, Runoff, Rillito River, Broke Out, Southbank, Flowing Wells Road, Mobil Home Area
17	December 23, 1965	Graham, Greenlee Warned - More About - Floods Threaten Southeastern Arizona	X Flood Warnings, Upper Gila Valley, Southeastern Arizona, Heavy Rains, Melting Snow, Arizona - New Mexico Boarder, Agua Fria River, Van Buren Crossing, Avondale Police, U.S. Weather Bureau, Phoenix, Graham, Greenlee Counties, Danger, Flooding, Gila River, Cliff, N.M., Arizona Boarder, San Francisco River, Clifton, Flood Stage, Crest, High Water, Safford, Arizona Highway Patrol, Sandbagging, San Carlos Lake, Coolidge Dam, San Carlos River, Overflowed, Peridot, U.S. 60-70, 7-Mile Wash, San Carlos, Families, Lowland Areas, Evacuated, Mike Windham, Bureau of Indian Affairs, San Carlos Indian Agency, Water, Homes, 3 to 4 Feet Deep, Floodwaters, 47th Avenue, Crittenden Lane, Storm Drains, Central, Arizona Canal, Closed, Overflowed, Maricopa County, U.S. 95, Yuma, Angel Romero Dicochea, Alejandro Figueroa, Willie Mae Davis, Heavy Snow Warnings, Mogollon Rim, White Mountains, Grand Canyon, Four Inches Snow, Flagstaff, Salt River Project Watershed, San Carlos Watershed, Payson, Rain, Storm, Carefree, Gila Bend, Globe, Heber, Show Low, Tucson, Precipitation, Sky Harbor Airport, 1918, Records, August 1895, Flash Flooding, Heavy Runoff, Salt, Verde, Hassayampa, Agua Fria and New Rivers, Trailer Homes, Evacuated, Tucson, Rillito River, Maricopa County Sheriff's Office, Roads, Salt River Valley, Glendale Avenue, U.S. 80, Bell Road, Seventh Street, Black Canyon Highway, 48th, 40th Streets at Salt River, Seventh Avenue, Arizona 86, Ajo, Sells, Arizona 79, Cottonwood, Arizona 288, Roosevelt Lake, Young, Arizona 188, Arizona 87, U.S. 666, Clifton, Mesa, Rockslides, Water, Dips, Slick, Slushy

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21	December 23, 1965 Helicopters Standing By to Aid 700	X Flood Waters, Gila River, Safford, Heaviest Rains, Killing Livestock, Threatening Homes, Little Hollywood, Harold Gietz, Graham County Civil Defense Director, National Guard Helicopters, Hillcrest Community, Overflowing Sewage System, Raw Sewage, River, Crest, Flood, Runoff, Snows, Eastern Arizona, New Mexico, Damage, Fry Creek-Stockton Wash Flood Control Dam Projects, Jim Ferrin, Soil Conservation Service, 100-acre Foot Lake, Stockton Wash Dam, Flooded Lowlands, North Clifton, San Francisco, Glenwood, N.M., Governor Goddard, Civil Defense Chief Col. Carl Smith, Phoenix, Gila and Graham Counties, Snow, Flood Damage, County Roads, Closed, Highways 70, 666, Open, San Francisco River, Clifton, R.R. Kinsey, Greenlee County Deputy Sheriff, Debris, Sandbagging, Raining
15	December 24, 1965 Overflow From Gila River (Picture)	X Flooded, Country Road, Hollywood Section, Safford, Gila River, Flooded, Jess Larson, Rescue, Livestock, Floodwaters
22	December 24, 1965 Gila River Recedes; Sanitation is Critical	X Gila River, Flood Crest, Safford Area, Receding, Graham County, Flooding, Lowlands, National Guard, Flood Conditions, Pima Bridge, Unusable, Sanitation Conditions, Boil Water, Contamination, Civil Defense Director Harold Geitz, Extent of Damage, Gila and San Francisco Rivers, Arizona Highway Patrol, Clifton, Duncan, Water, Flowing, New Mexico, San Carlos Reservoir, Coolidge Dam, Superintendent George Demster, Reservoir, Dam, 1941, Overflowing
23	December 24, 1965 Raging Rillito Tops \$1 Million Toll	X Rillito Creek, River, Wrecking, Two Bridges, Mobil Homes, Sewer System, Flowing Wells District, Ground, Pima County Sanitary District No. 1, State, Federal Disaster Relief, Tucson, Raw Sewage, Flood, Rain, Hail, Snow, Top of Banks, Santa Cruz, Gila River, Pinal County, Bridges, N. First Avenue, Campbell, Swept Away, Bridges at Oracle Road, Dodge Boulevard, U.S. Geological Survey, Groundwater Branch, No Record, Rillito, Flowed, Gauging Station, Tributary Tanque Verde Wash, Sabino Creek, Record Flows, USGS, Kenneth Scharman, Manage, Sewer Interceptor Line, Country Club Boulevard, Dr. Frederick Brady, Pima County Health Director, No Health Hazard, Continues Flow, Rep. Morris K. Udall, Federal Relief, Mt Lemmon, Landslide, Windy Point, Runoff, Kitt Peak, National Observatory, Washout, Arizona 77, Closed, Winkleman, Mammoth, Aravaipa Creek, Papago Officials, Marana
24	December 24, 1965 Wet, Muddy Grounds Hurt Agricultural Areas in State - Cattlemen Please with Rain	X Muddy Ground, Damage, Farmers, Cattle Growers, Drenching, Rain, Bill Davis, Executive Secretary Cattle Growers Association, Phoenix, Crop, Dr. Ivan Shields, Maricopa County Agent, Deep Mud, Salt River Bed, Wade Lacy, Arizona Cattle Feeders Association, Runoff, Water Tanks, Filled,
25	December 24, 1965 Flood Waters Described As 'Unbelievable' - Santa Cruz Spills Over Rich Lands	X Mayor Paul Pearce, Aerial Survey, Swollen Santa Cruz River, Marana, Stanfield-Maricopa Area, Evacuated, Eloy, Casa Grande, Chuichu Village, Papago Indian Reservation, National Guard Armory, Green Reservoir, Dike Broken, Water, Four Miles Wide, Green Dam, Washed Away, Big One in 1962
18	December 25, 1965 High Waters Bring Crossing Woes - More About - Rivers Flood Countryside (& Pictures)	X Safford, Raw Sewage, Running Into Rivers, Tucson, Pima County Sanitary District No. 1, Federal and State Aid, Kenneth Scharman, Manager of the District, Rillito, Cut Away, Sewer Interceptor Line, 4 to 6 Million Gallons of Sewage, Poured, River, Gila River, Dr. Moore, Seep Into Wells, Boil Water, Harold Gates, Civil Defense Chief, Graham County, Gila Valley, Thatcher, Pima, Fort Thomas, Safford, Boil Pump Water, Gila and San Francisco Rivers, Coolidge Dam, San Carlos Reservoir, Weather Bureau, Upper Gila River, Cliff, N.M., Arizona Boarder, Above Flood Stage, San Francisco River, Clifton, Sandbagging, Duncan, Dike Building, Little Hollywood, Ready, Evacuate Residents, Gila River Mile Wide, Receding, Gila Empties, Runoff, Coronado National Forest, San Pedro River, Aravaipa Creek, Winkleman, Kelvin, Kearney, Kearny Airport Under 3 to 4 Feet of Water, Subdivision Flooded, San Tan Area, Evacuated, Sacaton Community Center, Gila River Reservation, Pima County, Wrecked, Two Bridges, Trailer Park Development, Eloy Area, Dike Broke, Green Reservoir, Santa Cruz, Flooding, Pinal County Civil Defense, Chuichu, Casa Grande, Nogales, Maricopa and Stanfield Areas, Road, Maricopa and Kyrene, South of Baseline, Cut by Floodwaters, State Civil Defense, Apache Trail, Tortilla Flat, Cave Creek Road, Bell, Glendale Avenue, U.S. 80, Agua Fria River Bridge, N. Country Club Drive, Mesa, Hayden and Scottsdale Roads, Tempe Bridge, 48th, 40th Streets, 24th 16th Streets, Avondale, Bruce Redondo, Mr. and Mrs. John L. Mack, 115th Avenue, James King, Rosemary, Ray Hamilton, Jackson Hole Wyoming, Tempe Bridge, Arizona State University, Phoenix-Tempe Highway, Bridge, River Bed, Sun Devil Stadium, River Washed Away Gauging Station, Tributary, Tanque Verde Wash, Sabino Creek, Record Flows, USGS, Banks, Damage,

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19	December 25, 1965	Families on the Flooding Santa Cruz Evacuated From Inundated Areas	X Farm Families, Santa Cruz River, Stanfield, Marana, Evacuated, Debris-laden, Floodwaters, Rampaging Gila, Sacaton, San Tan Area, Pinal County, Inundated, Damage, Mayor Paul Pearce, Eloy, Green Reservoir, Aerial Survey, 2 Miles Wide, Crest, 20-foot Dike, Broke, Flooding, Jim Savage, Bill Warren, Tom Wilmoth, Wooten-Casey Farm, Cotton Land, Al Hammond, Eloy Pilot, Continuous Rain, Chuichu, Papago Indian Reservation, Casa Grande, High Water, Ed Pederson, National Guard, Evacuees
26	December 25, 1965	50 Families Isolated by Floodwaters	X 50 Families, Kelvin, Riverside Terrace, Isolated, Floodwaters, Gila River, Homeless, Ray, Kearny, Washed Out, River Rose 10 to 12 Feet, Spilled Over, Superior, Bridge, Impassable, Police Chief Jim Helper, Sewage, Washed Into River, Contaminated Water, Boil Drinking Water, Typhoid Fever, By Boat, Foot, Four-wheel Drive, Kennecott Copper Corp., Albert Smith, Joe Bit tick, Home Flooded, Prefabricated Homes, Washed Away, Since 1926
27	December 30, 1965	Gila River At it Again-- And 'Buttes Dam' Still Dream	X Water, Colorado River, Gulf of California, Gila River, Rampage, 'Buttes Dam or Bust', Pinal County, Run-off, San Pedro River, Washes, Coolidge Dam, Florence, Buttes Dam, Constructed, Florence, Central Arizona Project, CAP, Southwest Water Plan, Marvin D. Young, San Carlos Irrigation District, 1955, 1956, 1960, Proposed Hooker Dam, Gila in New Mexico, Arizona, Corps of Engineers, Flood Control Dam, Safford, Graham County, Safford Mayor Charles Kirkland, Stockton Creek, Tributary of Gila, Flooding, 1945 Construction Cost, Lining, Concrete, Ditch, Ashurst-Hayden Diversion Dam, Flood Water, Storage, Salt River Project's Granite Reef Dam, Diverted, Canal, Picacho Reservoir, 1963, Secretary of Interior, Stewart Udall, Congress, Water-saving Facility, O.W. Rugg, Casa Grande Farmer, Waste Water, Earthfill Structure, Horseshoe, Bartlett and Canyon Lakes, Gila Valley, Blocked, Support, Sen. Carl Hayden, Each Dam Have a Hole
28	March 28, 1966	Watershed Manipulation - Burning Tonto Chaparral - SRP and Forest Service to Clear 20,000 Acres for More Runoff- Cottonwood Campaign Along Verde- Another Long, Hard Look at Junipers	X Chaparral Control, Salt River Project, U.S. Forest Service, Increasing, Watershed Runoff, 20,000 Acres, Burned, Clearing, Thinning, Camp Verde Vicinity, Juniper Eradication, Bob Moore, SRP Hydrologist, Tributaries of Tonto Creek, Roosevelt Lake, Pinal Mountains, Globe, Tonto National Forest, Salt River Valley, J.J. Baldwin, Fire Control Officer, Mountain Shrubs, Turbinella Oak, Herbicides, Chemical Chosen 2,4-D and 2,4,5-T, Tordon, Dow Chemical Co., Three-Bar Range, Bush-burning, Increased Runoff, Three Inches, Tom Johnson, Agricultural Research Service, Flagstaff, Water Quality, Post-fire Maintenance, Check Regrowth, Cottonwood Trees, Verde River, Coconino Forest, Parklike Appearance, Forest Service Beaver Creek Experimental Watershed, Big Pits, Rain Water, Collects, Evaporation, Stream Flow, Natural Runoff
29	April 1, 1969	Conservation in Review	X Control Erosion, Agricultural lands, Protection From Floods, Upstream watershed, Watershed Protection and Flood Prevention Act of 1954, Public Law 566, Floodwater Retarding Project, Fish and Wildlife Habitat, USDA, "Multiple Purpose Watershed Projects", Federal Help, State Agencies, Local Organizations, Soil Conservation Service, Forest Service, Fish and Wildlife Service, Department of Agriculture, Floodwater Retarding Dams, Hazard, Design Operation, Waterflow and Sediment Control, Heavy Rainstorms, Runoff, Damage, Water-diverting Terraces, Dikes, Major Storms, Irrigation Measures, Water-supply Reservoirs, Diversion dams, Pumping, Canal, Drainage Measures, Recreational
30	April 1, 1969	Progress Report: Land Improvement in 1968	X Irrigation Water Management, Farm and Ranch Land, Soil Conservation Service, Drainage Installations, Flood Control Work, Dams, Floodwater Retarding, Water Storage, Diversion dams, Debris Basins, Dikes, Levees, Stream Channel Stabilization, Pumping Plants, Big Dams, SCS, Erosion Control Measures, Streambank Protection, Recreation Area
31	July 1, 1969	Yuma County Projects (& Pictures)	X Yuma County, Irrigation Systems, Culvert, Crossing, Road, Bridges, Canal, Road Construction, Concert Bridge, Avenue 45E, Wellton-Mohawk Canal, Field Survey, Design, Mr. Mel Plumber, Vice President of Engineering Consulting Firm, Ellers and Reeves of Phoenix, Structural Design, Steel Piling, Girders, Tanner Brothers Construction Co., Flood Control, Gila River, Thawing of Snowpack, Rains, Salt River Watershed, Heavy Runoff, Drainage, Colorado River, Painted Rock Flood Control Dam, U.S. Army Corps of Engineers, Maricopa County, Not Impound Water, Dome Valley, City of Yuma
32	November 18, 1985	Utah Water Project Faces Vote	X 1956, Congress, Six Phases, Central Utah Project, Bring water, Arid State, Vote, Bonneville Unit, Wasatch Front, Salt Lake City to Provo, 10 Reservoirs, Aqueducts, Tunnels, Canals, Power Plants, Pumping Plants, Drains, Environmental and Wildlife Group, CUP, Utah Economical Professor Jon Miller, Intermountain Water Alliance
33	February 16, 1986	Traffic on New Tombigbee Waterway Falls Far Short of Army Engineers' Forecast	X Congress, Tennessee Tombigbee Waterway, Rivers, Dams, Locks, Canals, Mississippi to Alabama, Much-needed Link, Ohio Valley to Gulf of Mexico, Tenn-Tom, Short of Expectations, 1976 Study, Army Corps of Engineers, Pat Ross, Assistant Director

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34	May 3, 1986	Arizona Has a Water Dilemma, But Not a Shortage	X Arizona Legislature, Rep. Sterling Ridge, Glendale, No Water Shortage, Salt River, Central Arizona Project, Treated Wastewater, Los Angeles, 1980 State Groundwater Code, CAP, State Department of Water Resources, Rescue, Arizona's Agriculture, Transportation of Water, Arizona Mining, Tucson's Municipal Supply, Threat, Former Interior Secretary Cecil Andrus, Developer's Artificial Lakes, Plan 6, Gov. Bruce Babbitt, Dam Work
35	August 6, 1986	Collapsing Canal	X Bureau of Reclamation, Routing, Central Arizona Project Aqueduct, Tucson, Canal Collapsing, Engineering Abilities, Weak Construction, Sulfate-laden Soil, Inspections, Finance Repairs, Avra Valley
36	August 7, 1986	Wash Tenants Take Bath: 'You Can't Trust' What I Say, Official Says (& Picture)	X Quartzsite, Bob and Ione Farmer, Mobil Home, Tyson Wash, County Officials, Application Denied, Robert Wall, La Paz County Planning Director, Floodway, Building Permitted, Flood Plain, Low land, Water Channel, Arizona Department of Public Safety Patrolman, Federal Insurance Rate Maps for La Paz County, Dangerous Floods
37	Undated 01, 1984	Pima County Seeks Funds to Buy Up Flood-plain Land	X Pima County, Flood-prone Land, Prevent, Flood Damage, Charles Huckelberry, County Transportation and Flood-district Director, Board of Supervisors, 1985 Bond Election, Flood, University of Arizona Dean of Sciences Ed McCullough, Southern Arizona Environmental Council, River, Bank Protection, Development, Buying Land, Riverbeds, Water-Revenue Taxes, County Ordinance, Building, Flood Plain, Paths, Change Course, Damage Structures, Basinwide Flood-Management Plan, Upstream Bank Protection, Water, Flow Faster, Greater Volume, Downstream

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## Three Routes To Aquifer Recharge, Drawbacks To All

RECHARGING groundwater through gravel pits is no simple matter of turning surface water into the pit and letting it seep away. Soon the bottom is more or less sealed by colloids and sediment, and possibly by bacterial growth as well. Infiltration is blocked.

So there is many a chemical problem to be solved, and possibly problems of electrical charge as well, before any pit recharge technique can be recommended.

Sol D. Resnick, U. of A. hydrologist, reported as much at the annual Watershed Symposium, Sept. 20. George Maddox was down as co-author of the paper but he was so busy solving some of the difficulties mentioned that he couldn't attend.

Maddox was renewing recharge experiments beside the Maricopa County Municipal Water Conservation District canal, west of Beardsley, where there are a number of large gravel lenses close to the surface. (AFR, July 1, 1961).

A general aim there is to attain infiltration as rapid as at Peoria, Ill., where there are four pits of one-seventh-acre area, each of which takes in five acre-feet a day. At Beardsley, the highest rate attained is about 60% of that, and it drops off to still less after a few days.

Colloids and sediment tend to collect in a thin film over the gravel, and perhaps bacteria contribute to this film. It is not understood why the solids aren't distributed through more of the upper gravel. Chlorination would kill the bacteria, but that would be expensive treatment for desert flood waters and the Arizona Experiment Station is looking for something cheaper.

### Wells And Spreaders

Recharge through wells and by water spreading were discussed. Water injected into wells must also be chlorinated or otherwise treated, and no sure way to keep the solids from clogging aquifers has yet been devised. Spreading has been tried very little in Arizona but Resnick thinks it warrants full investigation. Possibility of using nuclear explosions to loosen underground formations and make them more permeable was suggested. The bed of the Santa Cruz was mentioned as one suitable place for a test.

Anyway, the need for getting desert floods into underground storage is growing more imperative by the hour. As it is, those waters are mostly lost to evapotranspiration. And the groundwater bank is being drawn upon at the rate of 5,000,000 acre-feet a year, of which not more than 1,000,000 is replenished. There is scientific evidence that most of our groundwater has been right where it is for 10,000 to 30,000 years.

Estimates Raised By Engineers

ARIZONA DAILY STAR  
TUCSON 12-19-62

# Cost Of Flood Control Jumps To \$11.4 Million

MER-RANCHMAN

December 15, 1962

## SOME AID FOR FLOODED FARMS

### Pima, Pinal Victims Apply For ACP Disaster Relief — They'll Wait And See About FHA Credit

WHATEVER federal aid is extended to the flood-stricken farmers of Pinal and Pima Counties, it will amount to only a small percentage of the estimated \$10,000,000 damage.

By no means all the 135 affected farm operators are applying for the disaster aid available through the Agricultural Stabilization and Conservation Service. So far, not one has applied for a Farmers Home Administration loan. FHA people are receiving many inquiries but it seems doubtful if any of the inquirers can qualify.

Applications for disaster relief are being taken at the county ASCS offices in Casa Grande and Tucson. These were to be forwarded to the state office by Dec. 1. Until that date, the number and size of applications could not be known.

This relief is limited to \$2,500 per farm, and the farmer must expend \$500 more. That is, the government will pay 80% of the rehabilitation cost, up to \$3,000.

Exceptions to the \$2,500 limitation

may be made, however, if a farmer can prove that he needs more money to put his place back into production. He must pass the scrutiny of county and state committees, and get final approval at Washington. Informal reports at the state office, up to Nov. 27, indicated that only eight or nine applicants had asked for more.

The aid may be spent for only four approved practices: land releveling, repair of concrete ditches, restoration of pumpback systems, and rebuilding of dikes. Pump repair, recommended by the state committee, was not approved. It appears, however, that irrigation pumps were much less affected than was feared right after the September floods.

The FHA is authorized to relax standard rules somewhat to assist farmers in the flooded areas to get back on their feet. This money, of course, is merely lent at 3% interest. Although every flooded farmer could use credit at that rate, and they show a lot of interest, there are complications.

For one thing, all of them have other obligations, and FHA money cannot be used to refinance. Arrangements must be made with primary creditors, that are often ginning companies, to make sure that regular FHA loans are paid off in five years. Then again, a production loan must be paid off out of the crop for which the loan is made, and if a farmer has fallen short in repaying his 1962 financing the creditor may object to the FHA having first lien on his 1963 returns.

If any farmers do apply for FHA credit, it will probably not be until their 1962 crops are in and they know exactly where they stand. Some are finding that their cotton was damaged worse than they thought at first, and others are picking more cotton of better grade than they expected.

—AFR—



## Completion Expected In 1965

By PETE COWGILL

The cost of flood control for the Tucson Diversion Channel has been revised upwards to \$11,412,350.36—an increase of \$4.1 million over previous estimates.

These latest estimates by the U. S. Corps of Engineers mean that Pima County must contribute an additional \$3-million. The county already has contributed \$2,120,150.36 to the project expected to be completed in 1965.

The federal government's share in the joint project is \$6.3 million.

The project is designed to protect the City of Tucson from flood runoff from the vast concreted surfaces on Davis-Monthan AFB by channeling the water southwest to the Santa Cruz River.

The city has never participated in the cost although the latest in a series of requests for financial assistance by the Board of Supervisors has been taken under advisement by the City Council.

The two major projects which will account for about two-thirds of the future county costs are the excavation of the flood water detention basin and the construction of 15 highway, railroad and pedestrian bridges.

The complete excavation of the detention basin (\$578,437.10 has already been spent) which is located northwest of the Ajo-Country Club Rd. intersection is estimated at \$1,048,000. This will allow for a capacity of 1,800 acre-feet of water and an open outlet which will permit the basin to drain in such a manner that a second heavy runoff in 24 hours could be contained. The present capacity is 10 acre-feet.

The cost of the 15 bridges is estimated at \$1,542,500; all but \$43,000 to be borne by the county. The bridges extend from Alvernon Way at the northwest corner of D-M to the Santa Cruz river. The two major bridges are at Country Club Rd where the channel empties into the reservoir and at the Ajo-Park Ave. intersection.

The federal government will build the channel which will be concrete lined from the northern boundary of D-M at Craycroft Rd. westerly to Alvernon Way and then southwest to the basin. The channel will then connect with Julian Wash which crosses the Benson Hwy. and then parallels it in a northwest direction; near 12th Ave. it swings west to the Santa Cruz River. Other costs which the county must absorb are land acquisition and the relocation of utilities and washes.

In 1952 the Tucson Flood Control Project was begun by the county and the existing structures were built in stages until 1958 when Congress authorized the Corps of Engineers to design the proposed Tucson Diversion Channel project.

Next month the Engineers will call for bids on the first three parts of the project; the mainline and Nogales line railroad bridges and the road bridge at the Palo Verde overpass. Other bid calls will be made in September of 1963 and 1964.

After Thorough Check —

Tempe News

# Recommend City Site For General Hospital

## New \$12 Million County Unit To Center Project

90-Acre City Of Tempe Offer In Papago Park Due Consideration By Supervisors

City-owned property in Papago Park, offered as the site of the proposed \$12 million Maricopa General hospital, was recommended by the nine-member site selection committee — and more than half a hundred other interested patrons — at a final meeting Wednesday afternoon at the county health building in Phoenix.

The site—that area of Papago Park south of Curry road belonging to Tempe—includes 90 acres, more or less.

Maricopa county's board of supervisors will act on the recommendation and offer, probably within a week or two.

Tempe's offer, put forward by a joint committee of the city government and Chamber of Commerce, is free of charge. There will be transfer details to be carried out in compliance with terms of the U. S. Department of Interior release of the land to the city many years ago. This is not new, however, as similar moves had been made in connection with other public-use sites in the Tempe park area.

The city council took action of the offer November 29.

Milton Gan, chairman of the site committee, revealed when announcing selection of the Papago Park location, that the committee had checked thoroughly 79 sites as well as looking at others. They had \$450,000

for land acquisition, limited by the bond vote. This in itself eliminated many of the 79 checked.

Because of the expected easy transfer of land, the committee believed the hospital can start about two years earlier than if it had been necessary to go the condemnation route to acquire a site.

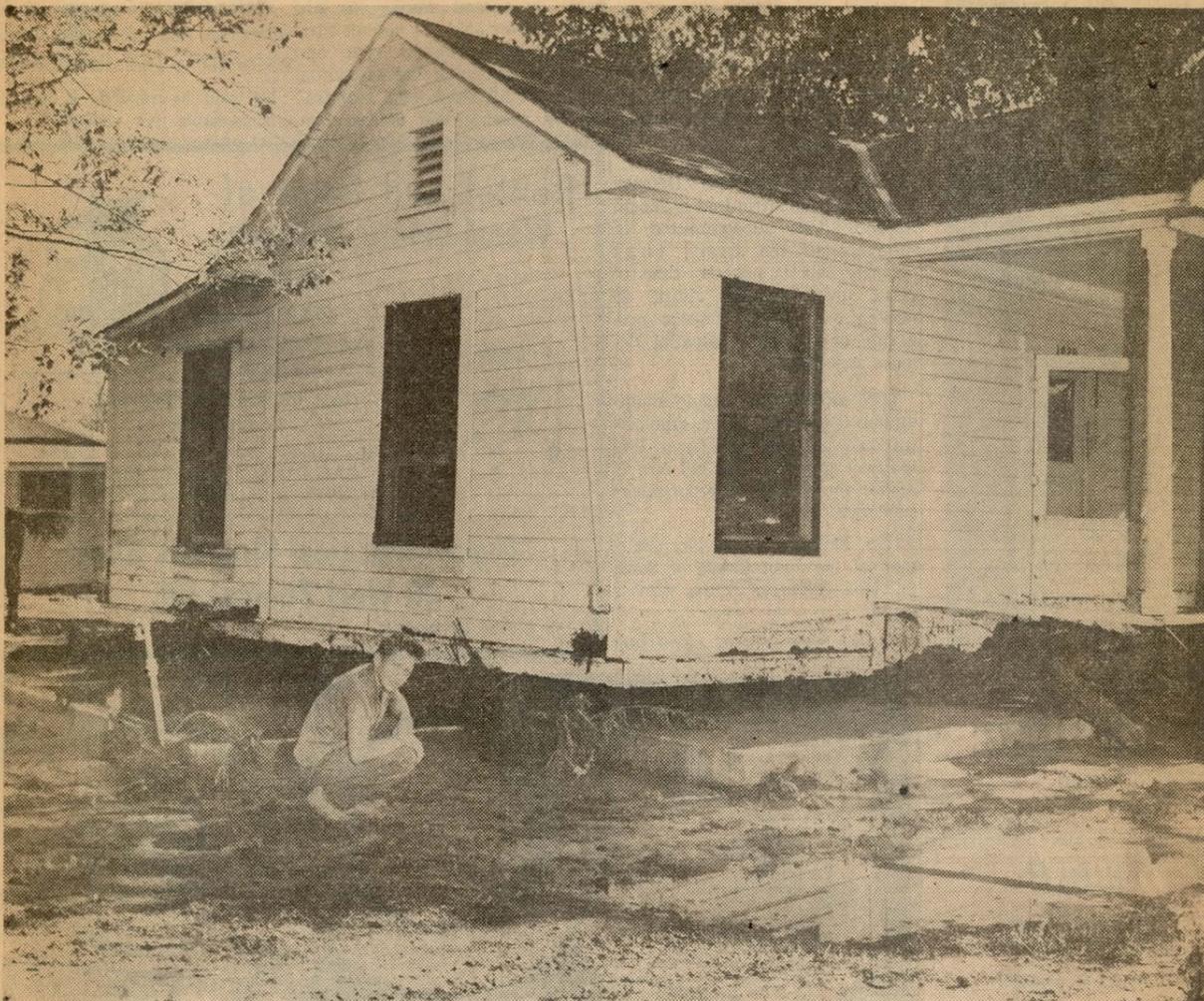
Construction is expected to start in 1964 and require three years. Architectural work will consume most of 1963.

Fred Foster, county hospital director, said the committee and advisers planned for a minimum of 75 years and hoped for the development of additional facilities such as research labs and voluntary, non-profit hospital facilities.

The Papago Park site was one of several presented to the committee last summer by city and Chamber representatives.

Attending Wednesday's meeting at Phoenix were Robert Svob, councilman and chairman of the council's parks and recreation committee; Dr. George Calderwood, C of C president; Lou Cooper, city manager; Vic DeForest, C of C manager; and Frank Connolly, publisher, who served as site committee chairman for the Tempe group.

The full city council was present at the November 29 meeting which put into writing the offer of the site.



Gazette Staff Photo by Dick Taylor

Unidentified youth today was among many Prescott residents visiting flood damage in Miller Valley after severe

rainstorm. House on Fair Street was washed off foundation. Water marks are visible on lower base of structure.

## Floods Force Scores From Prescott Homes

Prescott today dug out from under its second flooding rain in three days — and the U.S. Weather Bureau indicated more thundershowers may strike the water-soaked town tonight.

The Red Cross designated parts of Prescott a "disaster area."

More than 4 inches of rain filled streets to overflowing and chased residents from their homes last night in sections of Prescott, mainly on the northwest and west sides. In contrast, the weather station at the airport—to the

northeast—reported only an official .59 of an inch of rain.

**THE THUNDERSTORM** slammed into Prescott about 6 p.m. yesterday, and the Yavapai County sheriff's office said it was more violent than the one Friday that dropped 3 inches of rain and created flood conditions. No injuries or drownings were reported in last night's storm, although officers said several cars were reported caught in flash floods and washed away.

At one point, 16 evacuees from

the flood were being housed in Head Hotel. The Red Cross alerted for possible emergencies and the sheriff's Jeep Posse of about 18 members helped evacuate flood victims and direct traffic away from inundated streets.

Hardest hit appeared to be the Little Sonora section, a Latin-American settlement along banks of Granite Creek. Water poured from the creek and into many homes in the area.

**PRESCOTT** firemen rescued 18-year-old John Carson, trapped by a flash flood near 700 block on Copper Basin Road in south side of town. Carson told firemen he had gone to a corral to move a horse to higher ground. He had removed the horse and returned for a saddle when a "wall of water" hit the area. The youngster climbed a tree, from where firemen rescued him.

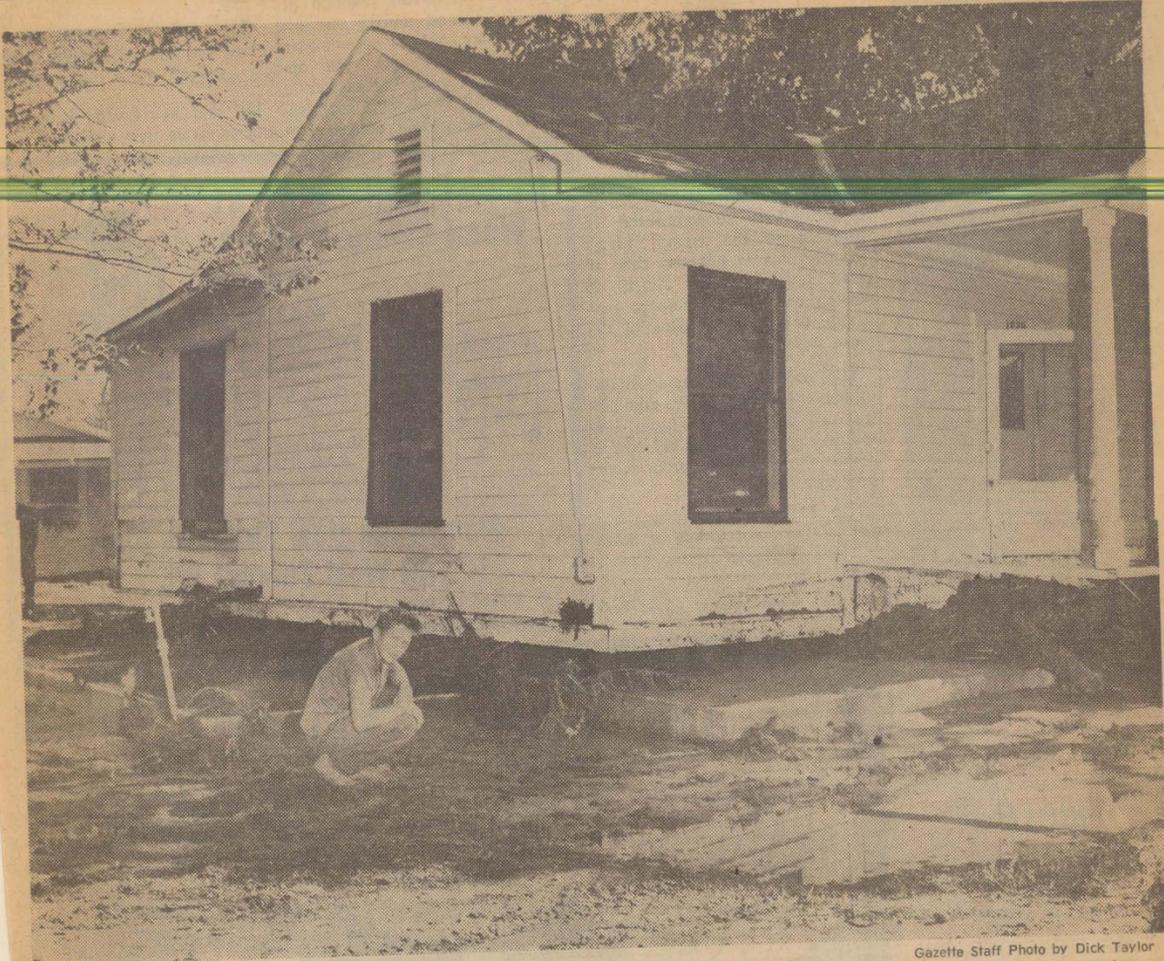
About 25 persons were evacuated from the Little Sonora, or Little Long Beach, section, firemen said. Flash flooding sent water cascading into homes. Several children and women and one elderly blind man were among those evacuated.

"Some of them would have drowned, if we hadn't gotten them out when we did," one fireman said. Police assisted in rescue operations.

**PRESCOTT RED** Cross chapter chairman James M. Stephenson said the "disaster area" designation was authorized at 10:20 p.m. yesterday, an hour after the rains stopped.

At least 50 families were forced to take shelter with friends, relatives or at the Head Hotel. Several of them said today they had "no idea how much we have lost."

Housed at the hotel were Mr. and Mrs. Peter Rooks and their two children; Mr. and Mrs. John Sanchez, a sister, Virginia, and four children, ranging in age from 2 to 11 years, and Mr. and Mrs. Alfred Martinez, their 2-year-old



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# 4-INCH DELUGE

Concluded From Page One

daughter and Martinez' 16-year-old sister.

"I never knew there was so much water," Sanchez told The Gazette. "Around 6 o'clock the sky just opened up with a tremendous barrage of thunder and lightning, and by 9 o'clock, when the fire department helped us out of the house, there was 3 feet of water in all the rooms."

**SANCHEZ LIVES** in a three-bedroom house in Little Long Beach area, about two blocks northwest of the center of Prescott.

"We had to travel about 50 yards to higher ground," he said. "I hate to go back to look at the house. I suppose everything is ruined, but I don't know."

Floating debris broke a gas line at the home of Lloyd Reeser, at 1313 Parr Drive on west side of Prescott, and fire units stood by until emergency crews shut off gas.

Police and sheriff's office radios were knocked out by the storm, and officers used a portable radio from a fire truck as emergency communications during the black-out, which lasted almost an hour.

**POLICE SAID** "four or five" cars were reported lost in creeks or washes during the flooding, and at least two small trailer houses near Granite Creek were washed away.

Street damage is expected to be heavy, a city official said. Flood waters swirled under streets, washing out dirt fill, and creating many chuckholes.

Power was off in Prescott on the west side from about 8:30 to 9:30 p.m., sheriff's officers said. Yavapai County Hospital was forced to go on standby auxiliary power, but reported no emergencies.

About a foot of water swirled through streets of Miller Valley, in Northwest Prescott, during the downpour. Granite Creek, Potts Creek and Miller Creek all were reported "bank high," and water was lapping over bridges in some places.

**DON BELL**, superintendent of Yavapai County Hospital, said he had never seen such a flood in Prescott in the 68 years he has resided there.

"This is the worst flood, no question about it," Bell told the Gazette by telephone today.

Wind was light during the storm, and the rain seemed to come "almost straight down by the bucketfuls," one observer said.

Many roads in the area were reported closed last night, and some were still impassable early today, officers said. Water was

receding rapidly and most evacuated families returned to the task of cleaning up today.

**"DAMAGE IS** going to be extensive, mainly to streets and homes," an official said, but no estimate could be given today.

Rainfall also was heavy in surrounding areas of Mayer, Chino Valley and Cordes Junction. Arizona Highway 79 near Cordes Junction was closed for a time because of flash flooding during the storm, according to highway patrol.

Heavy rain, but no apparent flooding, was reported at Oak Knoll Village, an area of summer homes  $3\frac{1}{2}$  miles southeast of Prescott. Mrs. B. P. Lindley of Phoenix, who has a summer home in the area, said the rain was "nothing like what they got downtown."

Elsewhere, Flagstaff reported .03 inches of rain, t. Huachuca .10, Grand Canyon .10, and Winslow .02.

**A RAIN** and hail storm was reported in Superior last night, with an unofficial 1.67 inches of rain recorded at Magma Copper Co. Hail fell for about 30 minutes, and the rain was called "best of the summer" in Superior.

Lightning struck a Salt River District power line  $3\frac{1}{2}$  miles west of Superior, blacking out Superior for nearly two hours last night. William F. Humphries, manager of Arizona Public Service office in Superior, said the lightning caused a fuse to blow, disrupting power.

Forecast for the Prescott area and most of the state calls for partly cloudy weather with probable afternoon or nighttime thundershowers.

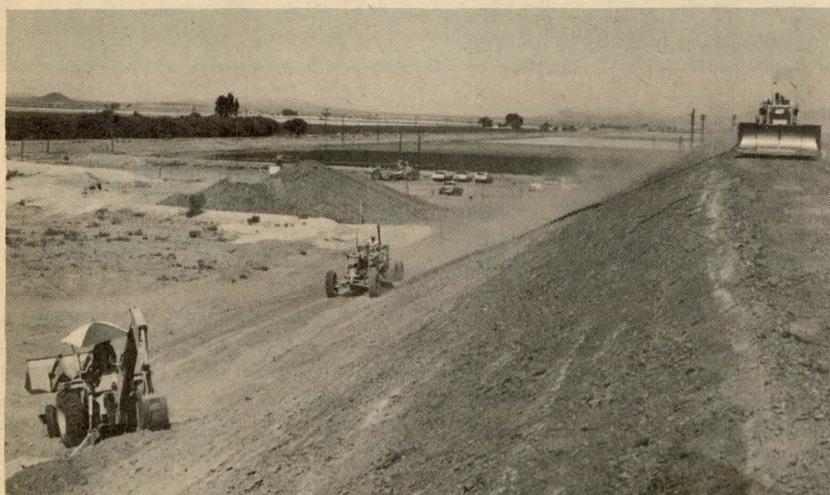
Phoenix, which was still cleaning up from a weekend flood on the west side, was buffeted by blowing dust yesterday afternoon. Wind gusts to 36 miles an hour were clocked at the weather bureau station at Sky Harbor at the height of the storm.

**PREDICTION FOR** the Valley is for about 60 per cent of late afternoon or nighttime thundershowers today and 30 per cent tomorrow. High today is expected to be around 98 degrees and near 101 tomorrow. Yesterday's high was 103 and overnight low 77.

Meanwhile, National Park Service officials said 20 persons stranded for more than 24 hours by high water near Lee Ferry in northern Arizona were safely evacuated late yesterday. The Paria River trapped the group Sunday, but none was in danger, it was indicated.

About 150 persons were reported stranded in cars Sunday as flash floods closed two fords on Kane Creek Road about 10 miles north of Page. All were able to get out as flood waters subsided.

## MAGMA FLOOD CONTROL PROJECT IN PINAL CO. AT COMPLETION POINT



JUST ABOUT THE time this paper is in the mail, the last cubic yard of earth will be piled on top of the 5.5-mile dam that is the main feature of the Magma flood control project. In fact, the final inspection by Soil Conservation Service and Pinal County engineers may be in progress, ten days ahead of schedule.

And 15,000 acres of Arizona's richest farmland will be permanently protected from floods that come on an average of once in 15 years but are capable of terrible destruction when they do come. Considering how that part of the country has been developed in the last decade, an uncontrolled flood could cause losses running into the millions of dollars.

Now, however, nothing of the kind can happen. Water flowing down from the hills and mesas to the north will be detained behind the long dike and gradually released through culverts, to flow harmlessly into the Gila River a few miles to the south.

General direction of the detention dam is from northwest to southwest. The picture herewith shows earth-moving equipment in action toward the southeast end, which is not far from the farm of Joe and Forrest Cooper.

At \$420,000 the contract for building the dam, and for certain channel work below it, went to New Pueblo Contractors, Inc., of Tucson. Work began in March and has proceeded at a speed gratifying to all the sponsors. New Pueblo machines and operators have been working two ten-hour shifts. They have moved as much as 16,000 yards of earth in one day. Total yardage estimate is just under 1,000,000.

All engineering on the project was done by the Soil Conservation Service, and it is through that agency that funds are funneled for the actual construction. All rights-of-way have been supplied by the sponsors: Pinal County, Magma Flood Control District, Florence-Coolidge Soil Conservation District. They are also bound to operate and maintain the facilities.

Some channel improvement is still to be planned and accomplished farther down between the dam and the Gila River, into which the flood waters will be discharged northeast of Coolidge. But the essential part of the job is done. Floods originating in the Magma district of Pinal, east of Maricopa county's Queen Creek District, can do no harm to speak of. And their detention is likely to do something toward replenishing groundwater aquifers.

# Water-Stealing Plants Plague Western States, Engineer Says

NEW YORK (AP) — Man needs to step up his battle in the Western United States with water-stealing plants known as phreatophytes, a research engineer of the U.S. Geological Survey warned today.

T. W. Robinson said, in remarks prepared for a meeting of Soil Conservation Service hydrolic engineers, that there are now about 16 million acres of nonbeneficial plants growing in the 17 Western states.

Robinson added that these phreatophytes are estimated to consume 25 to 30 million acre-feet of water annually, or twice the average annual flow of the Colorado River into Lake Mead.

He cited the plant, known as

salt cedar, as a major culprit in the competition for precious ground water in the arid and semi - arid West, saying it was brought to this country from the Mediterranean about 100 years ago and now covers nearly a million acres. These salt cedars may waste 3.5 million to 4 million acre-

feet of water each year, he added. "The plants, having an established connection with the ground water, fill their needs first, leaving for man that which remains," Robinson said. He added that farmers and ranchers will find these plants pose a serious threat to survival in the arid regions.

## More About

# Phoenicians Battle Water

(Continued from Page 1-B)

Cross and the radio operators worked together to get in the information and relay it.

Howard Nutter, 4206 N. 47th Drive, is the president of the Copper State Road Runners. Yesterday he drove his radio-equipped car into the deep water in the

hard-hit W. Sunset Drive area with a loudspeaker on top, giving emergency information to those working in the flooded homes.

"My husband is overseas with the Air Force," said Mrs. Raymond Stockton, 6424 W. Sunset Drive, "and next week I'm going to join him. For me, the flood came just a week too early."

THE FLOOD came to Mrs. the Stockton, as to most victims, in the middle of the night.

"At about 11:30," she said, "water began pouring in under the door, rain water washing across the road. I was there, scooping away. I even had my little 5½-year-old boy bailing out

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Only F

By LESLIE J. NASON, ED. D.  
Professor of Education,  
University of Southern California

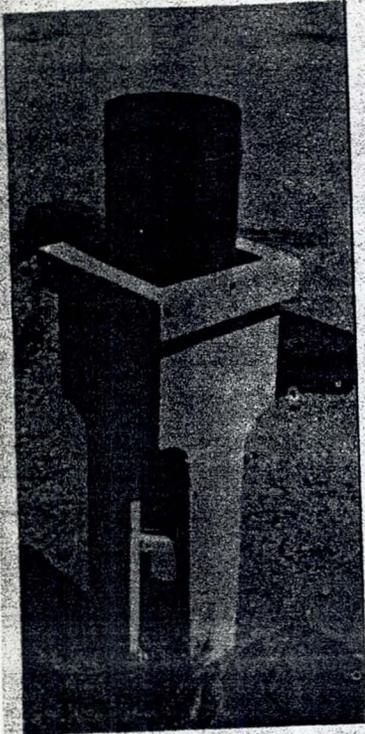
Some questions and answers  
Dear Dr. Nason:

What do you think of a paren

N... U... E... D...

XXXXXXXXXXXXXXXXXXXX

pose with the brass cylinder in which rains are collected for measurement. We wanted photographic proof that the container had been almost full.



Pictured above is the official government rain gauge. The brass cylinder which Ronna holds in our other picture is exactly 2 1/4 inches in diameter, inside measurement, and 20 inches deep. It sits within the larger brass cylinder above, which is 8 inches in diameter and has a funnel-like cap which catches rainfall and empties it into the long narrow cylinder. Last Friday morning the one and three-quarter inches of collected rainfall came within two inches of the top of the cylinder. An even two inches of rain would have filled the cylinder brim full; any over two inches would have spilled into the larger tank — and we wouldn't have known how to record it exactly. In the fond hope that someday we may have to measure more than two inches of rain in 24 hours, we're asking the Weather Bureau office in Phoenix for instructions.

WICKENBURG SUN 8-22-63

MESA TRIBUNE 8-23-63

# 3-Inch Rain Closes Beeline Highway, Isolates Payson

By United Press International  
Storm activity over Arizona continued Thursday with a deluge that isolated Payson when it forced the closing of the Beeline Highway.

The highway was temporarily closed to traffic when torrents in swollen Rye Creek tore the 60 foot middle section out of a steel bridge nine miles south of town. A record 3.17 inches of rain was measured in eight hours.

Several roads were washed out around Payson, and the city was sealed off from other parts of the state except through the Arizona Highway Patrol.

Highway crews were able to open the Beeline Highway by setting up a detour, but mud and cave-ins stalled traffic intermittently into the evening.

A rancher near the Beeline, Tom Hughes, was carried 200 feet by Rye Creek's waters after tumbling in when the bridge near him gave away. He was able to pull himself from the water but suffered scratches and bruises.

A heavy cloudburst in Globe contributed to a train derailment. A Southern Pacific diesel locomotive slipped off mud-covered tracks but remained upright.

# Mesa Tribune

Wednesday, July 1, 1964

SECOND SECTION

Page 11

## Water Conservation Need Cited by U of A Speaker

TUCSON — Man is waging the battle to conserve water on many fronts in the water-hungry Southwest, but the "war" needs to be intensified to meet the challenge of the future.

This was the message from Dr. A. L. McComb, head of the Department of Watershed Management in The University of Arizona's College of Agriculture, during the 59th annual meeting of the American Dairy Science Association on the U of A Campus.

"There is good evidence that water now available for use can be made to produce more of useful products and services than it does at present. To do so, calls for reduction in waste by more efficient handling and use," he said.

Dr. McComb said that programs which seek to save water through more efficient handling and use include:

1. Reservoirs and stock ponds — these are places of great potential water saving. Evaporation from these exposed surfaces, excluding Lake Mead, is estimated at over 275,000 acre-feet each year. From Lake Mead alone the average annual evaporation is computed at 750,000 to 900,000 acre feet, and for the lower Colorado River Basin (below Lee's Ferry) at 1,580,000 acre-feet. Research is in progress to devise methods of reducing this loss.

2. Transmission of irrigation water to the farming areas and fields. The Salt River Valley Water Users' Association in Central Arizona is currently spending over a million dollars each year in lining irrigation canals, and replacing laterals with no-joint, cast-in-place concrete pipe. They also are testing soil sealing compounds for reducing seepage.

3. Efficient use of water placed on fields. This can be done more efficiently than it now is being done. Of the total evapotranspiration from growing crops, about 50 per cent is evaporation and 50 per cent is water absorbed and transpired by

plants. Studies are in progress to determine best irrigation procedures.

4. Saving water en route from the watershed to the irrigation distribution system. As an example, much of the water used in the Phoenix area is produced in the White Mountains and the Mogollon Rim areas 100 to 200 miles away. On its way to Central Arizona this water flows through hot, dry deserts where the stream channels and valley floors are occupied by salt cedars, cottonwood and so-called phreatophytes. The evapotranspiration losses are very high.

Dr. McComb pointed out that it is possible to achieve large water savings.

"Through more efficient water transmission systems, irrigation techniques and crop use, it seems entirely reasonable that very large water savings can be achieved.

"A 10 per cent savings alone would mean an equivalent of more than 600,000 acre-feet of water per year," he said.

Dr. McComb directed attention to the fact that of the 79 million acre-feet of precipitation per year in Arizona, 67 million is lost in "nonbeneficial" evapotranspiration.

## Irresponsible Reporting

# REPUBLIC SENDS A BOY UP TO DO A MAN'S JOB

The young fellow—they call him a "Staff Writer"—the Arizona Republic sent up the other day to write about our flood is more to be pitied than censored.

We must keep in mind that as he pulled out of the smogged-over valley with its fragrance of steer manure, feed pens and the residue from sewage disposal plants and into the bright, clear and clean air of our higher country something obviously happened to his sense of accuracy, if any, to his powers of observation, if any, to his directional equilibrium, if any, and certainly to his ability to count from 1 to 10, if any.

The young fellow from the big paper looked around the Constellation Road area which suffered damage when Powder House Wash went on its perennial rampage Tuesday night. He talked to some of the people affected. He heard our own Red Cross folks arranging, with our own Red Cross funds, to secure motel accommodations for those who needed it, to provide food, laundry service and some clothing for others. A total of six families were assisted and the Red Cross had on hand here the \$200 or so needed, according to Beverly O'Leary who ought to know because she keeps the Red Cross purse here and is responsible for all of its relief work.

The Wickenburg ~~St~~ does not mean to minimize for one moment the tragedy of those people in the path of the raging Powder House Wash flood waters and certainly that is the feeling of all citizens of our town, but this newspaper and those citizens are outraged at the example of irresponsible reporting which greeted readers of the Arizona Republic last Friday morning.

The newspaper said local Red Cross officials had appealed for emergency aid.

NOT TRUE!

The newspaper said the flood caused damage estimated at \$100,000.

NOT TRUE!

According to its own account, the loss to the C. E. Philbeck family was \$25,000. To the Stage Coach Motel \$36,000. To the Desert Cypress Trailer Ranch \$12,000. The Republic's own figures add up to \$73,000—NOT \$100,000. Why the exaggeration? To sell a few more papers?

The Phoenix newspaper said 46 trailers were damaged at the Desert Cypress Trailer Ranch.

NOT TRUE!

Herb Cameron says one trailer received a dent and the skirting about its base was slightly damaged. Damage to lawns and roadways will come to around \$12,000, he said, and added, "I gave that figure to the young reporter but he did not ask me how many trailers were damaged. He reached up into the air for that ridiculous figure of 46 trailers damaged at Desert Cypress."

Unfortunately, the Associated Press, without making any effort to check the Republic's yarn fed it to Phoenix radio stations. Many a tourist, stopping here to eat or for gas Friday expressed surprise upon finding the town virtually intact; they had been led to believe, from the excitable radio accounts, that Wickenburg had been washed down the Hassayampa River.

As a final blow, the young reporter, probably on his first out-of-town assignment and anxious to please the bosses, got all mixed up in his directions when he got away from Second Street and Van Buren. He placed the flood damaged area in "the south section of town."

We don't know how it is in Phoenix, young fellow, but up here the sun comes up in the east and sets every night in the west.

You were in East Wickenburg, son!

CONTROLLING THE FLOODS

# Platte Dam Economically, Physically Feasible

(Editor's Note: This is the first in a series of articles describing what is being done and what can and must be done to protect the Denver area and the South Platte Basin from a repetition of the flood disaster of last June.)

By BERT HANNA  
Denver Post Staff Writer

The first major project for protection of Denver and the South Platte Basin from catastrophic floods such as occurred last June has been found economically and physically feasible on the basis of initial new studies by the Army Corps of Engineers, Omaha District office.

It is the long-authorized Chatfield Dam on the South Platte River above Littleton, below the junction of the river with Plum Creek where the June flood originated.

**FIRST PHASE**  
Announcement of the highly favorable feasibility showing for this first phase of a long-range, basinwide flood protection program was made to The Denver Post Saturday by Col. Harold J. St. Clair, Omaha District engineer of the Corps of Engineers.

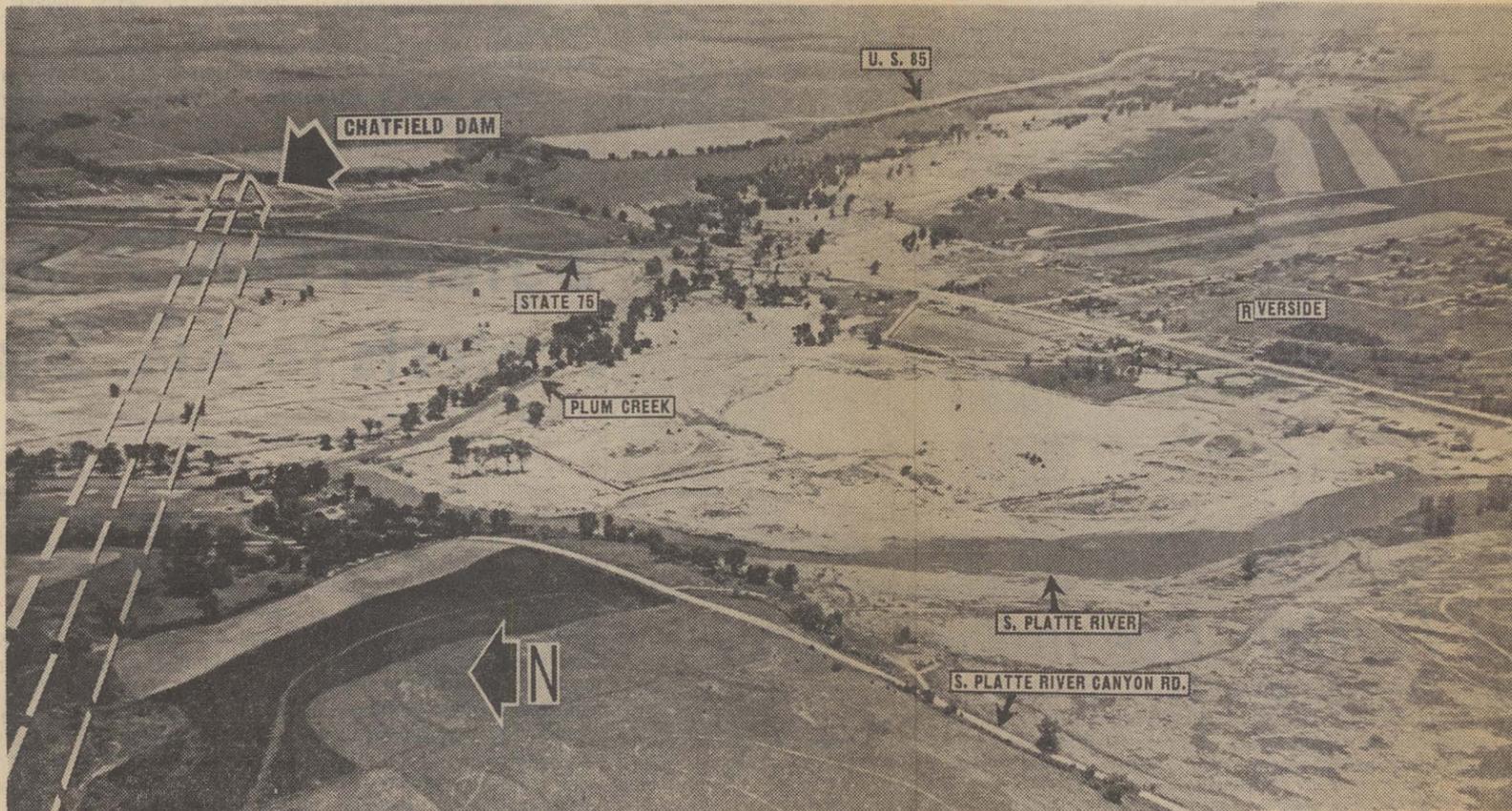
He said his organization wants to get started on the Chatfield project as soon as possible, calling it the essential beginning and the "key" to effective flood control for the area.

While the Chatfield feasibility report is not complete with a benefit-cost analysis, St. Clair said the study work is being expedited for review and necessary approval by the Missouri River Division of the corps in Omaha and the chief engineer in Washington, Lt. Gen. William Cassidy.

**PRESENT FINDINGS**

Then the corps would present its findings at congressional hearings next year and seek appropriations for final planning, acquisition of rights of way for the dam and reservoir, and construction expected to be started in 1967.

St. Clair also disclosed the corps will arrange a public hearing on the project in the



**THIS IS THE PROPOSED SITE OF THE CHATFIELD DAM ON THE SOUTH PLATTE RIVER UPSTREAM FROM LITTLETON AND DENVER AREA**  
Reservoir would form in two fingers to the right of the dam, along Plum Creek and along the South Platte. Feasibility reports are highly favorable.

Denver area, hopefully this November, to explain what the project will accomplish and sound out the degree of state and local support.

The project, he revealed, is estimated to cost upwards of \$72 million. When it was authorized in 1950 and later shelved because of scant public support, the cost was placed at \$34 million.

The Chatfield special, emergent studies now in progress were made possible by a \$300,000 appropriation inserted in the public works appropriation bill for the current fiscal year through efforts of Colorado's congressional delegation. This recently received congressional and presidential approval.

**SPEED STUDIES**

An additional \$55,000 also was provided to speed corps studies of the over-all flood problem of the South Platte River and necessary flood protection on other

tributaries and the main stem. This study is expected to be completed by the end of next year.

St. Clair informed The Post that his office engineering staff began field surveys in the Chatfield damsite area shortly after the June flood was estimated to have caused nearly \$300 million in property damages in the Denver area.

"We didn't want to sit on our hands and wait for the appropriation," he said. "We were directed to get the project moving and this we are doing."

**RECEIVE SUPPORT**

The Missouri River Division chief of the corps, Col. Bert De Melker, endorsed the speed-up in the planning for Chatfield Dam. Because the Denver area is aroused to the need for flood protection in view of last summer's disaster, the project should receive wholehearted community support, he believes.

The corps is convinced that Chatfield Dam and Reservoir should be built pretty much as originally designed more than 25 years ago.

There was discussion after the flood of the possibility of a smaller dam than first conceived at the confluence of Plum Creek and the South Platte, or possibly two small dams on the tributary. This arose from the increasing costs of such a project and the considerable urban development in the area.

The planning now calls for a large structure across the valley four miles above Littleton and about eight miles south of Denver. This would control the most dangerous flood potential in a 3,000-square-mile drainage area, or 60 per cent of the flood hazard faced by Denver, the engineers said.

Here are some revised specifics for the project based on the new studies as detailed by

Gus Karabatsos, head of the reports section in the Omaha District, Corps of Engineers:

—The dam would be 140 feet high and 11,000 feet long. It would be a rolled earth-fill structure containing about 9.6 million cubic yards of embankment.

—The structures would include a concrete conduit outlet works, and concrete overflow (chute) spillway.

—The flood storage requirement would be about 215,000 acre-feet of water. The reservoir area at flood pool is placed at 5,000 acres. There is also provision for a sediment and recreation pool of a minimum of 20,000 acre-feet of water covering 1,150 acres.

Major relocations in the project area include:

—The highway leading to the Martin Co. plant on the west side of the reservoir.

—The railroads located in the

right abutment area of the dam (east side.)

—Protective structures for the Kassler water plant complex of the Denver Water Department.

—Other facilities such as power lines, utilities, pipelines, water supply ditches and the like located in the reservoir area.

—Real estate developments in the reservoir area, notably Riverside Acres, an unincorporated community of about 100 homes and 400 residents, and some business enterprises and sand and gravel works.

**PHYSICALLY POSSIBLE**

Preliminary studies indicate that such property transactions and relocations are physically possible, Karabatsos said, although they will entail a considerable expense.

He said that during detailed design studies, the extent and cost of relocations will be de-

termined cooperatively with companies or owners of facilities requiring relocation.

This rough outline of the initial study conclusions was all the Omaha District office of the corps would make public at this time.

St. Clair and Karabatsos explained that Chatfield Dam is being sized to meet what the corps terms a "Standard Project Flood." This is defined as:

"A hypothetical flood representing the critical runoff volume and peak discharge which may be expected from the most severe combination of meteorologic and hydrologic conditions considered reasonably characteristic of the geographic region involved, excluding extremely rare combinations."

**HIGHER CATEGORY**

Most of the corps flood projects are planned on such a basis but there is a higher category called "Maximum Probable Flood," defined as:

"A potential flood with the highest discharge and runoff volume to be expected from the most critical combination of meteorologic and hydrologic conditions reasonably capable of occurrence in the region."

"What we call a maximum probable flood is something with very little probability," Karabatsos said. "However, the spillway of Chatfield Dam would be so designed and sized that the project could control or insure against this most extreme type of flood."

**REVISED ESTIMATE**

One factor weighing in the corps new considerations for Chatfield Dam is a recently revised estimate by the U. S. Geological Survey of the enormous flood flow crest that poured out of Plum Creek into the South Platte last June 16.

An early estimate, which was merely a guess because stream gauging stations were destroyed, was that some 40,000 cubic feet-per-second of water came down Plum Creek—in itself a very destructive flood. This would have been less than the flood flows contained at the same time by Cherry Creek Dam, preventing enormous ad-

ditional damage from the Cherry Creek drainage.

Now, the estimate of the Plum Creek peak discharge has been nearly quadrupled on the basis of new hydrologic studies in the flood plain. Thus, the flood was far greater than the previous record South Platte flood in 1884 and undoubtedly the worst natural disaster in Denver's history.

**20 FLOODS**

Twenty floods with recorded flow measurements have occurred in the Denver reach of the South Platte since 1884. Prior to that and dating back to 1864, there were five major floods but without any record of peak discharges.

A flood plain information report published by the Omaha Corps District in 1963 contained this observation:

"Trends in population growth for metropolitan Denver will increase urban land requirements . . . With increased runoff from urban growth, floods may occur in the future from rainfall quantities which under rural watershed conditions did not produce flood stages in the river."

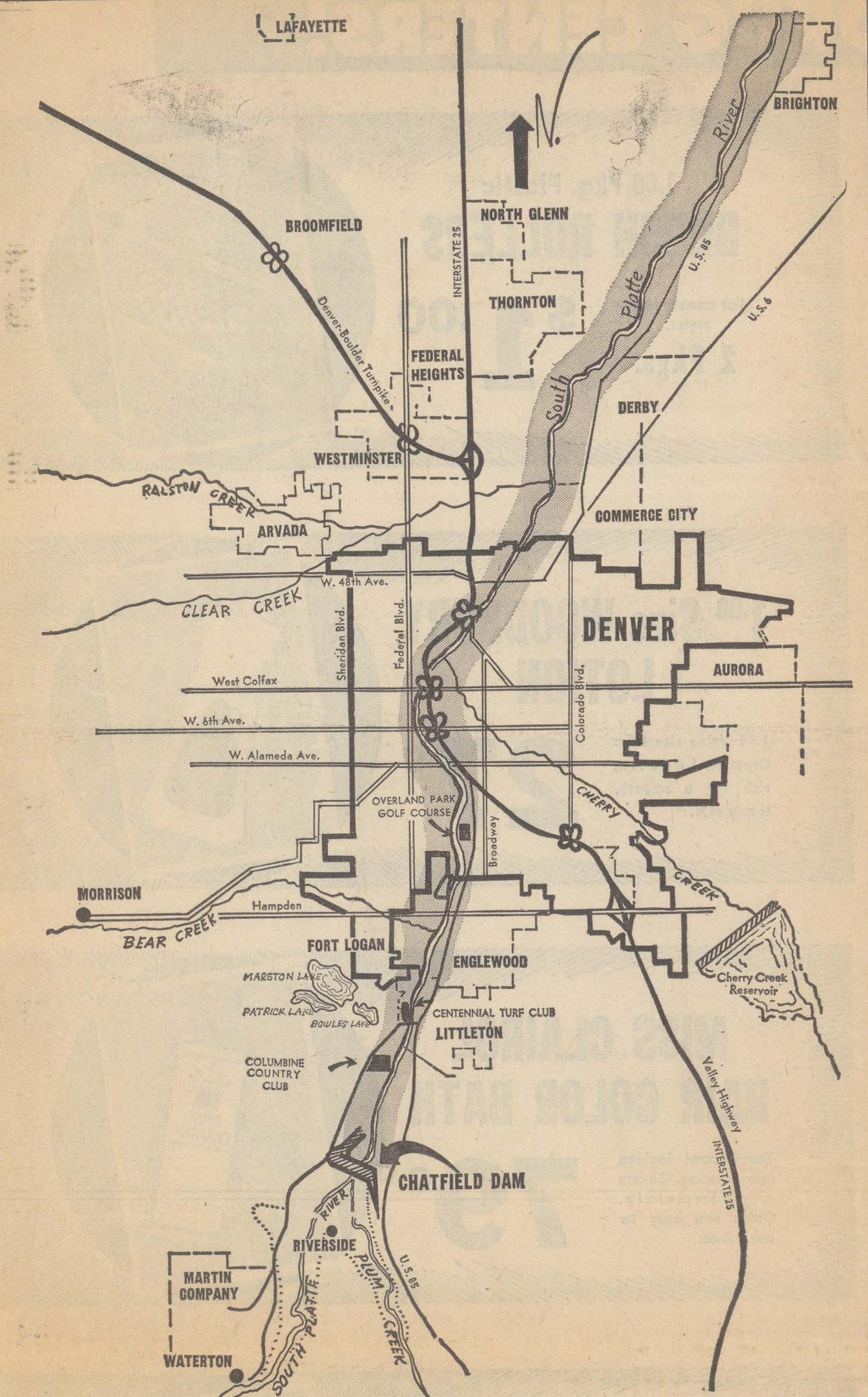
"These trends demonstrate that adequate allowances must be made to prevent flood plain encroachments into areas of potential future flooding."

**LATER PROJECTS**  
The Denver problem and the South Platte flood history furnish concrete evidence to support construction of a project of the magnitude of Chatfield Dam, said the engineers, and for later projects that must be put on the planning boards.

What is benefit-cost ratio which must be favorable in a feasibility report to justify federal expenditures for such a project as Chatfield Dam? Karabatsos explained this:

"Primary benefits are savings in flood damages prevented over the life of the project. In this case, it would be based on a 100-year economic life of the project, although physically the life would extend beyond that.

"The total cost of the project . . .  
Concluded on page 30.



Denver Post Map by Angelo O'Dorisio

**CHATFIELD DAM, PROPOSED FOR FLOOD CONTROL, WOULD PROTECT DENVER METROPOLITAN AREA**  
 Shaded band north of the proposed dam is the area along South Platte River damaged in the June flood.



**COLONEL ST. CLAIR**  
 Chatfield Dam is feasible.



**GUS KARABATSOS**  
 Outlines plans for dam.



**COLONEL DE MELKER**  
 Endorses planning speedup.

# Army Studies Stress Chatfield Dam Needs

Continued from page 25. is weighed from an interest and amortization standpoint, using 3 1/2 per cent. So we take the total investment cost in this case \$72 million—take the interest, amortize the cost, add op-

eration and maintenance, and we come up with annual costs compared with annual benefits. "The whole idea is that for every dollar we spend, we must get at least a dollar return in benefits. I think that in the case

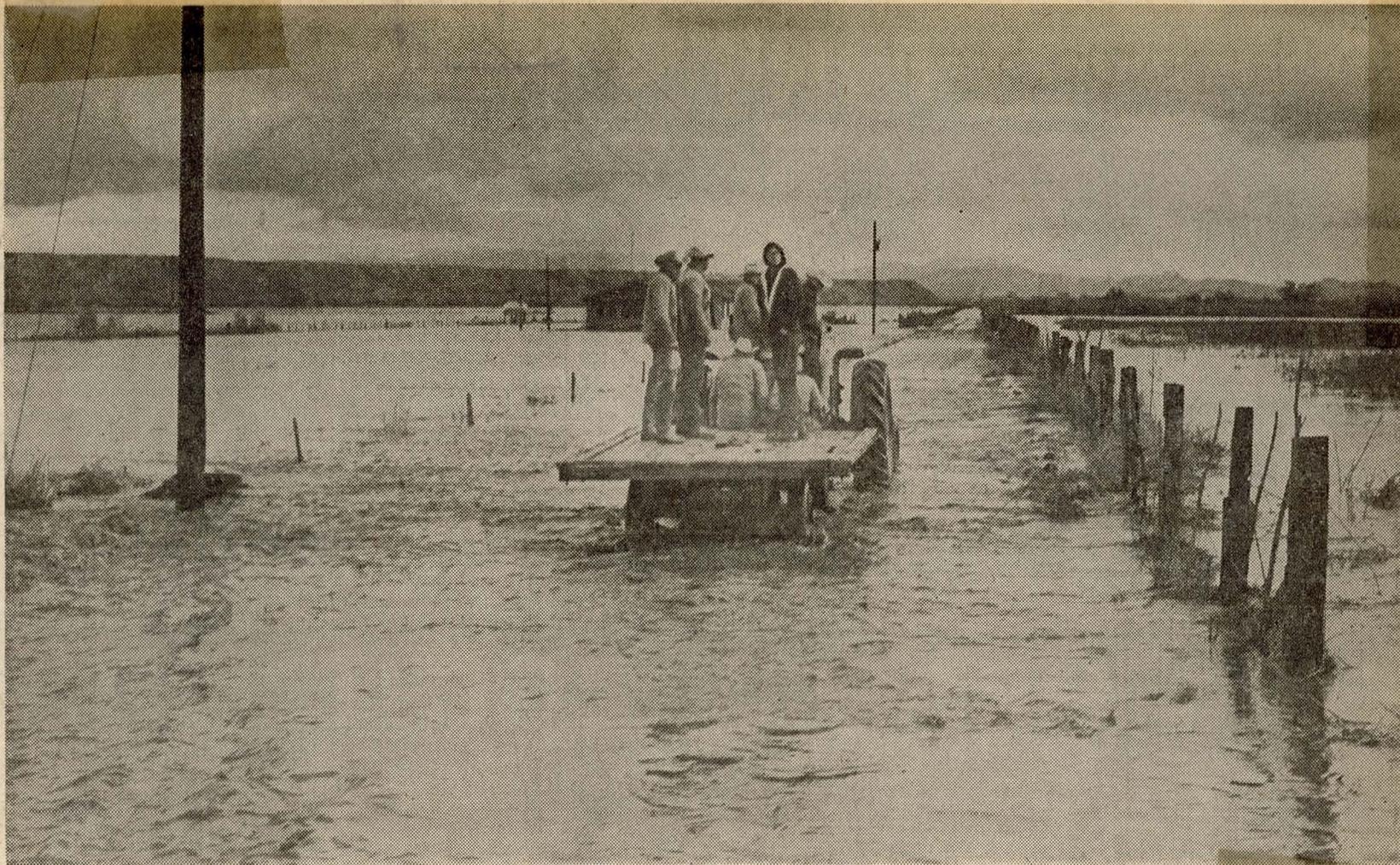
of Chatfield the outlook is excellent for a very favorable benefit-cost analysis."

Another important factor enters into the benefit studies for such an undertaking, the engineers emphasized. That's a conservation pool for recreation.

While a permanent supply of water—beyond any future flood flows—is not in sight for the impoundment, a recreation pool definitely can be expected as a part of the planning, they said. They believe this can and will be achieved through state and local assistance.

The Chatfield Reservoir could become an outstanding local recreation area while guarding Denver against the possibility of another flood like that of the tragic summer of 1965, St. Clair observed.

**NEXT**—Chatfield Dam would have saved Denver \$296 million in flood damages.



A tractor pulls a trailer along flooded country road in the Hollywood section east of Safford. Overflow from Gila River flooded farmlands, sur-

*Phoenix Gazette 12-24-65*

rounded Jess Larson home in background. Men were on way to rescue livestock marooned by floodwaters.

Arizona Highway Patrol Photo

**Cactus Pete Sez:**

"It's true," said the playboy of his latest blonde, "she doesn't have much upstairs, but man, dig that crazy staircase."

# Mesa Tribune

**Good Afternoon**

Clearing and colder tonight; frost in some areas of valley Friday morning. High today 54, low Friday 35, high 55.

EXP 9-25-69  
PHOENIX, ARIZONA 85008  
3333 W DURANGO  
FLOOD CONTROL DISTRICT

Vol. 17, No. 286

Entered as Second Class Matter at the Mesa Post Office

MESA, ARIZONA, THURSDAY AFTERNOON, DECEMBER 23, 1965

SINGLE COPY TEN CENTS

16 PAGES

# Flood Threat Acute at Safford

## Officials Move 75 Families

By The Associated Press

Flood waters threatened a broad area of central and southern Arizona today as new snow thickened the white blanket over northern parts of the state.

The flood situation was most acute at Safford where a community of 400 farm workers occupying a lowland area called Little Hollywood was threatened by the Gila River.

The highway patrol said 75 families were evacuated this morning. The Graham County sheriff's office said dump trucks were throwing up a dirt levee along a road bordering the community in an effort to block the rising water. One home was reported flooded by the surging waters.

Deputies said the Gila, fed by storm waters that emptied into the San Francisco River, was expected to crest about noon today.

In Phoenix, the governor's office said it was standing by to assist the evacuation if needed.

Safford officials said several ranching communities north of the city also were isolated by high waters which cut off both entrances to the Gila River bridge. Another bridge at Pima, about 10 miles northwest of Safford, also was made impassable by the rising Gila.

Graham County officials said the one home flooded was the only damage reported so far and no one was injured.

At Tucson, runoff waters filled the normally dry Rillito River and prompted evacuation warnings to a northeast corner of the city. Deputies said several persons were stranded and some fled their homes.

Scores prepared to evacuate as the swollen Rillito broke out of its south bank near the Flowing Wells Road. The river, about 150 feet wide and 20 deep at the center, surged through the break and flooded a mobile home area along the west side of Flowing Wells Road.

About 25 trailer homes were threatened and officials said several hundred more might be endangered. The river had receded somewhat today. Deputies in Tucson reported they were busy pulling stranded cars and their

(Continued on Page 8)

Graham,

12-23-65  
Greenlee

Ariz. Republic  
Warned

By EARL ZARBIN

FLOOD warnings were issued last night for parts of the upper Gila Valley in southeastern Arizona as the result of heavy rains and melting snow in mountains along the Arizona - New Mexico border.

Late last night a car was spotted in the Agua Fria River at the Van Buren crossing, the water lapping at the roof and a light on inside.

Avondale police didn't know what happened to the occupants.

**Related Weather Stories  
On Pages 9 and 15.**

The river was 200 yards wide at the crossing.

The U.S. Weather Bureau in Phoenix said low-lying sections of the Gila Valley in Graham and Greenlee counties will be in danger of flooding through today.

The Weather Bureau had a report that the Gila River at Cliff, N.M., 25 miles east of the Arizona border, was 2 feet over flood stage, and the San Francisco River running through Clifton was almost at flood stage.

The crest of high water should reach Safford tonight, the bureau said.

The Graham County sheriff's office said last night, "There's no crisis here. No special precautions are being taken."

The river lies a mile north of Safford.

In Clifton, however, the Arizona Highway Patrol reported sandbagging was in progress in some areas. Telephone circuits between Clifton and Safford were out.

The Gila and San Francisco rivers join 6 miles southwest of Clifton. The Gila empties into San Carlos Lake behind Coolidge Dam, which has a storage capacity of 1.2 million acre-feet.

The San Carlos River overflowed its banks north of San Carlos Lake for a 10-mile stretch from Peridot at U.S. 60 to 7-Mile Wash north of San Carlos.

Ten families living in low-lying areas along the river were evacuated from homes, according to Mike Windham, chief criminal investigator for the Bureau of Indian Affairs at the San Carlos Indian Agency. He said the water in some homes was 3 to 4 feet deep.

Floodwaters also crept into homes in the vicinity of 47th Avenue and Crittenden Lane in Phoenix when storm drains overflowed. About 100 homeowners complained to city authorities.

In addition, Central at the Arizona Canal was closed for 1½ hours when the canal overflowed. Water in the Phoenix

(Continued on Page 9, Col. 2)

More  
About

## Floods Threaten Southeastern Arizona

(Continued from Page 1)

area was receding last night, city officials reported.

Elsewhere, the rain closed several roads in the state and Maricopa County, and it may have contributed to a two-car accident on U.S. 95 south of Yuma which killed Angel Romero Dicochea, 28, of Nogales, and Alejandro Figueroa, 31, of San Luis, Mexico.

Dicochea was a passenger in a car driven by Figueroa. Their car collided with a second car driven by Willie Mae Davis, 39, of Yuma. Miss Davis was admitted to Parkview Hospital in Yuma, while two passengers in

her car were treated and released.

**THE WEATHER** Bureau last night issued heavy snow warnings for the Mogollon Rim country, the White Mountains and the Grand Canyon area. Four inches or more of snow was expected during the night at most elevations above 7,000 feet in northern Arizona.

However, tonight with colder air coming into the state, the snow level was forecast to drop to 5,000 feet in both the north and south.

Flagstaff last night had 2 inches of snow and had 16 inches on the ground, while there

was 7 inches at the Grand Canyon.

The rain was melting the snow in many mountain areas and, along with rains of an inch or more in many locations, was contributing heavy runoff to the Salt River Project watershed as well as the San Carlos watershed.

**PAYSON** below the Mogollon Rim reported 1.57 inches of rain from the storm. Other stations reporting more than an inch were Carefree, 1.28; Flagstaff, 1.50; Gila Bend, 1.06; Globe, 1.41; Heber, 1.22; Show Low, 1.27, and Tucson, 1.11.

The Weather Bureau forecast indicated intermittent periods of

precipitation today and tomorrow throughout the state.

The storm deposited another .94 inch of rain at Sky Harbor Airport, bringing the year's total here to 11.10 inches, the most that has fallen since the Weather Bureau moved to the airport in December 1952.

**THE ADDITIONAL** precipitation also made this year along with 1918 the fifth wettest year in Phoenix since the Weather Bureau began keeping records here in August 1895. The total of 3.10 inches so far this month makes this the third wettest December of record, still behind the 3.46 in 1959 and 3.94 in 1940.

Flash flooding also was expected in many points in central Arizona last night because of very heavy runoff into the Salt, Verde, Hassayampa, Agua Fria and New rivers.

Several trailer home residents were evacuated last night on Tucson's north side after water from the Rillito River swept the area.

**THE MARICOPA** County sheriff's office reported that all roads leading west from the Salt River Valley except Glendale Avenue and U.S. 80 were closed. Bell Road from Seventh Street to the Black Canyon Highway and 48th and 40th streets at the Salt River were

closed by water. Seventh Avenue was expected to be closed early today.

Arizona 86 between Ajo and Sells, Arizona 279 from the junction of Arizona 79 to Cottonwood, Arizona 288 from north of Roosevelt Lake to Young, Arizona 188 from Roosevelt to the junction of Arizona 87, and U.S. 666 north of Clifton were all closed. Arizona 87 from Mesa to Payson was in poor condition from rockslides and water.

In other areas motorists were cautioned to be alert to rockslides and water in dips, and to slick and slushy conditions in snow areas.

# Trees At River To Be Yanked Out

Cottonwood trees along the Verde River are about to be "cured" of a bad habit—drinking too much.

The cottonwoods will be removed from several hundred acres of land along the Verde near Camp Verde in a pilot project to be launched before Christmas, Bill Warskow, of the Salt River Project's watershed division, said today.

"It will be the start of a program to remove all cottonwoods along the river between Camp Verde and the town of Cottonwood," Warskow said. He said the removal will be contingent on approval of landowners.

**THE PILOT PROGRAM** will examine costs of knocking the trees down and amounts of water gained.

The project to denude a 40-mile stretch along the Verde follows a long-range study by the Arizona Land Department's watershed division, working with the Arizona Water Resources Committee of Cottonwood Wash in Mohave County.

The studies indicated a possibility of doubling the flow of some rivers and streams by removing trees, Norman Johnson,

watershed division manager, said.

Tests were extended in a limited way in the Sedona area, and the U. S. Indian Bureau later cleared cottonwoods off a 500-acre stretch along Cibecue Creek. One clearance method employed has been burning

off up to 15 miles on either side of rivers.

"**WE ESTIMATE** we will add a minimum of two acre-feet of water a year for each acre of cottonwoods we remove," Warskow said.

The scenic trees will be preserved in park areas, he said.

Cottonwood ranks second as a water guzzler tree over-all, with ponderosa pines first because they cover more acreage, Kel Fox of the water resources committee said. "But cottonwoods rank first in amount of water absorbed by individual trees."

# Helicopters Standing By To Aid 700

Special to The Gazette

*Phy  
12-23-68*

SAFFORD — Flood waters stretched the Gila River a mile wide near Safford today as the heaviest rains in years pushed it out of its banks, killing livestock and threatening the homes of 500 persons in the Little Hollywood community.

Harold Gietz, Graham County Civil Defense director, said two National Guard helicopters were standing by to provide aid for another 700 persons stranded on high ground across the river in the Hillcrest community.

GIETZ said one of the most serious problems facing the area is an overflowing sewage system. "It is spilling some raw sewage into the river now and the crest of the flood isn't expected for five or six hours," he reported.

The river is fed by runoff from snows in Eastern Arizona and New Mexico. Its normal flow is low.

Gietz estimated damage would be in the hundreds of thousands of dollars if it weren't for four Fry Creek-Stockton Wash flood control dam projects completed last February.

JIM FERRIN, Soil Conservation Service employe, in Safford, declared there was a 100-acre-foot lake back of the Stockton Wash dam early today.

By midmorning only three families had evacuated their homes but Safford-based National Guardsmen were standing by to remove others in the area which is composed mostly of "low-income homes."

"Most of the people in the area are welfare recipients," Gietz said.

However, several large farm operations are included in the flooded lowlands.

Nearly 600 persons in North Clifton were moved from their homes during the morning as officials received word a 3-foot rise was moving down the San Francisco from Glenwood, N.M.

R. R. Kinsey, Greenlee County deputy sheriff, said word from Glenwood reported 41

Turn to ●GILA on Page 4

## ●GILA

Concluded From Page One

inches of snow "and it's still warm and raining."

Governor Goddard and state Civil Defense chief Col. Carl Smith told newsmen in Phoenix the Guard in Gila and Graham counties had been placed on alert.

SMITH DECLARED, "We can't describe the situation as alarming at the present. If the rain stops, we will be relatively safe."

In Safford, however, Gietz said it still was raining with some snow, first of the season. The flood damage depends on the time of the crest.

Gietz said, "If it would crest by early afternoon, we feel we can keep most of the people in their homes."

If the evacuation is started, Gietz said, plans were to move "people, furniture, Christmas trees and everything."

FLOOD VICTIMS would be taken to the old and new National Guard armories and to fairground buildings.

All county roads over the Gila are closed, said Gietz, but Highways 70 and 666 are open.

Fifty miles northeast of Safford, the San Francisco River started a new rise at 7:15 a.m. today in Clifton, bringing the water level within 3 feet of the railroad bridge. The San Francisco meets the Gila between Clifton and Safford.

R. R. Kinsey, Greenlee County deputy sheriff, said the San Francisco began rising early yesterday and rose steadily until midnight, then slacked off.

EARLY TODAY, however, Kinsey said, "It started rising rapidly, with lots of debris coming down."

Townpeople started sandbagging the banks through town at 9 p.m. yesterday. Kinsey said, "It rained almost all night and it's still raining."

# Gila River Recedes; Sanitation Is Critical

*Phoenix Gazette*

*12-24-65*

Special to The Gazette

SAFFORD — The Gila River flood crest in the Safford area was receding at noon today, Graham County sheriff's deputies reported, erasing the danger of furthering flooding of lowlands.

Only a few families will have to spend Christmas away from home because of the high water. Two National Guard armories had been readied to shelter people forced to flee their homes.

FLOOD CONDITIONS are getting better all along the Gila River but the Pima bridge is not usable, deputies said. Sanitation conditions remain critical and people downriver from Safford were warned to boil well water because of possible contamination.

Civil Defense Director Harold

Geitz this morning flew over the stricken area to determine extent of damage along the Gila and San Francisco rivers but no report was available yet on extent of damage.

The Arizona Highway Patrol reported that in the Clifton, Duncan and Safford areas, water has fallen slightly, but that there could be a rise in 24 hours from water flowing from New Mexico by the San Francisco River through Clifton and into the Gila River. Another report from New Mexico, however, indicated water levels there had fallen slightly, so it may not be as serious as first thought, the patrol said.

Water level in the 1.2-million-acre-foot-capacity San Carlos Reservoir behind Coolidge Dam, into which the Gila River flows, was far below maximum capacity, dam Superintendent George

Demster reported this morning. He said at present the reservoir has 126,835 acre feet.

The water is still about 9 feet below the top of the dam, he said, and none is being released. Closest the dam has ever been to being filled was in 1941 when it was within six feet of overflowing.

12-24-65

Arizona Republic

# Raging Rillito Tops \$1 Million Toll

By JAMES E. COOK

Southern Arizona Bureau

TUCSON — Normally dry Rillito Creek became a tiger of a river yesterday, wrecking two major bridges, three mobile homes and perhaps \$1 million worth of sewer system.

Muddy officers, trailer owners and volunteers labored last night to clear a neighborhood of trailer lots in the Flowing Wells district, where the river had already carried away an estimated five acres of ground.

PIMA COUNTY Sanitary District No. 1 asked for state and federal disaster relief. A sewer system which serves 40 per cent of metropolitan Tucson was pouring raw sewage into the flood.

Rain, hail and snow, falling on ground already saturated by one of the wettest periods in Tucson history, swelled the Rillito to the top of its banks.

When the banks were not wide enough, the river chewed them away or changed its course. Then it joined the rising Santa Cruz northwest of Tucson and swept on for a potentially disastrous meeting with the flooding Gila River in Pinal County.

Bridges across the Rillito at N. First Avenue and Campbell, both major thoroughfares, were swept away. The sheriff's office reported that bridges at Oracle Road and Dodge Boulevard were holding.

**THE RIVER** chewed into a community of individually owned trailer lots near the bridgeless Flowing Wells Road crossing. County jail trustees helped evacuate occupants closest to the river and most of the endangered trailers were pulled to safety early in the day.

But the hungry Rillito, biting into a curve in the banks, pulled in three trailers valued at \$15,000.

Men and heavy equipment worked throughout the day to uproot large mobile homes, most of them planted semipermanently on lots near the river.

A few homes had to be vacated elsewhere along the Rillito and its tributaries, but no deaths or major injuries were attributed to the flooding.

The U.S. Geological Survey's groundwater branch had no

record of how the Rillito flowed, for the river washed away a gauging station where it joins the Santa Cruz. But tributary Tanque Verde Wash and Sabino Creek ran record flows of 10,000 second-feet and 6,000 second-feet, respectively.

A USGS spokesman said the Rillito probably did not have a record high flow, but many hours of flooding wore away the banks and caused the damage.

Kenneth Scharman, manager of Sanitary District 1, said the Rillito swept away 1 mile of sewer interceptor line, 21 inches in diameter and larger, east of Country Club Boulevard. Lines which feed the interceptors were pouring sewage into the river, and 1½ miles of the smaller lines were reported damaged.

Scharman and Dr. Frederick Brady, Pima County health director, said the sewage is no health hazard as long as the Rillito continues to flow.

**THE DISTRICT** asked for disaster relief from the governor's office, but not enough funds were available. Rep. Morris K. Udall, D-Ariz., was asked to seek federal relief.

Scharman said the Rillito changed its channel by one-fourth to one-half mile in some places.

Other weather developments in the Tucson area:

—The highway to the top of snow-covered Mt. Lemmon was closed by a major landslide just below Windy Point, and 15 minor slides farther down the mountain.

—A torrent of runoff cut the road to the top of Kitt Peak. Only a skeleton crew was left at the national observatory atop the peak; other scientists and workmen changed vehicles at the washout, fording it on foot.

—Arizona 77 was closed between Winkelman and Mammoth because Aravaipa Creek weakened a bridge.

—Papago officials said several villages on the south end of the reservation probably are isolated after two weeks of rain filled desert washes, but there have been no emergencies reported.

—Marana, in the path of the combined Santa Cruz and Rillito stream, reported no serious flooding.

# Wet, Muddy Grounds Hurt Agricultural Areas in State

12-24-65

## Arizona Republic Cattlemen Pleased With Rain

MUDDY GROUND in the state's agricultural areas is doing immeasurable damage to farmers and farm workers alike.

Cattle growers, however, were quite enthusiastic about the state's lengthy drenching. For them, the rain has done "nothing but good," according to Bill Davis, executive secretary of the Arizona Cattle Growers Association.

Farm laborers have been able to work in the Phoenix area only sporadically for the past two weeks.

The same conditions yesterday again prevented already-overdue planting of potato and safflower crops, and caused some concern for the growing spring lettuce crop.

The spring lettuce should have been thinned and weeded several days ago, according to Dr. Ivan Shields, Maricopa County agent.

Shields also reported that the rain has been good for alfalfa growth in fields occupied by winter-grazing sheep, but that muddy conditions are allowing the sheep to tear up the fields.

BETWEEN 5,000 and 6,000 head of cattle were moved to higher ground yesterday at stockyards in southeast Phoenix to avoid deep mud and water accumulated in pens near Salt River bed.

Wade Lacy of the Arizona Cattle Feeders' Association reported that feeders had been forced to erect temporary fences for the cattle in some instances.

Shields said the hock-deep mud in the pens hurts the beef cattle by causing the rate of weight gain to drop.

The cattle growers, however, saw the rain producing some desert growth now, enough for grazing, and were certain that the water being stored would be most helpful in the spring.

The rain and runoff have knocked down some fences and washed out some ranch roads, said Davis. But water tanks are all filled, saving future hauling, he added.

Earlier rains, combined with Wednesday's storm, killed chances of the Valley's navel orange growers to capitalize on the Christmas season.

The precipitation also has been beneficial to rangelands, producing quick growth of winter grasses, but has arrived too late to boost heavier browse plants, according to Shields.

# Flood Waters Described As 'Unbelievable'

## Santa Cruz Spills Over Rich Lands

Special to The Gazette

ELOY—"The amount of water is unbelievable," Mayor Paul Pearce said today after an aerial survey of the swollen Santa Cruz River between Marana and the Stanfield-Maricopa area.

"THINGS ARE pretty drastic," Pearce told The Phoenix Gazette. He piloted his own four-place plane.

"I am going back to take out some people who are stranded. They aren't in any danger, but I want to get them out for Christmas."

Pearce said the people would "drive tractors from their flooded shelters to the dry airstrips."

Many residents of the rich cotton farming area already have been evacuated, going to private homes in Eloy and Casa Grande.

About 150 residents of Chui-chu village on the Papago Indian Reservation were taken to the national guard armory in Casa Grande.

"THE GREEN Reservoir (12 miles south of Eloy) dike has broken in several places and bulldozers are being used to build up some of the existing dikes. The water in some places is three to four miles wide and ranges from a few inches to three to four feet deep."

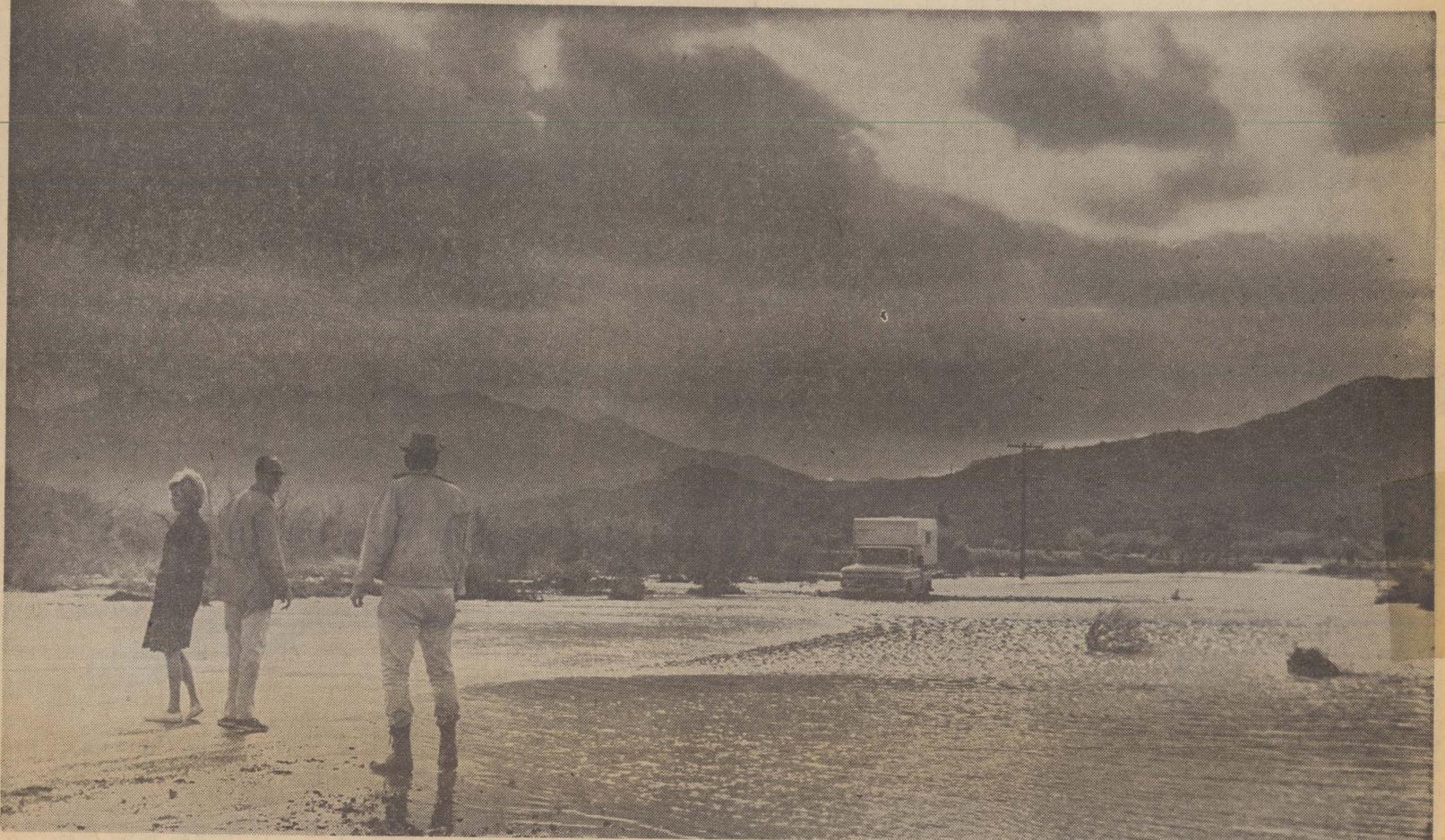
Pearce estimated it would be late tonight before the normally dry river starts to recede. The Green Dam was washed away years ago and the dikes have been used for flood control.

"THE FLOODING isn't as extensive as in the big one in 1962, but it could be if more of the dike does out," Pearce asserted. "Also, the water is moving in a different direction than it did three years ago."

Original Republic

12-24-65

# High Waters Bring Crossing Woes



Republic Photo by Ludwig Keaton

**TOO MUCH WATER** — Mr. and Mrs. John L. Mack, left, were stranded yesterday in their station wagon in this flooded section of 115th Avenue

at the Salt River, but James King and his daughter, Rosemary, pulled them through the foot-deep water with a pickup truck. Ray Hamilton, of

Jackson Hole, Wyo., who was stranded with the Macks, then drove through in his camper. Man with back to camera is unidentified.

## More About

# Rivers Flood Countryside

(Continued from Page 1)

and Safford because of raw sewage running into rivers.

In Tucson, Pima County Sanitary District No. 1 asked for federal and state aid. Kenneth Scharman, manager of the district, said the Rillito cut away a mile of sewer interceptor line, and 4 to 6 million gallons of sewage had poured into the river the past 24 hours.

Sewage was flowing into the Gila River at Safford, and D. Moore warned that some of it could seep into wells used by families down river. He advised them to boil water once they begin using the wells again.

Harold Gates, Civil Defense chief in Graham County, said water supplied by public utilities in the Gila Valley is safe. He advised residents of Thatcher, Pima, Fort Thomas and Safford to boil pump water.

**ALONG THE GILA** and San Francisco rivers above Coolidge Dam and the San Carlos Reservoir, the situation was this:

The Weather Bureau said the upper Gila River at Cliff, N.M., about 25 miles east of the Arizona border, peaked at 12.5 feet Wednesday night, 4½ feet above flood stage, but had dropped to 10.5 feet last night.

The San Francisco River through Clifton was dropping. Sandbagging took place during

the night at critical areas. The Gila River at Duncan was believed to have crested and no problems were anticipated.

**IN THE SAFFORD** area, about 35 or 40 miles downstream from where the Gila and San Francisco rivers join, dike bulding took place in Little Hollywood, a mile east of Safford. Water was creeping into the community of about 500 last night and Civil Defense authorities were ready to evacuate residents if necessary.

The Gila River was a mile wide in the Safford area and the Weather Bureau said high water would continue to produce flooding through the night, with receding coming today.

San Carlos Reservoir, into which the Gila empties, has a 1.2 million acre-foot capacity and had 103,745 acre-feet in it yesterday. District officials said they do not anticipate the water coming from the Gila will fill the reservoir.

**BELOW COOLIDGE DAM**, runoff from the desert and mountain ranges in the Coronado National Forest was filling the San Pedro River and Aravaipa Creek.

The San Pedro and Gila River join at Winkelman, but no damage was reported there. However, at Kelvin and Kearny northeast of Winkelman, the situation was different.

A dozen families were forced

to flee their homes at Kelvin, a town of about 200. At Kearny, the airport was said to be 3 to 4 feet under water and a small subdivision was flooded.

**FURTHER EAST** along the Gila, 50 families living in the San Tan area 20 miles northwest of Coolidge were evacuated and were being sheltered in the Sacaton Community Center on the Gila River Indian Reservation.

The situation in Pima County was this:

The Rillito, in addition to damaging a good part of the Tucson sewage system, wrecked two river bridges and flowed into a trailer park development. Residents fled, and the waters swept away several trailers.

**THE RILLITO** and the Santa Cruz were reported to be cutting a wide swath north of Tucson, and in the Eloy area the dike broke at Green Reservoir, near Friendly Corner, 9 miles south of Eloy.

Water from the Santa Cruz was flooding east into the desert in Pinal County and Civil Defense last night evacuated about 150 Indians at Chuichu and took them to Casa Grande, 9 miles north.

Thousands of acres of farmland along the Gila, San Pedro and Santa Cruz rivers were under water, and some flooding was reported south of Tucson between there and Nogales.

**OFFICIALS** were worried about potential flooding in the Maricopa and Stanfield areas of Pinal County. The road between Maricopa and Kyrene, 3 miles south of Baseline, was cut by floodwaters.

State Civil Defense officials, with headquarters in the basement of the state capitol, were in touch by radio with CD officials at 30 points throughout the state.

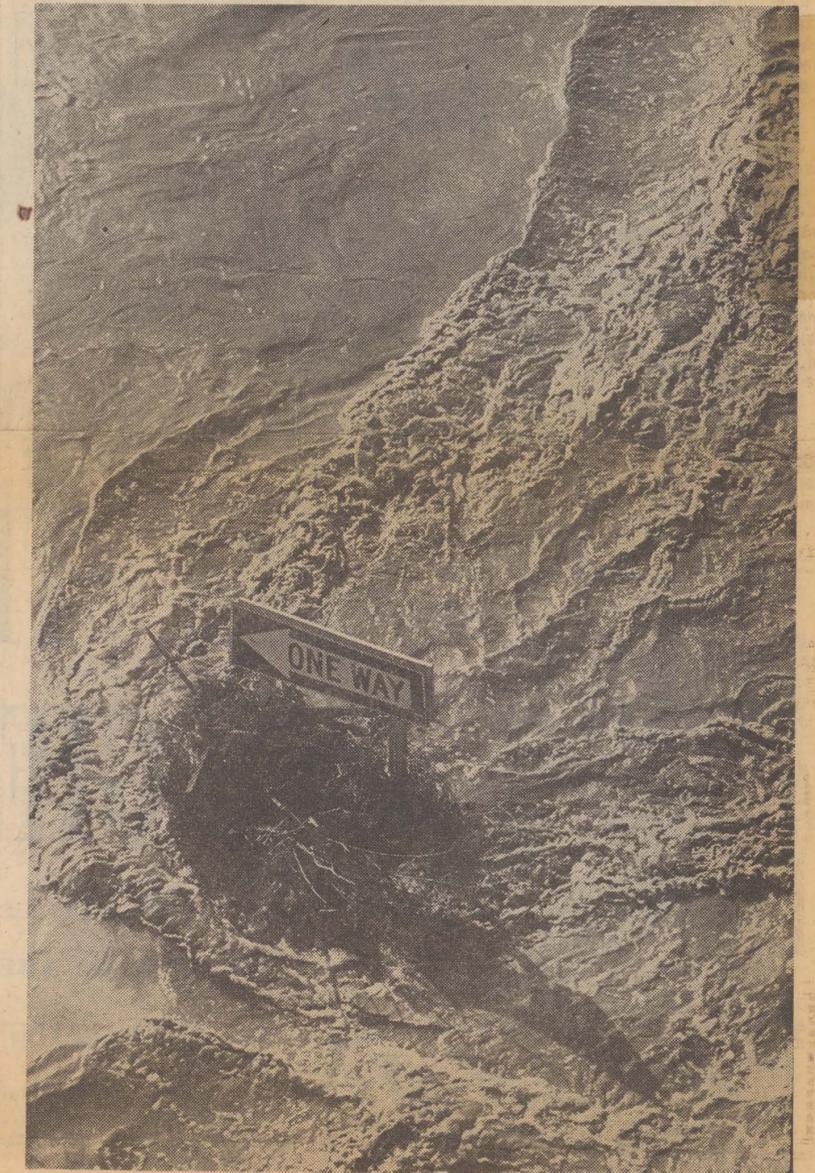
They made arrangements throughout the day to make certain sufficient housing, food and clothing would be available wherever required.

In Maricopa County, flooding rivers and washes closed the following roads:

**APACHE TRAIL** at Tortilla Flat; Cave Creek Road at Bell; all roads leading west from Phoenix except Glendale Avenue and U.S. 80, the latter restricted to one lane in each direction at the Agua Fria River bridge; N. Country Club Drive north of Mesa at the Salt River; Hayden and Scottsdale roads at the Salt River; travel across the Tempe Bridge was restricted.

In Phoenix, 48th and 40th streets were closed at the Salt River because of water over the road, and 24th and 16th streets were closed because water was eating away at the earth around the bridges. The city also indicated it might close Seventh Street for the same reason.

**AVONDALE** police reported that the occupant of a car spotted in the Agua Fria River late Wednesday night had made his way safely to shore. He was identified as Bruce Redondo of Glendale.



Republic Photo by Nyle Leatham

**ONE WAY (FOR DUCKS)**—This was the view looking over the west-side railing of the Tempe Bridge yesterday. Had it not been for the 5- to 6-foot deep Salt River you would have seen the Arizona State University "football road" that leaves the Phoenix-Tempe highway at the north end of the bridge, and runs down into river bed where it turns to Sun Devil Stadium.

# Families on the Flooding Santa Cruz Evacuated From Inundated Areas

By VINCE TAYLOR  
Pinal County Bureau

**CASA GRANDE**—Farm families along the Santa Cruz River from Stanfield to Marana were evacuated yesterday, as debris-laden floodwaters rolled down the normally dry river toward a meeting with the rampaging Gila.

At Sacaton, 50 Indian families were bedded down in the community center after being evacuated from the San Tan area.

An estimated 10,000 acres of fertile Pinal County farmland was inundated.

**FARM SPOKESMEN** said it was impossible to give any estimate of the damage until the water subsides.

Mayor Paul Pearce of Eloy, farmer in the Green Reservoir area, south of Eloy, said an aerial survey showed the Santa Cruz River was 2 miles wide

in some places. The river is normally 50 to 75 feet wide.

The crest, he said, would likely hit early this morning.

"But," he added, "it's going to run like this for at least 24 hours."

**THIRTY-FIVE** to 40 families were evacuated in the Green

Reservoir area after a 20-foot dike broke about 8 a.m. yesterday, flooding a half-dozen farms. The sheriff's office reported late yesterday afternoon that the dike had broken in another spot farther west.

Pearce said the farms of Jim Savage, Bill Warren, and Tom Wilmoth were flooded, and part of the Wooten-Casey farm was under water. These are major farms in the area south of Eloy.

Most of the flooded acreage was cotton land, the Eloy mayor said.

Flying with Al Hammond, Eloy pilot, Pearce surveyed the

area about noon yesterday. He said the Santa Cruz was out of its banks, and "spreading out" from Marana westward.

**AGGRAVATED** by three weeks of almost continuous rainfall, Pinal County's cotton harvest has been all but postponed with work virtually at a standstill.

As the floodwaters coursed down the Santa Cruz, 150 residents of Chuichu, on the Papago Indian Reservation, were evacuated to Casa Grande, 9 miles north, as high water approached.

Farm homes in the Stanfield area were also being evacuated.

Ed Pederson, Casa Grande city manager said a truckload of surplus commodities was being sent to Sacaton. He said the National Guard unit here was alerted, and had supplied cots, blankets, and other goods for evacuees.

# 50 Families Isolated by Floodwaters

12-25-65  
Ariz. Republic  
By HOWARD ARMSTRONG  
Republic Staff Writer

KELVIN—At least 50 families of the residential areas of Kelvin and Riverside Terrace were virtually isolated yesterday by floodwaters of the Gila River.

Six families were homeless and the communities' only access road to nearby Ray and Kearny was washed out when the river rose 10 to 12 feet Thursday night and spilled over.

RIVERSIDE TERRACE, an area of homes moved from the mining town of Ray, is opposite Kelvin, on the Gila, 22 miles southeast of Superior. A bridge connecting Riverside Terrace and Kelvin was impassable from Thursday morning until yesterday afternoon before the river began receding.

Police Chief Jim Helper of Kearny, who is the area civil defense director, said sewage which washed into the river at Kearny 6 miles south of here has contaminated the water in

(Continued on Page 14, Col. 4)

## More About

# Families Isolated by Floods

(Continued from Page 1)

Riverside Terrace. Residents were warned to boil their drinking water.

SEVERAL residents complained that no medical aid had been offered as a preventive against a possible outbreak of typhoid fever.

Only access yesterday in and out of Kelvin was by boat, foot or four-wheel drive vehicles. Boats and heavy-duty vehicles were used to transport groceries into the area.

Most of the men, employed by Kennecott Copper Corp. in Ray, were unable to go to work Thursday. Yesterday, a day off for the holidays, found them banding together to help their neighbors and themselves to salvage their Christmas spirit.

HARDEST HIT were the Albert Smith and Joe Bittick families. Smith, with the help of neighbors, moved his furniture out at 4 p.m. yesterday just before his home was flooded.

A service station which Smith

owned was demolished, and two of four prefabricated homes which he owns and rents were washed away.

Bittick, who has six small children, watched as water destroyed all the children's Christmas gifts which were packed away in his parked car. He and friends were struggling to pull his mobile home out of danger as the water poured through. One room, added on to the home was torn away.

RESIDENTS in the area said the river reached heights not seen since 1926. Despite their troubles and isolation, most residents appeared cheerful.

Said Mrs. Smith: "People here were sure wonderful. You never saw so many men and women working (to save the Smiths' furniture)."

The Smiths have lived in Riverside Terrace nine years. Mrs. Smith said they were years of hard work that "went down the river."

"We're going to build back," she said.

# Gila River At It Again--And 'Buttes Dam' Still Dream

By KENNETH ARLINE  
Gazette Staff Writer

FLORENCE — Thousands of acre-feet of water were racing toward the Colorado River and the Gulf of California today in the Gila River's latest rampage.

But it is only part of the water that has gone wasted down the Gila since the slogan, "Buttes Dam or Bust," first appeared in Pinal County.

THE RUN-OFF from the San Pedro River and dozens of washes between Coolidge Dam and Florence cannot be held in check because the Buttes Dam is still only a dream.

Buttes Dam, intended to be

constructed across the Gila 14 miles northeast of Florence, is now a part of the proposed Central Arizona Project (CAP) and Southwest Water Plan.

"We certainly need it," Marvin D. Young, project engineer for the San Carlos Irrigation District said. Young said more than 147,000 acre-feet of water has been lost since Dec. 5.

He added that at least 100,000 acre-feet was lost in 1955 and again in 1956 and the loss in 1960 was also heavy.

ANOTHER phase of the CAP plan is the proposed Hooker Dam on the Gila in New Mexico, just east of the Arizona

line. A Corps of Engineers flood control dam is planned for the Gila just east of Safford. Had these two dams been constructed, much of the flooding in the Safford area this week possibly would have been averted, Graham County officials said.

(Safford Mayor Charles Kirkland pointed out that a flood-control dam completed last February on Stockton Creek, a tributary of the Gila, prevented more than 1,000 acre-feet of water from flooding into the town.)

Buttes Dam has been a dream for more than 20 years. In 1945, the construction cost was estimated at \$35 million. It was also proposed to spend another \$2

million for lining a concrete ditch from Buttes Dam to the Ashurst-Hayden Diversion Dam four miles downstream.

(Coolidge Dam is holding back flood water that threatened Safford. Storage during the past month has increased from less than 10,000 to 229,423 acre-feet, Young said.

(BUT THE SAN Pedro River is sending thousands of acre-feet into the Gila below Coolidge Dam and the Ashurst-Hayden Dam—similar to the Salt River Project's Granite Reef Dam—cannot hold back this flooding, Young noted.

(Some water from behind Ashurst-Hayden Dam is diverted

through a canal to the Picacho Reservoir south of Coolidge. Young said the storage facility has a capacity of 18,000 acre-feet and was dry until the recent flooding. Storage today was 15,000 acre-feet).

In 1963, Secretary of the Interior Stewart Udall recommended to Congress that Buttes Dam be constructed. However, the money for Buttes and other water-saving facilities in the proposed CAP has not been appropriated by Congress.

THIS WEEK, as he has over the years, O. W. Rugg, Casa Grande farmer, spoke of the water wasting down the Gila and of the fact that "Arizona cannot afford to waste water."

Buttes Dam would be an earthfill structure rising 210 feet above streambed. It could form a reservoir of 366,000 acre-feet—only slightly below the combined capacity of the Salt River Project's Horseshoe, Bartlett and Canyon lakes.

Supporters of the Buttes Dam proposal recalled that disagreement between the people of Gila Valley (Safford) and Pinal County blocked full support for Buttes Dam for many years. However, they believe this has been more or less resolved in a proposal by Sen. Carl Hayden (D-Ariz) to also construct a flood control dam east of Safford.

TO BRING CLOSER agree-

ment and to avoid possible problems on the amount of water that would be released at Coolidge Dam and stored at Buttes Dam, Sen. Hayden also offered a second suggestion.

It was that each dam have a hole in it until such time as full agreement could be reached. The hole in the Buttes Dam would have the same capacity as the canals in the San Carlos project (serving Pinal County farmers). This would prevent flooding below the Ashurst-Hayden diversion dam. The flood control dam above Safford would have a hole sufficient to release only the amount of water that could be handled by the Gila River channel.

SECOND  
FRONT PAGE

*The Phoenix Gazette*

VALLEY NEWS  
SPORTS PAGES

Thursday, Dec. 30, 1965

Section Two, Pages 23 to 44

## Watershed Manipulation

# Burning Tonto Chapparal

SRP And Forest Service To Clear 20,000 Acres For More Runoff—  
Cottonwood Campaign Along Verde—Another Long, Hard Look at Junipers

CHAPPARAL control gets the emphasis in this year's edition of the cooperative program between the Salt River Project and U. S. Forest Service, aimed at increasing watershed runoff.

About 20,000 acres of chapparal will be burned next fall.

The Salt River Project is independently making a grand start on the clearing or thinning of 3,000 acres of cottonwoods in the Camp Verde vicinity.

Efforts at juniper eradication are temporarily delayed.

Bob Moore, SRP hydrologist, says that most of the 20,000 chapparal acres to be burned lie along tributaries of Tonto Creek, one of the two principal streams draining into Roosevelt Lake. The exception is a small tract in the Pinal Mountains south of Globe.

Both these localities are inside the Tonto National Forest and on the watershed that keeps Salt River Valley from drying up and blowing away.

J. J. Baldwin, Tonto's fire control officer, has helped to lay out the new program. He will, of course, be on hand whenever a fire is started. This will be at intervals next August, September and October, depending on weather and vegetation conditions.

Bulldozers are already clearing fire lanes through the chapparal, so that the flames may be kept within prescribed boundaries.

### Regrowth Is The Sticker

In the opinion of Moore and other specialists, the burning itself is a simple matter compared with the regrowth problem that always follows. Mountain shrubs come back quickly. This is particularly true of turbinella oak, which is the predominant brush species on the Tonto. After all above-ground parts are reduced to ashes, the roots "sprout like mad."

This is going to necessitate spraying with herbicides, and how often nobody knows. Probably the chemical chosen will be a combination of 2,4-D and 2,4,5-T, but it could be the vastly

more effective Tordon.

Dow Chemical Co., which manufactures Tordon, is supplying the material and much technical aid for a 200-acre test. This will be north of the Three-Bar range, west of Tonto Creek, where controlled brush burning has increased runoff by a full three inches.

Tom Johnson of the Agricultural Research Service, stationed at Flagstaff, is in overall charge of this experiment. A main object is to determine what effect Tordon has on water quality. No risk can be run of delivering to Salt River Valley farmers any water that is deleterious to crops.

### Cautious Forecasts

SRP and the Forest Service are proceeding with their chapparal campaign in the expectation of increasing runoff by at least one acre-inch per acre. They hardly hope to equal Three-Bar results except under unusually favorable conditions.

A rough estimate is that the additional water will cost \$8 an acre-foot if considerable post-fire maintenance is required to check regrowth. If no additional attention is required for five years, the cost may be as little as \$5.70 a foot.

But cottonwood trees consume far more water than chapparal and a gain of two acre-feet per acre may be possible from the treatment along the Verde River.

Most of those cottonwoods are — or were — on private land; there's some state land and slivers of the Coconino Forest between farms. When the campaign was first proposed, it was widely misunderstood. It took some diplomacy to convince owners that they would benefit. Now they are so thoroughly persuaded that one man complained when three trees were left standing on his property.

Removal is in accordance with the owner's wishes. The aim is for complete removal right along the river; farther back, thinning to a parklike appearance is the usual practice.

Power saws cut off the trees at the ground level and they are hauled away and piled for drying. The owner is expected to burn those big heaps within three years.

### Juniper Disappointment

Principal reason the juniper program is set aside for more consideration is that removal in the Forest Service's Beaver Creek Experimental Watershed, northeast of Camp Verde,

has not immediately increased runoff. It's suspected that this is because of the big pits in the ground left when the junipers are chained or bulldozed. Rain water collects in those depressions and much of it is lost to evaporation. Whatever percolates to the underground may be a long time showing up in stream flow.

Early in the next fiscal year, a sub-watershed is to be cleared by sawing off the junipers at the ground level and leaving the earth undisturbed. This tract has already been calibrated for natural runoff, and continued measurement will show if there is any difference after clearing.

—AFR—

## Official Status For Willcox Dry Lake As Landmark

WILCOX PLAYA, better known as Willcox Dry Lake, is one of 14 sites approved by Interior Secy. Stewart Udall as "Natural Landmarks." They won't have the status of national parks, but more that of historic landmarks. Where a site is privately owned, "participation is on a voluntary basis and the areas do not become federal property.

The playa, a remnant of a "Lake Cochise" that existed 20,000 years ago and was probably salty, is four miles south of Willcox. It has been one of the sights of Southern Arizona since 1854 when it was described, and erroneously placed, by Lt. John G. Parke. The surface is hard-packed and alkaline, almost impenetrable to water. "Arizona Place Names" says:

"The mirages observed in this dry lake are astonishing. At times the playa appears to be a vast expanse of deep water. During World War II this led to an embarrassing incident for two navy flyers who were ferrying a flying boat across the country. Where there seemed to be water there was none. Their unauthorized landing was a rough one."

The playa proper is nearly all public domain and in World War II was used as a bombing range, which stirred up that tight soil some but not very much. It is still withdrawn by the Defense Dept. and serves as a radar testing area for Fort Huachuca technicians. Although this part of the "lake" will remain closed to the public indefinitely, the release from Secy. Udall's office notes that 2,400 acres on the west side of the bombing range "contains examples of its scientific features. . . . This tract is owned by the Federal Government and administered by the Bureau of Land Management."

A principal scientific feature is a rich pollen record in solidified mud, found within a few feet of the surface. These pollens tell scientists what kind of plants grew in that area through the

Arizona Farmer - Rancher

Mar 28 '66

# Conservation in Review

An article under the above heading in the March issue of *Land & Water Contracting* recounted some of the major steps in the effort to control erosion of the nation's agricultural lands and provide protection from floods in the upstream watersheds, from the first authorized soil erosion investigations 40 years ago to the enactment of the Watershed Protection and Flood Prevention Act of 1954 (Public Law 566) and its enlargement and refinement by the several amendments.

Population increases and shifts, technological advances, new demands on our lands, make further refinement of the Act imperative. But it has worked well; we no longer hear of large acreages destroyed by soil erosion, and the multiple purposes permitted by various amendments have provided effective means for both rural and urban communities to deal with land use problems. However, progress is too slow and purposes of the Act too restricted for the changing times.

How do we stand today? We can undertake projects to control floods in watersheds up to 250,000 acres in size, and to check erosion by soil conservation practices, which are mandatory when a P. L. 566 flood-water retarding project is undertaken. Along with such projects, we can make provision for municipal and industrial water supply, recreational developments, and improved fish and wildlife habitat.

## The First Steps

How do we start? The following paragraphs from a USDA publication, "Multiple Purpose Watershed Projects," point the way:

"An application for Federal help in developing and carrying out a watershed project can be submitted by any local organization having authority for such activities under State law . . .

"State agencies and qualified local organizations can sponsor or co-sponsor an application. They include soil and water conservation districts; municipalities; counties;

watershed, flood control, drainage, irrigation, or other special purpose districts; and irrigation and reservoir companies, water users' associations, or similar organizations not operated for profit. Other organizations can endorse project applications.

"The application form includes (1) facts about the size and location of the watershed, (2) description of the land and water problems, (3) details about the work needed, and (4) information about the sponsoring organizations and their source of funds."

(Applications can be obtained from the appropriate State agency or the Soil Conservation Service. Completed applications are sent to the designated State agency.)

## Action on Application

"Technical specialists of the Soil Conservation Service, Forest Service, Fish and Wildlife Service, and other agencies may make a field examination of the watershed . . . prior to approval of the application.

"If the State agency disapproves the application there is no further action. If it approves, it sends the application to the SCS State Conservationist. If he determines that it is legally valid, he sends it to the Washington office of SCS. . .

"When the SCS is able to furnish planning assistance, the State agency is requested to consider all unserved applications . . . and to recommend those next in line for help. . . If an application meets the following conditions it will satisfy the criteria of most States:

"1. Sponsoring local organizations have the legal authority and will use it to meet their commitments for carrying out and maintaining the project.

"2. Help is desired to achieve full multiple-purpose development of the water and related land resources of the watershed.

"3. Material progress has been or is being made in applying soil and water conservation measures on individual farms and ranches.

"4. The proposed project will benefit a substantial number of people.

"5. Interest in and understanding and support of the project is prevalent throughout the watershed."

Individuals who believe their area warrants a watershed development project, and find nothing being done, would do well to get in touch with an official of their local soil conservation district (very few areas are not covered), or a district or area conservationist of SCS.

The USDA pamphlet continues:

"When the State agency gives an application a high priority rating, the SCS conducts a preliminary investigation of the watershed to determine the physical and economic feasibility of developing a plan to meet the objectives of the sponsoring local organizations. . . .

"If favorable, the SCS State Conservationist prepares a work outline for planning the watershed. Sixty days prior to the time he will be able to furnish planning assistance, he requests the SCS Administrator to authorize such help. Ordinarily, planning help is authorized for a number of watersheds at 45-day intervals. (These authorizations are published in *Land & Water Contracting* as released.)

## Developing Work Plan

"An SCS watershed planning staff composed of engineers, hydrologists, geologists, economists, and other needed specialists is assigned to work with the local SCS representative to help the sponsoring organizations develop a watershed work plan.

"The Forest Service also assists. The Farmers Home Administration works with the local organization when it wishes to obtain a loan.

"The Fish and Wildlife Service makes studies relating to the impact of the proposed project on fish and wildlife resources.

"The Bureau of Outdoor Recreation may help in connection with recreation developments.

"Other Federal and State agencies are notified by the SCS of initiation of the studies and are invited to participate."



"International equipment enabled us to branch out," says James Wray Bush, secretary-treasurer, Bush Construction Co., Laurel, Miss. "The versatility of these machines lets us tackle jobs like reforestation, soil conservation and similar work we'd never considered before. With our TD-25's pulling choppers we'll clear 5,000 acres a year. And another 2,500 acres shearing and raking with our TD-15's and TD-20's. This is in addition to our "regular" work—road construction, site preparation, dirt moving, etc. And we're pleased with our Internationals' low repair costs."

As an example, Mr. Bush's TD-15,

with nearly 7,000 hours on its meter, had an average repair cost of 86¢ an hour. And on his 4-year-old Hough Pay® loader, repair costs averaged approximately \$700 each year.

Bush Construction Company now has 8 International crawlers and 3 Hough Pay loaders making money for them and helping them diversify and grow. International equipment can do the same for you. For complete information, call your International Construction Equipment Distributor.



## What May Be Included

**Land Treatment.** As previously pointed out, land treatment measures are basic to any watershed project. Erosion cannot be controlled and structural measures cannot be fully effective unless these soil and water conservation measures are applied on individual farms and ranches, other rural land, and the public land in the watershed.

For this reason, either the law or Department of Agriculture policy requires as a condition to providing assistance for structural measures that:

"1. One-half of the land above floodwater retarding dams and reservoirs *must* be under basic conservation plans.

"2. Not less than 75 percent of the effective land treatment measures must be installed or their installation provided for on those sediment-source areas that are a serious hazard to the design, operation, or maintenance of any structural measure.

"3. Installation is assured of on-farm practices needed to realize benefits from any structural measures for drainage or irrigation."

These basic conservation plans are the same kind that farmers and ranchers make with technical help through soil and water conservation districts.

**"Flood Prevention.** Flood prevention measures in watershed projects include land-stabilization measures to prevent the destruction of land and thereby to reduce the movement of damaging amounts of sediment to stream channels and lower land. Large gullies and severely eroding land may be brought under control with vegetation or structures. Road banks and fills may be protected. Waterways crossing two or more farms may be improved by shaping and planting.

"Flood prevention also includes waterflow and sediment control to prevent flood damage to groups of land owners, communities, and the general public.

"When exceptionally heavy rainstorms sweep across a watershed, runoff may be great even from conservation treated farm and ranch land. . . The damage from this sur-

plus water can be controlled by dams to retard floodwater; stream channel clearing, straightening, and enlarging; levees and dikes; desilting basins; floodways; floodwater diversions; and special waterholding or water-diverting terraces and dikes."

Structures for flood prevention are located and planned to —

"1. Protect the largest possible area of land subject to flooding.

"2. Encroach as little as possible on highly productive land.

"3. Provide enough protection to land now subject to overflow so that owners can make full and continuous use of it, although they may have occasional damage from major storms.

"4. Provide greater protection from major storms where human life or high nonfarm investments are subject to flood hazards.

**"Agricultural Water Management.** Measures that can be included in watershed projects are those for (1) irrigation, (2) drainage, and (3) supply and distribution of water for other agricultural uses.

"The irrigation measures may include water-supply reservoirs, diversion dams, pumping plants, sluiceways, canal headworks, canal laterals, and main distribution pipelines to carry water to the farm boundary. They also may include lining canals and sealing storage reservoirs and measures needed to conserve and use water efficiently and to carry water to individual farms with the least practical loss.

"The drainage measures must provide for efficient land use on existing farms and ranches. Present drainage systems may be improved. Or new drainage systems may be provided for areas now used for crops or grazing. The measures include all parts of a group drainage system, such as open ditch or tile, drops, checks, flumes, control gates, manholes, and pumping plants.

"Drainage or irrigation of land not previously or currently used for agricultural production must be incidental to, not a primary purpose of, the measures for which help is provided.

"Help may be given to provide a more uniform supply and distribu-

tion of water for agricultural use to two or more landowners if the measures are part of the watershed plan. These measures will be designed to make annual streamflow more stable, to increase the recharge of groundwater reservoirs, to distribute on a community-wide basis water for livestock and other agricultural purposes.

**"Public Recreation Development** — Developments that create or improve facilities for the enjoyment of outdoor recreation based on the use or proximity to water in reservoirs, lakes, natural streams, or along shoreline may be included in watershed projects. . . .

"A watershed recreational development can include (1) a single reservoir, a single lake, a single reach of shoreline, or a well-defined reach of a single perennial stream (but not the entire stream system of the watershed); (2) land required for public access and public use; and (3) minimum basic facilities such as roads and trails, parking lots, public water supply, sanitary facilities, power facilities, beach developments, boat docks.

**"Public Fish and Wildlife Developments.** Water-based developments to improve the fish and wildlife habitat can also be included in watershed projects. These may involve added storage capacity in reservoirs to regulate streamflow, modification of reservoir structures for releasing cold water, stream channel improvement, and marshes and pits to provide breeding and nesting areas for migratory waterfowl and aquatic mammals.

**"Municipal or Industrial Water Supply.** Developments to supply water for municipal or industrial use may be included in watershed projects. Storage capacity in reservoirs may be planned for present or future use. Pipelines conveying water from a reservoir or stream to a filter plant or distribution system may be included."

Watershed projects occasionally include other nonagricultural water-management measures such as storage in reservoirs for pollution abatement by streamflow regulation or saline-water-intrusion control.

To be continued.

# PROGRESS REPORT:

## land improvement in 1968

Irrigation water management was installed on 3,736,754 acres of farm and ranch land in fiscal year 1968, bringing the total irrigated acreage to 15,729,574. This is irrigation in which the Soil Conservation Service has rendered technical services to landowners and represents work in which land improvement contractor readers of this magazine had a part.

To accomplish this better land use, 306 miles of irrigation canal or laterals were dug, 2,328 miles of irrigation field ditches, and 4,246 miles of irrigation pipeline installed, and 733 irrigation water storage structures constructed. Nearly 1,500 miles of irrigation canals and ditches were lined to conserve the water flowing in them.

### 9,000 Irrigation Systems

Altogether, 4,568 new irrigation systems, surface or subsurface, were installed and 4,458 sprinkler systems, making a total of 121,686 surface or subsurface irrigation systems and 109,510 sprinkler irrigation systems on the land at fiscal year's end. Also installed were 1,131 irrigation tailwater recovery systems and 1,390 irrigation pit or regulation reservoirs.

Again, remember that these figures are from Soil Conservation Service records, as are all figures in this summary, and do not include other installations.

Drainage installations during the year included 6,701 miles of drainage mains or laterals, 10,837 miles of mole drains, 6,367 miles of field ditches, and 24,351 miles of tile drains. Some totals on the land—721,224 miles of tile drains and 166,374 miles of field ditches. Tile system structures needed and installed in 1968 fiscal year numbered 11,420, bringing the total accounted for to 170,270.

In flood control work, 513 dams for floodwater retarding were constructed and 366 multiple purpose dams, permitting water storage for municipal or industrial use, rec-

reation, etc., in addition to the primary purpose of flood control. Other structural measures included 14,066 grade stabilization structures, 644 diversion dams, 1,982 debris basins, 257 miles of dikes and levees. There were 2,819 miles of diversions, plus 63,249 feet of floodwater diversions.

Under the head of flood control comes stream channel stabilization and improvement—1,344 miles during the year.

To the ten thousand plus miles of irrigation and drainage pipeline installed during the year add another 2,040 miles, mostly for stockwater and farm home supply. (Over eight thousand wells were dug, and 2,104 pumping plants for water control were installed.)

And to the big dams and grade stabilization control structures add another 88,900 smaller structures for water control.

SCS has record of 51,853 farm ponds built during the year, a total of 1,626,142 on their books. Eight hundred ninety-six of the ponds built last year were sealed or lined, bringing the total in that category to 10,802.

Other strictly on-farm measures included 34,876 acres of land grading for drainage, 459,952 acres of land leveling for irrigation, and 319,350 acres of land smoothing for more efficient cultivation.

### Terracing Big Item

A total of 30,806 miles of terraces were constructed in fiscal 1968, including 12,937 miles of gradient terraces, 10,725 miles of level terraces, 7,081 miles of parallel terraces, and 65 miles of basin terraces. They brought the total mileage of terraces on the nation's farms to almost one and a quarter million.

Along with the terraces went 102,117 acres of grassed waterways.

Other erosion control measures in addition to the normal conservation field practices included 1,069 miles of ditchbank seeding and 431 miles of streambank protection.

Farmstead and feedlot windbreaks were constructed on 28,893 acres and 3,921 miles of field windbreak installed.

In recreation area work requiring the services of contractors were 817 miles of access roads, 13,263 acres of grading and shaping, 407 miles of trails and walkways.

All of these developments, or nearly all, required heavy or specialized equipment, and the know-how and skills of the conservation contractor.

### A Billion Cubic Yards?

Earthmoving totals in cubic yards were not summarized in the report from which these figures are taken, but the former Administrator of the Soil Conservation Service, Donald A. Williams, said in January that the conservation contractor has been moving over a billion cubic yards a year. When we look at the 879 large dams, the more than 14 thousand grade stabilization structures, the 13 hundred miles of channel excavation, the nearly 10 thousand miles of irrigation and drainage ditches, the more than 50 thousand farm ponds dug, the more than 30 thousand miles of terraces, and all the other work enumerated, a billion cubic yards seems conservative.

Incidentally, we had 1,161,007 fewer acres of cropland on July 1, 1968, than we had a year earlier. According to the record 1,243,178 acres of cropland were converted to grassland, 89,836 acres to woodland, 75,298 acres to wildlife and recreation purposes, and 44,599 acres to other uses, while 291,904 acres were converted from other uses to cropland.

The 75,298 acres of cropland converted to wildlife-recreation was not the only boost received by that sector. Land in all other uses (except cropland) converted to wildlife - recreation totaled 269,729 acres.

# YUMA COUNTY PROJECTS

L. E. Brazeel  
Director of Public Works

Yuma County is a large tract of land of some 10,000 square miles. It is unique in that only 6.7% of Yuma County is privately owned. Of this privately owned land 48% is used for agricultural purposes. Because of the large water distribution systems required for these areas, almost every mile of road within the irrigation systems has at least one culvert crossing the road or bridging a canal. The maintenance and replacement of these culverts and bridges is a major portion of the road construction in Yuma County.

Just recently Yuma County completed an 80-foot, two span, concrete bridge on Avenue 45E and the Wellton-Mohawk Canal. As Yuma County does not have the personnel needed for complete design and construction, the work was done with the cooperation of consultants and contractors. Yuma County was responsible for the field survey and information for the consultants to design the bridge.

Mr. Mel Plumber, vice president of the engineering consulting firm of Ellers and Reeves of Phoenix, was contacted and a contract was signed with them for the structural design. The bridge to be replaced was an old wooden four-span bridge with a length of 132 feet. It was decided by the county and the consultants to shorten the bridge and, in so doing, lower the construction cost.

The consultants designed a bridge having two 40-foot spans with reinforced abutments entirely supported by steel piling. The girders are of precast, prestressed, single tee design with an H-20 loading. This type was used because of the inexpensive forming required for the deck which was of reinforced concrete five inches thick. Following design approval, a contract was signed with Tanner Brothers Construction Co. of Yuma. This was a cooperative agreement with Yuma County responsible for the demolition and removal of the existing bridge, removal and replacement of the earthwork, installation of guard rails, and design and construction of the bridge approaches.

In 1966 Yuma County was faced with the problem of flood control and road crossings over the Gila River. Quick thawing of a heavy snowpack and continued rains in the Salt River watershed sent heavy runoff into the Gila River. Drainage into both rivers flows through Yuma County to reach the Colorado River.

Yuma County was fortunate to have the Gila River Painted Rock flood control dam, constructed by the U. S. Army Corps of Engineers. Located in Maricopa County, just each of the county boundary, it

provides flood control and does not impound water. From Painted Rock, waters are released at a known rate into the normally dry Gila River. At this flow rate, Yuma County would have water in the Gila for four months. The Gila meanders through the Wellton-Mohawk area, Dome Valley and the Gila Valley and was spanned by no bridges or culverts. The predicted water flow would have cut off all the farming area north of the river from the south and the City of Yuma.



*Twenty 54-inch galvanized culverts each 40 feet long are in position just one day before the flood waters from Painted Rock Dam flow thru them. Avenue 40E crossing of the Gila River.*



*The full flood of the Gila River flows thru the culverts on Avenue 40E five days after they were set as shown in the other photograph.*

# Utah water project faces vote

By Laurie Sullivan  
The Associated Press

SALT LAKE CITY — A dry future is no future at all, say officials favoring completion of a vast, 29-year-old water project, but critics who attack it as wasteful are calling on voters Tuesday to reject additional funding for it.

In 1956, Congress authorized six phases of the Central Utah Project to bring water to the arid state, and in 1965 voters authorized, by a 13-1 margin, a repayment contract with the federal government of \$158 million.

Now, residents in 12 counties served by the project are being asked to vote Tuesday on another \$335 million repayment agreement, for the final and most costly phase, the Bonneville Unit.

Backers of the project, including nearly every major Utah politician, have mounted an expensive, well-organized campaign aimed at convincing voters of the project's necessity.

Polls show 60 percent to 70 percent of voters favor completion of the Bonneville Unit, aimed at bringing water from sparsely populated eastern Utah to the urban Wasatch Front, stretching from north of Salt Lake City southward to Provo.

It includes a network of 10 reservoirs, more than 200 miles of aqueducts, tunnels and canals; six power plants; 10 primary pumping plants and 300 miles of drains.

Only 30 percent complete, the Bonneville Unit's cost has skyrocketed from an estimated \$324 million in the 1960s to more than \$2 billion today.

The project's critics, few in number and including environmen-

WEDNESDAY, FEBRUARY 16, 1986

Dan Sagramoso

FROM: CHRISTINE G. GIBBS, D.P.A.  
Salt River Project  
Government Affairs  
P.O. Box 52025  
Phoenix, AZ 85072-2025  
(602) 236-2654

# Tombigbee Waterway Falls Far Army Engineers' Forecast

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FH-575

system of inland waterways, a shortcut from the Tennessee and Ohio Valleys to the Gulf of Mexico. Congressmen from other regions called it a \$2 billion boondoggle, the worst kind of pork barrel politics.

The waterway, known locally as the Tenn-Tom, was opened to barge traffic in January 1985 and has come up embarrassingly short of expectations. In its first 12 months, according to figures made public early this month, 1.7 million tons of cargo, barely 6 percent of the tonnage originally predicted, moved through the lock and dam at Columbus, Miss., the midpoint on the waterway.

A 1976 study by the Army Corps of Engineers forecast that 27 million tons of cargo would move along the waterway in its first year of operation. Even last summer officials of the Tennessee-Tombigbee Waterway Development Authority were hoping it would carry 15 million tons.

### Big Coal Traffic Predicted

The 10-year-old corps study was frequently cited by proponents to justify building the waterway, one of the costliest public works projects ever constructed in the United States. The study predicted that 75 percent of the shipments would be coal bound for foreign markets.

The study predicted that 17 million tons of coal would be moved in the first year of operation, but only about 500,000 tons of coal was shipped.

Pat Ross, assistant director of the authority, said the Tenn-Tom had been the victim of slumping foreign demand for coal, lumber, grain and other bulk products that inland waterways are designed to move most efficiently.

Barge operators on the Mississippi River have experienced similar economic difficulties, Mrs. Ross said.

### Tonnage Increases Predicted

"In 1976 it looked like rising energy prices would force everyone to go to coal," she said. "As we all know, that didn't happen." Mrs. Ross predicted that tonnage would rise at least to four million tons through 1986 as new loading facilities along the waterway come into use.

A Corps of Engineers study forecasts an increase to 13 million tons, but Mrs. Ross believes that estimate may be too optimistic.

Although many others do not agree, Mrs. Ross says the system is no boondoggle. "Up to now, people in this part of Alabama and Mississippi have lived in depressed circumstances, emotionally and economically," she said. "The waterway at least holds out the hope of industrial and economic development. You can't just look at the tonnage."

Although some local economists dispute the figures, the waterway's proponents say that more than \$100 million in public and private development has occurred along of the waterway, including new grain terminals, a steel fabricating plant and scrap iron terminals.

### Recreational Use Popular

The waterway has had at least one effect on the communities along it. There has been a boom in recreational boating as residents take advantage of the wide canals and the reservoirs created by the locks and dams. Several marinas have opened, and boat dealers report good sales, Mrs. Ross said.

Mrs. Ross said shipments on the waterway increased steadily over the

year. In its first seven months about 626,000 tons moved through the Columbus lock. In the last five months more than one million tons was shipped.

"Part of the problem is that we finished two years ahead of schedule, so that some industries and companies have been slow to invest in loading and unloading facilities," she said.

But in Mobile, Ala., at the mouth of the waterway, the opposite is true. There, city and state officials invested \$230 million in new docks and loading facilities that are going virtually unused because so little traffic is using the canal.

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# Traffic on New Tombigbee Waterway Falls Far Short of Army Engineers' Forecast

By WILLIAM E. SCHMIDT

Special to The New York Times

ATLANTA, Feb. 15 — For decades Congress hotly debated the Tennessee-Tombigbee Waterway, a 234-mile-long system of rivers, dams, locks and canals that snakes through the cotton fields and poor rural landscape of eastern Mississippi and western Alabama.

Proponents in Alabama and Mississippi, who ultimately prevailed, said it was a much-needed link in the nation's system of inland waterways, a shortcut from the Tennessee and Ohio Valleys to the Gulf of Mexico. Congressmen from other regions called it a \$2 billion boondoggle, the worst kind of pork barrel politics.

The waterway, known locally as the Tenn-Tom, was opened to barge traffic in January 1985 and has come up embarrassingly short of expectations. In its first 12 months, according to figures made public early this month, 1.7 million tons of cargo, barely 6 percent of the tonnage originally predicted, moved through the lock and dam at Columbus, Miss., the midpoint on the waterway.

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# Arizona Has A Water Dilemma, But Not A Shortage

J. J.  
Cassery

Editorial Writer  
The Arizona Republic



One of the most important, yet least noticed, addresses in the Arizona Legislature this session was given recently by Republican Rep. Sterling Ridge, the former mayor of Glendale.

He said Arizona has no water shortage and outlined his case:

- About 600,000 acre-feet of water annually flows down the Salt River.

- Some 500,000 acre-feet is available from the Central Arizona

Project.

- And some 400,000 acre-feet can be obtained from treated wastewater in a decade.

He concludes that the Valley can support more than 6 million people — twice the size of the city of Los Angeles.

It has about 1.8 million people today.

Ridge is correct. Neither Arizona nor the Valley has a water shortage.

Therefore, why ask Arizonans to conserve water? Why the 1980 state groundwater code? Why the CAP?

And why not give real estate developers, as Ridge argues, drinking water for artificial lakes?

Ridge is also right in saying Arizona's declarations of a water

shortage over the past 50 years will harm the state's future economic development if such cries are not muted.

Has Ridge, therefore, climbed a mountain to view what others have not seen?

No, he has not.

Wes Steiner, former director of the state Department of Water Resources, quietly said the same thing over the years. So have others.

However, to comprehend the present, one must understand the past.

The idea for the CAP was born a half-century ago.

It began as a rescue project for Arizona's agriculture — to lower its rising water-pumping costs, prolong the life of farming and

serve as a water backup for the future.

Times have changed. It is now becoming a municipal-industrial project as well as helping mitigate Indian water claims in the state.

The groundwater code became law for the following reasons:

- A court case that would have halted the transportation of water, harming Arizona mining and threatening Tucson's municipal supply.

- The threat of former Interior Secretary Cecil Andrus that the CAP would not continue to be built unless such an act was passed.

In arguing for water conservation and against unlimited drinking water for developers' artificial lakes, the state water department has never maintained there is a

water shortage here.

It implicitly said the CAP and groundwater code make no sense if the perception is created that water is being wasted.

The department could not be more accurate.

Frankly, why should American taxpayers underwrite the \$3.6 billion CAP if Arizona has more water than it needs — or can use for the foreseeable future — and, indeed, uses it in ways most people see as wasteful?

That and the need for the Tucson leg of the CAP and Plan 6 are devastating arguments against the lakes bill.

Yet, some 240,000 acre-feet of CAP water has not been contracted for presently.

Is that a water shortage?

Hardly.

That 240,000 acre-feet makes the water recharge legislation, which Gov. Bruce Babbitt is expected to sign on Monday, so crucial. The escaping water would be captured for the future.

Yet, Arizona still faces a dilemma — speaking of water needs in the form of the CAP's leg to Tucson and the dam work of Plan 6 while openly confirming there is no water shortage.

Indeed, times have changed. And it is only a question of when Arizona will begin to treat water as an available commodity that is central to its growth pattern — including how much growth.

However, a lot more discussion and negotiation are needed here before that day comes.

## Collapsing Canal

*Editor:*

The Bureau of Reclamation has done a terrible job of routing the Central Arizona Project aqueduct, especially in Tucson. Now that there have already been two incidents of the canal collapsing, one must question the engineering abilities as well.

Bureau spokesmen are attempting to absolve their responsibility for the latest collapse by blaming "weak concrete and sulfate-laden soil." However, if the bureau had done a competent job of inspection, engineers would have noticed potential problems. Now millions of additional dollars will have to be extorted from American taxpayers to finance repairs.

Something gratifying, though, may result: Perhaps the bureau will be so preoccupied with repairing its "tub" in these collapsed areas that construction of the Tucson canal will be delayed.

That will give Tucsonans more opportunity to enjoy the beautiful Avra Valley in its present, undisturbed condition. That will also postpone delivery of bad-tasting, cancer-causing and expensive water from the infamous chemical treatment plant that city officials hope to shove down our throats.

CAROLYN L. GOSS  
Tucson

Az Republic  
8-7-86

# Wash tenants take bath: 'You can't trust' what I say, official says

By CHERYL HATCH  
The Arizona Republic

QUARTZSITE — Bob and Ione Farmer have spent some sleepless nights in a dilapidated trailer they never intended to call home.

The Farmers, along with about 30 other owners of land west of Tyson Wash, say faulty information from county officials has left them holding worthless property.

Two months ago, when they bought their swatch of land west of Tyson Wash, they say, county

authorities assured them that they would be able to put a new mobile home there.

But two weeks ago, their mobile-home-placement application was denied by Robert Wall, La Paz County planning director, because the property is within a floodway.

The Farmers insisted that Wall told them their property was in a flood plain, where building is permitted.

A flood plain is low land adjacent to a water channel or floodway, and

has been or may be covered by water.

"The county told me I could put a mobile home on the doggone thing," Bob Farmer said.

But Wall said Wednesday, "You can't trust what I tell you. It takes 400 pieces of information to get an exact answer.

"I don't know if we made a mistake," he said. "If I make a mistake, it's your problem. I'm sorry about that, but that's the way it comes out."

Farmer, an Arizona Department of Public Safety patrolman, bought the property as an investment. He intended to replace the existing trailer with a new, double-wide mobile home and a another trailer as a rental.

In May 1985, his property was appraised at \$37,000. Now, he considers it worthless.

"I can't do anything but make payments on my property," he said.

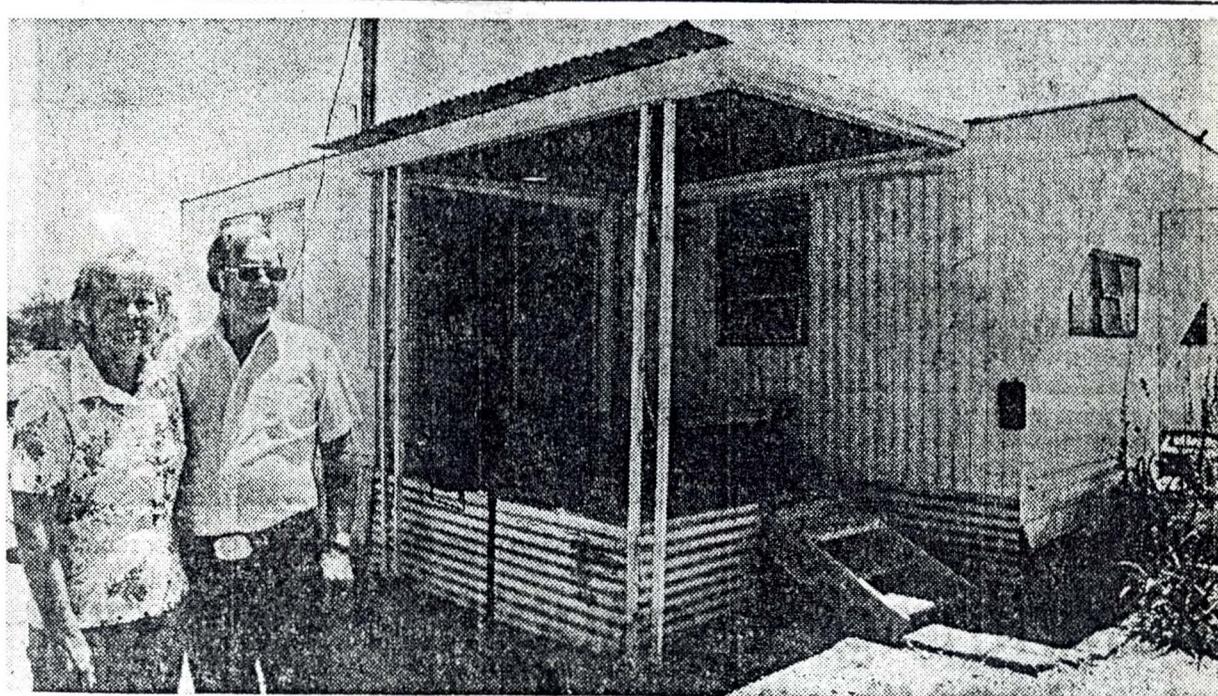
More than 50 confused and angry homeowners in the same situation

as the Farmers gathered Wednesday morning at the Stagecoach Inn to hear the planning director's comments.

Wall said Federal Insurance Rate Maps and the federal Flood Insurance Study for La Paz County indicate large, dangerous floods have been predicted for the land west of Tyson Wash.

That area is a patchwork of RV and mobile-home parks and repre-

— Bath, A2



Cheryl Hatch

Ione and Bob Farmer, in front of the old mobile home they'd planned to replace with a new mobile home.

## Bath

Continued from A1

sents some of the prime property in Quartzsite, residents said.

Quartzsite is home to 2,500 residents during the summer, but the population of the area swells to several times that when winter tourists arrive.

Wall said the floodway designa-

tion has existed since 1983.

"The law hasn't changed," he said. "Nothing has changed except that now we're making people aware of it."

But the Farmers, and other homeowners in their predicament, said the county never made an effort to explain the law to them.

"Why weren't we told?" Ione Farmer asked. "We did our homework. But when you're ripped off by

your own county, I get a little more than upset. The only disgusting thing is the county knew about this and never said anything."

After Wall left Wednesday's meeting, the homeowners met to discuss the possibility of legal action.

Bob Farmer is ready.

"I ain't about to forget it," he said. "I'm just getting ammunition."

# Pima County seeks funds to buy up flood-plain land

By SEAN M. HALL  
Special for The Republic

TUCSON — Pima County, the first county in the state to buy flood-prone land in order to prevent flood damage to developments, probably will ask voters next year for \$5 million to \$20 million to continue the practice.

Charles Huckelberry, county transportation and flood-district director, said the matter probably will go to the Board of Supervisors early next year for a vote to hold a 1985 bond election.

After a costly flood last year, the county asked for and received permission to issue bonds in the amount of \$8.3 million to purchase land likely to be in the path of major floods.

Huckelberry and University of Arizona Dean of Sciences Ed McCullough spoke to 20 people at a meeting last week of the Southern Arizona Environmental Council.

McCullough said the county should buy land in flood plains to avoid costs of up to \$2.5 million per mile of river that would need bank protection to safeguard developments. Development has taken place or has started to take place along 100 miles of river in Pima County, he said.

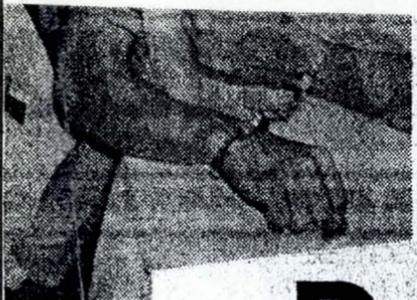
Currently, the county asks developers to contribute half the cost of bank protection, Huckelberry said.

The county will begin buying land along riverbeds on a regular basis beginning next fiscal year, when \$2 million a year in water-revenue taxes becomes available, Huckelberry said.

In a related matter, McCullough criticized a county ordinance that allows building in a flood plain. He said that paths of rivers in the Southwest are too unpredictable and could change course to damage structures previously thought to be out of the main water flow.

He also called for governing bodies to work together to achieve a basinwide flood-management plan.

"We can't afford to deal with one (jurisdiction) and ignore the other," he said, noting that upstream bank protections could cause water to flow faster and in greater volume to points downstream.



RELEASE

# Release

CARACAS, Venezuela (AP)—A lawyer for Marcos Davos...

holds dear not only the lives of of the population, but every citizen.

"THE DESTINES of other tions of the world are not to it."

The editorial appeared +

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# New Rains Boost Runoff In Arizona

## Beeline Bridge Is Out

New rains in the watersheds of the Salt River Project washed out a bridge on the Beeline Highway today and are sending much-needed water into the reservoirs on the Salt and Verde rivers.

A Rye-area rancher had a narrow escape in the bridge wash-out at Rye Creek at the foot of Ox Bow Hill.

**THE RANCHER**, Tom Hughes, was standing near the edge of the bridge when the earth gave way behind him. He fell about 10 feet into the creek and was carried more than 200 yards downstream before he could get to the shore.

Dr. Chester Leathers, of the botany department, Arizona State University, witnessed the incident and said Hughes required treatment for scratches and bruises.

Headquarters of Arizona Highway Patrol reported the bridge wash-out closed the Beeline for travel between Phoenix and Payson.

Highway workmen hoped to complete a detour around the washed-out area by late today.

**THE TONTO** and Verde rivers were running heavy with flood waters today. The Tonto, carrying the runoff from a wide area, flows into Roosevelt Lake and the Salt River. Water in the Verde is impounded behind Bartlett and Horseshoe dams before entering the Salt just above Granite Reef Dam.

The Salt River Project said it will be a day or two before the flood waters reach the reservoirs. The gain during the past 24 hours has been only 1,972 acre feet, less than on previous days this week.

If the rain continues in the higher elevations and there is a continued lack of demand in the Valley, the reservoirs should show a good gain during the remainder of the week, a spokesman said.

In the Phoenix area, there were afternoon clouds after a night thunderstorm gave yards, streets and farms another soaking.

**THE U.S.** Weather Bureau's latest forecast said probability of thunderstorms late today or tonight was about 60 per cent. Chances for the lightning and

More  
About

## Floods Threaten Southeastern Arizona

(Continued from Page 1)

area was receding last night, city officials reported.

Elsewhere, the rain closed several roads in the state and Maricopa County, and it may have contributed to a two-car accident on U.S. 95 south of Yuma which killed Angel Romero Dicochea, 28, of Nogales, and Alejandro Figueroa, 31, of San Luis, Mexico.

Dicochea was a passenger in a car driven by Figueroa. Their car collided with a second car driven by Willie Mae Davis, 39, of Yuma. Miss Davis was admitted to Parkview Hospital in Yuma, while two passengers in

her car were treated and released.

**THE WEATHER** Bureau last night issued heavy snow warnings for the Mogollon Rim country, the White Mountains and the Grand Canyon area. Four inches or more of snow was expected during the night at most elevations above 7,000 feet in northern Arizona.

However, tonight with colder air coming into the state, the snow level was forecast to drop to 5,000 feet in both the north and south.

Flagstaff last night had 2 inches of snow and had 16 inches on the ground, while there

was 7 inches at the Grand Canyon.

The rain was melting the snow in many mountain areas and, along with rains of an inch or more in many locations, was contributing heavy runoff to the Salt River Project watershed as well as the San Carlos watershed.

**PAYSON** below the Mogollon Rim reported 1.57 inches of rain from the storm. Other stations reporting more than an inch were Carefree, 1.28; Flagstaff, 1.50; Gila Bend, 1.06; Globe, 1.41; Heber, 1.22; Show Low, 1.27, and Tucson, 1.11.

The Weather Bureau forecast indicated intermittent periods of

precipitation today and tomorrow throughout the state.

The storm deposited another .94 inch of rain at Sky Harbor Airport, bringing the year's total here to 11.10 inches, the most that has fallen since the Weather Bureau moved to the airport in December 1952.

**THE ADDITIONAL** precipitation also made this year along with 1918 the fifth wettest year in Phoenix since the Weather Bureau began keeping records here in August 1895. The total of 3.10 inches so far this month makes this the third wettest December of record, still behind the 3.46 in 1959 and 3.94 in 1940.

Flash flooding also was expected in many points in central Arizona last night because of very heavy runoff into the Salt, Verde, Hassayampa, Agua Fria and New rivers.

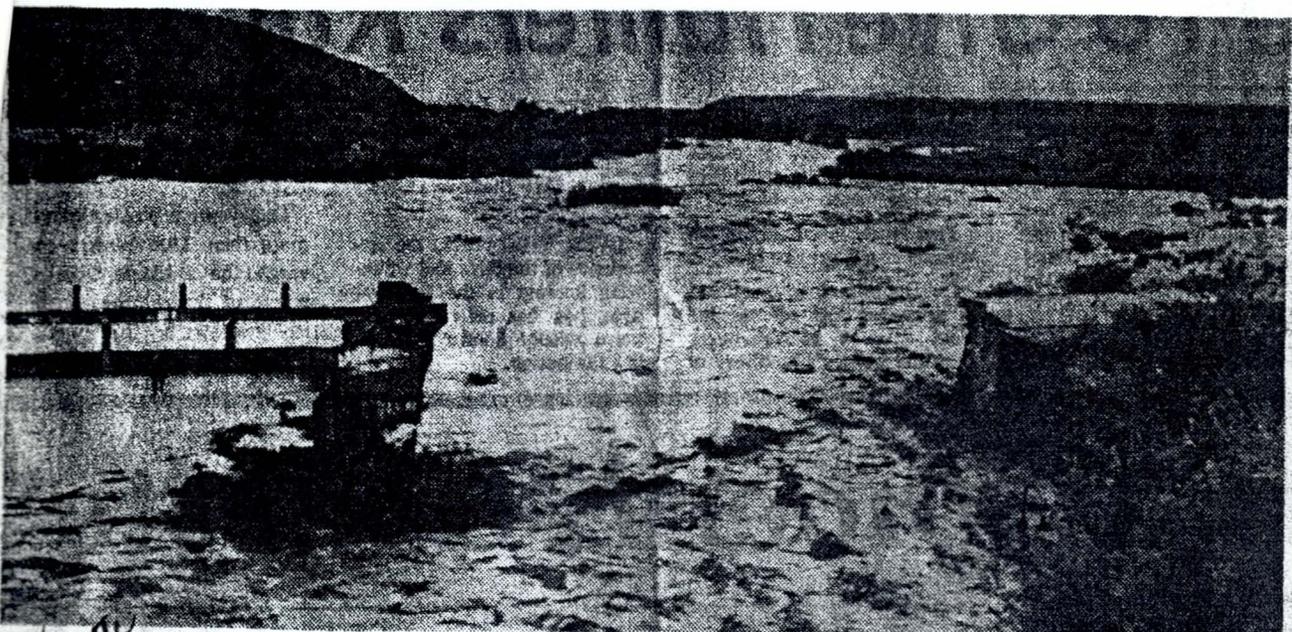
Several trailer home residents were evacuated last night on Tucson's north side after water from the Rillito River swept the area.

**THE MARICOPA** County sheriff's office reported that all roads leading west from the Salt River Valley except Glendale Avenue and U.S. 80 were closed. Bell Road from Seventh Street to the Black Canyon Highway and 48th and 40th streets at the Salt River were

closed by water. Seventh Avenue was expected to be closed early today.

Arizona 86 between Ajo and Sells, Arizona 279 from the junction of Arizona 79 to Cottonwood, Arizona 288 from north of Roosevelt Lake to Young, Arizona 188 from Roosevelt to the junction of Arizona 87, and U.S. 666 north of Clifton were all closed. Arizona 87 from Mesa to Payson was in poor condition from rockslides and water.

In other areas motorists were cautioned to be alert to rockslides and water in dips, and to slick and slushy conditions in snow areas.



### DRAMATIC MOMENT RECORDED ON FILM

*Photo by Dr. Chester Leathers*  
Picture was taken moments after raging floodwaters washed out section of Beeline Highway leading to Rye Creek Bridge last Thursday. Creek is usually dry, but recent rains have caused water to spill over lowlands. Picture was taken by

Dr. Chester Leathers of Arizona State University botany department who was en route to Payson. He saw rancher Tom Hughes fall into swirling water and finally make it to safety about 200 yards downstream. Road is repaired.