"While enlightened policy-makers, administrators, and legislators can do much to bring about orderly development and conservation of water, in the last analysis progress toward these ends will depend upon the people of Colorado . . . What are Colorado's people doing through their government, and what might they do, to ensure a supply of their most precious resource that will meet the demands of a rapidly growing population and a changing economy?" (League of Women Voters of Colorado in "Colorado's Water Resources", December, 1958)

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NEW IDEAS in the world of western water: Self-propelled irrigating machine that can take water from an irrigation ditch, and sprinkle it over a crop has been designed by a New Mexico farmer. Machine straddles ditch, dams water in front of it, moves slowly upditch while pumping, is especially good for tailwater utilization. Cost: $7,000 plus 40 cents an hour for fuel . . .

New constant head orifice turnout for measuring water going from canals to irrigation laterals was recently demonstrated to Collbran project operating personnel by Bureau of Reclamation engineers in Grand Junction . . . Rainfall measurements 100 miles away can be made by a new radar precipitation integrator developed for U.S. Weather Bureau by Stanford Research Institute. Device converts radar echo intensities into quantitative terms.
Measuring device developed by Colorado School of Mines professor (Niles Grosvenor) may solve a tunnel construction problem. Three-dimensional bore hole deformation gage tells whether rock surrounding drill hole can withstand pressure changes. Hydrologic data telemetering station installed in remote Idaho mountains measures and automatically transmits data on total precipitation, air temperature, soil temperature, snow water content. Plastic film used to cover soil ridges between corn rows shows promise as a moisture conserving. U.S. Agriculture Dep't tests at Mandan, N.D., indicate that 50 bushels of corn per acre can be produced without irrigation, with only 4.2 inches of growing season rain, if 90% of ridged area is covered with black polyethylene plastic film. Hitch: Plastic film costs too much for farmer use. Special TV camera was recently lowered from top to bottom of a 700-foot well in Adams County. Purpose: Determine what effect recent earthquake tremors have had on well casing. Crawl-down camera (35 mm) developed by U.S. Agricultural Research Service at Brawley, California can crawl down a pipe and locate stoppage or leak while operated by remote control. Root resistant plastic pipe has been developed for use in home sewer lines. Computer program to record all legal cases involving oil and gas leasing on federal lands is being developed at Denver U.'s law center with oil industry financial assistance. Water Congress question: Any sponsors for a Colorado water law computer program?
Plastic coat on dams has proved effective in Sweden for preventing cracks due to extreme temperature variations... Water tank erection costs were cut in Great Britain by casting conical concrete tank (480,000 gals, 90-ft. diam) on ground, then jacking it hydraulically into place... Watershed management assist is seen in a new portable sawmill that can saw 1,000 board feet in five man hours with 30-minute setup, 15-minute takedown time... New electrical energy source unlike any now in commercial use, developed by U. S. Air Force, uses a converter to extract electrical energy from heated mercury...

The Russians are lowering the water level of one of their largest inland lakes 65 feet in an effort to reduce evaporation losses...

Snow making machine at Ski Broadmoor, Colorado Springs, methodically laid down artificial snow at one inch per hour rate during last winter's snow drought... Electric cloud seeding furnaces that operate remotely at flick-of-switch have replaced older coke burning models in commercial cloud seeding operations in Colorado... Do-it-yourself cloudseeders in drought stricken southwest Africa have bought over 8,000 cloudseeding rockets at $15.40 apiece to fire into clouds passing over parched farm lands.

WATER RESEARCH: Bureau of Reclamation cloud seeding test in South Dakota has been labeled unqualified success. However, several years of comprehensive field investigations will be required to
collect data sufficient to establish conclusive results . . .

Sea water conversion research status: Demonstrated conversion cost $1 to $1.50 per thousand gallons ($330 to $500 per acre foot) with 1 MGD capacity plants using fuels costing 40 cents per million Btu. Theoretically possible cost under certain favorable conditions: Estimated 50 cents per thousand gallons ($165 per acre foot) with 25 to 30 MGD plants: 30 cents per thousand ($100 per acre foot) if fuel costs could be cut to 10 cents per million Btu . . . Means of controlling water quality in 3-state Green River basin (including Colorado's Moffat, Rio Blanco, Routt counties) is being researched by U. S. Public Health Service and by economists at four universities (Denver, Colorado, Colorado State, New Mexico). Green River study is first of six slated for Colorado River basin.

Phreatophyte research by Colorado State U and Colorado Water Conservation Board has indicated that 68,000 acre feet a year probably could be salvaged in the Arkansas Valley by substitution of beneficial phreatophytes (water loving shrubs and trees). This is about the same amount of water that the $171 million Fryingpan-Arkansas project will import from the western slope . . . Effect of sagebrush on underground water supplies has been researched at Wyoming U. Pilot study indicated 3.4 to 4.3 inch water use during 4-month growing period . . . Water use by manufacturing industries will be researched at New Mexico U . . . Marginal productivity of water for agriculture will be studied at Utah State U.
Ground water management on the high plains of eastern Colorado is being studied by Colorado State U. Water pollution research grants and private research contracts may be boosted 60% if U. S. Public Health Service obtains requested funds. Use of evaporation for treating wastes in water will be researched by W. L. Badger Associates of Ann Arbor, Michigan. Point at which reclaimed water becomes bacteriologically safe for irrigation, recreation and ground water recharge will be studied in first-of-its-kind research at Santee water reclamation project, San Diego. Pulp mill effluent use for sprinkler irrigation has been successful in Weyerhauser Co. tests. Pesticides in water will be researched at a new $65,000 lab established in Georgia by U. S. Public Health Service. Outboard motorboats have no effect on turbidity in water supply reservoirs, according to extensive biological research at Lake Bloomington in Central Illinois. Flouride addition has dramatically reduced teeth decay among children in Great Britain, Health Ministry reports. Milk fluoridation proposed by Louisiana State U scientists as a family decision solution to the water fluoridation controversy has been downgraded by Colorado Health Dep't. Director Rob't. Downs says some Colorado water supplies have enough natural fluorides and that additional amounts could be harmful.

WATER PEOPLE: John M. Dille, highly respected irrigation engineer, died recently at age 84. Dille was secretary-manager of the
Northern Colorado Water Conservancy District for many years. He was a member of the Colorado Water Conservation Board for 15 years and in 1956 was named to the national Reclamation Hall of Fame.

James E. Lewis, 91, Arkansas Valley irrigation engineer and longtime ditch company superintendent, died recently. Ed C. Johnson will continue to serve as Colorado member of the Upper Colorado River Commission. Louis Goucher has retired, after 39 years as ditch rider on the Grand Valley irrigation ditch. Frank Milenski of La Junta has been elected chairman of District 6 of the Colorado Water Congress. District 6 rules committee member: James Wagner of Lamar. Lyman Wright of Monte Vista is seeking support for appointment to the Colorado Water Conservation Board to fill the position now held by Judge Richard E. Conour, Del Norte. Judge Conour will not seek reappointment when his term expires May 12.

WATER LITIGATION: Denver Water Board received a legal setback in district court at Hot Sulphur Springs this month when Judge Addison Gooding ruled on Denver's claim for an absolute decree for 55,000 acre feet, priority date November 10, 1935, for Williams Fork Reservoir (capacity 93,000 acre feet). Gooding granted Denver an absolute decree for 6,600 acre feet (capacity of original reservoir) with 11-10-35 priority date. But he limited the decree to use for replacement of water diverted to the eastern slope from the Williams Fork. He denied Denver the right to use Williams Fork Reservoir for replacement of water diverted from the Fraser River.
Decision on whether water from Williams Fork Reservoir may be released by Denver to replace that taken from the Blue River is, in Gooding's opinion, "a question now premature...and should be saved for the future when the Blue River diversion has been accomplished."

Gooding indicated that when Denver obtains a decree for power purposes in another proceeding Denver's priority date will be after Dec. 31, 1955. Gooding's decision is a major legal victory for Middle Park Water Conservancy District. It has a conditional decree for Ute Park Reservoir and related facilities, all part of the proposed Parshall reclamation project, with date of September, 1954. Denver will appeal Gooding's decision to the Colorado Supreme Court.

Granby Ditch and Reservoir Co. has been granted a decree by Judge Ed L. Dutcher in district court at Delta for a change in place of water storage. Decree for storage change entered in 1957 was appealed to the Colorado Supreme Court, which remanded the case for new trial . . . Claimants who were unable to present evidence during recent Water District 40 hearings have until Feb. 3, 1964, to enter proof. District 40 includes water arising in the North Fork, south Grand Mesa, Black Mesa and Roubideau-Escalante drainages in Delta, Montrose, Mesa and Gunnison counties . . . Federal Power Commission has granted Denver Water Board a license for its Williams Fork power plant, but Denver has filed petition for modification of certain restrictions imposed by FPC. In a new development, Interior
Department filed petition with FPC to have Denver's Williams Fork application reheard on grounds that restrictive conditions which U. S. Fish and Wildlife Service seeks to impose on Denver should govern . . . Merger of Western Hills Utility Co. and Northwest Utility Co. (Thornton area) has been approved by Colorado PUC.

COLORADO LEGISLATURE is considering a number of bills dealing with water and related resources. House Bill 432 by Rep. Gossard of Craig proposes a $40,000 study of the state's water resources by Colorado Water Conservation Board. Survey would include determinations of virgin streamflow, existing consumptive uses, whether consumptive uses have depleted streamflow "below that necessary to fulfill the river basin's proportionate share of water for delivery to other states under existing interstate compact obligations", known potential in-basin consumptive use requirements. During the two-year study a moratorium would be imposed on all court cases involving transmountain diversions. If this bill becomes law, its constitutionality probably would be challenged in the courts.

. . . In S.C.R. #9, Sen. Fulghum of Glenwood Springs proposes "Submitting to the qualified electors of the state of Colorado an amendment to Section 6 of Article 16 of the constitution of the state of Colorado, relating to the appropriation and use for beneficial purposes of the waters of the natural streams of Colorado and providing for the adoption of a master plan for use of the remaining unappropriated waters and recognizing certain preferences to the use
of water in the basins of origin.

Other bills:

HB 100 (Mackie, Evans) repeals appropriations already expended relating to water conservation.

HB 110 (Mackie) concerning the Water Conservation Board of Colorado and repeal of 148-1-17 and 148-1-18, CRS 1953.

HB 129 (Mackie, Gossard, Wyatt) creating a division of natural resources; designating the commissioner of mines as natural resources coordinator and providing for his functions and duties; and abolishing the Dep't of Natural Resources.

HB 294 (Saunders) concerning irrigation districts.

HB 328 (Griffith, McCormick) concerning game and fish and enlarging the powers of the game and fish commission in acquiring, holding and adjudicating waters for fishing and other recreational purposes.

SB 25 (Gill) declares that underground water shall not be presumed to be or not to be a tributary of any surface stream.

SB 52 (Oliver) adds penalties for violations of the Colorado ground water law.

SB 39 (Locke, Shoemaker, Brown) eliminates the ground water fund and credits filing fee for users of ground water to the state general fund.

SB 67 (Taylor, Braiden) amends water allocation to Colorado and New Mexico under the Costilla Creek Compact (not effective until and unless ratified by both legislatures and by Congress).

SB 87 (Lamm), relating to assessments under irrigation district law.

SB 163 (Braiden) raises salary of secretary of drainage districts from $500 a year to $1,200 a year.

SB 239 (Donnelly) concerning water conservancy districts and to amend 149-6-17 (2)(b) and (2) (c), CRS 1953.
Perennial to be or not to be ground water presumption bill sponsored by Sen. Ted Gill may be headed for the legislative wastebasket.

Denver Post: "Sen. Frank L. (Ted) Gill of Hillrose, who has the tenacity of a bulldog, is about to lose his latest attempt to change Colorado's water laws.

"Gill's perennial campaign doesn't bother most people, but it is important to water users and water lawyers, and it certainly must be important to Senator Gill after all these years.

"The law presumes that underground water is tributary to a surface stream. Gill--since way back when--has been trying to upset that legal presumption. This year he made the attempt in SB 25, which is just where it started two months ago--in the Senate Water Committee."
(Charles Roos, 3-17-63)

COLORADO CITIES AND TOWNS: Westminster voters defeated a proposal to buy water from the Denver Water Board. Westminster will proceed to develop its own water supply . . . Pueblo Water Board's longstanding dispute with City Council over fire hydrant rental fees remains unresolved following compromise proposal . . . Denver Water Board has purchased the Taussig water rights in the Big Lake Ditch, which diverts from the Williams Fork a short distance above Denver's Williams Fork Reservoir. Reported purchase price: $1,059,000 . . . Colorado Springs and Aurora expect to release plans about April 30, for their $40-million Homestake water project . . . Golden will henceforth require churches to pay regular charges for water. Church water had been free.

. . . Thornton has hired General Waterworks Corp. to manage its
recently purchased $9.5 million water and sewer system during the first five years of city ownership. Westminster will be able to store 12,000 acre feet in an enlarged Standley Lake Reservoir under a recently approved contract with Farmers Reservoir and Irrigation Co. Montrose is blaming faulty engineering and construction for leaks in its new 3 MG water tank. Broomfield is acquiring the water and sewer systems owned by Mutual Service Co. Florence has hired a Denver engineering firm to proceed with its long-delayed water project. Water system improvements are either anticipated or underway at Ouray, Manzanola, Granby, Norwood, Frederick, Steamboat Springs, Walsenburg, Yampa. Water rate changes have been made recently at Monte Vista, Montrose, Littleton, Firestone, Hotchkiss, Telluride, Westminster. Fort Lupton has repealed its 10% discount on water rates paid in advance. Dolores and Durango are studying drainage problems.

COLORADO WATERBITS: Pumped storage hydroelectric power development on South Clear Creek, in the mountains near Georgetown, has been announced by Public Service Co. of Colorado. Measurements: 225,000 kw installed capacity, $24 million cost, upper reservoir 1,400 acre feet capacity at 11,200 feet elevation, lower reservoir 1,900 acre feet at 10,000 feet, pump capacity 326 MGD. This imaginative private enterprise project may spark other pumped storage developments in Colorado. Annual Rocky Mountain water
and sewage plant operators school will be held March 25-29 at Colorado U's Denver extension center.

Colorado-Big Thompson project comprehensive history has been published in a 56-page booklet by Bureau of Reclamation . . .

Northern Colorado Water Conservancy District's 25th annual report is a fact-filled information model that should be of interest to irrigation districts throughout the reclamation West . . . Colorado's chances for avoiding interstate litigation on Rio Grande Compact problems are not bright. Main problem seems to be local opposition by some water users. In addition, engineering advisors for other states have expressed scepticism as to the quantity of water that can be salvaged and the possibility of obtaining congressional authorization of a wholly federally financed and operated salvage project.

The Valley Courier (Alamosa): "The compact cannot be renegotiated because Colorado has nothing to trade with, (Judge Conour told a March 4 meeting of the Farm Bureau at Alamosa).

"The compact difficulty arose because compact negotiators apparently didn't have accurate stream flow information and the agreement called for delivery of too much water to the state line. Another problem, (Conour) pointed out, was that the representatives did not foresee the extensive pumping that has taken place in the last 15 years." (3-5-63)