NUCLEAR EXCAVATION of large canals and underground water reservoirs can be done for one-tenth to one-twentieth the cost of conventional excavation. This is the conclusion of Dr. Edward Teller, father of the H-bomb, associate director of Lawrence Radiation Lab and founding father of Project Plowshare, Atomic Energy Commission's program to develop peaceful uses for nuclear explosions. Teller's optimism stems from last summer's successful blast 635 feet underground in Nevada. It created an instant lake (less water), 1,200 feet wide, 320 feet deep. But Teller is pessimistic about AEC's rate of progress. He says Plowshare is actually getting nowhere due to "lack of imagination, lack of enterprise and some political timidity". He wants to A-blast a 40-mile canal section for a proposed waterway between two southeastern river systems. Corps of Engineers is studying the possibility.
OTHER NEW IDEAS circulating in the western water world:

Experiment in water utilities will be undertaken by Johns-Manville Corp., a building materials manufacturer. J-M is establishing a program to finance, build, own and operate private water and sewerage systems anywhere in the U.S. Objective: Help developers get lagging, medium size housing developments underway . . .

Telemetering leak detector, towed through an underground pipe can be spotted by a self-contained instrument developed by Shell Pipeline Co. It is battery powered, moves with the fluid in the pipe . . . Salt water conversion (distillation) process developed by U of California scientists shows promise of achieving cheap conversion (60 cents per 1,000 gallons on large scale basis) . . .

$80 million coal pipeline from Utah to Los Angeles is being considered by Texas Eastern Transmission Corp. Go-ahead appears to hinge on passage of proposed eminent domain legislation.

Flower pots can be used by housewives to purify water contaminated by radioactive fallout. U.S. Office of Civil Defense reports that clay and loose subsoil can remove 80 to 95% of the radioactive strontium and cesium in water . . . New soft detergents with low resistance to bacteria may aid the pollution problem. Continental Oil Company is opening a new plant in Louisiana to produce the type of alcohol needed for the soft detergents . . .

Device that reuses detergents over and over again in washing machines, without discharge down the drain, is being marketed by a New York firm.
New solution to the detergent problem has been proposed by an Egyptian born chemical engineer. He takes sewage as it comes from the treatment plant, still heavily contaminated with detergents, and pipes it into a vertical cylinder. Air blown through the cylinder causes detergents to form a bubbly froth which is drawn off the cylinder top. Extracted bubbles collapse, detergents collect in a small amount of liquid that is easily treated and disposed of.

Fluff pump cleaned a clogged 265-acre recreation lake near Seattle of accumulations of decayed plant life and algae at a cost of less than 13 cents a cubic yard. Big suction manifold pumps act like vacuum cleaners in removing semi-suspended organic matter.

Self-propelled barge developed by a Milwaukee inventor may be the answer to the problem of water weeds. Built-in device cuts weeds below surface, stows them away for disposal on land. It can clear about an acre an hour at a cost of $50. Not for sale but services are available on a contract basis.

Water weed mower developed by U.S. Air Force has cutting bars, similar to conventional mowing machine, which can be lowered in water to depth of six feet.

Demineralization units to make brackish water fit for human and animal consumption and for industrial use are being manufactured commercially in Albuquerque.

Portable nuclear power plant that can be moved by a truck and can run for a year without refueling has been developed by the Atomic Energy Commission.

International legend for water resource maps has been devised by the International Association of Scientific Hydrology.
COLORADO WATER NEWSBITS: Plains Conservation Center is proposed for 2,000 acres of soil conservation district land in Arapahoe County, east of Buckley Field. Center would be designed to tell the natural resources story of the high plains country . . . Honor camp program is benefiting water recreation in Colorado. Last summer, state reformatory youths built camping and picnicking facilities at Vega Reservoir near Collbran and at Sweitzer Lake near Delta . . . Five hundred fryingpans - symbols of the Fryingpan-Arkansas project - were mailed from Pueblo last month by a national weekly magazine to its prospective advertisers . . . Irrigation company assessments in Colorado this year were the same as last year ($38,750). Water company assessments increased from $1,630,550 to $1,987,120 . . . Cloud seeding this winter by Irving P. Krick of Denver is aimed at Winter Park, Loveland, Arapahoe, Aspen ski areas.

Narrows project damsite decision is expected within 3 months. . . . Cache la Poudre project reconnaissance report is completed but has not been released by the Bureau of Reclamation. Report indicates that project feasibility investigations are justified . . . Hydraulic lab of Bureau of Reclamation in Denver will model test various features of California's big Oroville Dam, now under construction . . . Colorado Water Well Contractors Association has concluded that "revisions in Colorado water laws must be made by the 1963 legislature to prevent ground water development from becoming entangled in a maze of piecemeal interpretations and court decisions."
Colorado Game and Fish Commission policy statement indicates that the commission will recommend and actively support legislation or other action which will:

"Recognize sport fishing and other recreational uses of water to be beneficial uses for which water may be appropriated and water rights adjudicated.

"Give permanent legal status to those streams which have a high fishery value by providing a statutory or otherwise permanent maximum or minimum stream flow.

"Give permanent legal status to the natural lakes of the state by providing a statutory or otherwise permanent water level elevation which can be neither lowered or raised without the express consent of the Game and Fish Commission.

"Provide for a State Coordination Act comparable to the Federal Coordination Act which will provide for consideration of game and fish resources in water development projects."

COLORADO RIVER BASIN: Colorado River Board of California has been distributing tabulations on beneficial consumptive uses of water in the Colorado River Basin. Apprehension was expressed at a recent Upper Colorado River Commission meeting that these tabulations might be used against upper basin states when they seek congressional authorization of additional water projects . . . Much speculation in political and water circles centers around the presumption that Edwin C. Johnson will be replaced as Colorado's member of the Colorado River Commission. Appointment is made by the governor. Western Slope interests are particularly active in promoting candidates for important, non-salaried job . . . Colorado Game and Fish Department is considering the purchase of up to 13,000 acres of private land near Blue Mesa Reservoir of the Curecanti project for enlargement of its game
management area. Proposal has aroused a storm of vigorous local protests . . . **Best fishing waters** in the nation tag may be pinned on Upper Colorado River Basin Streams after U.S. Fish and Wildlife Service finishes its development program. Over half ($476,000) of USF&WL's 1963 budget is for work in the upper basin. In addition, USF&WL is starting a 6-year, $100,000 upper basin fish management research study at **Navajo reservoir**. It will also build a $885,000 fish hatchery at Curecanti.

**Good forecasting:** 99.9% accuracy by U.S. Weather Bureau in its May 1st forecast of **Colorado River runoff** at Lees Ferry, Arizona during the water year ending Sept. 30. Runoff at the Lee Ferry compact delivery point this year (14,625,000 acre feet) is highest since 1957, third highest since 1942. This indirectly helps the interbasin problem of filling Lake Powell, behind Glen Canyon Dam. **Glen's filling** is scheduled to start next May. First objective: 6.5 million acre feet stored (power pool) by June 1964, when power units start generating. Two storage project reservoirs started storing this year: Navajo, last June; Flaming Gorge, Nov. 1 . . .

Underground powerplant will be built at **Morrow Point Dam** of the Curecanti project. Curecanti's **Blue Mesa powerplant** will use Japanese turbines . . . **Green Mountain reservoir** is being drawn down lower than usual this winter for penstock repairs.

**San Miquel River mess** below Union Carbide Nuclear Co's Uravan plant appears to be nearing satisfactory solution. Ponds are being
built to settle out uranium mill wastes that have ten times the concentration allowed by the state health department. Glenwood Springs Sage reports that "Evidence is mounting that the proposed Ruedi Reservoir of the Fryingpan-Arkansas Project may not hold water." **Reason:** Alleged existence of geologically unfavorable gypsum and salt deposits. **Evidence:** Observations by a U.S. Geological Survey engineer and claims by local ranchers. USGS brass in Washington, D.C. are soft pedaling their field engineer's observations. They do not plan to publish a special report on Ruedi damsite geology. Bureau of Reclamation engineers have known about the gypsum deposits since the 1940's and are currently core drilling the damsite. Tests include forcing water into drill holes to find out if the water disappears into the deposits, as claimed by site opponents. **USBR's test results** are not expected to be released before next spring.

Report on the salinity problem on the lower Colorado River is scheduled for release by USBR about March 1st. A California newspaper has some interesting comments on the lower basin salinity problem.

**Alhambra Post-Advocate:** "There are those who believe the water of the Colorado River can get salty enough to pickle a fish and, under terms of the 1944 treaty, that will just about be Mexico's tough luck.

"What the United States is doing is sticking to its understanding of the treaty ratified by the U.S. and Mexican Senates in 1945. Senator Carl Hayden is one of the few men left in Congress who participated in the U.S. hearings."
'There was no guarantee of quality of water to Mexico, Hayden remembers. 'It was only upon this understanding that the Senate ratified the treaty. Without this understanding the treaty would not have been ratified.'

"Water lawyers have said that if the U.S.-Mexican dispute goes into the International Court, (International Court of Justice at the Hague) or even a U.S. Court, the judges may apply the test of reasonableness to the treaty and conclude that a guarantee to supply water means usable water.

"It is being argued, here and in the Southwest, that the basin States and the Bureau of Reclamation would be better off to move in and do the drainage work needed to clean up the return flow from Wellton-Mohawk. This would keep the 1944 treaty out of the courts and avoid the possibility of an outside authority trying to impose new regulations or even new apportionments on the waters of the Colorado.

"A bonus benefit could be the avoidance of a nasty international situation that could please only the enemies of the United States." (11-6-62)

COLORADO WATER PEOPLE: H.D. Amsley, superintendent of the Fort Lyon Canal Company for 30 years, has received this year's honor award of the Four States Irrigation Council. FSIC is composed of managers and superintendents of irrigation companies and districts in Colorado, Nebraska, Kansas and Wyoming . . . William R. Metz, able water commissioner on the South Platte River for 30 years, died recently . . . Colorado's Rep. Wayne Aspinall, was honored last month by Californians with a dinner, a plaque and public thanks from Gov. Brown for "distinguished and highly effective work in our behalf" as chairman of the House Interior Committee. Aspinall was featured speaker recently at the annual convention of the Nebraska State Reclamation Association.
Hugh P. (Pat) Dugan has been appointed director of the Bureau of Reclamation's Region 7 office in Denver. Dugan, now regional director in Sacramento (Region 2), was for many years in project planning work in the Bureau's Denver office. He is a native Coloradan and an engineering authority on water problems in the Colorado River basin. . . . Colorado River Water Users Association elected several Coloradans at its annual convention in Las Vegas. Philip P. Smith of Glenwood Springs was elected vice president, Richard B. Williams of Grand Junction and Amos Horn of Granby directors. . . . Allen P. Mitchum has returned to private law practice in Denver following service as minority counsel to the Senate Interior Committee, which compliments Mitchum for a job well done. . . . Colorado Water Congress district meeting at Fort Morgan elected to board membership Frank Gill of Ft. Morgan, Robert Giacomini of Sterling, David Idler of Kirk, Cecil Osborne of Ft. Morgan and Carl Rees of Julesburg. Gill was re-elected district chairman and Giacomini was elected to the rules committee. . . . At the Water Congress district meeting at Alamosa, attended by 106 people interested in water, Quincy Cornelius, Jr. of Hooper was elected district chairman and Paul Lincoln of Del Norte was elected to the rules committee.

WATER LITIGATION: Damage suit against Colorado Game and Fish Department over water pollution has been continued until February, after two weeks of testimony in district court at Glenwood Springs. Suit started in 1955 when Farmers Irrigation Co. and other landowners charged that putrid meat dumped into Rifle Creek for fish at the
state hatchery rendered the water useless for drinking and deprived the plaintiffs of water rights dating back to 1887. In 1959, Attorney General Dunbar ruled that a state agency could not be sued and Judge Darrow dismissed the case. Earlier this year, Colorado Supreme Court ruled that the Game and Fish Dep't has no sovereign immunity and can be sued like anyone else. Eighty one separate damage claims ask for total payments exceeding $300,000.

Grand Junction noisome stench suit is approaching showdown stage. Last April, 27 property owners living near GJ's sewage disposal plant filed a $160,000 damage suit, claiming "pain, irritation, suffering, anxiety, nausea and loss of companionship" as a result of "noisome stench." City recently offered a $14,000 settlement, which property owners rejected . . . Colorado Supreme Court has ruled that a limitation on charges for diversion of water, fixed in a 1925 decree, is invalid. Limitation applied to diversions from the Farmers Water Development Ditch in San Miguel County. High court decision by Justices Sutton, Hall and Pringle overruled a decision by Judge Kempf in Montrose District Court.

Colorado Supreme Court liberalization of appeals from justice of the peace court is of interest to water users. Violations of orders by the state engineer and his water commissioners usually are justice of the peace court offenses. In 1952, the high court held that a defendant "could not appeal from a judgment which had been voluntarily satisfied." Recently, the court majority said that they no longer subscribed to the 1952 language. Last October, the court
ruled that a defendant who pays a fine involuntarily, retains his right of appeal. This month, the court ruled that even though a defendant voluntarily pays a fine he may still appeal to a county court. . . . Suits against the federal government can now be filed locally, under a new law, rather than in federal district court in Washington, D.C. . . . Sedimentation suits have been mentioned as a possibility by a U.S. Bureau of Land Management Official (Virgil Heath of Salt Lake City). Heath: "There is some talk now of bringing suit against the owners of land that contribute to excessive sedimentation" to a river "when it is due to poor land management practices."

Pennsylvania can now compel its communities to treat sewage. State superior court ruled for the state in the case of a city that pled poverty in fighting a sewage plant construction order issued by the state board. . . . U.S. Supreme Court told a reluctant federal judge in Texas that he had to impose a $506 penalty on a farmer for planting 43 acres more wheat than federal regulations permitted. . . . U.S. Supreme Court heard oral arguments recently in an important water case pitting the City of Fresno, Calif. and farmers along the San Joaquin River against the Bureau of Reclamation.

Iowa Supreme Court reversed a district court's decision allowing construction of electric transmission lines along interstate highway rights-of-way. . . . Individuals have been accused of polluting waters in Oklahoma by allowing oil, chemicals and other substances to flow from pits into a stream. Action was brought in county court
by a county attorney . . . National Parks Association has indicated that it plans to sue Interior Secretary Udal if he permits Lake Powell backwater to enter Rainbow Bridge National Monument.

Colorado Public Utilities Commission has completed hearings on an application by Colorado Ute Electric Association for a $30.5 million generating plant near Hayden. No other dispute before PUC has involved so much testimony and so many exhibits. More than a half-million words, thousands of exhibits. In related action at Montrose, Western Colorado Power Company will appeal Judge Kempf's decision denying an injunction to restrain Colorado-Ute from proceeding with the application to PUC for the Hayden plant and other power facilities . . . Ute Water Conservancy District will petition district court to open water adjudication proceedings in Water District 42.

WATER DISTRICTS: A district may be formed near Craig to sponsor the Wessels reclamation project. Boundary problems killed an earlier effort. Competition for Yampa River water by the Four Counties Water Users Association (John Elliott) may spark renewed district interest. . . . Orchard City Irrigation District in Delta County has received a $270,000 federal loan to build pumping facilities. This is the first loan made to a water district in Colorado under the Small Projects Act. Irrigation districts in other states, particularly California, have received great benefits from federal small projects loans.