It is good to be back in the Northwest once again. I spent 12 very satisfying years in this most beautiful part of our country during and after World War II -- as a design engineer with Boeing Aircraft in Seattle and with the Bureau of Reclamation in Idaho Falls and Boise. Yes, I have found it changed and not entirely for the good but I think you have done a better job of preserving the quality of life than have other areas of the nation. Nevertheless, though in lesser degree, many of your cities face the same problems that we have in the Southwest. Perhaps water supply is not one of yours.

My topic today is "Water for Cities." Necessarily, I will be talking mostly about the 124 cities served by the District. However, I believe much of what I say will apply to other cities of the Southwest -- and many cities all over the country.

Thanks to three long and immensely expensive aqueducts, the coastal plain of Southern California that is served by the Metropolitan Water District has no water supply problems now or

probably in the coming decades. The word "probably" is inserted there because of the ever-present possibility of an earthquake strong enough to sever one or more of those lifelines. They all unavoidably cross the San Andreas Fault. Those three aqueducts are that of the City of Los Angeles extending 233 miles from the Owens River on the east side of the High Sierra, the District's 242-mile-long Colorado River Aqueduct and the state's California Aqueduct stretching 450 miles from the delta of the Sacramento and San Joaquin rivers south into Riverside County. Parenthetically, I might point out that if you put these end to end, you'd have more than 900 miles of aqueduct capable of conveying roughly three and a half billion gallons a day -- enough water for 15 million people. It would also carry an awful lot of apple juice from Wenatchee a long, long way south just about to Lake Mead behind Hoover Dam. You notice I said apple juice -- not Columbia River water.

In just a few weeks, the District will begin distributing the water from the California Aqueduct to parts of our service area. We are expanding our distribution system at a cost of one billion three hundred million dollars in order to deliver this new water to our member agencies. Eventually, we expect to be receiving nearly two billions gallons a day from this source -- or almost twice what we now get from the Colorado River. This new water supply is arriving none too soon. In its absence, we would probably have had to cut off sales of water for replenishment of underground supplies and for agriculture this summer. Aggravating
the situation has been the extremely dry winter we have been experiencing. Not even a trace of rain at the Los Angeles rain gauge in January and a total of only slightly more than one tenth of an inch for February and March. These first three months of 1972 are reportedly the driest quarter in the city's history. And this is the third year in a row we've had rainfall well below average and the yearly average is only 14 inches.

So it appears that we can count on this water from Northern California to meet our growing needs until perhaps the year 2010 or 2020. Originally we had estimated we would need another new major source of water by 1990. Two factors account for the extension in time.

They are, first, a slowdown in population growth. But don't misunderstand me, the population is still growing in the District. At a rate of some 150,000 a year now; a few years ago, it was 300,000. The second factor is a drop in per capita consumption of water. This is attributed to a recent shift to apartment house living from single-family homes with front lawns and back yards using relatively large amounts of water. I can speak as an authority on this myself, having moved only a few months ago from a pleasant home in suburban Santa Monica to an apartment in a 32-story apartment building on downtown Los Angeles' Bunker Hill a few blocks from the District's Headquarters Building. I solved one urban living problem in Southern California for myself with dispatch -- namely, driving the freeways for an hour or so both to and from work.
We see the population growth of Southern California continuing and thus we are thoroughly convinced that this vast new supply from the northern part of our state will be needed to meet these increased demands. Babies will continue to be born. People will continue to come to Southern California because of its climate, its beaches, its mountains, its informal life style, and its job opportunities. I would regard air pollution as the major concern deterring immigration or promoting some moves out of the region. But there is no question in my mind that this problem affecting so many other cities now as well as the Los Angeles area will be solved. Absent smog, and with an upturn in the aerospace industry, our population growth could explode again and even exceed the dizzying rates experienced in most of the post-World War II years.

But now at the threshold of receiving the first water from Northern California as the result of an epic engineering achievement, when those of us in the business of supplying water to a metropolitan area in a desert land might expect the wild acclaim of the more than ten million people now living in the District, what are we, in fact, encountering? We are being told in the columns of our newspapers and on radio and TV by some very eloquent and persuasive people that it was all a horrible mistake — all of it — the Owens River Aqueduct, the Colorado River Aqueduct, the California Aqueduct. Shut 'em all down. Water is the cause of all our urban evils.

Not being unreasonable people, those who are pushing these simplistic themes indicate they will settle for shutting down
merely the California Aqueduct and thus presumably cut off any more population growth in Southern California. Details such as, if there are no revenues from the sale of water, who is going to pay for an inoperative aqueduct costing nearly three billion dollars, are not discussed or even considered.

I sharply dispute the contention that assured supplies of water are the cause of the population rise Southern California has experienced. I doubt that very many of the tens of thousands of GIs who moved there after World War II checked the question of water supply first. So, too, Arizona has been experiencing tremendous growth while at the same time telling all the country that it is desperately mining its underground supplies and would be in dire straits if the Central Arizona Project is not built. Although construction of the Central Arizona Project still has yet to start, the population of Phoenix continues to grow by 20,000 a year.

The classic example refuting this contention is what was once the small, drowsy and dusty Mexican town of Tijuana just across the border from San Diego. Its population has soared from 20,000 in 1940 to 65,000 in '50, 165,000 in '60 and 375,000 in 1970. Not so small, not so drowsy any more but even dustier than ever. It is estimated that it has enough water to supply only one out of five of its residents or a population of some 70,000. So drinking water there -- bottled or from tank trucks -- costs about a dollar for 25 gallons while water not fit to drink but usable for washing, bathing and laundering costs from 10 to 20 cents for 25 gallons. The average homeowner in Los Angeles pays one cent for 25 gallons. What has brought the people to Tijuana despite the absolute
sarcity of a water supply? Very simply -- job opportunities.

In fairness to our friends in Mexico, let me make plain that Tijuana's leaders are taking all steps they can to solve their critical water problem. They have just built a desalting plant on the ocean shore which will supply them with 7½ million gallons a day -- at, incidentally, an estimated cost of 75 cents a thousand gallons which is still very expensive water. They are also negotiating with the District to see if, as an interim measure, we can transport to them through our aqueduct and pipelines some of Mexico's entitlement to Colorado River water. They also plan construction of a pipeline of their own in Mexico direct from Mexicali to Tijuana. However, more desalting facilities are probably the long-range answer.

But you can be sure Tijuana will continue to grow with or without water. Their officials estimate it will reach a population of three quarters of a million by 1980 -- just eight years from now. Despite their good and diligent efforts, their water problem in all likelihood will be even worse than now.

To repeat, I see no merit in the belief that controlling water supplies is the way to control growth.

There is a related aspect to this question that opponents of water projects completely sidestep. They maintain that more water means more congestion in already overcrowded central cities. I argue to the contrary that the Northern California water we will soon be receiving will make possible greater dispersal of growth by providing a water supply to barren
outlying areas. And with the great improvements in the way of green belts and recreational facilities we've seen in subdivision planning, design and construction, these new communities should be hospitable places to live and work.

What of the future for water supply for the cities of Southern California when water from the California Aqueduct is no longer enough to meet needs? First, let me make it plain that we are not looking to the Columbia to augment our supply. For interior regions of the Southwest, however, water imported from some such source as the Columbia may be the only practicable answer. Moreover, augmentation may be the only real answer to the serious problem of increasing salinity of Colorado River water. But on the Southern California coastal plain, desalting of ocean water unquestionably will be the long-range answer. In this regard, the State of California and the Federal Government are developing plans for the world's largest desalting plant on the coastline south of Santa Barbara. It would have a capacity of 40 million gallons a day. Reclamation of waste waters will play an increasingly important role, too, but there are obvious limitations on its potential. Although much talked about and much publicized, the vast reservoir of geothermal steam believed to be underlying such areas as California's Imperial Valley is an as-yet-unproved major source of water. Weather modification may generate some increased runoff into the Colorado River but I do not think we should count on this for more than a part of the solution.

Water pricing to reduce use of water has also been pro-
posed but this would only reduce watering of lawns, shrubs and trees, the most attractive environmental aspects of Southern California. In addition, charges for agricultural water would eliminate many of the farms that supply fresh vegetables and fruit to dinner tables all over the United States.

When I talk about desalting and waste water reclamation, I must remind you that both processes require large amounts of energy and, as you know, the attacks on power projects are even more extreme these days than those on water projects. The Sierra Club successfully fought against hydroelectric dams on the Colorado River. They proposed nuclear plants instead and now they're opposing nuclear plants wherever they might be located as well as fossil-fueled plants. In the same breath, the conservationists tell us reclamation and desalting should have been developed in place of the State Water Project, even though the technology was not then developed.

This is the dilemma for water supply agencies. Growth -- whether good or bad -- is going to continue. More water and better quality water is going to be needed to sustain an expanding economy. Peter Drucker, a social scientist, put it well in his article entitled "Saving the Crusade," in a recent issue of Harpers Magazine, when he said:

"The next decade will bring a surge in employment-seekers and in the formation of young families -- both the inevitable result of the baby boom of the late Forties and early Fifties. Young adults need jobs; and unless there is a rapid expansion of
jobs in production there will be massive unemployment.... In addition to jobs, young families need goods -- from housing and furniture to shoes for the baby. Even if the individual family's standard of consumption goes down quite a bit, total demand -- barring only a severe depression -- will go up sharply. If this is resisted in the name of ecology, environment will become a dirty word in the political vocabulary."