

PRELIMINARY STUDIES: THE CALIFORNIA WATER PLAN

R.M. Edmonston

Interviewed by Donald J. Schippers

Completed under the auspices
of the
Oral History Program
University of California
Los Angeles

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INTRODUCTION

Robert M. Edmonston was born March 24, 1925, in Sacramento, California, the son of Arthur Donald and Dell R. Edmonston. His father, who was an engineer, was closely involved in the development of water resources in California. He served the state for thirty years, ultimately in the role of state engineer. Robert received his early education in the public schools of Sacramento and graduated from Sacramento High School in 1943. He attended Stanford University, then earned his BS degree in civil engineering from the University of California, Berkeley, in 1947. At Berkeley, he was a member of the Sigma Chi fraternity and the Big C Society, lettering in track and football. Commissioned an ensign in the US Navy after participating in the Naval Reserve Officers Training Program, he served in the Pacific during World War II.

Following his graduation, Mr. Edmonston joined the State Department of Water Resources, first conducting investigations of water resources developments throughout Northern California. He was employed in the Dams Section, where he worked as an office engineer and a resident inspector.

Mr. Edmonston became assistant district engineer for

the department in Southern California in 1951, assigned as assistant to Max Bookman in charge of project planning. Subsequently, he was named Southern California chief of the department's Project Development and Design & Construction Branch.

The investigations for the California Aqueduct System were conducted over a three-year period, and the recommendations contained in the final feasibility reports prepared under Mr. Edmonston's direction were adopted by the California State Legislature in the California Water Development Bond Act, which authorized the construction of the \$1.75 billion State Water Project.

During this period, too, Mr. Edmonston formulated plans and supervised designs for the \$7 million Whale Rock Project in San Luis Obispo County, a joint venture between the county and the state of California.

He entered private practice in 1959, joining with Max Bookman in Bookman and Edmonston, Consulting Civil Engineers, in which he remains active. He has been engineering consultant to the Santa Barbara County Water Agency (since 1959) and to the city of San Luis Obispo (since 1960). He was responsible for the formulation of the plan of irrigation works for the Arvin-Edison Water Storage District of Kern County and negotiated that district's water service contract and a \$41 million

loan contract with the Department of the Interior, Bureau of Reclamation. He also formulated the irrigation projects for the Semitropic and Wheeler Ridge-Maricopa Water Storage Districts.

Mr. Edmonston serves as chairman of the Board of Control of Grass Valley Consultants, a joint venture between Bookman-Edmonston and three other engineering firms that was formed to design and supervise construction of the \$11 million aqueduct project of the Kern County Water Agency of California.

A member of the American Water Works Association, Mr. Edmonston is a registered civil engineer in the state of California. He is a member of the American Society of Civil Engineers and served for several years on that body's Committee on Watershed Management.

In the following pages, which consist of a transcription of tape-recorded interviews made with the UCLA Oral History Program, R.M. Edmonston recalls in his own words his participation in the development of water resources in California, particularly the California Water Plan, and discusses the men and projects that made it possible.

The interviews were conducted under the auspices of the Water Resources Center at UCLA as one of a series dealing with the history of water development in California and the Southwest. Records relating to this interview are located in the office of the UCLA Oral History Program.

INTERVIEW HISTORY

INTERVIEWER: Donald J. Schippers, Interviewer-Editor,
UCLA Oral History Program. BA, History, UCLA; MA,
History, Occidental College.

TIME AND SETTING OF THE INTERVIEW:

Place: R.M. Edmonston's office, 604 Security
Building, 102 N. Brand Boulevard, Glendale, California.

Dates: April 2, 16; May 7, 14, 21; June 2, 1966.

Time of day, length of sessions, total number of
recording hours: The interviews took place in the
morning, and one hour was recorded at each session.
This manuscript represents a total of six hours of
recording time.

Persons present during the interview: Edmonston and
Schippers.

CONDUCT OF THE INTERVIEW:

The interviewee was asked to sketch briefly his family background, childhood, and education leading to his career. He was asked to assess the influence that his father had in the choice of engineering as his profession. The interview then focussed on his contribution to the California Water Plan and the investigative studies he made for the State Department of Water Resources.

EDITING:

The interviewer edited the verbatim transcript for spelling and punctuation. He made changes in grammar and syntax according to the editing style of the Program at that time. The transcript was also arranged into chapters and sections shifted to attain a strict chronological order.

Mr. Edmonston reviewed the edited transcript, making some deletions, additions, and changes.

The index was compiled by Joel Gardner, Editor, UCLA Oral History Program, and he also wrote the introduction,

based on biographical information provided by the interviewee. The Program staff prepared the other front matter.

SUPPORTING DOCUMENTS:

The original tape recordings, a carbon of the unedited transcript, and the edited transcript are in the University Archives and are available under regulations governing the use of noncurrent records of the University.

Chapter I

EDUCATIONAL BACKGROUND

SCHIPPERS: I would like to start by knowing something about where you were born and something about your family.

EDMONSTON: Well, I was born in Sacramento, California, in 1925. My father was an engineer and eventually became state engineer, an office that no longer exists. It was replaced about ten years ago, when the Department of Water Resources was created by the legislature. He served the state for about thirty years. In fact, he went to work for the state about the time I was born. He had been in construction work and had built irrigation systems and dams for private consultants in various parts of the state. He was very seriously hurt in a construction accident about 1923 and had to give up construction work, and he took a temporary job in Sacramento doing cost-estimating work for the state. About the time he went to work, some appropriations were made by the legislature to do some planning that eventually resulted in the Central Valley Project. Eventually he was given the assignment for directing that work.

I went to local public schools in Sacramento, beginning with grade school and on through high school. I graduated from Sacramento High School in January, 1943, just a year after the war started, which at that time brought up the question, what was I going to do about the service? But there really wasn't much question: you were going in the service if you were able. I was seventeen at the time and was able to complete the winter and spring quarters at Stanford.

While there, I joined the Naval Reserve program, as most everybody was doing who was in college at that time. If they were physically able and their grades were all right, they got into one type of officer training program or another. I was fortunate enough, though not really knowing what I was doing (most of us at seventeen and eighteen years old don't know what we are doing or what the future holds) to get into this program in July of 1943; and I was sent to a unit at the University of California, Berkeley.

I might say, just as a matter of interest, that the summer before, 1942, I took a job with the Bureau of Reclamation. I worked out of Colusa in the Central Valley Project which they were building at that time. I did a variety of work, such as digging auger levels by hand, [laughter] and learned how to run a level and a transit. So I got a little experience and enjoyed it very much.

In spite of the fact that my father was an engineer, I think he didn't influence me in becoming an engineer in any way other than indirectly. No doubt there was an influence indirectly, but I had always intended to become an attorney, and I think my exposure out in the field changed my mind. I thought that was just great to be out in sunshine and fresh air; and, because I was always an active kid, I thought that this was the only way to fly. So when I entered college, I entered the College of Engineering at Stanford and subsequently followed through at Berkeley.

SCHIPPERS: You said you went to work on the Central Valley Project in 1942. This was just after you got out of high school?

EDMONSTON: I had one semester left, but I wanted to go to work, and I wanted to work away from home. This seemed rather exciting; and jobs for young fellows, particularly under eighteen years and particularly away from home, were not terribly easy to get. My dad knew people in the Reclamation Bureau, and he had heard that they were hiring young fellows; so he called a gentleman named Mr. Dave Stoner, quite a prominent hydrologist for the bureau at that time. He said, yes, they did have openings, and to have me come around and see him, which I did. A friend of mine from Sacramento and I went around, and Mr. Stoner said he had some openings

for laborers [laughter] in the Colusa office. I think the pay was one-twenty a month, which, because of inflation at that time, seemed high. The year previously, it had paid eighty a month, so this was quite a boost. So this looked pretty good to us. My friend had a car (I didn't) and we took off for Colusa, reported in, and spent the summer up there.

SCHIPPERS: What sort of things did you do?

EDMONSTON: Well, they were putting down shallow test wells out near the Sacramento River to gain a backlog of data to judge the future effects of the operation of Shasta Dam, which was then under construction. These wells were drilled one mile apart for a distance of ten miles on each side of the river. I forget now how far up and down the Sacramento it went, but it was pretty much the length of it. This was to establish data to avoid future litigation in case there were drainage problems, and to find out if they were withholding water that water users up and down the river were enjoying prior to the construction to the dam.

This was good work for a kid. I did this for about a month and a half. We used a post-hole auger and were at the business end of that. The worst thing that could happen to you was to hit clay, because your auger would spin and you would have to take a chisel to cut through. You built quite an appetite working out

there in about 110-degree temperatures, and we used to work with just a pair of Levi's, no shirt, no hat or anything else.

SCHIPPERS: And it was because of that summer experience that you decided to enroll in college to become an engineer?

EDMONSTON: Yes. I came from, you might say, an academically oriented home. My father never really wanted me to go out and work as such. He had worked pretty hard as a kid himself. I think he felt that when you are a boy, you ought to do boy's things; and he encouraged me in athletics and that sort of thing. But he demanded that I apply myself to the school, which I did, and I got very good grades all the way through school. This was the important thing in our home, and a great to-do was made over it. I don't think there was any pressure put on me or anything, but the idea of coming home with a good report card was always there.

He encouraged me in athletics; and, probably more than anything else, I wanted to be a good athlete; and some of the deeper thoughts of life escaped me. I was oriented toward athletics but still maintained my grades.

But I had a hazy idea that I wanted to be an attorney; and I think because of the association I had with people I was working with up in the Colusa

office of the bureau, I started to think of engineering. I liked the fellows I worked for up there. I got to talking to them about their experiences on construction and one thing or another, and I just thought that this would probably be a pretty good way of life.

And so, without any deeper thought than that, without any great ambition or anything, I just thought, "Well, try engineering and go to college." I had good grades in math, physics, chemistry and the other things, and I took strictly an academic course; so from the standpoint of getting into any college or any field in college, it would not have been difficult at that time. I understand that it is much more difficult now. [laughter] Then I got out of high school with essentially straight As, and there was no difficulty in entering Stanford or choosing a college within Stanford University. So I picked civil engineering. I played football in high school, and I wanted to do that, too.

My dad made it perfectly clear to me that he wanted me to do what I wanted to do, that I had to live my own life. I mean, that was the only kind of statement that I can ever remember him making about any career that I might choose. And when I told him that I had enrolled in the College of Engineering at Stanford, he said, "Well, fine," and that was about it. Looking back--and I was not aware of this at the time--I think

he bent over backwards not to steer me, other than to be sure that I had a solid foundation in high school that would permit me to do what I wanted to do and would have the ability to do. But aside from that, he exerted no direct influence. But I'm sure the fact that he was an engineer, and I used to hear him talk, no doubt influenced me. But I don't remember him saying, "Bob, I want you to be an engineer." In fact, I think that would be the last thing that he would have ever said.

SCHIPPERS: When you got to Stanford, had you already decided on civil engineering?

EDMONSTON: No.

SCHIPPERS: What was your course work like there?

EDMONSTON: Well, very little engineering. I had physics and English and history and freshman math-- analytical geometry--and that was about it. It bore little resemblance to engineering. I mean, I had the math and the physics, and that was about the extent of it.

SCHIPPERS: Why did you choose Stanford rather than Berkeley?

EDMONSTON: Well, that's pretty simple, and there was pressure about that. My father graduated from Stanford in 1910, and I had an aunt that lived at Palo Alto. I just grew up in a Stanford household. There was no other school but Stanford, and there was no question

that I was going to go to Stanford. When I went to college, I was going to go to Stanford, and I just accepted this.

SCHIPPERS: After you left Stanford

EDMONSTON: Well, I left Stanford and went to Berkeley and enrolled in the navy program. There were 1,200 others at what they called Callaghan Hall, named after Admiral Daniel J. Callaghan, who went down on the carrier San Francisco, I guess during the Battle of Midway. I enrolled in the College of Civil Engineering and lived the navy life. We were required, as I recall, to take seventeen units, and I ended up taking nineteen.

I don't want to overstate this, but, as I recall, we got up at six in the morning and regrouped fifteen minutes later out on Piedmont Avenue for exercises. They had searchlights out there to catch the goof-offs, and chiefs were marching up and down behind us to see that we exercised. One morning, we exercised en masse, and the next morning, we ran. We went down--this is the truth--to the campanile, and around it and back. I don't know how I did it or anybody else did, but we did. When we would come back (you couldn't use the elevators), we would run up to our floor. I was up on the seventh floor; it was kind of an unfortunate thing. But we then had a few minutes to shower and shave and to clean up our room and then report down for breakfast.

And after breakfast, you stood at attention and marched to class. Then you were on your own until at least five-thirty or quarter to six, when you reported for dinner and then stood inspection. Then they locked you in, a little after seven o'clock. Lights were out at ten. I can remember when lights were out, they used to check the building, so we used to get in the closet for the light to study and would study under the blankets.

It was quite an experience. You moved pretty fast to cover eighteen or nineteen units at a clip; and that kind of a routine went on the whole year; and it was kind of a frustrating experience. We were all apprentice seamen, which is the lowest of the low; and the officers and the chiefs administering the program never quit reminding you that you were the chosen few and asking "How would you like to be out there at Iwo Jima?" and so on. You know, it almost made you ashamed to be there. I know by '44, I just about had a bellyful of all this. I could have taken a commission at that time, and I remember talking to my parents about this. I said I couldn't take another year of this nonsense; and all my friends, by this time, were tramping out there fighting with the marines, and I was sitting there playing schoolboy. This was out of character for me. I always considered myself as manly and as tough

as the next guy and whatnot, and I was getting a little tired of going over to San Francisco with my one little stripe and having the boys give me a bad time. I was involved, as all others of us were one time or another, in some fisticuffs with the boys from the fleet.

Anyway, it just began to get to me, and I was wondering what I was doing for the war effort. Here I was going to school, and I wasn't enjoying it too much; and as time went on, my grades went down. You eventually figure out how little you can do and still stay in. [laughter] I got pretty good at that, just making it. And I really lost any desire to be number one of the class or anything else. I just wanted to get through.

Of course, your question probably is, did I get any great inspiration toward my later career from this? And the answer is, absolutely no. I felt myself locked in, and when I explored the possibilities of getting out, later in 1944, they told me I couldn't. They said they had a lot invested in me, that my colleagues and I were being trained for construction battalions and that we would be needed the following year. And so that was it. So I either had to flunk out or stay there, and pride probably wouldn't let me flunk out.

By this time, I thought, "Well, I really do want a commission." So I stuck it out. There was an

attitude--not among all--but among many of the professors at that time, probably who had sons or relatives who were out fighting the real war, who also would let you know how fortunate you were to be there eating out of the public trough, so to speak, and getting your education for nothing while the real men were out fighting the war. This, as you can imagine, would get to you after a while in a big way; and yet, there was nothing you could do about it. You either flunked out or continued on. So I continued on.

There were two or three fellows that I remember that I had a great deal of respect for and liked personally; old Bernard A. Etcheverry, professor of irrigation was one. I was a structural major, but I did take some irrigation courses, and he was a very fine man. S. T. Harding, I got to know pretty well. These fellows had done a lot of work in California water. And another young instructor who I probably thought I knew best was Arnold Olitt. He was four or five years older than I and was one of the few guys that recognized the situation that we were in; and I probably got to know him as well as I did any instructor. I've seen him a couple of times since then. A very fine individual. He was quite a football fan. I was playing on the football team there at Berkeley at the time, and he was one of my big rooters. He and I developed quite

a rapport. He probably bent over backwards as far as he could to get me by in my grades, which, at that time, were deteriorating rapidly. But I finally made it through. In the fall of 1945, I left, not with honors; and I didn't take my degree. I could have, but I wanted to come back after the war with one and only one purpose in mind--to play football.

SCHIPPERS: When you look back on the whole thing, what do you think of the engineering school at Berkeley in general?

EDMONSTON: Well, it was tough, and there was an awful lot of work. When I was there, they believed in the problem-set approach to teaching, which meant a problem-set to every class session. And when you combined the problem-sets of each course, it was just about more than you could do. I felt the school was demanding and gave exposure to everything a person needed to know, and it was darn tough. I think you really learned in spite of the professors, most of them. I got the attitude that it was a calculated game, that they were out to get you all the time. For example, you would study something all semester, and you wouldn't find any resemblance of it in your final examination. [laughter] The whole thing was ridiculous. I felt, other than the two or three fellows that I mentioned, that the rest of these guys weren't really out to try

and teach anything. Oh, there was an exception. Old Pappy Davis, Raymond E. Davis, was a fine guy. But some of these other fellows there--their minds were on other things. I don't know whether it was research or what. I think they felt obligated to flunk a certain percentage every year.

I remember I had this course in highway engineering; it was a two-year course and probably one of the easiest courses in the civil engineering curriculum at that time. It was two units, and it was a qualitative sort of course, not much in the way of problems or anything. And I read through the book, and it looked fairly simple. It had the reputation of being simple, and so I used to waltz in in the morning and sit in the back of the room reading the San Francisco Chronicle sports page. This went on for a period of time.

We got our first midterm and got the results back. And I thought I had done all right on it, but I had an E on it. So I talked to the professor, Mr. [Bruce] Jameyson, asking him what this E was. And he said, "Well, son," he said, "that's just halfway between a D and an F." I said, "Well, I checked my blue book against some of the others, and I don't understand this. I should get at least a C on this, in my opinion." He said, "Well, that's your opinion." He said, "I'm going to tell you something. I'm going to

eliminate you from the College of Engineering. I don't like your attitude." It didn't register with me. "I don't understand what you mean, Professor." He said, "No boy can sit in my room and read the sports page every day and not listen to me."

I didn't want to debate further with him, feeling that he held all the cards. So the remainder of the semester, I sat in the front row and took notes, or at least it looked like I was taking notes. I laughed at his jokes, and he finally ended up giving me a C. But this was the kind of thing that seemed to prevail there. I didn't feel like I got too much out of it.

SCHIPPERS: Did the end of Berkeley mean the end of your formal schooling in the field of engineering?

EDMONSTON: Well, I came back for a year in the fall of 1946. I hadn't taken my degree in '45, and when I came back, I had two required courses to take which they would have permitted me to petition out of. But I came back, and I had nothing to take of required courses in the fall of '46. Both of these courses were given in the spring of '47. So I was going to devote myself to the grand occupation of taking as easy a curriculum as I could and playing football. I lived in the fraternity house and met the girl who was to be my wife; so I was taking her out, living in the fraternity house, playing pool, and doing many of the

other things you do in a fraternity house. I was playing football and going to class when it was convenient for me to do so. And I had a wonderful time. I had saved some money, and it was the first time I ever had any money, so I had a ball.

Things didn't work out--except with my wife, which was successful--and I got very poor grades. I ran into difficulties with the coach in football and really had a little tangle with him. This was the disastrous year where the University of California won two and lost eight, and I was scheduled to be something of a wheel there. I was a back, and had great ambitions along these lines, and was really getting my brains beat out all week and on Saturday, and we weren't winning games. And the coach was hanging on the ropes; and he had picked me out--or at least I thought so--as a scapegoat; and we had quite a session out on the field one day. And that's where they say, "I hung 'em up." [laughter] That was the last football I played, and they subsequently fired the coach, Mr. [Frank H.] Wickhorst.

I went into something of a decline over this whole thing and was very discouraged, really. It meant a great deal to me, a great deal more to me than my school did, which was somewhat secondary. I did a lot more fooling around than I should have, but the following spring, even though I was still in a state of decline

and playing fraternity boy, I got through and got my degree. Then I figured I had it with school and wondered how I was going to earn my bread and butter.

SCHIPPERS: Before you went back to Berkeley the second time, you went into the navy.

EDMONSTON: That's correct. I was commissioned and went overseas, and served on an auxilliary personnel attack ship attached to a troop transport in the South Pacific, in and around Japan. I returned in the late spring of '46, was subsequently separated, and returned to Berkeley in September of 1946. I spent two semesters and graduated in June of '47. I only had two required courses to take, and both of them were given in the spring of '47.

Chapter II

A. D. EDMONSTON, STATE ENGINEER

SCHIPPERS: Before we go on, I would like to ask you some questions about your father. Did living in Sacramento and having a father in a government agency have any particular influence on your early thinking?

EDMONSTON: No. I think I did have this impression: I knew my dad was brighter than most; and I also knew he was probably getting paid less than most for his talents. We lived in the better part of town, and I knew that there were people without his ability who were making considerably more money than my father was. I mean this registered on me at a young age. Without as much to contribute to the world, they were making their dollars a great deal easier. But we never wanted for anything; and, actually, the job my father had during the Depression was such that it produced a relatively good income, although there was never any spare money or anything in the house.

I remember my dad worked awfully hard. He worked long hours, and he worked most every weekend. I don't remember a Saturday when he didn't go to work. And I can remember the local citizenry, the merchants' sons and so forth, making cracks about the state workers and

one thing or another. The idea was that any civil service employee is a goof-off. And I used to resent it, knowing how hard my dad worked at what he was doing. I had a vague general idea, and I knew by the time I was maybe fifteen or sixteen that this big thing called the Central Valley Project was being built. Most of it had come out of his brain. About that time, it began to impress me a little bit, but before that I wasn't very aware of it. You know, it's your dad, and you couldn't care less about what he does. [laughter]

SCHIPPERS: Reflecting on it in later years, what sort of information and attitude about the state's water problems started to emerge in those years?

EDMONSTON: Well, I'm afraid not much. I think so far as I am concerned, I was fairly unconscious of things like this. My big interests, frankly, were in sports; and I gave very little thought to the problems of California's water and that type of thing. It just didn't register on me at all. And of course, by the time I was approaching the end of high school, the war was on us; and I was wondering what branch of service I would go into and that type of thing. We lived in a different age then. As far as any deep-seated philosophical thoughts, if I had one, it left me pretty fast, I'm afraid. I was interested more in who I was going to get a date with or try to get a date with

and whether I could make the football team, or what I was going to do about the service and that type of thing.

SCHIPPERS: During the time you were growing up in Sacramento, do you remember any feelings of political pressure, like patronage or political bias, that were discussed?

EDMONSTON: No. Of course, my dad was, I suppose, very careful, regardless of what his feelings were, not to talk about these things in front of me or my brother. Even in later years, he didn't always give me his feelings about various things. Dad considered himself (which he was) a professional; and I think, looking back, he tolerated the politicians. He only had trouble with one that I ever recall, and that was Goodwin Knight. He had some real trouble with him, and he had absolutely no use for the man, to be perfectly candid. My dad was a rock-ribbed Republican; but during the period [Culbert L.] Olson was in there, he got along fine with the political appointee, Frank W. Clark, director of public works, who was Dad's boss, and I don't think those people ever gave him any difficulty. I think, really, by that time he had developed quite a reputation as being a professional and honest engineer, and I think they relied on him. I cannot recall any difficulties, really, with any political appointments over my dad or in other departments or anything else. I think he got along pretty well. I

remember seeing Earl Lee Kelly, who was director of public works under [Frank F.] Merriam, and also Frank Clark with my dad; and relationships were very cordial. So if there were any problems, I didn't know about them. There may have been some frustrations along the line there, but I was unaware of them.

SCHIPPERS: What were some of the reasons why he felt as he did about Knight?

EDMONSTON: The exact incident, I can't relate to you, because I don't remember; but he was asked by Governor Knight to change the conclusions of a report, and it was something to do with making Knight, I'm sure, look a little better, or for some politically expedient reason. Knight asked him to come over to the office and suggested that he do this; and Dad refused. He described it to me. Knight said, "Well, I'm ordering you to do it." And the old man said, "You're not ordering me to do anything." He said, "I've been around here for thirty years. I've never written a report at the direction of a politician or changed my conclusions, and I never will."

Knight was understandably shook about this, and asked Dad who in the hell he thought he was. So they went at it again, and the old man told him who he was; and that was the last time the governor ever asked him to come over to the office. And about that time, or

subsequent to that, Knight began releasing rather adverse statements about Dad in the paper: he couldn't control this guy; he was a nut and that type of thing. And so my dad just cut him off. I mean, he refused to change an engineering or an economic conclusion at the direction of the politician.

He told me that was the first time he had ever been asked to do it. From that, I judge he had not had problems with the prior governor or governor's appointees; and he had no use for Knight as long as he lived. And, of course, Knight pointed out that he couldn't do anything to Edmonston; and therefore, he wanted the Department of Water Resources, where the top guy reported to him and served at his whims. [laughter] SCHIPPERS: I would like to have you give a description of your father. What kind of man was he? What kinds of things did he believe in? And why do you think he believed in those things?

EDMONSTON: Well, now that I've been practicing engineering for twenty years, I probably have a better understanding of my father than I did before. Each year, I probably gain a better understanding of him, as I am exposed to decisions and one thing or another, than I ever did while he was alive. Dad was basically a shy man, stemming from the fact that his parents were Scottish immigrants and he was the youngest of

three. His dad was approaching fifty years old when he was born; and he got his education late, because they took him out of school after grammar school. They kept him out three years, and he worked on a cattle ranch. He was the first boy from his family to go to high school, and even the fact that he went to high school was something his parents never got over. This was the greatest thing that had ever happened. But because of his background and coming from Humboldt County--parts of which are hardly civilized now; he told me he had never seen a train until he went to college--he was shy, and he abhorred public-speaking engagements, for example.

He was absolutely honest, and he had a very high sense of ethics. I guess he got this from his family. He would not be pushed, as is shown by the example I gave you; and from people that I run across now, I hear he was a hard guy. I mean, when he made up his mind about something, that was it! And he was a hard-driving individual. In spite of his shyness before large groups (he was not effective before large groups and admitted it, he didn't like to get up before them), he was plenty effective sitting down with three or four people and negotiating. He was an imaginative guy; and thinking now of some of the things he did, he was really ahead of his time, and he had a lot of courage.

And I know it wasn't easy for him. The reason I say he had a lot of courage was that he had to believe in these things himself, and then he had to really force himself to take action and to sell it before the legislature or before public bodies and whatnot.

He had a hell of a good sense of humor, and he could be quite a joker at times. His facade at times would scare people. He was a big man, and I think he scared the daylights out of young engineers until they got to know him. Then they found he was a very kind guy and never hurt anybody. He was not a pompous guy, but a very modest man, actually, and a man, I think, that never sought any self-glorification. It got to the point where my mother actually used to get annoyed at him because he would go out of his way to avoid getting credit for something.

He would say, "Oh, hell, it's just the job that counts. It's getting it done that counts."

And Mother would tell him, "Well, somebody is going to take credit for it. Why should the governor take credit for it? You're the one that did it." He never wanted to toot his own horn and never would. I think people that he dealt with either really liked him--I mean they just really worshipped the guy--or they couldn't stand him. It was one or the other. But I think they all had a pretty healthy respect for him

and knew he was honest. And he would never be associated with anybody who was sneaky or off-color or not just perfectly ethical. Those are the impressions that I have.

SCHIPPERS: So he felt the responsibility of his job and also seems to have been dedicated to solving the problems surrounding this job.

EDMONSTON: Oh, very definitely. I think, for example, he just literally killed himself on the Feather River Project. I mean, he wanted that to go over, and it was his idea; the whole thing, he created out of his own mind. And he worked awfully hard--harder, I think, than you can ask a public servant to work. Nobody asked him to do it; he did it because he wanted to.

SCHIPPERS: What do you think motivated him to start the project? What did he see?

EDMONSTON: Oh, I think he thoroughly believed that it was in the best interest of California and that without this, the Southern California area would be in serious difficulties. And, I think, he felt an urgency of time, not only for the project, but for himself, probably; because when he was appointed state engineer in 1950, he was sixty-three years old, and all of this came out in the next five years. And he worked like a man in his forties. He was at the point where he should have retired, from the standpoint of his own personal well-being, and he had a long career by then.

And he took on this thing from scratch, at age sixty-three. I hope I'm still alive at sixty-three, [laughter] let alone embark on something of that magnitude.

I think if you are thinking of him, personally, it was a great disappointment in his career that the state was unable, with its own resources, to build the Central Valley Project. He was in line to head up the agency which would have been created (in fact, it was legally in existence) for constructing the Central Valley Project. Dad would have been the chief engineer and responsible for that work. And because of the financial situation that the state found itself in in the Depression (they were unable to sell bonds), they appealed to the federal government. And he worked very hard to get the federal government to come in and do the construction. It was quite a blow to him professionally in his career. I think he never got over it really.

As the population was growing here in Southern California, it was apparent to him and all of us who were working in the field at that time that the Colorado River supply would not last forever. In fact, Southern California was in jeopardy, if only because of the Colorado River litigation. And as it turned out, it really was in jeopardy. He was then working under legislative direction to develop a California water

plan, and he envisioned this as the first unit of the California water plan, a statewide plan. I don't think he ever considered himself a Northern Californian as opposed to being a Southern Californian. He considered himself a Californian. He had a responsibility to the entire state, and pretty well worked over the entire state in the years before when he was in private practice. He worked in San Diego County for a couple of years, and worked on the planning of the dams down there that were eventually constructed. So he was a Californian.

SCHIPPERS: And he was one of the men who viewed the necessity of state control of its own water resources as more important than, let's say, by some organization of a strong central federal agency.

EDMONSTON: Well, I think just his own personal philosophy would indicate that he would be against a strong central control, say, from Washington, or something of that sort. I think he believed in, you know, government at the lowest possible level.

He had a feeling against federal interference in California for a good reason, because I think he felt he was double-crossed. He and Ed Hyatt had knocked themselves out trying to get the federal government in here and the Bureau of Reclamation, which was recognized as a fine engineering organization. But they had no

idea that socialistic concepts would come with it, mainly the 160-acre limitation and the interpretations of that. This was unknown to them in the thirties, and, in fact, the understandings were--and this can be researched in the original negotiations--that the 160-acre limitation would not apply because this was a supplemental water supply and the Central Valley Project would bring in little in the way of new irrigation. It was supplementing existing water supplies to existing irrigated lands. When all of this started to evolve in the forties, he was pretty outspoken about it: "Damn socialists in government trying to come in here and impose their philosophies on California." It just was pretty shocking to him.

And so, to avoid perpetuation of that kind of thing, he felt that California, which could well afford it (and for a number of reasons), should build its own project, take destiny in its own hands, and develop the kind of water program that they wanted for California. Furthermore, I know he had the feeling that you couldn't count on the federal government forever to pour money into California, because of a growing resentment in the East, for example, about reclamation. There still is. Financially, it would probably be impossible to get this project built through congressional appropriations or to get a vote through

in time.

However, I don't think he was against (in fact, I know he wasn't) any reasonable proposal for, say, a regional plan. He would have felt it was up to him to honestly evaluate it, and that if it had merit, he would have endorsed it.

He was responsible, as you probably know, for the proposals to purchase the Central Valley Project back from the government on a present value basis. That's another thing he did in the five years he was in. He was rather active during his five years as state engineer. He came out with a proposal and felt he had the backing of the legislature and the governor and the state Chamber of Commerce, and they all took a run-out on him in '52. So it ended up he was the only one that was proposing it. Obviously, he had checked this out ahead of time as to whether they were going to support him, but the people in question, including Governor [Earl] Warren, counted it politically expedient not to support it when the chips were down. So the thing fell by the wayside.

It was a rather unique proposal. It would have been financed by revenue bonds secured by the water service contracts under the Central Valley Project. But I think he felt that the imposition of the federal reclamation laws, specifically the 160-acre limitation,

was detrimental to California. And, of course, he wasn't alone; but he was the only one that I recall that was attempting, at that time, to do anything in a positive way about it.

SCHIPPERS: And that was . . .

EDMONSTON: Well, he had thought the thing through rather carefully, and it was not just a personal desire to run the bureaucrats out of California. I don't think he ever had that thought at all. In fact, I've heard him make the statement, "How can you prevent them from going ahead and building projects?" But his basic thought was that California was going into the water business, which he was convinced they would have to do, and that you could not depend on the federal government to appropriate moneys to build the projects that were necessary in this state at a rate fast enough to sustain future growth.

He was concerned, for one thing, about the Delta with operation of the Feather River Project and the Central Valley Project which was under the administration of the federal agency and the complexities and problems that would develop. Frankly, we haven't even experienced them yet, and, in my opinion, they will come when that project goes into operation. The clatter and arguments over whose water is whose down there, I'm sure, is going to end up costing the state a lot of money. But

with the operation of the Central Valley Project under one entity, the state of California, these problems could be mitigated. This was one thing.

The other thing, of course, was the acreage limitation. His belief was that the people of California ought to control their own situation, and that they ought to have rights to this water, which under the federal program they do not. And I think these things are all expressed in the report that came out in '52 on the feasibility of state ownership and operation of the CVP. He considered it sound, and a great many other people did. The plan was to pay the government the present value of its future returns, which supposedly were going to pay off the CVP, and give the water users organizations rights to water in the Central Valley Project. It was sound, and the proposal was that the federal government could take this money and start building something else with it.

I know he did a great deal of legwork on this, and he had support all up and down the Central Valley. He had support of the California State Chamber of Commerce, and he felt he had the support of the governor, who told him he would back him up. And, when it came to a showdown, he had no support. Everybody took a runout powder on him.

I can remember very well a cartoon in the Sacramento

Bee depicting him standing out in front of Shasta Dam beating on his chest, saying, "We want it" and whatnot. In fact, I may have that cartoon around someplace. The caption went something like this: "Well, who else?" In other words, they were saying, "He's the only guy around who wants it. This is nonsense. He's a ridiculous idiot, and even the governor isn't for this." This hurt him a great deal.

A fellow he put a lot of stock in, J. Howard Williams (who was an assemblyman from Visalia, Tulare County, and was Carley Porter's predecessor on the water committee), was one of the great supporters on this whole idea. Somebody--who knows? I don't know--got to him, and right at the last he took a runout powder and refuted the whole idea. And so, frankly, Dad was left holding the sack. And as a state official, I mean, if nobody else wanted it, why should he? So the whole thing was dropped. And he was pretty bitter about that.

A couple of fellows in the State Chamber of Commerce whose names I won't mention at this time and who had pledged their support took a runout powder on him, too. Whereas I think he liked Warren and had always gone along with him, he was pretty let down over what Warren did, too. Warren was a great supporter of the Feather River Project. I don't think he ever wavered in

that support to Dad, but in this particular issue, he pulled the rug out from under him.

SCHIPPERS: And his idea for state ownership of the CVP had grown right along with his idea of the Feather River Project.

EDMONSTON: Yes. By this time, the studies had progressed to the point where, in his own mind, he recognized that at some point in time and probably within twenty years, substantial amounts of water would have to be made available in various parts of the state.

As a matter of interest, during 1950, he and my mother took several trips down here. I don't know what he was doing, frankly, and, of course, neither did she; but during that period, he actually traced out the alignment of the Feather River Project aqueduct from the Delta, over to the Tehachapis, into the coastal plain of Southern California--himself, with a big black pencil on USGS quadrangle sheets.

And in 1951, he was tipped off that the bureau had been working on this (I'm probably not getting the title correct) "Great Western Water Plan" or something of that sort; and he understood that, let us say, in March, that they were going to come out with this report. We can find out when it came out; I don't know offhand.

He had been asked to speak in February (I believe the date was February seventh) before the American

Geophysical Union meeting in Fresno. And so, unbeknownst to anybody--although I think he cleared it with Charles Purcell right at the last minute (Purcell was then director of public works and a very fine old engineer and was a good friend of Dad's)--he said, "I'm going to make an announcement here." And, by golly, he announced the Feather River Project. He had the concept all laid down, and that's still the concept.

He sat and wrote the paper himself and had it mimeographed. Your people have copies of this. He had the alignment laid out and the big pump over the Tehachapis; and the only thing that wasn't mentioned was the dam on the Feather River. It was to collect water from the Delta that would be fed by surface storage above it.

Before that announcement, he had gotten together with the Sacramento River Flood Control Association (again I'm not too sure of the name, but it's John Luther's organization--the flood control outfit up there), and they had put up \$7,500. And between February and June, 1951, they got out the first report on the Feather River Project and got it authorized by the legislature. And that report tied Oroville Reservoir into the Delta Diversion and into the continuity of water delivery to Southern California. So he moved pretty rapidly.

Chapter III

EMPLOYMENT WITH THE DIVISION OF WATER RESOURCES, 1947-1951

SCHIPPERS: Now, to resume the story of your career, in 1947, you graduated and began looking for a job.

EDMONSTON: Yes. By the time I graduated, strangely enough, jobs for graduate civil engineers were not plentiful. When you could get them, even at that time, they didn't pay very well. They were not as plentiful as it would seem they should have been, because the postwar construction boom had not really started. And I looked around a great deal during the summer of '47, talking to contractors. I particularly wanted to get into construction business; and, whereas I could have gotten jobs that were extremely low-paying, the thing which discouraged me there was really very little encouragement as to advancement or any of that sort of thing. It wouldn't have taken much to hook me at the time, but these guys wouldn't cooperate and one thing or another, and I probably couldn't size up the situation properly myself with the perspective I had.

I also applied, as recommended by one of the professors at Berkeley, and was interviewed by some subsidiary of U.S. Steel. I was subsequently offered

a job there, but the job was not available at the moment I had the interview. It was six or eight weeks off, and by this time, I was broke, frankly.

At that point, a man who worked for my father in the Division of Water Resources, Mr. P. H. Van Etten, knew that I was looking around for a job and also that I had more or less decided to go to work for this subsidiary of U.S. Steel. He was having trouble getting people and had a six-week surveying job up at northeastern California, in Modoc County; and he called me. I had known this man for years. He and my dad had been at Stanford together, and I knew him like an uncle. He said he had a six-week job and wanted to know if I would be interested in doing it for him, a temporary sort of thing. I said, yes, and pointed out that I had more or less of a commitment with the steel outfit.

So he said, fine, and I went to work for the State Division of Water Resources on temporary appointment as a surveyor. My title was junior civil engineer. I went up to Modoc County and did some topography surveying for the state up there. In the meantime, the job, as a lot of these things do, developed into more than was anticipated. And, in the meantime, I received a telegram to come to work with U.S. Steel. I was right in the middle of things with the state, and I don't recall the details now, but I think I was getting to

know the men and, inasmuch as I had started with the state, I couldn't leave them hanging.

I said, "Well, I will be available as of a certain date." And, in effect, they told me to forget it. So I completed my fieldwork, which went on for four months. It was quite an experience for me; I mean, it was wonderful, oh, not so much from the technical standpoint, but through getting a little basic field engineering experience and through my associations with the people up there in this little town of Alturas. I made a lot of wonderful friends that I still hear from, such as fellows that worked for me up there. I had a lot of fine experiences. I returned to Sacramento to plot out my work just before Christmas in 1947.

My immediate supervisor, who used to come up maybe once a month to see what I was doing, was a tough old "S.I.," as we used to call him, who had really gotten his education through experience, the hard way. And he was a guy who believed in working about fourteen hours a day (no exaggeration), six days a week. And he used to rouse me out at five in the morning, and we would be down on the job ready to go at seven. We had to drive nearly forty miles over old dirt roads. I think that man probably gave me a greater appreciation of how to put out on a job than anybody I had ever worked for. I mean, there was just no horsing

around, and we worked like the devil.

We got to be very good friends, even though we had a couple of fallings out, such as one weekend that I wanted to go deer hunting. He pointed out to me that, by God, he was up there and had to get back to Sacramento by Monday, and we were going to work that weekend. I thought he was overdoing it a little bit. But, by God, if I didn't like it, I could pack my bags and I could take off. Well, I learned to like it. [laughter]

I think he instructed me in so many things, but one of them was [that] when you are taking somebody's money, you give him 100 percent for it. And that is something I have never forgotten. I think I have practiced it all my professional career. When you take a professional approach to things, you don't do sloppy work; and, by God, if you make a mistake, you go back and correct it on your own. You don't charge your employer for it and things like that. So it is a matter of self-discipline in your profession and the whole outlook. I knew how my father worked, but, never having worked with him, it was from a different vantage point. But working with a guy like this, I was really impressed. I felt that the state was pretty lucky to have fellows like this, so darned dedicated. And it was not a big deal--I mean, it was just a little survey job--but yet, this was the way the man worked, and this is the way

I guess I still work.

SCHIPPERS: What does "S.I." mean?

EDMONSTON: "S.I." is a civil engineer. It's from the old joke, you know, that an engineer can't spell and is ungrammatical. So this is a sixty-eight-year-old term I guess. The old "S.I." So I worked for one. Gordon Long was his name, and I still have the greatest respect for the man.

I think I learned something else working with the people up there in Modoc County. They're kind of cut off from the world, actually, and they're kind of inbred in a way, but I seemed to be accepted by the young guys around town, and I think it was gratifying to me. Not that I was so sophisticated, but I was a university graduate and I had been an officer in the navy, and some of these guys had never been out from under the sagebrush. And we used to go out and hunt on the weekends when I wasn't working and do some other things that don't need to be recorded. [laughter]

But I really did, I think, get an insight to people like that; and I can still talk to them and get along with them, which is, I think, rewarding and enriching for anybody. And I think it is something that so many people who go through the university cannot do. They can't talk to anybody but university people, but you're not always working with university people. There are

other people in the world. I think in that way some of my experiences in high school have helped me a lot in just dealing with people. I had a couple of the roughest customers you ever saw that were helping me up there as rodmen, and I had to teach them how to hold a rod. There is no great mystery to it, but these guys could barely add and subtract, and we had them out there running survey. It was quite a thing for me.

SCHIPPERS: Then you came back down to Sacramento.

EDMONSTON: I came into the office and worked for Gordon Long, and we worked down at the Quonset hut at Bryte which was temporary quarters for the Division of Water Resources. Bryte is across the river from Sacramento in Yolo County. We were all in one big old room, and there were about four or five of us. I was plotting out my stuff; and as the time went on, say three or four weeks, a little job would come up, and Gordon would send me out to run a traverse or line of levels or something else.

And then the other gentleman, William L. Berry, was working on a water resources report on the San Dieguito River in San Diego County. And they didn't have much in the way of help (the division only had 140 people at the time, and there were only half a dozen junior engineers, probably, in the whole outfit), so he had me make some spillway studies and make

reservoir routings. And within six months, I had been exposed to a great deal of experience in water planning.

I had had my nose shoved in here and there, and during this time, I was still looking for another job. I had told them that I didn't want to stay. This question would come up, and we used to talk about it at lunch. "Why don't you want to stay?" Well, basically, I didn't want to stay because my father was the number-two man in the organization, and I had really no desire to work in the same organization with my father, who was essentially the boss. It just didn't appeal to become a member of this, although I had no contact with him whatsoever. Anyway, these two fellows finally got me aside one day and said, "Now, look, if you haven't got anything really to do, we would like to have you stay and give us a hand. You don't have to make a career of this."

So they talked me into taking the civil service examination. I was just a temporary employee; and by this time, of course, I had developed an affection for both of these fellows. My days were pleasant, and I was learning something every day. They just kept throwing the stuff at me, and we had more work than we could do. So I took the examination and passed it, and I was there.

SCHIPPERS: You made a remark that there were 140 employees.

EDMONSTON: Plus or minus, yes.

SCHIPPERS: I was impressed by that and asked you to compare it with the job load in the division at the time.

EDMONSTON: Well, of course, the load was not as great as now for a number of reasons. The state wasn't as big, and the state per se was not involved in the designing or construction of major works, which, as you know, was being carried on by the Bureau of Reclamation, municipalities, local districts in California. However, the responsibility was great, and the workload was heavy; and, proportionately, I have never seen a public agency where so few people carry such a big load.

As I indicated to you, the water rights function was within the State Engineer's Office (as they called the Division of Water Resources) as well as water pollution or any other water problem or planning function. At that time the state did essentially all the technical work of the district Securities [and Exchange] Commission, passed on the financial feasibility of local districts' bond offerings and that type of thing. And you would have men who had vast experience, just as competent people as you'd ever find, making four and five hundred dollars a month. And, at that time, an associate engineer rendered judgments, sound

engineering and financial judgments, on major undertakings. They worked long, hard hours and took their responsibilities very seriously.

The people I speak of are the people that planned the Central Valley Project, which was taken over and built by the federal government. They were still working there; and I had the privilege of working for these men; and it was the finest thing that could ever happen to a young fellow. These men started out as young men in their twenties and developed the whole complex. Then, of course, in 1947, there was an awakening, more or less, to the future state water needs, and that California was a political entity and could not rely forever on the federal government. They were going to have to look again at the statewide picture; and the first appropriations to develop the California Water Plan were made in '47. This work really didn't get underway until '48, and really went into high gear after that.

But these people--Carl [B.] Meyer, Ted Newman and others--had all been young men who had worked on the planning under my dad and Ed Hyatt back in the twenties and thirties, and they were eminently qualified to carry out the type of work that was begun in the period after '48, when the division began to take on people and expand somewhat.

SCHIPPERS: What was the rapport of this group of men?

EDMONSTON: Well, they knew each other, and they knew each other well. Most of them had been there for years. There had been another group that came in in 1938 on some flood damage repair work, but by and large, most of the people's service dated back to the twenties. Their rapport and spirit was something I wish I could have here in my organization, right now. I mean, they had great pride in themselves, in their organization, in their accomplishments, and in their knowledge; and they didn't take a back seat to anybody, including the Bureau of Reclamation. They were a very unusual group, I think. As far as I am concerned, the state should be ever indebted to that group of people.

SCHIPPERS: Did they assume a lot of the initiative for the planning themselves?

EDMONSTON: I think very definitely they did. You might say the spur to the legislature came out of that group, from men like my dad and Hyatt. These commissions, then the State Water Resources Board--which was created in 1945--took their advice, because obviously these were the professionals.

They pointed out in effect, "Look, by golly, this state is really going to be something after the war here; and we have gone through a period of fifteen years and really have done very little in the way of

sound planning. We're going to need some money to do it, but we're concerned with what's going to take place. We've got the San Joaquin Valley booming. We're probably going to feed the world. We've got Southern California growing, and the Colorado River supply is not going to last forever." And the trouble over the Colorado was just getting started then.

But I think the vision and the foresight and the need for comprehensive planning for California's water resources came out of that division, not from some outside sources that said, "Look, division, let's get going." These people had vision and broad competency. They were not folks bent over drafting tables doing small assignments; these men had watched California grow. They already had put together something, you know, fifteen years earlier of a rather grand scale that the Bureau of Reclamation will never cease patting itself on the back for. But these are the guys that got it set up. So, I think the initiative for planning came right from them. Just sitting around in bull sessions with these guys, you could see what they were thinking, and they talked about it all the time.

SCHIPPERS: After you took your civil service exam, where did you work?

EDMONSTON: Well, I worked for Bill Berry and Gordon Long on a variety of things. The San Dieguito River

investigations were being finalized at that time, and I did odd jobs around and about. The state was involved in reconstruction of flood damage; and I helped build a bridge and run surveys, helped out here and there.

I can't even remember all of the things I was exposed to, but along about the spring of 1948, another gentleman working there--number-two man in that section--asked me to work for him. With the appropriations from the State Water Resources Board, they set up a section, known as the Statewide Water Resources Investigations, headed by Mr. P. H. Van Etten and Mr. T. Russell Simpson as his assistant.

Mr. Simpson had worked for years in water rights and adjudications and in ground water. Probably nobody can remember about Simpson now, but he did some just wonderful things in the pioneering of techniques of the ground water investigations, utilization of surface storage with ground water storage. He did some fine work in the Salinas Valley and set up a lot of the concepts that are being followed now. Russ died an untimely death in the early 1950s. He left the state service and was appointed professor of irrigation at the University of California. He was there about a year and he died.

Russ saw me wandering around the office there, and he was kind of desperate for some help on some special

investigations that were later put together which formed, really, the basis of knowledge for the California Water Plan. We had special investigations in problem areas. The state put up half the money, and local interests put up half the money. And so he had one starting in San Joaquin County and one up in the southern Yuba area. And he approached me (of course, this flattered me to death) and asked me if I would like to take on one of these investigations. Frankly, he blew the thing up as being really something, which it was, and it was far beyond the responsibility I really should have had. But, again, the office was expanding, and they really couldn't get trained people. So they just decided that they would use the young fellows they had in the office and give them a chance, watch them and keep track of them.

So, he sent me up for a month to Marysville, where I made some crop surveys, and helped build some gauging stations, and measured some wells, and did some reading on ground water--which I didn't really know anything about. This was in the spring of '48. Then he sent me down to Stockton and told me to set up an office down there. I got some space in City Hall, gratis, because the city of Stockton was contributor to this and proceeded to get the basic field data for a rather sophisticated ground water analysis of the Calaveras-Mokelumne River flood plains.

You couldn't ask for better experience than this, and I liked it. I was on my own. I got married in the fall of '48, and my wife and I lived there. And I had a couple of fellows, some professionals, down there helping me. Later, another junior engineer came down. I got a feeling for so many things: construction and development and ground water hydraulics and hydrology. I was there for a year, and along with this work, we built stream-gauging stations, and tested pumps, and mapped the area. I got familiar with irrigated agriculture, irrigation practices, what makes a well work, how the farmer does it, what makes ground water levels go up and down, what percolation is in a stream, and I actually had the responsibility of getting these measurements. It was years of experience woven into one year, really.

SCHIPPERS: So you were learning in this project quite a lot, really, as a apprentice?

EDMONSTON: That's correct.

SCHIPPERS: And you also just mentioned that you read a lot.

EDMONSTON: Yes, I read a great deal during that period. Really, I read every state bulletin that I could get my hands on. I think I read them all that were published up to that time that had any real bearing on water resources development. I tried to understand the

techniques utilized and the reasons behind the conclusions for development. I read them completely, just because I was interested. I became very interested in this whole thing, very suddenly. It was a fascinating thing to me at the time. I think another motivation was that I had just gotten married, and my advancement in the division was dependent upon what I knew and what I could do. I mean, this was apparent to me, and passing the civil service examination indicated to my superiors that I was able to take responsibility and knew what I was about. It was just a process of my own personal interest and needs, I suppose, but I wouldn't have done it had I not been thoroughly in tune with the whole idea. And I found a field here that I didn't really know existed. There was so much to be done, so many things to learn that, well, I just found the thing terribly fascinating.

SCHIPPERS: Why were the kind of studies that you were doing in this particular project significant?

EDMONSTON: I probably wasn't necessarily in tune with this until after I was told by my superiors, because I was working with the details. But what we were doing, really, throughout the state, was gaining a better knowledge of ground water and its utility in conserving and really distributing water in California. It was apparent to my superiors, of course, that all the

reservoir sites that were left in California couldn't possibly conserve all the water needed for the ultimate development of the state, and that the economical source of regulation would be in the underground, and that a better knowledge of the physical situation with respect to ground water in California had to be obtained. And, furthermore, with the increase of development of irrigating agriculture and municipal use, ground water sources which at one point seemed inexhaustable were becoming exhausted, and replenishment of those sources was an obvious necessity. And I think it pointed up that. And it became apparent to our people, at that time, that the economics of ground water recharge and utilization and so forth was something that they should address themselves to.

Well, anyway, I spent both a happy and fruitful year from mid-'48 to mid-'49. I returned to Sacramento and spent the ensuing seven or eight months in preparing a report on my work, a draft report; and I learned some other lessons there, too. At the time, I thought I was a big author of papers and things like that, and I learned I wasn't. I can remember taking draft material into Russ Simpson, and he would read it through. And he would look up at me and say, "This is the" You know, this crushed me. And he would sit down and would go through it with me, and God, when I got through,

it was just full of red marks and interlineations and stuff crossed out and everything. Then I would go back and I would try again. Whenever I took anything in to him--whether it was a little letter that he had asked me to write or anything else--and he said, "Looks okay," I felt like I had really been patted on the head, and it made me feel good.

But the fellows who we worked for--I thought then, and still do--were just excellent in writing up an engineering report. They taught me this: when you write an engineering document, it has to read the same to everybody. This is your objective. Whoever picks it up gets the same idea from it. You're not writing a mystery story, and you're not writing something, necessarily, for public consumption. You're writing a factual report. It sets forth the facts so there can be no misinterpretation of what you're saying.

Whether I got it or not, I don't know, but they sure did their darnedest to beat it into me. You don't write fancy, so to speak; the use of a six-bit word doesn't make you intelligent. You use clear, concise prose because that's what you're trying to achieve in a sentence setting forth the limitations of fact. You arrive at your conclusions based on your calculations, and that is the message you're trying to get across. You have a message to get across, and you set it forth

with the supportive data factually, and you draw your conclusion. The idea is that anybody that reads that report draws that same conclusion.

SCHIPPERS: So, you went to work on this report of your work at Stockton.

EDMONSTON: It was the San Joaquin County investigation and finally came out as the State Water Resources Bulletin--I forget the number now--15, for something of that sort.

And, then, in the spring of 1950, I started something else. The state also, of course, had, and still has, the supervision of dam functions. And there were two dams being constructed in Santa Clara County where there was reason to believe there were questionable foundation, and other problems, and a lack of owner supervision on these dams. So there was a need for some fellows who at least had some field experience to go down and be the resident inspector for the state. So I was transferred out of my planning activity, which I dearly loved at that time; and in June of 1950, I was sent to Los Gatos as resident state inspector on Austrian Dam, which was being constructed by the San Jose Water Works, a subsidiary of the California Water Service Company. I learned a lot down there. I had continual arguments with the owner on the job, and at times, I actually took over and really directed the

construction of the dam. I was there, off and on, until February, 1951. It was wonderful experience in construction.

SCHIPPERS: What did you argue about?

EDMONSTON: Well, over the construction materials and the adequacy of the foundation. The state has a responsibility under the law to assure the safety of any dam that is built in the state above a certain height other than the federal dams. The nature of the thing is that the stricter the design and the more limitations you put on the contractor and the more material you put into the foundation, the more costly it gets. Now, it's going to be costly to somebody, depending on the nature of the contract between the owner and the constructor. It may cost the contractor money; it may cost the owner money; but it is going to cost money. And in the situation, I could be completely objective. My job was merely to see that a safe structure was put up there and that there would be no hazard to life and to property after it was built.

The criteria for moisture in building an earth project is crucial, and moisture control is probably one of the more important things. You put the fill in too wet and build it up too fast, you're going to have a blowout on the face of the dam. You'll have a big mud pie. If it goes in too dry, it can get brittle, and cracking and piping starts through the structure.

Getting rocks out of the fill costs the contractor, because he has to have the labor crew out there pick them out and so on.

So these types of arguments developed daily. And they worked twenty-hour shifts, so it kept me rather busy. I would go out at various strange times and usually put in fourteen or fifteen hours a day. They never knew when I was going to be there and when I wasn't. When I would go home, say at five o'clock at night, they never knew when I was going to come back. So they would work until two in the morning. I would paint the abutments, which I would give them enough working room, and I would approve it up to that point; but they were not permitted to go beyond that point. And this, of course, makes you extremely popular with all concerned. You develop a hide like an elephant. Everybody is calling you an idiot.

Things finally came to a head one day when I shut them down. I wouldn't let them put any more fill in; in fact, I told them to take out two feet of fill that they had already put in. So everything ground to a screeching halt, which was costing everybody money. I told them they had to get more moisture (it was mid-summer) into the fill.

They called the president of Granite Construction, who was the contractor on the job, and the president of

San Jose Water Works and their chief engineer, and their engineering consultant from San Francisco; and they had a big meeting (I'll never forget this) down on the fill. I was sitting up on the rock above and watching it all, and they had a big talk for about a half-hour. Then they went to the phone and called my boss. This was about noon, and he got down there about two or three hours later, in midafternoon. I didn't know what to expect, but they registered great complaints about me: told my boss I was a college boy and too severe on inspection; and they knew what they were doing and I didn't.

' So my boss--Bill Holmes was his name--walked around and picked up the soil; and he squeezed it, and he looked at it. Then he turned around at me and screwed his face up and said, "Goddamn it, why didn't you shut them down three days ago?" Then he turned around and walked off the fill. So they never went over my head again. [laughter] I felt that 100 percent backing. Well, the dam was finished.

Then I worked in the office checking plans for dams that were being proposed. These plans had to be approved by the state, and it was very valuable experience to me. Mr. Holmes asked me if I would like to stay in the dam section, and I indicated that I would rather go back to planning. Although I loved the construction

and the design and so forth, I really felt my own talents and my interests as they were developed were in the planning activity.

And by this time, in early 1950, studies on the California Water Plan were going on and had reached quite a tempo. I had received a promotion (I had had two, really; I was then an associate engineer, and I had had two promotions since I had gone to work some three years before), so I went back over to the Bryte office. I was put in charge under a fellow that had broad responsibilities in developing methods of really streamlining hydrologic analysis and determining present and future water needs throughout California; and, for about four months, I worked on that and set up that program.

We developed, by gearing our techniques to available data, a system where we would take junior engineers and have them estimate the water requirements of various hydrologic units. We had a hundred units or more throughout the state, in which determination had to be made of the adequacy of local water and what the present and probable future need for additional water would be. It was interesting work, and I kept my nose to the grindstone for the next several months and learned a great deal. And I think maybe I contributed a little bit along the line.

In the summer of 1950, the state had entered into another one of those cooperative programs in Ventura County, and there was supposedly a three-year investigation. They had an immediate problem. There had been a proposal for a construction of a dam on Coyote Creek, a tributary of the Ventura River, and the county wanted a interim report prepared on what they ought to do there. A consultant's report had been written several years before which had recommended a certain size reservoir. I was detached from what I was doing and put on that study. I came down to Los Angeles in the summer of 1951 for about ten days, and got the basic data, and went back up to Sacramento and evaluated it. I wrote a report on the size of Casitas Reservoir, which was finished along about in October of '51.

Incidentally, my father became state engineer in 1950. Maybe I was oversensitive, I don't know, but I didn't like the idea of father's little boy working in the same organization. You know, here was the boss's son. There was some talk about this, but never directly to me. But I felt it; and I began to get maybe overly sensitive about it; and I didn't like it. My own conscience was clear, and I worked as hard as anybody. I worked darn hard on this. I used to work weekends and nights on the Casitas report, and my wife asked me why I had to do this. Well, I don't know;

I just wanted to get it done, you know. I would get fascinated with these things and would work hard on them. So my conscience was clear, and I was putting out as much as anybody.

Chapter IV

SOUTHERN CALIFORNIA OFFICE, VENTURA AND SAN LUIS OBISPO INVESTIGATIONS

EDMONSTON: Along about mid-1950, my dad had reorganized the Southern California office. He went out to Riverside to the flood control engineer there, Max Bookman, who had worked for Dad years before, and said he needed somebody like Max to head up the operation here in Southern California. They were embarking on some rather big things, and he needed somebody that had a rather broad outlook on life and technical capability; and he asked Max if he would come back to the state and head up the Southern California office. You understand, in February of '51, Dad had made the announcement of the Feather River Project, and this was all going on at that time. Max accepted, and in the fall of '51, he went up to Sacramento. He said that the things that they had underway here were just beyond the capability of the people here, and he needed additional help.

So Bill Berry, who had overall charge of the hydrologic studies as well as the Casitas work that I had done, called me in one day and asked me if I'd be interested in transferring to Los Angeles. Well, it came out of the

blue, and I never would have picked Los Angeles as a place I really wanted to live, being a Northern California boy and used to a simpler way of life. This looked like a big mess to me. He told me Max needed help, but I didn't know Max Bookman from Adam--although I had heard of him. Berry said that it looked to him like there was a lot of opportunity down here.

So, I met Max. I never talked to my dad about it, but Max had gone over and told my father that he would like to assign me down here. From what Bill Berry said, the old man didn't say anything. He just grunted. And so that was about all there was to that conversation. So I agreed to come down, and we shuttled down here on Halloween, 1951.

So that's how I was assigned to Southern California to handle project planning under Max Bookman in the Southern California office of the Division of Water Resources. It was quite a change from what I had been doing, primarily from the standpoint of individual responsibility. The Southern California office, under Max's guidance, was expanding; and responsibilities engendered by the Feather River Project, which had just been announced a few months before, were tremendous. And we were, frankly, undermanned. And all of us were required to probably assume responsibilities far beyond our experience and capabilities--which was good for us

but I don't know how we did the work involved. In any event, we turned to.

I was a young fellow at the time, twenty-six years old, which is a pretty tender age to be thrust into what I was thrust into. A week after I got here, I was advised that I was handling all planning in Southern California for the California Water Plan, and such activities on the Feather River Project that were assigned from Sacramento the southern district, and a special investigation in Ventura County, a rather detailed investigation. The office which we maintained in San Diego, with two people who did work down there, was also under my supervision. I handled the program for reimbursements to local flood control agencies for reconstruction of bridges and purchase of rights-of-way under the State Water Resources Act of 1945, which is quite a tremendous program here in Southern California. They are spending \$30 million a year of federal money to build the L.A. Basin Flood Control Project. And I had two or three people working on that.

Then along in January, '52, we got a flood here and were declared an emergency area. I was put in charge of doling out the money to the local agencies for the reconstruction of public facilities that were damaged, checking their plans, designs, to see if they were reasonable and related work. And within about

three months, I ended up with about twenty-five people, running two offices. That kept me hopping, and I've been hopping ever since.

But it was marvelous experience. Because we were short-handed and because Bookman was tearing all over the country, I had tremendous responsibilities. I was just left pretty much on my own, and I got to talk to him only once every couple of weeks and tell him my problems. He'd say, "Those are terrible problems, but let me tell you my problems." So, you might say it made a man out of me, and it was good. I seemed to get the work done one way or another.

We had a problem getting people. We had, fortunately, some very fine young men that were working with me then, and all of them became very enthusiastic over the whole thing.

In 1952, we also started another investigation up in San Luis Obispo County on the Salinas River. I put a man up there, so we had three offices then.

Another assignment that I had was to do work for any state institution in Southern California that had a flood control and water supply problem. That was my responsibility, and we always had one or two of those going all the time.

We also reviewed federal reports. Under the Flood Control Act of 1944, any state where there is a

proposed reclamation or corps project is required to submit comments which are sent forward to Congress, and I was responsible for that here in Southern California. I reviewed the Santa Maria Project, the Casitas Project, and I can't remember them all now; but all of them were being proposed by either reclamation or corps here. So I was busy doing these things for the next two and a half years.

And we produced Bulletin 12 of the State Water Resources Board on the Ventura County investigation, which I was, at my tender age, quite proud of. It was quite an analysis of the hydrology and ground water situation in Ventura County. People out there tell me they still use it as a bible, and it makes me feel good when they say that.

In the meantime, both Max and I were giving talks on the Feather River Project maybe once or twice a month in various places. This started back in '51, but I gave my first one in '53. The reaction you get from people when you talk about bringing water down from the Feather River--picking it up in the Delta and pumping it over the Tehachapis and bringing it in to Southern California--is one of sheer amazement. I think they looked at you like you were some kind of a kook. And, in fact, I was told this. And from time to time, depending upon the meeting and whether they

knew about it, the Metropolitan Water District of Southern California would have representatives there, including Mr. Joseph Jensen, who, after the conclusion of your oration, would get up and attempt to torpedo you. And this became rather common. It happened to me a number of times and Bookman most of the time. I took the lesser speeches and only got the bigger deals when Max was out of town or something like that.

We would talk before the L.A. Chamber of Commerce Water and Power Committee, various service clubs and organizations, and other water-user groups here in Southern California. But the MWD people's policy at that time was: "Well, it is ridiculous to pump water over the Tehachapis." And they worked up some statistics to show that it would take more power than was produced by Boulder Dam to do this; and therefore, it was nonsense. They then reiterated their policy that at such time as additional water was needed in Southern California, MWD would get it. After all, they were only using 140- or 150,000 acre-feet of Colorado River water, so what is this nonsense? And this is just the way it went. So I learned something that I hadn't learned before, which was: restrain yourself in situations like that; and politely answer these people with a recitation of facts. But it was pretty tough to take.

Well, this went on, as I say, in early 1954, when

Max appointed me his assistant in charge of all activities in Southern California. I was promoted; for each one of these promotions, as you know, a competitive civil service examination was required. So in '54, I was appointed to that position and functioned there until the Department of Water Resources was formed in 1956.

SCHIPPERS: I want to back up more and ask you whether there were problems in the Ventura investigations and the San Luis Obispo investigations that were beyond just technical challenges..

EDMONSTON: Well, yes. Up in San Luis Obispo County, there was a move on in Monterey County to sneak in and develop the Nacimiento River. I got wind of it, and I knew some folks up in Monterey County; so I went up there one day and sat down in private with a couple of the supervisors and the flood control engineer (named Howard Cousins, who is a very fine gentleman and was on the State Water Resources Board at the time). I talked to them at some length, and I said, "These guys down in San Luis Obispo County are apparently pretty sleepy." I hadn't talked to any of them, and I hadn't gotten very close to them, but I thought what Monterey County was doing (they're a little more sophisticated bunch) was a kind of sneaky sort of a thing; and that, by golly, they ought to lay their plans out to San Luis Obispo County, at least give them an opportunity to

participate in the thing or let them know what they were doing. So possibly I shamed them into it.

There was a famous meeting held up there in 1953, which I attended, in which there were statements made by the Monterey people that really lulled San Luis Obispo to sleep. They said, "We're going to go ahead, and you'll have every opportunity to participate with us on Nacimiento." They filed their water rights applications, and proceeded with the design and one thing and another; and San Luis Obispo, about a year later, said, "Well, now, when do we get to participate?" Max said, "Well, you didn't say anything more, so we figured you didn't want to. It's too late."

So, at that point, San Luis Obispo County finally woke up and took them to the State Water Rights Board. They had quite a go for sometime. What San Luis Obispo County got out of it, later on, was a right to buy water out of a project on the San Antonio River. But that was my first experience with public agencies playing footsie and doing things that you feel could only be done, you know, in private enterprise. But it was a pretty clever maneuver.

SCHIPPERS: And what were some of the problems in Ventura County?

EDMONSTON: Well, in Ventura County, there were a number of water agencies in existence in each of the three

principal stream systems in Ventura County. And, near as I can tell, nobody had agreed with our findings out there at the time. We were somewhat constrained to be involved in local politics. The state was under a cooperative agreement with the county to make this objective study, and we really had no axe to grind one way or another.

But local people were trying to put over certain projects--specifically the development of the Piru Creek and Sespe Creek projects--and their thoughts on Piru Creek were opposite to ours as to what ought to be developed there. We were subject to some ridicule and that type of thing in the newspapers that emanated from the local district, the United Water Conservation District of Ventura County, which covers the area along the Santa Clara River.

And in the Ventura River area, the local people, I think stimulated by the Bureau of Reclamation people, desperately wanted to get into the area and really do something else. But the planning engineer for the bureau, Mr. John Hamilton, out of Santa Barbara, did a great deal of promoting in and around Ventura County and undercutting our efforts. For example, we came up with the proposition that a reservoir of 130,000 acre-feet ought to be constructed at the Casitas site.. He, in effect, convinced these people this was a lot of baloney.

Get the bureau in there, and boy, they would do it right.

So, subsequently, the bureau did get in and build a reservoir, the biggest one in Southern California, 250,000 acre-feet. I think it will take years to fill, if ever; and I could go on at some length to support this. They sold a minimum amount of water, but they justified it on projecting a lot of agricultural growth out there which was utter nonsense. But one of the men that used to work on it later told me that he was directed to do this. The whole thing rather made me sick. I mean, they thought they did the big thing by getting the bureau in and federal financing, but they are now paying for it, and they are having real problems. Locally, the tax rates are rather high and not giving much in the way of benefit.

But this was my first exposure, really, to attacks on my professional judgment. I was horrified, at the time--being a young fellow--that people didn't agree with me. God, it was laid out so simply and straightforward; how could anybody disagree? And to see the figures manipulated and people influenced was quite an eye-opener to me. I, of course, since have gotten a few scars along the way. I don't get too concerned about this anymore. You more or less expect it. But for a young fellow in his twenties, a wide-open, naïve kid, this was terrible. [laughter]

The same sort of thing happened over on the Santa Clara River system on Piru Creek. We never believed that they should have built a reservoir that they did. We thought that they could have done better by building it at another site; and furthermore, a somewhat larger reservoir would have been consistent with the development of that stream. But so be it. Santa Felicia was built, and I think it's doing its job. I've always felt that a better investment could have been made there, but that's just my opinion. But it's rather interesting. We got out quite a large document there, but the vote of the people didn't agree with the findings of the report. So they weighed the report, and it weighed eight pounds or something of that sort; and there was lot of smart aleck remarks about, you know, "It must be good; it weighed eight pounds. Ha, ha, ha." [laughter] Being a rather hot-tempered lad, that got under my skin.

SCHIPPERS: In this development down in Ventura County, did the knowledge that California Aqueduct might be used for a supplemental supply have an effect on planning there? And was the Bureau of Reclamation prejudiced against that possibility?

EDMONSTON: Well, no, not specifically, although when people would bring up the question, "Wouldn't it be better to wait for Northern California water?" their answer was always, "Oh, of course not. It's much better

and cheaper to develop fully your local water supply, and don't count on that. It probably will never be built, anyway." I heard a lot of that, and I know where it came from: the bureau promoters that were in there working.

As far as the aqueduct is concerned, I think they were just generally trying to sandbag the whole thing. You will recall that back in those days, they were on the run, anyway. Eisenhower had come in; and my dad had come out with this proposal to take over the Central Valley Project; and he had them backed up against the wall. They were fighting pretty hard for survival. There had been quite a housecleaning within the bureau, and a lot of them had gone undercover, overseas and elsewhere. And they were doing their best to hang on and at the same time undermine state proposals. They made such statements as "The state never built anything as long as they had been in existence," and "They are incompetent and are not capable," and "The Bureau of Reclamation ought to be doing this. We know what we are doing, and we can tell you right now, it's better to develop your local water to the maximum rather than count on Northern California water."

And we never argued with that. We would merely say, "Well, each project should be evaluated on its own merits. If you need the water now, certainly you

don't want to wait until twenty years from now or whenever it might be that this is available. But on the other hand, you don't want to buy everything that you are being told. I mean, evaluate this on its economic merit."

SCHIPPERS: But at the time, were you and others already beginning to think in terms of this larger scheme of coordinating state waters.

EDMONSTON: Oh, very, very definitely. For example, in connection with the controversy, if you will, on Piru Creek, it was one of the factors in our selection--although not the controlling one--of the Devil Canyon site, which is above Santa Felicia. If it had been developed, it would have provided a great amount of storage space there and at an added elevation, where eventually a gravity diversion could have been taken over to the Calleguas area, Moorpark, Conejo, Simi; and there could have been a release from the so-called highline route of the Feather River Project down Piru Creek into that reservoir. And we had some power schemes worked up that would have worked that out. But all we pointed out was that this reservoir would eventually fit into a plan of regulation of imported water, and all of Ventura County could have been served from that location. And that was one thing, although it was pretty difficult to put any quantitative value

on it at that time, when the project was as sketchy as it was. But aside from that, it was, we thought, a better proposal for local water, in that in the interim, some Piru Creek water could have been taken over to Calleguas when it needed water.

Chapter V

REACTION TO FEATHER RIVER PROJECT PLANS

SCHIPPERS: Now, referring again to this opposition that was given to the Feather River Project, besides some of the technical arguments that Jensen was forwarding and the MWD in general, what else do you think was underlying the opposition?

EDMONSTON: Well, first, I don't think they made any technical studies, although they advanced their position as based on a technical evaluation. I think if there were good reasons, there were two things really (and I giving them as much charity as I can): I think they were fearful of the effect the announce-~~me-~~ment of the project and the prosecution of the project would have on their litigation on the Colorado River; and that this would be used against Southern California as an argument that they had an alternative water supply.

And there were rather frank discussions held, in which Dad and the rest of us pointed out to them that it could be used, actually, to further their position; that California was so desperate for water that they were thinking of spending a couple of

billion dollars here to bring down additional water in the future; and that this wasn't an immediate supply; and that it was supplemental, not substitutional. There was insufficient water in California to supplant the Colorado River supply; and this was to augment that supply to take care of the future demands here. Outwardly, they wouldn't subscribe to this; and they fought the thing at every turn. And this litigation fear, if they sincerely believed that, would be the only basis for not getting behind it.

Furthermore, I don't believe that they ever really sat down and took a look at what the future situation was in Southern California. I think that the planning of the Metropolitan Water District, at that time, was atrocious. I don't think they did any of it; they played it off the seat of their pants. They had just finished, in the early forties, the construction of the Colorado River Aqueduct, and then sat back and relaxed. The people that planned the aqueduct and built it were no longer around. Mr. Jensen was not there when the aqueduct was being planned, and he was not there when it was being pushed through to completion. They had their aqueduct; they were satisfied. Arizona was pinching them a little bit, but I don't think they were really too concerned about it, although they were watching it. They didn't want anybody to say anything,

ever, that would jeopardize their position in court.

But I don't think--and I sincerely believe this-- I don't think they had a clue as to what their needs were in the future. And as they were sitting there selling 10 percent of their aqueduct capacity, you can understand their position. But never did they sit down and go through their service area, part by part, to evaluate why more Colorado River water was not being utilized.

We finally did it in the period '56 to '59, and it was rather apparent--and we knew this from our own generalized studies in the early fifties--that within the next few years that water would eventually be put rapidly to use. And it was going to be all of a sudden. It wasn't going to be any gradual buildup on the aqueduct; there was going to be a big jump. The reason for this was that these ground water basins were overdrawn here in Southern California. They were being mined, to the detriment of the people along the coast. Litigations were pending, and as soon as those were settled, the pumpage would be curtailed and only could be made up with the Colorado River water. And furthermore, San Diego County was growing rapidly; all of this was going to hit them, which it did. I think all it took was the trouble for somebody to sit down, as we did, and put it together. But they didn't

take the trouble to do it.

So I think they spoke out of ignorance, number one, as to what their future demands were; number two, over fear that this was going to jeopardize their position in court with Arizona; and number three, underlying it all and knowing the people involved, that it kind of took something away from them. In other words, they were the big water leaders of Southern California, and they resented having some old fellow out of Sacramento come down and tell them, "Look, you guys better start thinking about the future." In other words, "What do you know about our situation? We're taken care of. We've got an aqueduct over here from the Colorado River," and so forth and so on.

They were fearful, I think, too, of political control by the state and the state getting into the water business. They were very fearful of this. And so, all of these things put together came out in a rather vicious attack on the whole concept of the plan. Now, this is the way I would evaluate it.

SCHIPPERS: We're speaking of Mr. Jensen, He held out all the way through, even after proof to the contrary was presented. What do you attribute this to--just a stubbornness on his part? Or do you feel that he had his reasons?

EDMONSTON: With all due respect to the gentleman, and

he has certainly given long loyal years of service to the Southern California water situation, my own evaluation of the man is that unless he can get the credit for it or unless he has thought of it, he automatically is negative on anything put to him. I think this motivates him in many things he does. His own ego has to be satisfied, and I don't think he ever wants to be challenged as the acknowledged water genius of Southern California. I suspect the man really wants to go down in history as that. And he is unwilling to give, really, any credit to anybody.

But the facts will speak for themselves. The statements he made in early 1950 concerning the project--the layout, the whole concept and the need--are a matter of record. Now, to hear the man talk, you'd think he conceived the whole idea; [laughter] that he laid the thing out and developed the whole concept of the plan; and if it hadn't been for him, that we wouldn't have it. So thanks to his foresight here, you have an adequate supply of water, even though they got whipped over on the Colorado River. I don't want to go too strong, but I think a lot of his motivation is the satisfaction of his own ego. I think he is a tremendous egotist. SCHIPPERS: Could you link the MWD's resistance to a sort of a rivalry between Southern and Northern California and the south's having more or less having to

shift for itself? Perhaps they had a resentment against what they felt was predominantly a northern agency coming in. Did you encounter this opposition to any great degree in some of the other agencies or other places?

EDMONSTON: No, no, I really didn't. I think only with the Metropolitan Water District. I think the Division of Water Resources and Dad and Ed Hyatt were very well thought of, all up and down the state. I think you put your finger on it. The fact that the Metropolitan Water District went out on its own and built the Colorado River Aqueduct meant something. They stood up and pounded their chest and said, "Look what we did, and we'll do it again, if necessary. And we really don't need any help from outsiders." And anybody north of Tehachapi was an outsider. And I don't think they got the message that the Division of Water Resources had a statewide responsibility. After all, they were located in Sacramento; and I think this came through. I don't know if there was so much sectionalism other than that fact. I think it would have been true if anybody locally would have made the proposal though.

SCHIPPERS: How about the Department of Water and Power?

EDMONSTON: They always supported the project, I think mainly due to Samuel B. Morris. And these old ties go

back a long way. Sam Morris, my dad, and Ed Hyatt were all at Stanford together, way back, and knew each other there; and each of them knew what kind of a fellow the other was. And they could sit down over a cup of coffee or a drink, if you will, and talk about things on a common ground. And they had a lot of mutual respect one for the other. Samuel Morris, from the time of the announcement of the Feather River Project, I think, took a broader view and really a statewide view; even though the city of Los Angeles, per se, was adequately endowed with water from the Owens system and from the Colorado River and with their local ground water resources. He was a true, firm supporter of the concept from the beginning. And I think it speaks well of the Department of Water and Power that they have been of this persuasion to this day.

SCHIPPERS: I shifted you around quite a little bit, but I wondered if you could expand more on the actual campaigning you had to do for the Feather River Project.

EDMONSTON: Well, at my level, it was limited to giving occasional speeches and meetings with water-users groups. And by this time, in '54 and '55, I personally had become fairly well known in Ventura County, Santa Barbara County, and parts of San Diego County. And when things came up there--questions were asked and somebody wanted a speaker or somebody wanted to meet

with us--I would take care of those areas. I would meet with the groups and tell them about the project; and, commencing in '52, of course, we received appropriations to study the project further, which culminated in the 1955 report. And so my campaigning, if you will, was really limited to explanations and one thing or another on my level.

I know Max and Dad and the others were soliciting support here and there and continued to try and get the Metropolitan Water District on the ballteam; but really, largely due to one man--Mr. Jensen--it was just impossible. He wouldn't even talk to us, and it was a fact. We got all kinds of feedback from people who, outside of the Metropolitan Water District family, were taken on trips over the Colorado River Aqueduct. And at all these little barbecues out at Gene Camp, they would stage their little play. It would be something like this: Bob Diemer would be there; and Joe Jensen would ask Diemer, "Say, Bob, tell us what you think of the Feather River Project?" Then they would all break up laughing, and Diemer would run through a recitation of how ridiculous the whole thing was. After all, Bob Diemer worked on the Colorado Aqueduct, so therefore, he was an expert.

This was going on all the time, and we would go to a meeting and some fellow would get me aside and say,

"You know the damndest thing happened to me." And then he would recite. And this happened any number of times. So they were carrying on an active campaign to undermine the whole thing, all during this period.

Well, we issued the '55 report, which we did work on down here, with respect to some of the preliminaries on aqueduct alignments through the Antelope Valley and over the Tehachapis. It was a pretty generalized study, and it was not intended to be anything else; although it was done with sufficient detail, so that the thing could have been authorized for construction at that time, had the method of financing and proposed rate structure been adopted. I would like to comment a little later on that.

But the report was submitted to the legislature, and the request was made for appropriations to further study it and proceed. Metropolitan Water District wound up its legislators; and they, and they alone, successfully stopped any further appropriations for the 1955-56 fiscal year. And we received no money for any work on the Feather River Project for '55-56, and it caused us to have to lay off a good many people. As a result, we went through a layoff procedure which I will always remember, for I was the one who passed out the notices. I called the boys into the office and said, "Well, that's it." This was in June, 1955. We lost

some pretty good men. Some of them, we got back; some of them, we didn't. But a couple of pretty successful consultants really got their start because they were laid off in '55. [laughter] So Metropolitan succeeded in doing that.

To continue then, Dad was almost sixty-nine years old then, and time was running out on him, because mandatory retirement was at seventy. And he wanted to get a start on the project which he knew was going to come. At the same time, I think I related to you earlier, he was not getting along with Goodwin Knight, who was blasting him at this point every time he could. Along about the end of summer, 1955, Dad decided he had done what he could; and he brought it up to the point where he felt they could move ahead on design if they wanted it. He only had one more year to go, and he announced his retirement in September, 1955. He then retired November 1, 1955. On November 1, he took off with my mother on a trip down to see us here in Southern California and within two weeks was in the hospital. He was in and out of the hospital for the next year and then died in February, 1957, which was a great sadness to the family. So he never did enjoy his retirement. Well, let some lesson be learned from this, I guess.

SCHIPPERS: Where was the main campaigning for this project coming from, and the fighting in face of this

opposition?

EDMONSTON: Well, in my opinion--and possibly speaking from a prejudiced position--it was A. D. Edmonston that did this in '52. He called a bunch of fellows together that he had known over the years, got them together, I believe, in Bakersfield and later in Escondido, and suggested they form the Feather River Project Association. In fact, he named it, and just told them that if you want to get a project like this built, you have to have a nonprofit organization backing it up.

And so he picked out fellows he had known--George Henderson up in Kern County, and, oh, various and sundry others like Ed Fletcher down in San Diego (who was kind of Grand-daddy of water supply there in San Diego County and a tough old guy)--people of that caliber. George Henderson was vice-president of the Kern County Land Company. Dad brought these people together, and they formed the Feather River Project Association. And he kept them fairly well stimulated then for the next three years. This was the active moving force, if there was one at that time, in opposition to MWD's opposition, if you will.

Dad, in that time, was running around (he hated it like the plague) giving speeches himself five, six times a month. He told me once that, by golly, he would rather go out and have a good beating than ever give a

speech. I'll always remember one other thing, though, that I think was quite gratifying to him. The last speech he gave was in about September or October of 1955, and he came down here to a section meeting of the American Society of Civil Engineers. Max and I went down with him and carried the projector and some slides down, whatever he was going to show, and the place was filled. There must have been four or five hundred men there at the time. And they stood up and gave the old man an ovation for about ten or fifteen minutes. I mean, God, it brings tears to my eyes now to think about it. God, he got so choked up, he could hardly talk. It was a wonderful thing.

This happened to him again in the only other public appearance he made after he was in the hospital for several months. He went down to San Francisco with my mother, and somebody said there was a State Chamber of Commerce meeting. He was wondering around looking for something to do, so he wondered over to the meeting. They were talking about water, and he just wandered in and sat down in the back to spend some time while Mother was getting her hair fixed or something. This is the only time after he retired that he ever attended any meeting or did anything. And they saw him back there, and they repeated the performance. I mean, everybody stood up and gave him an ovation. It meant a lot to him,

because he said, "I didn't realize I had so many friends." I get kind of choked up thinking about it, yet, and it's a long time ago now since that happened.

SCHIPPERS: You said earlier that you would like to comment further on the 1955 report. You said the thing could have been ready to go except for the financing and rate structure.

EDMONSTON: Rate structure. There were some tentative suggestions in the report, and Dad frankly admitted the need for additional study of financing and rate structure (he had had some suggestions in the report). What needed to be done was to take a more sophisticated look at how it would be financed and at alternative methods of financing: cost allocation and the cash flow over time. And the one thing that occurred to me--not at the time but ten years later--was that there were objections, politically I suppose, to the amount of money that would have had to come from the general funds under the proposal he put forth.

I think, so far as the general concept of the plan is concerned, there's been virtually nothing added to it since '55, including the work I did in Bulletin 78. In fact, the plan, other than some modifications on the highline aqueduct to San Diego, is pretty much the way it was always thought of, but with a more sophisticated approach to financing and recovering moneys as was

required. I think this would have been done in any event, had the project gone forward in '55, but it was not in the '55 report.

The other thing was, of course, a more sophisticated analysis of the coastal route, which Joe Jensen, at that time, was crying for. He still is knocking the highline route and said the way to bring it down was the coastal route. Jensen created a lot of opposition; a lot of people went along with him at that time. That was not answered in the '55 report completely.

Chapter VI

SAN DIEGO AQUEDUCT STUDIES

SCHILPPERS: When, then, did you start making the preliminary investigations and the actual studies for the route?

EDMONSTON: In 1956, the legislature acted to form the Department of Water Resources and moneys were appropriated for the purpose of further studying the routes for the Feather River Project Aqueduct. That money became available in the fiscal year '56-57. And there were studies of coastal routes, of inland routes, and for the second San Diego Aqueduct (which was really something else, but was studied in connection with the aqueduct routes).

Max Bookman was made district engineer in the summer of '56 of the Department of Water Resources, Southern District. I was again promoted and relieved of everything else and put in charge of the Feather River Project work in the summer of 1956.

We had five people to work on this: Lucian [J.] Meyers, who is with us in this firm now; a girl; and three other fellows. And this looked like a rather formidable task with five people. So we were pretty busy there in '56. We went to the State Personnel

Board (our salaries were lower than the Metropolitan Water District, Department of Water and Power, and other public agencies here in Southern California) to get people; and I received permission to hire above the minimum. That had never been given before, but we justified it from the basis of experience and need. And we recruited a staff, within six months, of fifty people. We went through about 150, eventually, to get fifty. We would take them on temporary authorization, and if they didn't work out, we would fire them. I developed quite a good or bad reputation, depending upon the way you wanted to look at it, among the various groups, such as the Personnel Board, the American Civil Liberties Union, and other outfits that felt I was a little brutal in all of this. I probably was; but we had an objective, and I wanted good people; and I was never ashamed of anybody we hired and kept. They were good people, and I was just as proud of the group we developed there as any I've ever been associated with.

But we went to work, and we had six months in which to get out a report on the second San Diego Aqueduct. That was a little power play by the San Diego County Water Authority who had gone to Metropolitan and said, "We need another aqueduct." And Mr. Diemer and Mr. Jensen told them "Go build it, because we're not going to contribute any money to it." So they went to the

legislature and got, I think it was, \$200,000 appropriated to the Department of Water Resources to study it as a unit of the Feather River Project. Well, this shook MWD pretty badly, and they had the desire to share it.

So we recruited a staff and went to work. We had a preliminary report out, I believe, in December or January, recommending the location, size, and type of construction for the aqueduct. We worked night and day and weekends to get that out and get recommended, among other things, a canal in the first thirty miles or so from the city of Hemet down towards the San Luis Rey River with certain capacities and one thing or another.

We again met with opposition from MWD. They said that was ridiculous that we recommended putting in a 1,000-foot-a-second canal down there to take care of the ultimate needs of San Diego County. It doesn't cost much more money to build a canal to its ultimate size and then staging the pipeline sections. Well, that was met with a round of ridicule; but as it turned out, that is precisely what MWD built. And the whole report had its effect, because it brought MWD around to the San Diego County Water Authority. And they negotiated with MWD, and MWD built the first thirty or forty miles of the aqueduct.

But that was our first assignment on this study.

I can't even remember now the number of the bulletin, but we were quite proud of it. We did something in that that had not been done before. It was a new concept that economists had been talking about for years, and we brought it into our considerations and sizing and the timing of the aqueduct system. We projected what we called the economic demand for water, and that was the first state bulletin in which this concept had been utilized, in which we evaluated the size, timing of construction, repayment of aqueduct facilities, the result in price that would have to be put on water, and how much would be obtained from tax revenue. And we ran a series of evaluations on the effect on irrigated agriculture, with the price of water of different levels, and the rate of growth of irrigated agriculture, and the type of crop pattern, and the amount of land that would be developed, and the resulting requirements for water. And I'm firmly convinced that we came up with the economic size of aqueduct.

This whole concept was rather new to people that were reading our bulletins, and we later used it in Bulletin 78, as you probably know. Although economists had talked about this for years, this was the first time we had ever brought it into the context of an engineering report and brought the effect of it into

the timing, size and cost of facilities, and location of aqueduct. That was important because there were three or four routes, and we studied three in detail. Depending upon where you put it, of course, it would affect the demand for water. These factors are interrelated. The further away the aqueduct was from the service area, the greater the cost of the water to the area--and, therefore, the lesser the demand; so that affects size.

We had quite a lot of fun in that exercise. We worked pretty hard in developing the concept, because we knew we would use it on the big aqueduct. We were thinking ahead on the second San Diego Aqueduct that if the highline route were adopted, it would work in. So we really went beyond just the studies of the aqueduct to San Diego. Here was a connection, and there was a reservoir site out there. If you looked hard, you could see it; it was Perris Reservoir site. It wasn't much of a site, but it's all we had. But we saw they could eventually work out a wonderful interconnection with the San Diego Aqueduct and the Colorado River Aqueduct into Mathews. With all the capacity of that canal, you could take care of San Diego County forever, and we were quite elated over that.

Metropolitan finally--even though they made no announcement to the effect--agreed with us. They went ahead and quietly built it to our specifications,

at least the canal section. We also had a little rumble from San Diego. We recommended a larger initial stage, and they disagreed with us; but we pointed out that it would be terrible to come back in '66 or '67 and have to build another pipeline. Well, they are already talking about it right now. They could have put in the capacity at half the cost a few years ago, but that's neither here nor there. It's kind of nice to see some of your predictions come true. [laughter]

SCHIPPERS: You were telling me about the economic demand for water that was used on Bulletin 58* and that it was the first time that such an approach had been employed in planning or justifying something of this sort.

EDMONSTON: Well, to my knowledge, by the state.

SCHIPPERS: How did you develop the criteria for this kind of projection? And where did those ideas come from?

EDMONSTON: Well, over the years, I did a good deal of reading. You come across the term "economic demand for water," going way back. This is the same as any other commodity and can be handled the same way. This is

*Mr. Edmonston may be referring to Bulletin No. 61, "Investigation of Alternative Aqueduct Routes to San Diego County," preparation of which he directed.

rather apparent, and I certainly had this fixed in my mind. For the first time, really, though, in anything that I had done, the eventual price of water or the cost of water was going to have an effect on the size of facilities and the investment. With most of the irrigation projects that have been built in California in the past, the price that had to be put on the water by an irrigation district, for example, was so low that really, the planners of the project didn't have to address themselves to this problem. They were talking in terms of a dollar, two dollars, or three dollars an acre-foot for water. There was no question about whether they were going to sell the water, so that factor really didn't enter into the selection of size of the facilities or the location of the facilities. It was rather a pure engineering, economic analysis of the best location for the dam, the best size to fully conserve the stream or take the cream off. This is the way these things were done and was about all that was required.

Now, we were faced with a problem in the San Diego investigation of determining what result the size of the facility that would be built would have on the cost of water, because the price that would have to be put on that water by the constructing agency, in itself, would affect the demand. For example, the greater the

cost and the price, the lesser the demand by irrigated agriculture. As this price went up, you limited the service to very few crops, down there which would mainly be avocados, cut flowers, and things of that sort. You weren't going to go out and develop land for alfalfa and sugar beets and that type of thing with water that might have to be priced at fifty dollars an acre-foot. You had a very limited crop pattern that could afford that. So, we recognized this. There still is a lot of undeveloped land in San Diego County that can produce more exotic and high-revenue-producing crops. So what we really sat down and figured out in our own minds were these fundamental principles: the higher the price, the lesser the demand.

We then went into it from that standpoint and projected irrigated agricultural development down there on a number of different assumptions as to the price of water to the farmer. Then we evaluated the engineering as to where the aqueduct might logically be placed on a number of different routes, took into account the cost of water to various subdivisions of the total service area, and computed what that would be. Then we made certain assumptions as to the price and policies of the San Diego County Water Authority and the Metropolitan Water District as to how much of their cost obligation might be funded from taxation and how

much by water revenues. We made certain assumptions as to price of water to the farmer, and developed, really, curves showing the variation between a very low price to the farmer and a price that would actually recover all costs of construction operation and maintenance. So we got, we felt, the upper and lower limits.

In the absence of knowing what these policies might be, as far as our recommendation was concerned, we felt that they fell out this way: the upper regions of the aqueduct should be constructed in canal. We could demonstrate that need even though we didn't know what the price might actually be to the farmer. Because actually, from an investment standpoint, the fact was that eventually there would be enough people down there to drink the water whether agriculture developed or not. So they ought to put a substantial amount of capacity in the canal, because, basically, they weren't paying much for it.

Then, beyond the point where you could feasibly build a canal, you would stage the pipeline in increments. I mean, in other words, you might have a four-barrel construction over time. With a canal being a 1,000-second-foot capacity, you might eventually put in four pipelines each with 250-second-foot capacity. We made some studies of the economics, again based on an

upper and lower limit for the demand for water, and tried to strike a happy medium. Really, the final decision on staging the pipeline facilities was left up to the local people, and they took our material and made their own judgments on it. But, I think we performed a service there in pointing these things out to them.

We were not trying to suggest anything. We were merely making assumptions as to what it might be. I mean, we didn't feel it was our assignment to really set up a rate structure for the San Diego County Water Authority. Rather, we were trying to develop the whole continuum of pricing structure that might be adopted down there to show them what the effects would be of adopting a price-rate structure on one end or the other end of this continuum and what it would do to their demand. We let them be the judge of what the benefits were through a high-taxation type of rate structure and a low water price, versus a high water price and low taxation. But it really wasn't our job, nor did we direct ourselves to any study of that.

There were a number of things that evolved, at least in our minds, from our deliberations on this bulletin, that really went far beyond the project itself, and, I think, later influenced our thinking in what had to be done with the bigger problem--the aqueduct system into

Southern California. One was the location of the facility. It was rather apparent that if we were to recommend route X, close to the coastline, as an example (I believe they were called A, B, and C or something of that sort), you would probably relegate certain of the interior lands to desert forever, because it would just not be feasible to raise the necessary capital to hook into the aqueduct and bring your water up to the higher and more distant inland areas. Number one, if you did, the resultant cost of water would be prohibitive, even for the high-revenue crops.

So what we attempted to do, if you will, was to locate that aqueduct where it created the greatest benefit; in other words, keeping in mind the preservation of capital, but also, at the same time, trying to generate as much public benefit with the idea that the objective here was to get water out to work and to create an economy. We still were trying to show with these upper and lower limits of pricing which final adopted route would permit the greatest development of irrigated agriculture and serve water to the cities and communities in San Diego County at the least possible cost. So location of an aqueduct itself influences demand; this was demonstrated there. And I think we learned a great deal from our studies down there and as far as technique and development in that

first six months between '56 and early '57.

SCHIPPERS: Then it was really at about the time that this project was being developed that economic demand for water really became a crucial consideration, as opposed to just plain engineering efficiency.

EDMONSTON: Yes, I would say so, to my knowledge. I won't say that we sat in and completely invented the wheel or anything of that sort; but as far as we were concerned, it was unique. We had no guidelines to go by, as far as federal or state bulletins or prior work were concerned. We sat down and really started from scratch, using fundamental principles, developed the techniques, and applied them to that situation. At least I think it was the first, although I'm sure these thoughts have entered into the heads of people that worked on water development planning in California in the past; but, to my knowledge, this is the first time it was identified as a factor and run through a rather rigorous mathematical analysis to demonstrate size and location of an aqueduct.

SCHIPPERS: In doing these projections for the economic demand, how did you develop the criteria? How did you decide how much more agriculture there would be in the area, or how great the population increase might be?

EDMONSTON: Well, we actually utilized established techniques on population projection. Giving consideration

to what the economic forces were in the county of San Diego, we made population projections and determined the corresponding amounts of land that would be required to accommodate that population. We checked to see if the land were available, which it was. We made our population projections on that basis. We felt that at least the population growth of the county would not be affected one way or another by the prices of water. It would occur and accommodate itself to whatever price there was.

With respect to agriculture, fundamentally, they had to have water within their willingness and ability to pay for the crops that were climatically adaptable to the area. So we had land classification studies, number one, that were made down there based on field studies that indicated what kind of crops one could physically grow there.

Then going through the process: one, is there a market for these crops and are there people down there that will grow those crops? These were identified. People were interviewed. "Would you grow these crops? And what price would you be willing to pay for water?" We looked into the factors of transportation, markets, processing and that type of thing. Now, I don't think we projected anything down there that wasn't grown in part already in San Diego County, so some of these things were rather obvious and fell by the wayside.

But we did a lot of interviewing with people, owners of land and growers, as to what their plans were, what they would do if new land were available, and if there was a water supply for some of this new land down there. And I think what has happened down there as far as planting, particularly of avocados, has shown our projections were reasonable. You don't hope to be exact; but if you are close to the mark, see what the trend is, and define it within reasonable limits, you've done your job. But we actually made an economic analysis of the future of irrigated agriculture in San Diego County, as it would be affected by the location of the aqueduct. I think it was pretty obvious [that] if you put the aqueduct on top of the mountain, it wouldn't help grow crops down near the coast. So having identified the locations of agricultural land, we picked a route that would best serve that land and that which had this potential for development.

SCHIPPERS: I wonder if you could mention something about your dealings with the San Diego Water Authority and some of the people you had contact with.

EDMONSTON: Well, basically, our department was being used as a tool to get the Metropolitan Water District to take some action. We were fully aware of this, but so far as our own work was concerned, it didn't bother us. We wanted to do as good a job as we could, and I

think we did. We were quite proud of what we produced within about a seven-month period. Our dealings with the water authority were with Richard S. Holmgren, who was their general manager and chief engineer, a nice fellow, and he certainly made all his records available. They had a study made by Mr. Sloan, who one time was with the Bureau of Reclamation and [was] father of the Pick-Sloan Plan for the Missouri River basin. He is retired and living in San Diego County. He made a few studies for them; and they had a consulting board go over his studies; and they had gotten into an argument over them. And we came up with, actually, something entirely different.

And we talked with Fred Heilbron, who is still active. The man must be in his eighties now, because he was no kid then. He is quite a strong individual, quite a delightful guy, and his interest in San Diego County goes back umpteen years.

We talked with the Authority about what their policy of pricing might be and that type of thing. We really couldn't get much from them, because they really hadn't thought much about it. We actually kept them informed as to what we were doing; and, as far as I can remember, they didn't try to influence us one little bit as to what our conclusions might be. They were good people to work with, and their one basic objective was

to get Metropolitan to finance at least part of that aqueduct down there.

We also dealt with the Metropolitan Water District of Southern California, and Mr. [Robert B.] Diemer was then chief engineer and general manager. We also had an engineering advisory committee, which he was on, which had representatives of counties and areas throughout Southern California. We used to meet with them once a month and let them know what we were doing. And Mr. Diemer was quite outspoken as number-one man on not wanting to have any canal on the upper reaches of the aqueduct to San Diego County. He wanted to put in a 500-second-foot pipeline. First it was 250 cubic-foot-per-second. Then I heard he was talking in terms of 500, and that, in his judgment, it was correct. Then we heard no more from him until after our bulletin was completed. Then it came to our attention that, quietly, unbeknownst to anybody, MWD had come to an agreement with the water authority, and Metropolitan had picked up the tab for the first fifty-sixty miles of the aqueduct. And here Mr. Diemer was going to put in a 1,000-second-foot canal, which was just what we had recommended. But he didn't like to come around and tell us that. [laughter] So this was kind of gratifying to us, although it was never acknowledged that this was our recommendation and that he had been against

the other plan.

Incidentally, we had proposed a so-called Auld Valley reservoir as an eventual addition to the system when they needed regulatory storage. It is to be noted in the Metropolitan Water District bond issue proposal that this is now a facility that will be built. We recommended that in 1957. [laughter] In getting back to your question about the San Diego people, they were very fine; they treated us very well. They accepted our report, and they disagreed with us on only one point-- the size of the pipeline units below the canal. They felt that they should be smaller. We pointed out from an economic standpoint that we felt that we were correct if the population and water demand were to increase as we had projected. They indicated to us that they were fearful of asking for any more capital from their taxpayers at that time, so they undersized the pipeline. As I understand it, now they are back again to put another one in. Well, I don't know that this is too serious from a purely engineering, economic standpoint. I think they should have staged it in two jumps instead of about four, which is what they will be doing. But, if you have other things to do with your money at the time you start, you do the best you can. So I don't criticize them for it.

Chapter VII

BULLETIN 78

EDMONSTON: Well, the legislature appropriated money in '56, to resume studies. I think I indicated that they had not appropriated any in '55 at the behest of the Metropolitan Water District. But the legislature in '56 did appropriate moneys to resume studies and spelled out, again at the behest of the Metropolitan Water District, that we were to study the coastal aqueduct route; and the moneys were put in for the San Diego study that we've been discussing. We were also to further study the authorized route, the highline route. It was more or less categorized in that way.

In May or early June, I believe, of 1956, Bookman received a call from Harvey Banks, who, by that time, I guess, had been appointed director of water resources. The department had been formed or was to become effective July 1. My memory is a little hazy on that. But it was obvious that he was going to be the boy to run the show. He wanted me to come to Sacramento but didn't bother to tell Bookman what it was all about. So I went up to his office and met there with another gentleman, Mr. Berry, and we had a chat. And they indicated to me that they would like to have me head up the work on the aqueduct studies.

So I said, "Well, that's very gratifying to me that you would think enough of me to have me do this." Then I said, "Have you talked to Max Bookman?" Well, no, they hadn't; and they said, "As a matter of fact, what we have in mind is that we'll move you out of Southern California, and establish an office at Bakersfield, and put you over there. And you'll work for a gentleman up here in Sacramento."

I thought about this for a minute, and I said, "First of all, I have no business up here talking to you about this." I said, "I work for Max Bookman. Seems to me your conversation should be with him. And number two, I'll tell you I won't work for this man in Sacramento on something that is this important. I know the gentleman; I like him. He's fine, but I haven't got any respect for him as an engineer. I don't think I'd get the job done. Number three, I think you're making a terrible mistake to do this work out of Bakersfield, because the organization that you have to satisfy is the Metropolitan Water District; and I don't agree with anything you're saying." I said, "I'm not going to discuss it with you anymore. You'd be doing me a favor if you'd call Bookman on the telephone and ask him to come up here."

So Mr. Banks and Mr. Berry looked a little abashed at this point. This may sound like idle gossip, but

this is the way it actually happened. They called Bookman, and he got up there within a few hours. He just went out and got on a plane and came up. I met him at the plane. I explained to him what had happened.

This actually was the result of a sort of a little internal power struggle in the department. When my dad had retired, there were three or four people that were mentioned for his successor; Mr. Banks excluded Bookman. Mr. Banks went over to Governor Knight and offered his services, and it was just that simple. Knight apparently didn't know anything about anything, and he appointed him. But there was rather strong support (not organized support, and I don't mean this was any big deal) from a lot of people here in Southern California that would have liked to have seen Bookman director. Frankly, Harvey Banks was not very well known and did not have the background, in the minds of many people, to head up this sort of thing. It was rather obvious that Harvey was not too sure of his position even then, recognized that the big deal was the next few years, and didn't want Bookman riding herd on it.

I was as familiar with the work as anybody in Southern California and knew the work that had to be done, and I was responsible for writing the chapters in The California Water Plan, Bulletin Number 3. So I suppose I was the logical guy to do this, but they wanted

to make sure that I didn't do it under Max Bookman; and this was their way of doing it. I didn't appreciate it, and I thought it reflected adversely upon them. I don't say this with any malice or anything else, but they looked like kids that had been caught with their hands in the cookie jar when I braced them on this.

And Bookman is a very sensitive guy. He was hurt by it. He was not pushing for anything. And he was as loyal to Harvey Banks as anybody in the organization and was certainly not out to undercut him in any way. He was dedicated to getting the water project going. So, when Max came up, this was discussed in some detail, and I was present. It was decided that it would be handled in Southern California.

But Banks, in order, I guess, to save a little face or something, said, well, it was so important that he wanted me relieved of all my other duties down here and was sure Bookman would understand. He said he really thought I ought to be physically separated, even though I would be under his administrative direction. And Max said, that was fine, because we would have to take on some people, and they didn't have enough space there, anyway. So we established the office in Glendale, where Bulletin 78 work was done, and I headed that office. But that was how this all got going.

SCHIPPERS: What chapters in Bulletin 3 did you write?

EDMONSTON: Well, as Bookman's assistant, when it was finally put together, I wrote the chapter dealing with Southern California that covered the proposed water development present and future. I did the same thing for Bulletin 2, actually; and I was responsible for the work on Bulletin 2 and Bulletin 3 from the Monterey-San Luis Obispo County line to the Mexican border and out through the desert. The special investigations that we had going in San Luis Obispo and Ventura and our office in San Diego contributed the material.

In Bulletin 2, we, of course, estimated the overdraft and ultimate requirements for water in Southern California, and, I think, made the first comprehensive analysis in Bulletin 2 of what the aggregate overdraft in Southern California really was. And, of course, this was the basis for further projections and the first really detailed analysis, in the aggregate, of the whole ground water situation here in the south coastal area and central coastal area that was put between covers. In Bulletin 3, we evaluated what might be developed in the way of additional projects and what the eventual need for supplemental water from some other source might be. We outlined in general terms, taking from the Feather River Project studies, how this might be done.

And really, this is the first time we actually

coined the so-called "west branch-east branch" term to describe the inland aqueduct as we called it at that time. And we showed a line coming in near Castaic and another coming in near San Bernardino. Now you understand, this was a fairly sketchy analysis at that time, but we picked that up; and that's in the bulletin, if you'd check it. But we put that together, as I recall, in late '55, early '56; it was the result of many years of work, of course.

SCHIPPERS: Where and when did the collection of data regarding the aqueduct route and the decisions on it actually begin?

EDMONSTON: Well, the intensive study began in the fall of 1956. A good deal of the background data had been in the making for a number of years since, approximately, work commenced on Bulletin 1 in the late forties. That was intensified in Bulletins 2 and 3 during the fifties and in the special investigations that were conducted in Southern California during the early fifties, some of which I directed. This gave us quite a background of information and data. There was additional intensified study that went far beyond anything that had been done or accumulated in the past.

We started in our little office and we only had five people to begin with; but we carried on quite a recruiting campaign to get people, and we were hiring

and firing people right and left. And I think I have indicated that I got a very bad reputation as a result of this; but we had quite a job to do, and we just couldn't fool around with incompetence. So if they didn't shape up, they shipped out, so to speak. In about six months, we developed a staff of about fifty people, most of whom stayed with us all through our work; and many of them are still with the state.

On our first job, most of our effort was concentrated on the San Diego job in the first part of 1956-57. But we did have two groups of two or three people each, one working on coastal aqueduct studies and alignments, and the other on the inland aqueduct alignments and studies. In addition, we set up a little group on demand for water studies; and, of course, the work we did on San Diego County would take care of that phase of it for the final bulletin. But the tempo really picked up in the fall, about October of 1956, and we really got into high gear in January and February of 1957.

SCHIPPERS: Did you have any particular personal preference for the inland route as opposed to the coastal route?

EDMONSTON: I don't think it was personal preference. I think from the inception of the studies, it was apparent that my father's selection was correct, and

so I wasn't acting out of paternal loyalty or anything like that. I'd been around long enough to know why he'd come up with that and the basic reasons for it. The final recommendation was based on the facts, and we held the facts up for public view.

In fact, the opponents of the highline or inland route had been brought along on this every step of the way. It wasn't something that was thrown at them. We asked them to make a decision, and we had them involved when we went into it a little later on. I think the facts spoke for themselves, and I think the fact that there was no criticism of it speaks for itself. I guess I may have had a personal preference to begin with, but I threw that aside, and we made the announcement that we would accept any suggestion or advice from anybody and that we intended to make the most thorough analysis that had ever been made of an aqueduct system. And I think we did that. I know I entered the thing with an open mind at that time and with the idea that we would do everything necessary to demonstrate the proper route.

SCHIPPERS: Could you speculate on why there was such a strong push for, let's say, an overdevelopment of the coastal delivery pattern, as opposed to the inland pattern, which was economically the most feasible and certainly the most justifiable in an engineering sense?

EDMONSTON: Well, the greatest proponent of the coastal

route, and the greatest opposition to the inland route, I think was almost entirely generated by a single individual--Joseph Jensen. I think there were many things that were motivating him, but from the standpoint of something which you might put your teeth into and that might have been sound was his fear of the apparent heavy power requirements on the inland or highland route. He pointed to the consumption of energy and the use of fuel to pump water over the Tehachapi Mountains as opposed to what he flippantly termed as practically a gravity route, even though he had never studied and evaluated the power requirements of that route himself. So his attack was one of ridicule over the fact that anybody could consider coming over the Tehachapi Mountains. I think I mentioned earlier that comparisons of the output of energy from Boulder Dam as compared to the power requirements of pumping water over the Tehachapis were made and tended, in the layman's mind, to point to the conclusion that anybody could see that this was a ridiculous proposal.

But there had never been a detailed study of the coastal route that had been published. In '55, I and another man had been out over the route and we had looked at it, and we saw terrific construction difficulties there. But we had neither the money nor the time to pursue those studies then. But we did go into

it with about as much detail as you could go into it when we made the Bulletin 78 studies. But the power, really, was the center of Mr. Jensen's attack on the project.

His argument went like this: "The project isn't any good, because it isn't needed right now. Look, we're selling a couple hundred thousand acre-feet of our Colorado River supply." The next statement would be, "We will get additional water for Southern California when it is needed." And number three, "For heaven's sake, look at the ridiculous proposal. It consumes all this power, more than Boulder Dam produces."

Well, along about 1956, they started selling more water; and I think someplace along the line they realized that they might not win against Arizona. So we noticed a gradual shift in their public utterances. At this point, for the first time, they were willing to admit that maybe someday within the foreseeable future, they might need additional water; but they were then still knocking the highline route for bringing it down from the north.

But right about '56, Mr. Jensen publicly said, "Well, now it's about time that we take a look at what our future needs for water might be." Along about 1957, right after Dad had died, he even said they were ever grateful to A. D. Edmonston for pointing out that we

would need additional water in the future. But then he went on to say, in effect, "But not that damn route over the Tehachapis." [laughter]

SCHIPPERS: I understand that [Paul] Bailey also objected on that grounds.

EDMONSTON: That's right. In 1955, I believe it was (it was either '54 or '55), I heard Mr. Bailey testify before a legislative committee that held a hearing in the State Building in Los Angeles, in which he (this goes back a long time) gave some testimony to that effect. In his opinion he thought that was the way to do it. He thought there was too much power being consumed, and it was an unprecedented sort of a thing. I don't want to put words in his mouth, but his testimony is a matter of record. But the result of the thing was to cast great doubt upon the engineering and economic feasibility of the proposal.

I think he sincerely believed this, and Paul Bailey is not a man that would indulge in pettiness or a thing of that sort. He was representing Orange County at the time. And he was asked to testify and give his opinion as a engineer of the old school, and he gave it. And I think he sincerely meant it. He had nothing against my father, personally, in any way. They were always good friends, and he respected Dad. But he didn't believe in this. That was all. And

so he stated that.

You were asking about S. T. Harding. I will tell you this: he has been characterized as a man with a mind just as sharp as a razor and just about as broad. [laughter] S. T. made a career of knocking everything that ever came up if he didn't think of it. And he's a sharp man and he is sound, but his pet peeve over the years, of course, was the Bureau of Reclamation. They could do nothing right. He got in difficulties with Dad and Ed Hyatt about thirty-five years ago, in the early thirties, and he was never hired as a consultant by the state after that. So he added to his list of agencies to knock at every opportunity the Division of Water Resources and about anything they proposed. I don't think he was too active; but whenever asked, he would express himself rather freely on any aspect of the Feather River Project, although, by the time it got going with some tempo, I'm sure he had lost touch with the whole thing. My frank opinion is that he didn't know what he was talking about. But having been termed an expert, he felt that he had to speak on any subject dealing with water in California. Frankly, I think he's about a generation behind the times. I think he was out of the swim by the time this got going. SCHIPPERS: His Water in California, of course, was put out just before the vote was made.

EDMONSTON: I had forgotten that. But it was probably his effort to save California from some dire disaster.

Chapter VIII

BULLETIN 78: THE CONSULTING BOARD

SCHIPPERS: Another opponent of the financial feasibility of this project was one of the consultants, Mr. [Adolph] Ackerman, I believe. What moved him to be so critical?

EDMONSTON: Well, I can speak of Ackerman, but when you speak of Ackerman, you have to go talk about the whole consulting board.

SCHIPPERS: Well, do.

EDMONSTON: Well, early in 1957, as I recall, and then again in the fall of 1957, Harvey Banks advised Bookman and me that he wanted to appoint a consulting board for the Feather River Project Aqueduct studies. He felt that anything of this importance should have the benefit of an independent objective review. We felt this would be a good idea. We had been using consultants individually on certain aspects of the project already. We had Dr. David Weeks helping us with agricultural economics. We used A. H. Ayres, old Gus Ayres, on cost estimates and construction problems; and the department had used one or two other men on various other projects that they were studying. So a consulting board was put together at that time, and I will enumerate the members in a moment.

The first suggestion was that Raymond Hill be appointed as chairman. I had known Raymond Hill, and I knew, frankly, with my temperment and his, that it would be nothing but a battle all the way through. So I told Harvey that he was the boss and he could do what he wanted, but if he wanted to get the job done, to leave Raymond Hill off the consulting board, because I felt that I couldn't work with the man. I considered him arrogant and overbearing, and I also considered him probably the best engineer in the state of California--if not in the western United States. He is an extremely competent man; he's also the most difficult man in the world to get along with, in my opinion. I just didn't feel that we needed that kind of a problem, and I thought that there were other competent people, too. So I left it up to Harvey, and Harvey said, "Okay, I won't get in your way." So we left Raymond off, which was kind of a blow to Raymond; but, nevertheless, I'm sure it was all explained to Raymond, when I wasn't present.

But the board consisted of Dr. Weeks on agricultural economics; Carl Rankin, who was an old construction man and quite good on tunnels; A. H. Ayres; Rogers Rhoades, the geologist and a very able man; John S. Longwell, who for years was with the East Bay Municipal Utility District, a practical old engineer of the old school;

and a fellow who was new to me, Adolph Ackerman. I had never heard of him, but he was touted to us as being the world's greatest living expert on power and anything associated with it. It seems that Harvey, on some ASCE committee that he had been involved with, had met up with this guy and been subjected to a first-class snow job. So Ackerman showed up on the scene.

Our first exposure to Ackerman was quite something. I received a call one day from the Beverly Hilton. Our office was in Glendale, but he liked to stay at the Beverly Hilton, so he asked us to send a car out to pick him up. This was before the Santa Monica Freeway was in, and it was about an hour's drive. It was about like driving from Berkeley to Sacramento to pick him up. Well, we brought him out, and he was quite a lad.

Adolph, it turned out, not only had ideas on power, but just about everything else--including the conduct of our office, and how we had it organized and whatnot--and was quite willing to express these opinions. So, in fact, the first day I met him, I had an argument with him; and that persisted for the next two and a half years. He and I just didn't get along. I'll have more to say about Adolph later. I felt the man was an opportunist and attempting to work his way into great consulting jobs here in California, and this was a golden opportunity for him. He was a very annoying

individual, and I complained about him frequently to Bookman and Harvey Banks, and, in effect, asked the two of them to keep him out of my hair. This was rather difficult to do. I think Adolph took an instant dislike to me, and nothing that I could do would be right.

He immediately commenced touting the pump-storage concept, and over a period of about a year and a half, he convinced almost every member of that board that we were missing a great thing by not putting in pump-storage in connection with the highline project. He also convinced them that R. M. Edmonston, personally, and his staff really didn't know what they were doing; they were a bunch of young incompetents and had no business of doing anything of this magnitude. We had some long, loud and serious arguments all the way through.

We met with this group at least once a month. Harvey gave them carte blanche to drop in on us anytime they wanted to and give us suggestions, and then we had formal meetings about once a month. Adolph would fly out from Madison, Wisconsin, where he maintains his home, for these meetings; and would fly out at other times too; and as far as I am concerned, he almost blew the whole thing. He was also going off on his own talking to people without the direction of Banks, and I never felt that he really had any right to do so.

It was just a very sick situation. We never really worked with these fellows, and I think we could have. But I think Ackerman really alienated the whole group from our effort, and it was too bad.

Well, Tudor was chairman of the consulting board. I always liked Ralph, but I noticed the change in him and John Longwell, as the months wore on, in their attitude toward me. They were highly critical of everything we did. We would attend consulting board meetings in Sacramento or in Los Angeles, and they would take out after us on some of our work. It was personally rather disheartening to me.

Harvey was never the kind of guy that would like to get mixed up in an argument; and he would always plan on not being present at the time; and I never felt that I ever got any support from him. Harvey had other things in mind, but I ought to tell you, very frankly, at times I really felt all alone on the darn thing. I was a relatively young man and not used to this kind of treatment, but I grew up in a hurry. As a young man, I was brought up to respect my elders and that type of thing, and particularly the opinions of people in my profession who were older and wiser and more experienced. But I soon learned that we were embarked on something new here, and that none of them had had any experience in it either. Frankly, I lost

all respect for their opinion. It was not good for me and wasn't good for them, and I regret some of the things I said to them. I mean, it may have been presumptuous, but it got down to the point where I had a job to do; and in effect, I just told them to get lost, and if they didn't like what I was doing, to go see Banks--don't bug me with it. And we ground through the way we saw it.

SCHIPPERS: In the final report, though, Ackerman's opinions and report were severely criticized by the others in the report itself. But, of course, that was sort of late in the game, wasn't it?

EDMONSTON: Yes, it was sort of late. In fact, in the game, Ralph Tudor came around to me (I'd probably be sued for libel if I would ever repeat this) when we finally got out Bulletin 78, because he wanted to apologize to me for some of the treatment he had given me. He said, "You know, I just suddenly realized Ackerman is nuts." He said, "I'm convinced he is off his rocker. He's got a phobia and he's led us down the primrose path. We've got a real problem, now, of bailing ourselves out." So it was quite a thing, and it got to be a very emotional, sticky thing. And there were some very harsh words. I won't repeat what I said, but at times, it finally got down to four-letter words. Although I'll say this: when I left the state

in '59, every one of those gentlemen, with the exception of Ackerman, wrote me a very nice letter.

When the dust all settled, I don't think my reputation was tarnished any, and I think I did gain the respect of these fellows. But it was pretty sticky. I was pretty worried, and I did a lot of soul-searching to be sure that I was right. We had done our darnedest to produce something here that would stand up against any attack, so that nobody could say that we hadn't investigated everything. The main criticism was over our failure to really incorporate pump-storage in the aqueduct system. Well, to me that was something that was butter on the frosting and that could be worked out later, but had nothing to do with the justification for the project or selection of the route. It was something that if you could negotiate the proper type of agreement with the power utility, you certainly would put in; but you didn't hang your whole project up on something like that.

SCHIPPERS: Did any of this opposition feed into the hands of others who were opposing this? For example, the district?

EDMONSTON: No. I think Ackerman tried, but to the credit of the Metropolitan Water District and the Department of Water and Power, who were fairly conservative people, they didn't go for it. They knew me better

than they knew him, but I think he tried to undermine the whole thing. And, of course, as you know, he came out publicly and attacked the departments. To me, it is inexcusable for a man to come out and attack his employer. It was unethical, if nothing else, and the man ought to be drummed out of the profession. I have no use for him. His subsequent attacks on the financial feasibility (he really had nothing against the financial feasibility) stemmed from the fact that he was smarting because his board--whom he thought he had in camp--turned against him on this whole concept of pumped storage and his ideas of how the power should be handled in the project.

And really, in recalling this, in the fall of 1958, he told us we couldn't possibly get this bulletin out in early '59 for consideration by the legislature. He wrote a letter to Banks to the effect that we couldn't do it; and that he recommended against trying; and that it would be a terrible thing if we did. Banks asked me about it, and I said, "I'll get it out for you," and we did.

I'm jumping over a lot of stuff, but we started right after New Year's Day of 1959. We had already put out some preliminary material. We presented our estimates of economic demand to the California Water Commission in December. These were made public and received a great deal of publicity. We had written

some office reports on the inland route, the coastal route, and on various aspects of the power situation and that type of thing. But we did not start writing the bulletin until immediately after January 1, 1959. I'll always remember the day we presented it to the Water Commission. That was on February 26. Lou Meyers and I worked every day and night during that period. It was about forty-five or fifty days, I guess, and most of our office worked all that time, too. Incidentally, they didn't get paid overtime or anything else for it. We really horsewhipped them, but we had a wonderful group of people. Lou and I wrote every word in the bulletin, and we did it all from a standing start in January. But we had it ready to go.

We wrote the last couple of chapters about three days before the hearing. We were under terrific pressure, and everything had to click off in pretty good order or we weren't going to get the job done; but we wanted to present it to the legislature in '59. It was an enormous undertaking. Like everything else, these things filter through one or two people, and Lou Meyers and myself were the ones who were running the show. And eventually, I had to think through the whole thing. I had the last technical responsibility on the project, and I had to understand everything. So I became the bottleneck.

But back to the original question about the consulting board, I thought having one was a good idea for a number of reasons. I had never held myself up as knowing everything about everything. In fact, proof of that was we were using some of these people individually and got along with them fine. I never suspected what was going to happen.

I think a consulting board does two things--it gives you public confidence and valuable counsel. Anything of this importance ought to have a board, because the public ought to know that it just isn't the administration that is proposing something and that there are some people that our outside of any kind of political control that are examining anything that could be a question or any prejudice or preconceived notions that might have been formed. In this case, they might have thought they were attributed to me, personally, knowing who I was. So the board looks at these things and puts its stamp of approval on it.

In addition to that, with the right people, you'll get some guidance and technical help that you wouldn't ordinarily get. After all, in these things, you get into a variety of fields; and you can't possibly have professional proficiency in all of them. We use consultants here in our consulting firm right now in areas that we don't feel that we're proficient in.

So I think the concept was fine; and were the whole thing to be done again, I think we would do the same thing. But I think the problem was that Harvey Banks gave these people too much independent authority. He actually imputed some administrative authority to them which they should never have had. And in that, I think, he made a terrible mistake. He himself did not have the proper experience or really the backbone to stand up and put these guys in their place or tell them ~~wa~~ what was expected of them, or to keep them out of the administrative line of fire. In other words, they did not have line of command, although they took it upon themselves. Banks never chopped them off, until it got down to where it was almost a fistfight over the whole thing. I think if he had kept them in their proper role, it could have worked out fine, although with a person like Ackerman, who was extremely aggressive, I think you would have always had a problem. Nor do I feel that any other member of that board, had Mr. Ackerman not been there, would have reacted the same way. I think they were taken in by the man, which is really not to their credit. But I think they are all good men, and I think they were trying to do a job. But all of a sudden I became the villain in their eyes, and it wasn't until they woke up one day and they found out that they were dealing with a paranoid or something.

Better strike that out. [laughter]

SCHIPPERS: Incidentally, he was the only man not from California who was involved, too, wasn't he?

EDMONSTON: That's correct.

SCHIPPERS: He apparently caused some opposition to the plan in the north, by going to the San Francisco Chronicle with his financial logic.

EDMONSTON: Well, he ended up getting his nose bloodied. He thought he had the rest of the consulting board in camp, and when it got down to the final preparation of the consulting board's report, he found himself alone and wrote a dissenting report. He wasn't satisfied, as a professional, to leave it at that, and he indicated what kind of engineer and man he was when he went directly to the press and gave them, so to speak, the inside scoop. And I'm convinced the press will print anything, you know, to create headlines. And they listened to him and printed his story. And, I think, of course, San Francisco, by this time, was ready to grab onto anything that would put a little fuel to the fire. Brown was in, and San Francisco has an antipathy to Southern California anyway. And they weren't going to get any direct benefits. And he made not one, but several trips, as I recall, in to the San Francisco Chronicle, giving them his opinion. And he's a very convincing guy, unless you really pick his stuff apart and find

that it will fall apart when you do. And he gave them facts and figures; and, being the impressive man that he is, they, I guess, bought it. Anyway they printed it, and that's about it.

SCHIPPERS: I would like to continue to discuss the members of the consulting board who worked on the aqueduct program.

EDMONSTON: Well, by far the most memorable (maybe I wouldn't want to remember him) was Ackerman. He was a very aggressive individual and undoubtedly possessed with a purpose. I can only guess what his purpose was. I think he was pushing himself, primarily, under the guise of a cloud of great engineering ethics and doing things properly. He was something of a very smooth operator; and until you stood back and got some perspective, you'd be liable to be taken in by the gentleman--as I thought most of the consulting board was right up until before the end, so to speak.

Ralph Tudor was the chairman, a very gentlemanly, a very able man, and a sound, quiet, thoughtful individual. His only failing performance on that board was, I think, that he was hoodwinked by Mr. Ackerman. A. H. Ayres, Gus Ayres, old-time construction man, formerly vice-president of the Utah Construction Company, was just a real able guy in construction techniques. I think he had a long-time ambition to get

into some of the most sophisticated thinking in the formulation of water projects, and my judgment and assessment of Gus was that the minute he got out of his field, he was lost. And he caused us some problems whenever he got out of his field, such as discussing power marketing and the economics of water project planning, which I was convinced he didn't know anything about. But when he stayed in his field of construction, he was a big help to all of us.

John S. Longwell had been chief engineer and general manager of the East Bay Municipal Utility District. He was also a very able engineer and a man of broader scope than Gus Ayres. Also, I felt he and I would have gotten along very well together, but we more or less parted company because I felt that he, too, had been taken in by Ackerman.

Roger Rhoades, a geologist, was extremely competent in his field. I found the man stayed in his field and contributed what he could, which was a great deal; and our people, including myself, got along with Roger very well.

The same was true with Carl Rankin. He also was an eminent old-time construction man. He still is practicing his profession, and he must be well into his eighties now. He was very helpful, and it gave me a lot of comfort to have him on the board.

Dr. David Weeks, from the University of California, was just a fine, sweet, old gentleman, and I always felt a little sorry for him. He was brought up in the university climate, and I don't think he had ever really been exposed to some of the infighting that goes on in the outside world. He was attacked from the rear and from the front, and I don't think David ever realized what really was involved. He was a pure professional, an economist, but we also derived a lot of comfort from having him there. We were able to bounce things off of him. David moved at a pace of about a tenth of what we were moving at, and I don't think he ever caught up with the show. But aside from that, he was a very fine man and gave us a lot of good ideas that we pursued. But he was absolutely, I'm sure, just horrified at the way this board acted and with the relationship between the staff and the consulting board. And it got pretty rough at times. And, David, again--a sweet, old gentleman--was just, I think, out of his own with this crew. Ayres, Longwell, Tudor, Ackerman and the rest of them had been around and out in the cold, hard world, and David obviously hadn't. Am I missing anyone?

I think I indicated to you that certain of these gentlemen on the consulting board we had retained before the board was set up as an entity, and these

were hired on my recommendation. We had recommended to Banks that we hire Weeks, Carl Rankin and Gus Ayres to give us some advice in areas where we needed help. Our dealings with them as individuals, as a result, were very pleasant. They are fine fellows, and until they were put together on a board and given what I thought was some administrative responsibility (which they had no business having) and until Ackerman showed up on the scene, there was a very happy relationship.

A number of other men we had requested to be retained to work with us, I thought were just excellent and very fine men who contributed a great deal to the overall project, particularly on population forecasting and urban development. I can't say enough about Van Beuren Stanbery from San Francisco, who was along in years and a man of very poor health, and we had to go up to his home to talk to him. But this gentleman, by far, was just head and shoulders above anybody I've ever met as far as demography and population projection were concerned; he helped us develop our techniques, and we were quite comforted by his comments when we were all done. He thought we had done an excellent job in population forecast, and I think most of it was due to his guidance. We spent a lot of time on it, but I think he pushed us in the right direction.

To give support to the statistical projections,

which Stanbery was an expert in, I got the idea that we should have someone who could help us in developing the economic support for the fact that there would be so many millions of people in California. We checked around and found that probably the best, Dr. E. T. Grether from the University of California, was available. He was head of the graduate school of business at Berkeley and was just excellent. In spite of his title and eminence, to put it simply, we found him to be a real regular guy and a man you could communicate with. He would sit down and work with us and give us suggestions on what to do, and I thought he made a very fine contribution to the work on the demand for water.

Dr. Weeks was involved from the agricultural standpoint, and so the three of them--Van Beuren Stanbery, Dr. Grether, and Dr. Weeks--were utilized as consultants in helping us develop the demand for water which was a substantial portion of the study. Two other men that we had a very fine relationship with and whom I thought made a great contribution were Dr. A. G. Christie, from Johns Hopkins University, and Professor Aladar Hollander, professor emeritus of mechanical engineering at Caltech and formerly chief engineer of the Byron Jackson Company. The only pumps that had ever been built in the United States of a size anywhere close to what we were talking about for the project, he had

been associated with in some way. He was responsible for the design or was consultant on both the Metropolitan pumps and the Grand Coulee pumps. Enormous undertakings. Both these men were quite elderly but just as sharp as could be and very fine gentlemen. They worked with us as individual consultants, and Professor Christie was quite an expert on steam plants.

We had developed the thought of direct steam drive for the pumps, largely due to Christie's suggestions, and were kicking around with him the possibility of using direct steam drive on the big lift. We pursued that, recognizing that during the period of final design it would be developed further; but it had many advantages, we considered. We ran headlong into Adolph Ackerman on this. He was undercutting us right and left and actually tried to get Banks to keep us from studying it any further.

We continued, and at one point, along about in 1958 (I just felt really terrible about this), we had Dr. Christie--who was then maybe seventy-eight or eighty years old and just a fine old gentleman--and Professor Hollander up in Sacramento to meet with the consulting board. I was embarrassed for the consulting board because of the treatment they gave these two fine old gentlemen. I turned around at the meeting and apologized to both of them for having them there and

having them subjected to that kind of treatment. I was mad enough to fight. I've never seen professionals treat other professionals that way, particularly two elderly men who had no axe to grind and nothing to gain there. They were sincerely interested in what they were doing, helping us at our request; and to watch them be subjected to abuse and cross-examination, just like they were on trial there, while Ackerman took out after them, made me sick. And the rest of the board went down in my estimation when they did nothing about it. I was a tough young guy, and I could give it as well as take it; but to sit there and see a couple of old fellows God, they didn't even know what it was all about. All this third degree was just insulting and embarrassing.

I reported to Banks and Bookman afterwards that never again would I expose those two fine old gentlemen to the board. I thought it was just disgusting, and I think that finished me as far as any respect I would have had for that consulting group as an entity--and particularly Ackerman. Professor Hollander and Christie were of worldwide reputation in their fields and were the finest you could find. And to be subjected to that was just ridiculous. I wrote them both letters of apology afterwards, and they just kind of said, "Well, that's the way it is. Don't worry about it.

We're big enough to take care of ourselves." But I felt like I had had my grandfather in there and had him abused.

As far as the personnel goes on consultants, that about covers it. The Power Advisory Committee was composed of Wallace L. Chadwick of the Southern California Edison Company; Walter Dreyer, since deceased, of the PG&E [Pacific Gas and Electric] Company; [William S.] Peterson, of the Los Angeles Department of Water and Power. It was set up on a voluntary basis to sort of work with us on the planning and really start negotiations with the power utilities. Incidentally that was just consummated here within the last week. [laughter] So it took many years to finally get a contract.

We had a number of purposes to start getting utilities interested in this and to get some semblance of reality into our estimates on what we would pay for power and what we could sell it for, really as a start in the negotiations with the utilities. Actually, during the preparation of Bulletin 78, this work did not get too far.

Very frankly, I personally had in mind something else that I could never seem to get through the consulting board [members'] heads on this direct steam drive. We were negotiating, really; and whether we ever built the thing or not, we wanted to demonstrate

that this could be done. That type of operation would be independent of the electric power and the utilities. Naturally, they didn't want to see us pursue that either, and I'm sure that someplace they got to Adolph Ackerman. And that wasn't too difficult. But as I pointed out in our meetings very plainly: if nothing else, if you had an alternative that was independent of the power utilities, you could then negotiate with them. You could get them right down to rock bottom on price; and, after all, isn't that what we're after here? I'm sure they understood it, but they didn't seem to want to accept it or give it any validity. Maybe it's because I thought of it; I don't know. But, it's just beyond belief.

Hollander and Christie were with me all the way. Whether we ever built it or not, I knew that if you're dealing with a utility, you always must have an ace in the hole. If you always have another way to go at it, that will set the price faster than anything else. I don't know. The whole thing is unbelievable. But that's how steam drive came up and why I was playing it up. I wasn't married to steam drive as against using electrical energy; I was for whatever was the best for the project and was the cheapest. We worked out a self-contained unit where we'd really use our own power generated on this side of the mountains, deliver it back to drive some of the pumps; but the big lift would be steam drive.

Actually, the Power Advisory Committee got to Banks, and he made me revise some of the wording in the report as a result of it. It didn't come out just the way I wanted it to come out, but it was all right. It was just that I would have preferred to put it a little more positively about direct steam drive, really looking forward to the negotiations that were going to come. But it was watered down a bit, and I don't know that it hurt anything.

The other group was the so-called Engineering Advisory Committee. Bookman, in 1956, thought--and wisely--that whatever we came up with here should at least have the support of the technical representatives of the potential service area of the project. So he recommended (it was accepted) that we form a so-called Engineering Advisory Committee.

Really, they gave us little in the way of advice. It was rather a sounding board for getting their ideas so we could communicate, during the development of the report, with representatives (those who could understand what we were doing) of the various areas that would eventually use the water. And they were a good group of men. They were helpful, and I don't want to play down any contribution they may have made. They certainly gave us some insight as to what the local areas were thinking about, which was very good. I mean, we

weren't operating in a vacuum.

We didn't rely completely on these people, because we actually went to their principals, too, during the course of the investigation to find out their desires, thoughts, and needs. But it did give us a sort of a semiformal organization that met monthly or bimonthly-- I don't recall now, but I think it was at least every two months. That's a matter of record. But it was frequent. We had a regular agenda, and we showed them the progress of our work. We withheld nothing from them. We told them the problems we were having, what we were coming up with, and the way it looked. We actually conducted, at least on one occasion, a trip over the aqueduct routes. They were a good group of people, and I think it was a good move. When the bulletins came out, excepting Mr. Diemer of the Metropolitan Water District, we got their solid support. As I recall, he was the only guy that wouldn't sign their report. That's the Metropolitan Water District: he didn't want to be married to anything. [laughter] That's the way they operate.

Chapter IX

BULLETIN 78: DEVELOPING THE CONCEPT

SCHIPPERS: I would like you to describe how the concept was developed in Bulletin 78.

EDMONSTON: Well, we first organized the office into several groups. I was in charge of the office, and my assistant was Lou Meyers. Then we had section heads under Lou Meyers. We had a group working on the so-called inland aqueduct routes headed by Seymour Gould. The coastal aqueduct routes were under Kenneth [G.] Wilkes. Paul [E.] Hood assisted him. We had a separate section on design and estimating, cost-estimates furnishing data so that it would be uniform to both groups. We had a planning group for distribution of water in Southern California which entered into the picture.

In other words, it just wasn't getting water to Southern California, which is not a single point. We recognized that a factor in selection of the route was what was to be done with the water and what would have to be done with the Metropolitan system after it got down here. And so we had a group under Ronald [C.] Hightower, who evaluated the Metropolitan system and evaluated costs to the Metropolitan Water District

and surrounding areas from various points of delivery here in Southern California. This was, incidentally, the first time that anybody had evaluated the Metropolitan system. Now, since then, they have done this, but we really showed them how to do it. But they learned some things about their own system they didn't know after we got through with it.

We had another group working on demand for water, headed by Vernon [E.] Valentine, which was involved in projections of agricultural development, population, unit uses of water, evaluation of the factors that would cause an entity to start taking water, and in what amounts--such as the pending litigation on ground water resources; how rapidly a new undeveloped area would develop with the advent of water; whether or not water in itself had been a deterrent in certain areas to development; whether the advent of water would be a stimulus to growth--that type of thing. It was quite an undertaking; it was quite an appendix that was put out on that. It was probably one of the most sophisticated projections ever done. We know of nothing of that magnitude. Gilbert [A.] Jones was head of our electrical and engineering section, which did the work on power and alternative schemes for pumping water. And we pulled all this work--which went on more or less independently--together in Bulletin 78.

I think I indicated to you that we really got a

start in early '57 and had it wound up right after the first of the year, in 1959. We worked intensively two years on it, and although it spread out over much of three years, most of the work was done in a two-year period. It was really a crash program from beginning to end. The big problem was getting acceptance by the Metropolitan Water District of Southern California and winning their staff over to the validity of our approaches and our conclusions.

On two occasions, we took the Metropolitan Water District board and staff over the routes. It would be a three-day trip. We would leave Los Angeles in the morning and go up over the Tehachapi, showing them generally where the aqueduct would terminate, at Castaic, and the general nature of the terrain and the physical problems. We discussed the progress of our studies and what we had to do to make decent estimates. We showed them the location of the big lift in southern San Joaquin Valley; the problems of subsidence coming through the San Joaquin Valley, the Wheeler Ridge pumping plants; and then, in the afternoon we would end up north of Blackwells Corners, north of the so-called Wasco-Paso Robles Highway, at the point where a coastal aqueduct would take off. About that time, it would be nearing dark, so we'd spend the night in Paso Robles. Then, early the next morning,

we'd (this would all be done in a rented bus) go back out to Polonio Pass there and meander along the alignment through San Luis Obispo County.

One of the things that really worried us was what to do there at the city of San Luis Obispo. We either had to take a power drop or keep the aqueduct high on the grade. It was in unstable material. It was quite a spectacular sight at the foot of Cuesta Pass. You could stand up and look down and say, "You're either going to have to drop it here through a power drop, keep the head on the pipe (and you've got two or three hundred feet or more of head) or stick it up on that mountain there. I can always remember standing alongside Joe Jensen, who stood, very thoughtfully, looking at this. And it was quite a show we put on. We'd lead them into it slowly.

You understand the Metropolitan and Joe Jensen were on record for the coastal aqueducts. That was the place to put it! So we would keep up this running commentary as we went down, and would spend all the next day doing it. We would end up in Santa Barbara that night.

Probably the clincher was that when we rose the next morning, we would go out from the mountains behind Santa Barbara and would say, "You recall, we either took a power drop back at San Luis Obispo

(and if we did this is where we would be) or we would have to relift the water. Now we get to this point. We're either down there going through the city of Santa Barbara with a 20-foot-diameter pipe with an 800-foot head on it, or we're going through up here in a series of tunnels, through the Santa Ynez Mountains, high above the city of Santa Barbara." And this was rather spectacular, as we were up there on the mountain road. And then, keeping that in mind, we meandered on down through Ventura, and when we got down to crossing the Oxnard plain and the Santa Clara River, we had the same problem. Now, what did we do with that head? We either carry it across here in a twenty-mile siphon with about a six- or seven-hundred-foot head on it, or we dissipate the energy and have to repump it. To get into the San Fernando Valley, by gravity, we had to back up all the way back to the San Joaquin Valley, about forty miles to the east of Paso Robles. And there were any number of things we could have done, and all of them cost money. And when we added up the power consumption, it wasn't too different from the highline route. Particularly then, when you got into the San Fernando Valley, where were you? That didn't do an awful lot for San Bernardino or Riverside or the Eastern Municipal Water District or Orange County. And we could demonstrate there was

insufficient Colorado River water to take care of those areas and keep the Feather River water in the west. And, also, there would be screams about the difference in water quality. So then it was obvious that you'd have only part of your project built and that somebody, either the state or the Metropolitan Water District, would have to go from Calabasas on the west end of the valley probably over to San Bernardino with a large aqueduct. And that would cost money--plenty of it.

Well, after a few explanations of the simple facts of life that these fellows could understand but had never thought about, as time wore on, you could see that at least the Metropolitan staff had gotten to thinking that maybe this coastal route wasn't such a good deal. Furthermore, there is very little demand along the coast for water; you really have no opportunity to serve water in route. Who were you benefitting? We would have had to send a stub aqueduct down into Kern County and pinch it off at the southern end of the valley, because these people were entitled to water, too.

Eventually, we worked this thing down. We studied some fifty-odd routes down the coast and did an enormous amount of work. Ed Jackson, who was in charge of our design and estimating session, developed a technique known as "selection of the optimum hydraulic

grade line in a large aqueduct." It was actually a new contribution to the engineering profession; the technique had never been used before. He used a mathematical approach (he was quite a mathematician) that of the calculus of variations applied to the practical problem of aqueduct route selection in order to achieve the proper balance between capital costs and annual costs for pumping. The higher you pumped, the higher you come out down here; and the more head there would be on the siphons, the stronger the pipe would be and, therefore, the more the cost. It could throw you up higher into country where you couldn't put canal and where you had to stay in tunnel or pipeline. Now, the lower you pumped, the longer your tunnels were. And then you might have to relift as you came down here. So it was quite a problem in engineering economics. As far as I am concerned, Ed Jackson made the greatest technical contribution of all in that.

Ed, as an aside, came to this firm in 1961 and took his own life two years ago. I think we all feel the loss greatly. But here is a fellow who (although his name is never mentioned), as far as I'm concerned, from the engineering standpoint, contributed about as much as anybody. Very fine engineer--Edward Jackson.

And this, incidentally, completely overwhelmed the staff of the Metropolitan Water District. One of their former chief engineers, Julian Hinds, had developed quite a reputation along these lines of aqueduct selections, lengths, proper elevation to pump and so forth. But this made Julian's work look like child's play, and he frankly confessed it. I think any technical opposition to what we were doing folded completely upon their seeing to what depths we pursued these studies. I could go on and on.

SCHIPPERS: Would you have made as many coastal studies for probable coastal routes if it had not been for the MWD opposition?

EDMONSTON: No, we would have not. I mean, this is obvious. This was so important, and probably some, in hindsight, say maybe we overdid it. We wanted to be sure that when we were through, we, in fact, had made the proper selection, because we knew there was no turning back. Whatever we came up with, we wanted the complete support, politically and technically, of the Metropolitan Water District of Southern California. Basically, we felt if the state is going to embark on a \$1.5 billion or a \$2 billion project, its citizens are entitled to know that the best analysis that could be made had been made.

And we wanted the Metropolitan to stand up and

be counted, regardless of which way it came out. So any silly idea, even, was pursued to the point where we could say it was silly and it was obvious to everybody. But it was set down, documented and reviewed, with this Engineering Advisory Committee, and particularly, on the side, with the Metropolitan Water District. Those people used to come over to the office and pursue certain points with us. I can say that during this whole period, we never had any adverse criticism by the staff of the Metropolitan Water District; and when all was said and done, I mean, we at least got their technical support. Even Mr. Jensen was quiet. He had nothing further to say, as far as the highline route was concerned. From February, 1959, there were no further utterances by Jensen or anybody with the Metropolitan Water District that we ought to build a coastal route and that the highline route was ridiculous. We silenced them forever.

SCHIPPERS: You've given previous explanations or reasons why the MWD perhaps did not want water, because of their fears about the Colorado River litigation and other things; but when it comes down to it, why would they have insisted so on a coastal route versus a highline route?

EDMONSTON: Well, to back up, I think early in the game, in the early fifties, they really didn't believe

that they needed any water in the foreseeable future. Understand, at that time, they were selling maybe 10 percent of their aqueduct capacity. Furthermore, they were engaged in litigation with Arizona, and they felt the fact that there was another source of supply could jeopardize their Colorado River supply. This was understandable. Then they went one step further; and in order to really put the state back in the corner, and get them off this kick of "you need more water" and we're studying the Feather River project," they ridiculed the highline route.

Now, I think this evolved over time. I think as the years went by (and along about 1956-57, they started, as we predicted, selling a great deal more water), they could see that along in the early seventies, they were going to be up to capacity. That happened. So at this time, then, they knew they were going to need additional water over and above the Colorado River supply. They were willing to accept that, although maybe not publicly.

Number two, I think they were genuinely concerned over the power requirements on the highline route, even though their objection to it started out in the nature of ridicule for another purpose. I think there was an underlying sincere objection to it from that standpoint. And not until it was thoroughly evaluated--

I mean thoroughly evaluated so that there would be no question about it--did they come around. And then they didn't say, "Well, we were wrong" or anything. They just didn't say any more, and it was just dropped.

Then, if you check (it's not a matter of record), it was not a question of not needing the water, because they admitted they needed the water and they admitted the highline route was the best, but a question of who pays for what. They addressed themselves to that. So I think if you'd go back over about a ten-year period, you could see this evolution of policy, statements, opinions. Metropolitan wasn't for it all along. This took many years.

SCHIPPERS: So then it was, as we say, in the large sense political. But there are many, many steps.

EDMONSTON: That's right.

SCHIPPERS: What were some of the larger political considerations that were operating in this situation?

EDMONSTON: Well, I think the largest political consideration was their fight with Arizona, initially, and then, again, carrying this along, they wanted to end up with control of this thing, being the biggest user and the greatest assessed valuation, which they repeatedly announced. And even in our Bulletin 78, they wanted to show that proper cost allocation techniques--at least proper from their standpoint,

fair and equitable--were there. So once they decided, "Well, we're going to have a project," then they were in working to shape the thing, to formulate it in a manner satisfactory to them.

Now, as far as dealing with politicians as such, there was very little of it. And I think you asked me this earlier: was there any pressure put on me for one thing or another? No. I was left free to work and come up with the conclusions that I mentioned. The earlier statement about Banks in regards to having me water down something here: it was not a change in conclusion; it was a different way of expressing it. And I did that at his request. Had I really objected to it, I'm sure Harvey would have backed down and said, "Well, put it out the way you want."

But I think from a political standpoint, if I get your question correctly, this evolution was, "We don't need the water;" then "We do need the water;" and then, "We want the coastal route;" then, "We're satisfied with the highline route." Then other things would start off once these decisions were arrived at by Metropolitan. They were then thinking ahead: "Well, we're going to have this thing. Let's get it the way we want it financially." And I think they did.

I might say that during this time, I always felt-- and I do a great deal of work in Kern County right now--

that the Kern County interests completely missed the boat by not taking a more aggressive stand on certain things. They did not make their views very well known. Nor did they exhibit any great leadership during that period, not like Metropolitan.

SCHIPPERS: I think you indicated before that MWD may have gotten a little bit smug about their position, perhaps.

EDMONSTON: Possibly.

SCHIPPERS: Then, in effect, Bulletin 78 was as much a job of salesmanship as it was a job of real engineering.

EDMONSTON: Well, I think, not to depreciate the engineering because. . .

SCHIPPERS: No, I didn't mean. . .

EDMONSTON: . . . I'm very, very proud of that. But like everything else, and I think this is true in the work I do today, I look upon the development or formulation of a water project this way: first you have to have a sound project from an engineering and from a financial standpoint; but then it's a job of salesmanship. I think any of us who have been around at all recognize that. We could have written the finest document in the world, but if we hadn't been in the position to convince people it was a fine document, it would still be on the bookshelf. This is true.

SCHIPPERS: Did the pressure of this opposition make it a better bulletin? I mean, did it make it a better study? Did you have to go into things more thoroughly than you might have?

EDMONSTON: Well, I think there were probably two forces acting, one that we generated ourselves. We certainly felt that it was our job, starting with the conviction that additional water was going to be needed in Southern California and the San Joaquin Valley, to develop the best project we could to satisfy that need.

Now, the outside pressure that was put on by Metropolitan, I think was good. From the thing we just discussed, a very thorough evaluation was made of the coastal route. When it was done, there was no further mention of it. They were convinced that wasn't the way to do it. And I don't think as thorough an evaluation might have been made, but I will never know how thoroughly we would have done it. I think we would have done it up to the point where we would have been satisfied and where we felt we could demonstrate this to anybody, because we did it elsewhere on the east branch and the west branch and so forth. We had no pressure on us there particularly.

SCHIPPERS: How about the consideration of the quality of water? How big a part did that play in convincing?

EDMONSTON: Certain member agencies of the Metropolitan

Water District who were not going along with Mr. Jensen and the majority of the board, particularly San Diego and some of the eastern areas, were concerned about the quality, recognizing that Northern California water would be of better quality. So we engaged the Stanford Research Institute to make a study of water quality. We did this mainly because we felt that Metropolitan would look upon us as being prejudiced. So we outlined an investigation for Stanford Research Institute, and they prepared a report, the results of which are contained in Bulletin 78. Personally, I was never happy with what they came up with. I think they may have overstated the benefits of water quality and the deterioration ground waters in the upper Santa Ana Valley, which was the major area of concern.

But Metropolitan pooh-pooched the whole thing when it was done. Really, the report didn't enter very strongly into the selection of route, although it was considered. The Metropolitan staff said they went along with everything in Bulletin 78 but the water quality evaluation, which they said was nonsense. Well, again, it may have been overstated, but it was not nonsense. There is a benefit to having decent quality water out there. The fact that the east branch was recommended for early construction was in part to allow Metropolitan to really mix their water and to

commingle it. So this alternate for supplies was, in my opinion, a benefit to all of Southern California. I think they recognize it now. At that point, though, they were still in litigation with Arizona, and they did not want to indicate there was anything wrong with Colorado River water. [laughter]

SCHIPPERS: We earlier discussed the work you had done down in San Diego. Did it in any way contribute to the decisions in selecting the aqueduct route?

EDMONSTON: Well, it was obvious that at some point in time there would be sufficient demand in San Diego County and Riverside County to utilize the entire supply of Colorado River water. I forget the dates now, but the projections were made; and we were able to demonstrate that if a coastal route were constructed at some point in time, it would be necessary to build a facility from the west end of the San Fernando Valley out to San Bernardino or Riverside County at great expense. That was considered in evaluating the merits or economics of the coastal route versus the highline route. It wasn't whether just the state would have to spend the money. What we actually did was to evaluate, regardless of who would spend the money, what money would have to be spent to provide comparable service. That was the basis for selection. I mean, what was the cost of water to provide total service

to Southern California from either a coastal route or a highline route?

Furthermore, from the standpoint of water quality, if the coastal route had been built, it was rather obvious that San Diego County would only receive Colorado River water forever. This was objectionable to them. This, however, did not enter into the selection--merely the dollars. Now, you talked about the prior work on the aqueduct to San Diego County. The selection of that aqueduct--its capacity and location--was not a function of what route was selected for the big project. The route was selected to serve water to San Diego County regardless of source. But, with the highline route, it was apparent that a physical connection could be made to that aqueduct to supply Northern California water.

SCHIPPERS: Was there some consideration of the fact that the alternate route of the aqueduct would have encouraged some communities to grow, particularly in the easterly portions of Southern California?

EDMONSTON: Well, yes, to this extent: the demand for water in the peripheral areas would have been different, depending on the aqueduct selection. Now, what we attempted to do, getting back to what I said earlier, was to provide the same degree of service. You understand, we were laboring, at this time, without

any legislature guidance as to what the pricing and cost allocation policies might be. We had to work around that problem and make certain assumptions, and really cover the whole range of pricing assumptions and policies that might be adopted.

We found that from the standpoint of pure cost-- if price was going to reflect cost and if the coastal route were built--water, because of the economy of scale, would be much more expensive in the high desert area and in the easterly part of the Metropolitan Water District or in San Bernardino, which was not within the Metropolitan Water District. Since the water would be more expensive, if cost were taken as price, there would be a lesser demand for water by agriculture out there, getting back to the evaluations of economic demand for water that we made in San Diego County. Those were applied in the total picture.

Now, from the standpoint of the urban demand in the Metropolitan Water District, we found that the route would make no difference in the magnitude thereof. But in the peripheral outlying areas, it certainly would make a difference. Putting a small stub out there carrying a limited amount of water would make that water very costly and could affect the demand.

Now, we tried to reflect the foregoing as best we could. I don't think that it was a big decision in

aqueduct route selection. However, I do think this: had the coastal aqueduct been built, I don't think, when they got down to contracting, they would have sold any water to the small easterly entities. Again, we tried to weigh that in. Whether they did or didn't, it fell out in our economic analysis. We did make some benefit studies which attempted to reflect this.

Chapter X

BULLETIN 78: COORDINATING THE REPORT

SCHIPPERS: The other question is that in coordinating all of these considerations in the report, who took the ultimate responsibility for making the overall evaluation, making it emerge the way it did?

EDMONSTON: I did.

SCHIPPERS: You did. And can you say anything about which of these values you found difficulty with, or found more important than others? Was it the engineering or the economical aspect?

EDMONSTON: I think the thing that was most troublesome to us was operating in a vacuum, so to speak, on the matter of financial policy. Really, it ended up that we established policy through the assumptions made in the bulletin. After the engineering facts and estimates were available--and we had shaken this down to three alternative systems that would essentially do the same thing--then we were comparing the cost.

But a fundamental problem that we had was really with respect to the San Joaquin Valley and how water would be priced; because, whereas it wouldn't make any difference, really, in our judgment, as to the demand for water in the Metropolitan Water District, it ~~would~~

would make a big difference in the San Joaquin Valley, primarily in Kern County. Now you say, "How was it priced?" Then you get into the fields of how costs would be allocated and what the terms and conditions of repayment would be.

We developed, really, two alternative methods. After some talks with the various people concerned, a method of allocation of cost on the proportional-use-of-facilities method was adopted for comparison of the three systems in the bulletin. And, as you know, this later took shape and was utilized in the actual contracts that the state offered to water service areas throughout the state. We recognized this in the bulletin, and I had some objections from the consulting board on this. I pointed out and I insisted that the language be put in the way it was, because I didn't feel that we ought to be establishing policy. Yet we had to make certain assumptions as to how water would be priced.

We pointed out that if it were sold over time on the per-acre-foot basis, rather than allocating costs on either pay or take, it would be easier for the San Joaquin Valley. And if it were allocated as shown in the repayment schedules in the report, it would be difficult for the San Joaquin Valley and Kern County, and the demand for water would be reduced accordingly.

I was told by Mr. John S. Longwell that putting that in was like opening Pandora's box, that I was suggesting a subsidy. I was suggesting no such thing. I wanted to try to get the facts out in this document, so that Kern County, as well as the Metropolitan Water District, could have an opportunity to argue before the legislature or whoever the final authority was that was going to make the decision as to what pricing method. I did it so that everybody knew what would happen.

Kern County never picked up the ball on this. I felt that I had gone as far as I could, at least in indicating to them that if you allocate costs and repay as the state expends its money, it will be difficult for an undeveloped agricultural area to get going, because they have a small assessed valuation. Their only source of revenue is from the sale of their crops, and it is a very difficult thing. And I can say, this is being experienced in Kern County right now. It is very difficult. But the decision was made in the bulletin to show, more or less, the effects of the two alternative methods of pricing. There have been certain changes, but, essentially, what we showed in the bulletin appeared in the contracts.

I'd say, getting back to the original question, that this was the most difficult thing we had to do;

and

and I felt the responsibility very keenly, knowing what the effects would be. I didn't want to do anything that would be prejudicial to either Metropolitan or Kern County. But somebody had to make a decision, and it certainly wasn't up to me to make that decision. But apparently I did, without trying to be that someone.

One other problem that we had internally, in the department and with the consulting board and particularly with Ackerman, was in regards to the time element. We felt that we should select a date long enough in the future to really develop the useful life of the facilities that were being built. We picked a period that would extend up till 2020, with full recognition that your vision gets a little dim even after ten or fifteen years. We also recognized that down in the San Joaquin Valley, a canal would be put in. And the economics of canal construction are such that you can double the capacity of a canal of a given size for about a 10 to 20 percent increase in cost. And so, your vision may be hazy, but you're not risking much. We also recognized that whatever we were going to build here was going to be here for not fifty years but hundreds of years; and that, even though our vision was hazy, dim, we had to at least take a guess at what things might be, so that we weren't doing anything today that was in conflict with what might

be desired in the future. So we evaluated this for this fifty- or sixty-year period.

Now, when you do something like that, of course, you set yourself up for the wise guy that will say, "Well, if I could see five years ahead, I would be a wealthy man." This kind of approach, of course, is very annoying to somebody like myself, engaged in this kind of planning. It isn't that I feel I can see into the future any better than anybody else, yet we did not want to do the wrong thing here on something that was going to be around for a long time.

So we made the evaluations over that period of sixty years, and what we came up with was that the canal through the San Joaquin Valley should be built to its ultimate capacity. We were talking in terms of \$40 million, \$50 million, I believe, maybe a little more to build this excess capacity in the canal. That's all we were trying to show: that it was the thing to do. Then we showed that all other facilities could be staged in consistency with the buildup in demand.

Now, we weren't suggesting that the whole program till the year 2020 be financed, necessarily, because that would take additional water; but rather that, after you've outlined your scheme till the year 2020, you back off and build your facilities that can't be staged--such as the canal and the big tunnels--to ultimate

capacity; and then you build the other facilities as you need them and have incremental financing for these. Maybe some thought that, as seawater conversion comes into being, you'll never use that incremental canal capacity. But so what? I mean, you've risked very little money, and it eliminates the necessity of having to put in a parallel canal--which, as an engineer, horrifies me.

I even had quite a problem with my own people on this--Mr. Banks, Mr. [Walter G.] Schultz in Sacramento. They never presented this to the governor's office, even though it was contained in the bulletin. They made the decision that they would size the thing to 1990. All right, as time has gone on here, we find Mr. [William] Warne already talking about planning for a parallel canal. I just think this whole thing is ridiculous; I think a terrible decision was made there. The question was, who would pay for that excess capacity? There was nothing wrong in having the state general fund used for this purpose in the interest of long-range development.

But this personally shook me. I just felt it was utterly stupid to be building a canal of that size. And it got back to the thinking I had on the San Diego Aqueduct, that they build a 1,000-second-foot canal. As long as you are building a canal, let's put a little

more depth on it so that it will carry more water. It will give you operational flexibility, and you can convey all the water you will ever probably need for a small cost. Anyway, I was overruled on that, and I will live to see the day when I was right. I'm convinced of that.

SCHIPPERS: I've made a note that you had gone to Santa Maria in 1958 and developed an outline that became the basic policy in procedure for the preparation of Bulletin 78.

EDMONSTON: Well, that's correct. In order to make it meaningful to anybody considering the merits of the project, we had to provide a basis of comparison of costs between the coastal aqueduct and the highline aqueducts. In the case of the coastal route, you did have a high capital investment and a lesser operating cost over time. In respect to the highline route, at least to serve some areas, you presumably would have a lesser capital investment and a higher operating cost because of the power involved in the lift.

A method of comparison had to be developed; and, at the same time, we wanted this method to reflect, at least in part, which people were going to end up paying for water. We had no policy guidance whatsoever from the legislature on how to price water. We could develop what costs would be, but would it be average

cost over the whole project area? How would we allocate costs between purposes? How would we price water down the aqueduct? This was the type of thing we needed, so some assumptions had to be made.

So, in 1958, Bookman and Lou Meyers and I took a couple of days to work on it. We stayed up in Santa Maria to get away from the telephone and one thing and another, and we worked rather diligently in developing criteria for financial analysis. They were long days. But, we came up with a method of cost allocation which would allocate costs amongst different areas. And we developed a method of presenting these costs for water as they would occur over time to an entity contractor. There were some changes, but, essentially, the method that we developed is reflected in the state water service contracts now. There is a little more sophisticated method used in allocation between municipal, industrial, and agriculture, but essentially the method of allocation and the repayment we developed at that time is still used as it was reflected in Bulletin 78.

We did develop two methods. One of the methods is now employed in the contracts. The other method would have made it much easier on irrigated agriculture. And our fear, at the time, has been borne out, and we're having real trouble over in Kern County today. But we feared irrigated agriculture

could not pay the moneys in advance of deliveries of water. The state, in the contract, has finally mitigated this a bit; but, essentially, you start repaying from the date the state spends the money. There is some relief given in the contract to irrigated agriculture in the state contract, but there would have been another way to do it. That would have been to put a price on the water that eventually would have recovered all the state's costs over time. Now in order to do this, though, it would have required an outlay from the general fund to carry the program in the early years as agriculture demand was building up to its maximum.

Although the state tried to approach this method later on in the contract, they never reached it. It was objected to by the Metropolitan Water District, and cries of subsidy and one thing and another were raised. Some feared that the San Joaquin Valley would sop up all the water. But we did point out in the bulletin that if the method of allocating costs requiring an immediate payment were adopted, the demand for water in the San Joaquin Valley would go down, particularly in the undeveloped areas which couldn't carry the program. We met with some objections from the consulting board on this.

I remember Mr. Tudor saying, "Well, it's opening

Pandora's box, and you'll get into the Bureau of Reclamation type program with heavy subsidies."

And of course, my argument was, "Well, we're not establishing policy here, but we would like to lay out the effects. Let the legislature, or whoever is going to decide this, decide for themselves what they're going to do."

I wasn't proposing one way or another, but it was obvious that agriculture would suffer hardship in trying to meet the really strict cost-allocation and repayment that were eventually reflected in the contract provisions. There were some negotiations on behalf of agriculture carried on later on, but they were never truly successful. And right now, in Kern County, we are experiencing difficulties because of this. It was necessary to set up a master agency in Kern County and really, in effect, subsidize the agricultural program. That's a bad word, but it's to carry it through on taxes in part. So we never really had any spokesman, at this time, representing agriculture. They were silent. We did our best, and I, personally, did my best to go over to Kern County and at least get them stirred up and start thinking about the thing. I felt that they should have a voice, because Metropolitan was practically living with us and making their views rather clear, but nobody was

representing agriculture, really. And this advisory committee, the representatives from the valley, were not very forceful in making their views known. I think, as a result, there was some negotiations that went on ahead of adoption of the program in which agriculture was really left out.

But anyway, getting back to Santa Maria, these concepts were developed at that time. They weren't necessarily new, but they were new to the state and new in application in the state bulletins. They were applied in the analysis of the route selection, and they formed the basis for the pricing policy that was eventually adopted in the state contracts.

SCHIPPERS: With all this opposition to the plan, why did you keep on pushing?

EDMONSTON: Well, it was our job. We were directed by the legislature to come up with a plan, and in these things, you don't work in a vacuum. We recognized that, and we believed that Southern California needed additional water. We knew darn well that the San Joaquin Valley needed water then, as they do right now; and it was up to us to evolve a plan that was sound from engineering and economic standpoints. Furthermore, we had to present it in such a manner that it was apparent that it was sound to the opposition that had developed, including the Metropolitan Water District, and so it

would answer the many questions about it.

I think we did an awful lot of thinking on this opposition they had thrown up. So we set about not only to develop a sound plan from engineering and economic standpoints, but, at the same time, one that would answer every one of the questions that had been raised and the criticisms that had been directed against the project. And we were successful. I think it is just that simple. In other words, when we answered the questions, and we took every question and criticism they had and came up with an answer to it, the opposition was no longer there. I mean, they had nothing further to say. And again, as I indicated earlier: by this time, they, too, recognized the need for additional water. And I think during this time (and we worked very closely with them), there evolved in the minds of the majority of the board of directors of MWD that, by golly, these guys have something. It's a good plan; we're going to need the water.

Now, the next thing was to be sure that the financial provisions of the plan were such that they were fair and equitable as they would see it. And so I think the opposition just petered out on that basis. Their questions on the coastal route were answered; their questions on allocation of cost were answered; their questions on the fear of the highline power were

answered. And we developed a program that we could show them that would fit into their system. Number two, we showed them that they were going to need water, and they were going to need it a lot sooner than they had envisioned, which would be early 1970s--and that has now come to pass, of course. It might be a little earlier than that. So I think, just one by one, their questions were answered and the criticisms beaten down. There was no further opposition from this end.

Then, getting back to what Lou Meyers told you here the other day, I think as far as a good segment of Northern California was concerned and a lot of the Northern California legislators were concerned, the Feather River flood in '55 showed the necessity for a large dam in Oroville and pretty much silenced any opposition there, at least in some quarters. In Northern California, they felt that taking water out of the north was a bad thing, and that this was robbing the north of its water and whatnot. Now, that kind of opposition stayed on until the election in 1960 in some quarters.

You could pretty well go through and see where the opposition remained, and it remained for a couple of reasons: one, you're robbing us of our water (this was in places where they weren't in danger of flooding); number two, San Francisco was fearful they were going

to get hooked for part of the cost and not receive any benefit. You could pretty well identify strong support in the Sutter and Yuba counties and along the Sacramento River until you got down toward Sacramento; then opposition grew. I mean you could just plot it geographically. But Bulletin 78, I think, answered a lot of technical and financial questions that Southern California had. It didn't satisfy the San Joaquin Valley people, but they, again, did not make their views very clear or strong. I think they are paying for it today.

Chapter XI

THE CALIFORNIA WATER PLAN

SCHIPPERS: What's the relationship of Bulletin 78 to Bulletin 3?

EDMONSTON: Well, Bulletin 3 is a broad, long-range plan, without specifics as to financing or economics or timing. It was developed that way, and that is what it was intended to be. It was to give assurance to Californians that there was enough water in California to take care of their future needs, and that in the future, needed projects could be built and fit into an orderly pattern. The Feather River Project was described as being the initial unit, and Bulletin 78 merely implemented and defined in more detail what this initial unit should be. That's the relationship.

SCHIPPERS: Now you also worked in the preparation of Bulletin 3?

EDMONSTON: Yes. Yes, I did. I was in charge of planning in the Southern California area and the central coastal areas for Bulletin Number 3 which set forth in one document the ultimate needs for water: how much local water could probably be developed; where these sources were; their cost as of that time; how much supplemental water would be needed from an outside

or imported water source.

SCHIPPERS: What are the essential elements that went into the making of that bulletin?

EDMONSTON: Well, I think the conclusions that were important were: first, that there was enough water in California to satisfy ultimate growth as we saw it, that satisfaction of the ultimate need required the conservation of water and transportation to places of need; second, that you couldn't depend upon the federal government to do all of this; third, taking all of these bulletins together, it showed that the state of California itself was a master of its own destiny, and could really show some initiative and do something that had never been done in this country or anyplace in the world--take a long look at its own needs and basically do something about it; fourth, there is a need for conservation and regulation of water in the north, that even though the great requirements were in the south, that the flood control, recreational development, and power generation were benefits to the north even though large consumptive uses as compared to the south were not envisioned. So it showed that if people looked at this objectively, the plan had great merit.

I think these bulletins say pretty much what we all know, but until this was all written, so to speak, and had a chance to be digested, I don't know that

people really believed this or accepted it. I think it is a pretty well accepted philosophy now, but I don't think it was until these documents were prepared. And I think the acceptance of the interdependence of the various parts of the state one upon the other is somewhat an outgrowth of this work in water. We're not two states or three; we're one. We're surely tied financially now.

SCHIPPERS: How much beyond this plan do you see the needs for the future? Did you realize that this was, perhaps, the making of an even more comprehensive plan that would include a whole development for the Southwest.

EDMONSTON: No, I frankly didn't. We were Californians and working for the state of California. It was not our assignment to be planning for Arizona or southern Nevada or anything like that. Frankly, as long as you asked the question, I still have serious doubts about the economic feasibility or desirability of the Pacific Southwest water plan. I think it's fine to study it and consider it, but I would not get carried away and adopt the concept without knowing more about it than I do right now.

SCHIPPERS: Going along this line, would you care to comment about the recent talks that have been given by Warne and Brown and some of the others about water for all the West, looking to the Columbia River as a possible

source of water?

EDMONSTON: Well, I consider these gentlemen, of course, as Johnny-come-latelies. They have been given great confidence in being able to make statements like this by the fact that other people really had their necks stuck out and envisioned something that was needed, financially feasible, and sound from an engineering standpoint, and actually went to work and did something about it, as we did in the fifties. That effort was consummated in the construction of this project in the fact that the state of California has their credit on the line to build this thing to serve a demonstrated need in the [SanJoaquin] Valley and Southern California. And I think, like so many other things, this gives rise to pseudo-broad-gauge thinkers, who, with that demonstrated ability of a state [California] to do this, are now attempting to outdo what's already been done.

I'm not pointing the finger at anybody, but a lot of these guys are going off half-cocked. I mean, number one, I'm not convinced there is a demonstrated need. I'm not so sure if you took all the water in the world out to the desert in Nevada, anybody would want to go out there and do anything, or whether we need the food, or want to live there, or anything else. Whereas it may be a fine thing to do this broad-gauge planning, my own thinking is these plans are wild.

We were criticised ten years ago for the concepts in Bulletin 3, which were thought wild, and were told we'd never be able to afford to do these things. And I think in Bulletin 3, we cautioned that all we were interested in was assuring the people of the state here that they did have enough water. We weren't suggesting all the projects be built now. Maybe they never would be if they weren't needed. But at least here, physically, was a plan that you could use when economic conditions were such that it was feasible and there was a demonstrated need that this could be implemented.

These serious proposals and really wild ideas are made by people that aren't engineers and have no feeling for the physical or the financial or the economic factors. They are completely losing sight of the fact that these things are done only when there is a need, and they are completely disregarding who's going to pay for it or whether they can afford to pay for it. To me, it's a lot of nonsense, and they're just indulging themselves. But I guess it is a natural outgrowth of something like the Feather River Project, which is such a big and magnificent thing and so costly. I suppose that in this sophisticated life we live, in which we're going to the moon, this is small potatoes; so now we have to go to Alaska or Canada and get water and think in those terms. And the more you talk about

it, the bigger a man it makes you to talk about it. It's easy to talk about, but if you ever put it to one of these guys, really in depth, as to how you're going to finance it, where are you going to take the water, and who's going to use it, why, they fall apart, really. What I'm getting at is that we did not fall apart when the same sort of criticism was given to Bulletin 78 and the earlier bulletins.

SCHIPPERS: And your father was also criticized for envisioning the Feather River Project?

EDMONSTON: Oh, I'm sure so, but I'm sure the results speak for themselves on that question. He recognized a need for additional water in Southern California. He was fearful about what might happen to the Colorado River supply in Southern California, and he knew what is obvious to everybody now: that Southern California is continuing to grow and would need this water from the north. Even the preliminary work that he did before he announced the plan indicated there was sufficient money in California to pay for it. He knew where the water was and how much there was. Putting these things together, it sounds pretty simple now; but nobody else had done it, and nobody else had had the courage to come out and say, "Let's carry water down the [San Joaquin] Valley and lift it 3,000 feet to get it into Southern California." At that time, he was considered a visionary

and a rather wild swinger, but he knew what he was about. One thing was that it was financially feasible. The state could afford it; we couldn't depend upon the federal government; and there was the water. Those are the ingredients that I'm talking about.

SCHIPPERS: After preparing Bulletin 78, you said you helped on the Burns-Porter Act.

EDMONSTON: That's correct. To this extent: the Burns-Porter Act was actually drafted by Ralph M. Brody; and I was called in at various points to assist him in putting in the legislation what was contained in the bulletin. Of course, there were other things in there dealing with the Feather River and one thing and another, but that was about the extent of it. That, of course, was presented to the legislature and passed in June, as I recall, 1959. Bulletin 78, as we indicated earlier, had seemed to answer the questions as far as Metropolitan was concerned. The governor was assured that he was not going to get Southern California opposition to this.

Just as an aside here, I read today about how Governor Brown's water program was put over. But the work had all been done for him. Governor Brown came into the office in January of 1959 and Bulletin 78 was presented in February of 1959, one month after he came into office. The work, essentially, had all been done except for the writing, which we were doing at that time.

We presented a sound plan. The opposition was dead; and Mr. Brown had control of the legislature; and he rode in on it.

SCHIPPERS: The act was a rather unusual act in that it detailed a great deal in content. Why was that?

EDMONSTON: Well, I think a lot of it was the desire to satisfy various parts of the state that they would not be shortchanged, so to speak. I believe the figure of a minimum of 2,500 cubic feet per second on the Tehachapi crossing was put in to assure the Metropolitan Water District that there would be an adequate capacity in the aqueduct coming south. I think basically it was so as to take the findings of Bulletin 78 and translate them into an act, and to give the people assurance that what they read in Bulletin 78 would actually be built.

SCHIPPERS: I brought up some names here for comment, and one of them was Phil Swing. You said that you had contact with him.

EDMONSTON: Yes.

SCHIPPERS: Was that during the San Diego work?

EDMONSTON: No. Actually, when we worked on the San Diego work, he was sort of out of the picture at that time. He wasn't as active as he had been. I came into contact with Phil Swing, really, in 1951. And from '51 to about '56, when he was on the State Water Resources Board, we got to know him there. I administered

the program of reimbursements to local agencies for lands easements and rights of way in connection with the Federal Flood Control Projects here in Southern California; and we did the staff work for the State Water Resources Board, which was in charge of the program. That's where I got to know him.

I'd just like to comment on the State Water Resources Board. The original report on the Feather River Project was under the State Water Resources Board; and I don't know how many people remember this, but they would not endorse the report. Look at the original copies of that report, and you will find that they take no responsibility or give no endorsement. In fact, they make it very clear that it went to the legislature without their endorsement, which was quite a thing, in that it was carried by my father alone. He presented the report to the commission. They accepted it but did not approve it. Then he took the report and went with it to the legislature, who adopted it, in '51. But they were scared to death of the whole thing. They were very fine men, and I can't go down and identify who would have voted for or against it at this time; but collectively they did not endorse the project.

SCHIPPERS: What do you suppose was their major fear?

EDMONSTON: I think it was just complete ignorance, myself. It indicates to me that these men, great water

leaders and experts, were not that. They just had no vision, and they had no fundamental understanding of much of the problem.

SCHIPPERS: Were they afraid of a political

EDMONSTON: I think they were afraid of being tagged as screwballs. Frankly, they just didn't believe in it; they were scared to death of it.

SCHIPPERS: Julian Hinds was another person that I mentioned.

EDMONSTON: Well, Julian, in my estimation, is a very fine man and a very fine engineer. He retired as chief engineer of the Metropolitan Water District just about the time I came to Southern California and went out to Ventura County as chief engineer and general manager of the United Water Conservation District. At that time, as I related earlier, we were working out there under a contract with the county. And Julian was always very good to me, really as an elder statesman in the profession to a young fellow who was just getting started. And he always respected a young man's opinion and treated him as a professional, and not as some young kid that you just kick out of the way, as some of the other old boys were trying to do. I developed a great affection for Julian and a great respect.

In later years, when we were working on the aqueduct system, he was on the Advisory Committee and it was

always a comfort to have him there. He was a man that didn't owe anybody anything, and he would speak his piece; and I always felt that he was behind us 100 percent as a group of engineers who were trying to do a job. He was one of the few people who, I think, really appreciated what we were accomplishing and trying to accomplish and understood the work that went into it. I have a fondness for him and that continues to this day. I see him once in a while and think a great deal of him. He'd done some wonderful work himself on the Colorado River Aqueduct, on the design of it and the planning of it.

Chapter XII

BOOKMAN AND EDMONSTON: CONSULTING ENGINEERS

SCHIPPERS: I asked you to catch up on the chronology of developments. After Bulletin 78, what happened?

EDMONSTON: At the same time we were doing Bulletin 78, we were designing an initiated construction on a dam up in San Luis Obispo County. I had a group of people working there, and we had the groundbreaking on the dam two or three days after we released Bulletin 78. This was in February, '59. That was quite a time for me.

Just as an aside, personally, I had planned the dam. It was a joint effort between the city of San Luis Obispo and three state agencies, and I put the whole thing together--got everybody in agreement, and got money in the state budget, and worked with the city on their bond issue. This was to serve water to Cal Poly and the state prison, and so there was the Department of Finance involved and the city people and so on. I worked on it pretty hard, right along with what we were doing on Bulletin 78. They had the groundbreaking ceremonies up there, and the governor spoke at it. Harvey Banks was then director. I wasn't invited to go to the groundbreaking by the state; they

neglected to do that. [laughter] Instead, I received an invitation from the city of San Luis Obispo, so I went up there as their guest. [laughter] My superiors kind of looked at me as I showed up, and I was asked to sit up on the platform with the mayor, who at that time said some very nice things about me. That was kind of an interesting situation, but it bothered me a little bit that my own organization wouldn't have me there. But so be it.

Anyway, I did leave the department on October 1, 1959. Along in spring of that year (well, really after the Burns-Porter Act had passed), it was apparent that we were going ahead with the project. There then was a whole lot of discussion in the department who was going to do what and so forth. It was apparent that I had served my purpose, because my responsibilities were pretty well relegated to routine work, and the vast majority of the work would be directed out of Sacramento by the fellows who had ridden along on this. And we felt down here that we were not going to be given any particular responsibility.

I attended, with Bookman, a staff meeting in Grass Valley in July, just before the Fourth of July; and a lot of philosophy was being bandied about then about how the department was going to work and who was going to do what; and the whole thing made me rather nauseous.

And flying back on the plane, I indicated to Bookman that I had about had it. Subsequently, I took off on a vacation (my family was in Carpinteria), and an old friend of mine who is head of the water agency and a member of the board of supervisors in Santa Barbara County contacted me. He knew I was up there, and called me, and asked if he could see me. So I went up and talked to him, and he said that--in view of the passage of the Burns-Porter Act and many other things that were going on--they felt that the county of Santa Barbara ought to get a consultant to advise them on what to do about things. He wanted to know if I could recommend anybody. I had known this man for years. I looked at him for a minute, and it just came out. I said, "Well, yes, I think I know somebody you can get." And he said, "Who?" And I said, "Me." And all of a sudden, I made the decision right then. Well, he was delighted and asked me when I could firm this up. I told him I was to leave to go up fishing with my family and that I was already late, but that I would be back ten days later. So I went in to see Bookman, and I told him I was leaving--this was in July--and Max's jaw just about hit the desk. "What do you mean?" I just told him that I was leaving, and that I had the prospect of a job, but that it would have to be approved by the supervisors, and that I had to be

interviewed. So Max said, "Well, you're not going to beat me to the front door. If you're leaving, I'm leaving."

And so we decided then and there that we would open up a partnership. He had felt the same sort of thing I had, that they were cutting up the pie in Sacramento and that we had done our job. So get lost, boys. So we sat down and decided that we would write letters to Mr. Banks indicating our resignation would be effective October 1, which was a little over two months away and would give them adequate time to get replacements down here. We couldn't just walk off the job in two weeks or something like that. So this is the way it came about.

We opened our partnership on October 1, 1959, and left employment with the state. Subsequently, I was retained by the county of Santa Barbara, and I'm still consulting engineer for the county of Santa Barbara.

SCHIPPERS: Could you describe some of the projects you've been involved in as a consulting firm?

EDMONSTON: Well, I can describe some of them, yes. The biggest thing, of course, I feel that we have done is in Kern County. We were retained by a water storage district, which is comparable to an irrigation district, in Kern County. Mr. Paul Bailey (who was formerly state

engineer and the fellow my dad went to work for in the twenties and who'd been on the Advisory Committee) had been their consultant for almost twenty years. This district, located in the extreme southeastern corner of the San Joaquin Valley, was one of the largest contractors on the Central Valley Project; and because of their particular situation above the Friant-Kern Canal, and being somewhat remote from the end of it, they had tried to work out a water exchange on the Kern River to give people in lower-lying lands their contractual supply of Friant water by gravity from the Kern River water. They'd never been able to work out the arrangements. Paul Bailey was along in years, and he had, in fact, told them in '57 that he couldn't go up to their meetings. So when we sent Paul an announcement of our new firm, he read it and called up Forest Freck, who is president of the board, and told him that they ought to hire me. So they accepted his recommendation, and I was retained in September of 1959.

They'd been formed for eighteen years, and they'd been told by the bureau that they would either have to have their project under construction in March of 1964 or they would lose their contract. So I immediately reopened negotiations with the Kern River people, and after about two or three months, I felt that it was questionable whether we would ever be able to consummate

it. So I worked out a plan of direct diversion for them, and I presented it to the board over there in 1961, about two years after I was retained. I recommended that, under provisions of Public Law 130, we attempt to obtain federal financing.

We finally got an agreement from the Kern River interests that they were willing to sign. We compared the economics of that with the plan of direct diversion, and the direct diversion, which involved pumping into the district, was better. We told the Kern River people to buy, and this was quite a shock to them. We then negotiated a loan contract with the United States which was the third-largest repayment contract ever entered into in the United States, and the largest loan contract ever made. It was \$41 million.

And we put together this \$46 million project (\$5 million in local bonds) and we had everything worked out. Oh, there were a lot of side issues that went along with this, but it was quite a satisfying thing for me that after all these years of delay, I was able to put this together in a couple of years.

At that point, we ran a little partnership. We had eight or ten people here. After going to all this effort, we decided, "Well, let's build it." They were perfectly willing to entrust the responsibility of design and construction to us; so we formed a corporation,

and we've been engaged in building the project out there. And we're about 80 percent done now. In fact, we're going to have the first deliveries of Central Valley Project water into the district here next month and have a celebration. That's quite a satisfying thing.

We're also working on distribution systems for two other districts over in Kern County. I negotiated the contract for the Santa Barbara County water agency with the state of California and thought we did a pretty good job for them there. We've worked around and about for many people up and down the state.

SCHIPPERS: Would I be wrong in assuming that you're pretty sensitive to the agricultural needs of the state, as opposed to cities, shall we say?

EDMONSTON: Well, I don't feel I'm prejudiced one way or the other. I think I have an appreciation of what farmers are up against. I've worked with them, of course, for years, going way back to my days in Stockton in 1948; and I know what the farmers' problems are with respect to water, what the economics are. Of course, since 1959, I've studied this in great detail up in Oregon. We worked out the repayment program of financing for them and set up the internal fiscal program, the relationship between the district and the individual farmers. And I just feel it's a different sort of thing.

When you talk about water and the economics of water and water development and water sales, with cities. it's one thing; to farmers it's another. It's part of a business. With a city, and I live in one, it's a different animal entirely. You look at it differently; you plan it differently. The degree of sophistication isn't there in the city water planning. But in agricultural areas, you're working very close to the people. A dollar or two one way or another per acre-foot means a great deal to a farmer, because it comes right off his profit.

SCHIPPERS: Through all the years of planning, did you keep under consideration the importance of agriculture to the economy of the state? That is still really the backbone of its economy.

EDMONSTON: Well, I don't want to depict myself as any great sophisticated thinker, because I don't think I am, but I think anybody with a brain in his head who drives from Redding to Bakersfield knows that California has a great agricultural economy and that the flow of revenue out of that valley into San Francisco and Los Angeles is really something. Just the sheer size of it alone is impressive. But as far as having any great mission in life to preserve agriculture or anything--no, I didn't. But if you could ever deal with agriculture, particularly in the Sacramento-San

Joaquin valleys, you would get some appreciation for it. Then, when you go down to San Francisco or Los Angeles and go down on Montgomery Street or Spring Street and talk to some of the characters there, you would find that they think the sun rises and sets on Spring or Montgomery streets. But you know they're wrong. Not all of these folks are that way, but there's a great segment of our population that lives off agriculture indirectly and they don't even know it. And I think maybe this appreciation has come about more in recent years here. Really meeting people who had such a lack of appreciation of it has sharpened my appreciation of it more than anything else. But during my career, I've never carried the torch for agriculture or anybody else, as far as doing my job was concerned. But coming into contact with it, I don't think you could help but have this appreciation.

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