

project and I think John Starr took pity on me after a couple of weeks, or he realized that this was just my indoctrination, and then he moved me into another unit. The squad leader there was named Ken Gardner. But I really did start then to do some design and drafting of small structures-the small structures being things like headwalls and manholes and other minor facilities where you did have to know about reinforcing steel and things like that. However, there was no real major design. One of the projects I worked on that I guess the Corps of Engineers would probably just as soon I forget about was a project called "Toby Creek Pressure Conduit and Outlet Works. "

This was part of the project for Susquehanna River flood control. They were designing for a hundred-year flood on the Susquehanna River. Somebody else was doing the hydrology. We were not. We were just doing the design after somebody else had decided what to do.

Right across the river from Wilkes-Barre are two small towns, Kingston and Edwardsville, that ran together. I think it's right near the line between those that Toby Creek came down out of the mountains and crossed the flood plain and discharged into the Susquehanna River. It's a right mountainous area with a narrow flood plain, and, of course, the big flood plain is on the Wilkes-Barre side where the city is. On the Kingston-Edwardsville side the narrow flood plain was subject to flooding when the river came up, just as Wilkes-Barre was on the other side.

The idea of the Toby Creek Pressure Conduit and Outlet Works was to take this stream that came down out of the mountains and back it up in an impounding basin to create enough head to force the water through a pressure conduit and out into the river through a headwall on the river bank with a floodgate, so that when the river was up, the water would come out, and it would be forced out because of the head from the impoundment but the floodgate would prevent the river flood water from coming in. The impounding basin was merely earth levees in a U shape to hold the water and give it enough head to send it out through this conduit, which was maybe a half-mile long, under pressure. It went right down to the river near the border between Kingston and Edwardsville.

I designed the headwalls and several other minor structures for the Toby Creek project, I can't remember the details of what I did. At one time, I did a whole job which was the biggest job I did-including the design and the drafting in

ink and the specifications for a railing along the levee in Wilkes-Barre. I was proud of that. That was my biggest job. I did the whole thing from A to Z, including getting it ready for bids and lettering in my own name in the title block, where it said “Prepared by...”

Well, the Toby Creek pressure conduit was built around 1940 or ‘41 but the first flood that came down out of Toby Creek went into a hydraulic jump in the impounding basin. The water overtopped and washed out the earth levees and flooded down the stream depositing the earth and fragments of the structure down on the streets of Kingston and Edwardsville. This is written up in the *Engineering News Record*, but I can’t remember if it was 1942 or ‘43 or when that flood came. And somebody just hadn’t realized that this little stream coming down there and suddenly coming out into a pond would go into a hydraulic jump.

That’s why I say the Corps would probably just as soon forget about the project-I’m probably one of the few people that remembers what happened, but John Starr would remember it, and I’m sure some others around the Baltimore District would.

Now, this was just a very little project. It wasn’t a separate project. It was part of the Kingston-Edwardsville project which had levees and other components. I’m sure they fixed it up, but by that time, I was long gone from the district.

Q: Could you tell me something about the reputation of the Corps of Engineers among young engineers at this particular time? Was the Corps of Engineers a place where young engineers just out of engineering school would want to go? Was it a place where you would go if you couldn’t find jobs with an independent consultant or an independent engineer? You know, it was a controversial agency, even at that time.

A: This was at a time, near the end of the Depression of 1930s. Some of the war work had picked up but there was still a lot of unemployment. People wanted to get on a payroll. They didn’t care where. And the general feeling was that government payrolls were good payrolls. They encouraged us at Hopkins-in our junior and senior years-to take civil service exams. And so I had taken the exams-everybody in our civil engineering class had-for draftsmen and for engineering aide and for junior engineer. And one of our college classmates who had had to drop out after the junior year-Bob Linthicum, who was a

Corps hand for many, many years-he was fairly good at drafting, and he was hired in a sub-professional position in the Baltimore District before he graduated.

And so I guess there were no connotations that you only took a job with the government when you couldn't get one somewhere else. They were good jobs. I don't remember any controversy about the Corps in Baltimore.

My particular class of civil engineers thought it was just great to work for the Corps of Engineers because I had the highest salary of anybody in our class. Of course, we only had seven civil engineers in the class of 1939. One of them went to Glen L. Martin, detailing for stress analysis on airplane construction at 75 cents an hour, which comes out to \$30 a week. Another one was a timekeeper on an engineering project at \$25 a week. The guy who was the best draftsman got the first job, but he was only an SP-3 or something, because they were hiring draftsmen at \$1,620 a year. And he thought that the Corps was just great, paying \$1,800; that was a good salary in 1939.

Four of our class of seven went to work for the government. Two of them with the FAA [Federal Aviation Administration] and one with the Coast and Geodetic Survey. Another one went to Dupont and another went to the gas and electric company. But I was the only one that went to work for the Corps.

### **Graduate Work, Johns Hopkins University**

I've already summarized the work that I did that first year. Around September, John Starr came to me and said, "Some of us are thinking about registering for graduate work at Hopkins. Would you be interested in working toward a master's degree? We would have to go out and be on campus for one course during the day, and we could take another course at night. Hopkins required you to be enrolled in the day school if you wanted to get a master's degree.

We were working a five-and-a-half day, 39-hour week at the time with lots of unpaid overtime, which was recorded as "comp time," so there was no problem getting off for an afternoon class, especially since the boss was also enrolled in the course. So I agreed to do it, along with John Starr and two others from the Baltimore District, Philip Kirpich, who was working in the hydrology section at that time, and Gordon Williams, who later went with

TAMS in New York. We agreed to take a graduate course in hydraulics and a graduate course in hydrology at Johns Hopkins. The hydraulics they could give us at night under Mr. [Fred] Medaugh and the hydrology was going to be every Friday afternoon under Abel Wolman, with John Geyer filling in when Abel couldn't be there.

A couple of fellows came down from the Philadelphia Electric Company and Conowingo Dam to register for the two courses. Abel's course was a seminar and we called it "A Hydrologic Analysis of the Susquehanna River Basin."

Now, Abel at that time was somewhat jaundiced about the economics of Corps projects and I think that the engineering profession generally thought that the Corps was kind of stretching the economic analysis to justify some of the projects. Abel's view was that when the Corps goes into a town to investigate a potential project that the government would build and the local people would have to provide the land, easements, and the rights-of-way, the town council will look at the cost of the land, easements, and rights-of-way and they will, in their heads, do a cost-benefit ratio of what they know the benefits really are and weigh them against the cost that they have to put up, and if they can see that ratio coming out favorable, they would agree to go ahead with it. He was very dubious about the Corps' cost-benefit analyses, particularly estimation of benefits.

You should remember, Abel was a consultant to the Miami Conservancy District where everything was computed down to a gnat's eyebrow, and they didn't build projects unless there were either collectable benefits or taxes sufficient to pay for them because there weren't any federal funds. I think Abel at that time was expressing the general views of the engineering profession, but I don't think this extended down to the graduates' not wanting to take a job with the Corps. In 1939 and 1940, you didn't analyze things like that. You wanted to get on a payroll. The effect of the Depression.

Anyway, we took those two courses, but I wasn't able to finish the last month because I was in an automobile accident in the spring of 1940 and had to drop out. In the summer I left the Corps to take another job. I should have said that my first job was temporary. It wasn't under civil service. They didn't take out retirement or anything like that, although I had benefits such as annual and sick leave. That's how John Starr could hire me the next day.

### **Survey Party, Constructing Quartermaster, Edgewood Arsenal, Maryland**

About May or June of 1940 the marks on the civil service exam that I had taken when I was in college came through. You found out only when you were offered a job-at least, that's what I remember, because I didn't know anything about it until I got an offer of a position as senior engineering aide from the Constructing Quartermaster at Camp Holabird in east Baltimore.

You remember, this was between the two wars. The Corps was not involved in military construction. The Corps was solely involved in civil functions at the time. And the Constructing Quartermaster was doing military construction work, and they were just starting to work on the chemical warfare depot at Edgewood Arsenal. The offer I got was an invitation to interview for a job as senior engineering aide at Edgewood.

So I went down to Camp Holabird for the interview. I had to borrow my mother's car because mine had been wrecked in the accident. I didn't have a car. I don't remember who interviewed me, but they offered me the position as chief of a survey party, **SP-6**, on the spot. It was what I wanted to do, working outdoors, so they hired me and I gave notice to the Corps of Engineers that I was leaving in two weeks.

And John said, "Golly, Ted, we could have gotten an SP-6 rating for you if we'd known you were on that register. We could have given you a senior engineering aide position. You certainly deserve it. You've been here a year." He was very effusive about it. And I had to say, "Well, you didn't tell me that, and I've already accepted this other job." The other thing, I was going to be surveying, and I was chafing at being in the office, especially in the summertime.

And so I think it was probably around July 1, 1940, I started to work at Edgewood Arsenal for the Constructing Quartermaster, surveying for the chemical warfare depot down in a new area that was opening up. We surveyed for railroad lines and sidings and located phosphorus storage places and other facilities and eventually surveyed all the way down that long peninsula that goes down, I think, between the Gunpowder and the Bush Rivers. I think it was called the Santo Domingo area-land that they had bought up years earlier. There were old decaying farmhouses and dirt roads, and I had to survey some

lines through some swamps, just to layout a traverse and map so they could locate other things down there later.

I really enjoyed that summer. I can't remember that it ever rained. I had to drive 50 miles to get to work-100 miles a day. I was living up in Reisterstown, actually in a little town called Woodensburg north of Reisterstown and driving, picking up people in Baltimore and going out the Philadelphia Road to Edgewood. Again, we were working five and a half days week, so it was six days a week driving up there.

Q: You were talking about being hired on with the Quartermaster Corps and then going to Edgewood Arsenal. Do you want to continue from that point on?

A: Well, we did all that surveying, and I can remember the muck that we surveyed through when we went down that peninsula through some of those swamps-the grass at the upper end of some of the little creeks. It was a messy, messy job. One of my chainmen got sick because of the foul odor, and I had to go in there to finish the job.

This lasted the whole summer of 1940. I put 12,000 miles on my new car in three months driving to and from work and—

Q: Let me ask you a question if I might.

A: Yes.

Q: Now this chemical warfare depot-Edgewood Arsenal-this question is obviously for the benefit of knowing your thoughts about present-day concerns about dumping and toxic pollution and so forth, so when you did this arsenal-

A: Oh, people have just been convicted of improperly disposing of chemical waste up there. The people that were charged.

Q: That's right. Those civilians. You knew that the arsenal was going to be used for chemical warfare experiments and so forth, and there would be, I suppose, a dumping problem. Was there any concern when you were doing the surveying about the dump sites being properly located so there wouldn't be any kind of pollution or anything like that?

A:: No. I didn't give any thought to that. I don't think anyone did at the time. I was a survey party chief and we were laying out a railroad track and warehouses, and the only thing that made us realize that this was dangerous stuff was that we were locating bunkers to store phosphorus in with mounds of earth over them. But the warehouses-I guess I didn't have any perception of exactly what was going to be in them and what was going to be done there. You remember the war was going on over in Europe at the time, but we weren't in it. I didn't really think too much about that. A young man of 21 years old in 1940 had other things on his mind than thinking about environmental consequences of what he was doing. I wasn't 22 until the end of that summer.

So I didn't really think about that, and I'm not sure anybody did. It's pretty obvious that they didn't, even many years later when they really had some dangerous stuff there. If anybody thought about it, they apparently didn't take any action, because the employees there were convicted. I think it was a raw deal for these people, who were doing what they were paid to do, to be convicted. I haven't read any details about it, however.

Anyway, the job got bigger at the end of the summer and the Constructing Quartermaster decided that they needed to have an architect-engineer on the job. I think the firm they hired was probably Whitman, Requardt, and Smith, which was a big Baltimore engineering firm. When they came in they brought in another survey party. Of course, we had all of the locations surveyed and laid out, but they said, "Well, we're going to have to go over and do all of that over again to make sure that it's right." I started to boil inside, because I thought our work was pretty good.

### **Spillway Design Section, Bureau of Reclamation, Denver, Colorado**

When I went home that night I had a letter from the Bureau of Reclamation out in Denver offering me a job as a junior engineer, P-1. That was providential, and although the salary was just the same, \$2,000 a year, it seemed like a step up in status. This offer also came as a result of an exam I had taken when I was still in college. It had taken them a year and a half to get around to certifying me for employment as a junior engineer. The Bureau wanted somebody to go out in the field and survey for irrigation projects. The job seemed to be right up my alley.

But the fact that it was getting me back in the water resources field didn't really enter into my decision. However, I had worked on flood control with the Corps and working with water had a lot more appeal than surveying for chemical warfare depots.

So the appeal of working on irrigation, of going out West--I'd never been out West-and also of getting into the professional category made my decision easy, particularly because I was mad over there being somebody else hired, and paid more money than I was getting, and deciding he was going to do my work over. Thus, it didn't take me long to accept that job. And by early October, I was on my way to Denver.

When I got there and reported for work something happened that changed the plan. When I reported for work they said, "Mr. Schad, we're sorry, but your physical exam doesn't permit us to approve you for field work." Of course, I said, "Well, I've been doing field work all summer, doing surveying." They still didn't approve my doing fieldwork, so I took the alternative position they offered in the Spillway Design Section.

So I started to work for the Bureau of Reclamation in October 1940 in the office of the chief engineer. And it turned out to be very interesting work.

When I went out to Denver even though I'd lived away from home down in southern Maryland surveying for the power lines, I felt that I was all alone and a long way from home. In those days, it took the better part of four days to drive from Baltimore to Denver. There were no interstate highways. You drove U.S. Route 30, because that was the only one that was paved all the way. Route 40 had one section in Kansas that was still gravel at that time. Maybe some of the southern routes were paved all the way. I don't know.

So, I took the Lincoln Highway which passed just below Chicago and after crossing Iowa went up the Platte River valley and through Nebraska. At some point west of Ogalalla, Nebraska, I felt a great thrill when I started going up the hill, climbing out of the Platte valley on to the high plains. It just seemed that you went up and up and up and up, as the road leveled and then rose again. And I just felt as if I were going up to heaven, there was such a feeling of exultation. It was so wonderful I still remember the feeling today, 50 years later, driving 80 miles an hour-everybody always drove 80 miles an hour then when you got out of the city-there were no speed limits on the open road.



And sometime-I'm not sure whether it was right when I got to the top of that hill or later, I started to see the faint blue line of the mountains in the distance. The air was so clear and there was no sign of smog or pollution of any kind. As I drove on down the road that followed up the course of the South Platte toward Denver, the mountains to the west loomed up higher and higher on the horizon and I was in a state of euphoria all the rest of the way.

While I am waxing euphoric about my personal feelings I have to tell you about something that had another tremendous impact on my life. There was a family in Denver that came from my home town of Reisterstown, Maryland. Their name was Ebaugh. Dr. Franklin Ebaugh had grown up on a farm near Reisterstown and had married a girl from Baltimore County. They lived in Denver and he was a very well-known psychiatrist and he was at that time head of the Department of Psychiatry at the University of Colorado Medical School in Denver.

And so because I was feeling kind of alone, I called them up shortly after I got to Denver and Dorothy Ebaugh said, "We'd be delighted to see you. How long are you going to be here?" and I said, "I'm going to work here. I'm starting to work at the Bureau of Reclamation next Monday."

She said, "Well, why don't we drive you up in the mountains tomorrow? I'd love to." I accepted her invitation with alacrity. This was a chance to meet somebody from home. When you're alone, far from home, you want to know somebody. I didn't know anybody at the Bureau yet. I hadn't even been to the office.

So she took me for a drive in the mountains, inviting a friend of hers, Eleanor Eppich Kingery, who just happened to be the secretary of the Colorado Mountain Club. It was a pleasant drive up through the foothills west of Denver to Idaho Springs-and this was before the Clear Creek Highway was built. And then we drove up the Virginia Canyon Road, which was a steep shelf road with zigzags and switchbacks up to a pass and then dropped down into Central City. After a short visit to the Teller House to see the "Face on the Barroom Floor" we drove on down through Boulder and back to Denver.

And before I got out of that car, I had to fill out an application blank to join the Colorado Mountain Club. And this, I'm sure, got me out in those mountains a lot sooner than I would have, because if anybody else can remember the fall

of 1940 in Denver, it was beautiful weather, right up through Christmas. I started going on Colorado Mountain Club trips every Sunday. Because the snow had already started in the higher altitudes, the trips were mostly just little hikes in the foothills, scrambling over rocks. But that started me on what became a dominant force in my life-that is mountain climbing. From then on I was hooked, and when the summer came, I was out climbing every weekend. Like many newcomers to Colorado, I fell victim to what we called 14,000-foot fever. We just had to climb all of those mountains that were over 14,000 feet in elevation above sea level. That happens to be 4,237 meters and one of my friends would say, "What's the difference whether a mountain is 4,237 meters or 4,210 meters? Why do you want to climb one and not the other?"

Well, it was just a kind of a feeling that you got. Eventually I teamed up with some of my colleagues in the Bureau of Reclamation and got lots of advice from one of the people that had already climbed all of them, Whitney Borland. He was my squad boss in the spillway section in the Bureau, and we used to talk about mountains. They certainly had a profound influence on our lives and it's probably why I'm in as good health as I am now, and-you realize this is my 50th year-I'm just finishing the 50th year of my professional career.

During the 18 months that I worked in the Spillway Design Section, I became very much interested in hydraulic design and read a number of books on the subject. I worked on design of spillways for dams such as Anderson Ranch Dam in Idaho, Angostura Dam in South Dakota, Rifle Gap Dam on the silt project in western Colorado, and Kortess Dam, which is a power dam on the North Platte River in Wyoming. Those are the ones I remember. There were a lot of others. And I had the opportunity on some of them, like Anderson Ranch, which was already authorized, to make the initial design-being supervised, of course, by others-and then following through with the model testing and perfecting the design. The office of the Bureau was in the Denver Custom House, at 20th and Stout Street then, and the hydraulics lab was in the basement. And I had the thrill of making the initial design of the spillway and observing them make a model test, watching them run the model, and making adjustments to the design and so forth, and it really was a wonderful opportunity for a young man just 22 years old.

I was working under the direction of the head of the Spillway Design Section, D. C. MacConaghy. And he was one of these grand old men with a lot of experience. He was a Scotchman, and for lunch he'd eat a few crackers and

drink a little carton of milk. I thought it was because he had ulcers or something. Later somebody told me that he did it to save money.

Now this is far removed from a career item, but I have to tell you about what happened that fall when we had a golf tournament at the Bureau of Reclamation. Everybody was paired by lot, and my first match was with D. C. MacConaghy, my big boss.

I had played a lot of golf in Baltimore, and after we got out of college and started working, we usually took caddies. I'd only played golf in Denver once, out at the Case Course, so I'd never been on the city park course. I got there first, before Mac arrived, and the first thing I did was engage a caddy. Because, I didn't know the course, and, I just thought, "Well, gosh, the big boss of the whole Spillway Section-I had a couple of squad bosses in between me and him-would certainly use a caddy." He was at least a P-6 in the government hierarchy. But when MacConaghy got there I saw that he had what we used to call a Sunday bag, a light-weight canvas bag that you carried yourself. We went out to the first tee and he looked at the caddy and he looked at me, and he was obviously quite shocked. I felt a little queer and said, "Well, you know, I don't know my way around this course," and I was hoping that there would be an earthquake and the ground would open up and swallow me. But it didn't. So we teed off. I used to hit a fairly long ball, and the course there is flat and hard in the fall. I was hitting these drives about 250 yards and old Mac would come in, and he'd hit a ball that would go straight down the fairway about 150 yards. Then he'd take his second shot and he'd be up to me.

To make the situation worse, I started winning. And we got up to about to the 14th hole or the-1 think it was either the 13th or the 14th hole and I was ahead by something like-1 guess it was on the 14th hole and it was five and four, and Mac said, "Well, that's it," picks up his bag and (Laughter) started to walk back to the car. Of course, I had to go with him. I felt that it really put me off on a bad foot with MacConaghy, and I felt that I would never make it with him. But it turned out that he was pretty rough with everybody. Later, one of the other fellows that had been working in the Spillway Section as a junior engineer for six or eight years, Boyd Brown, and he really was a mature person-at least compared to me-told me that Mac never recommended anyone for a promotion. About that time the Ramspeck Act went through, and I'll never forget Boyd Brown saying, "Well, it takes an act of Congress to get me a \$100 raise. "

Q: Now, what act was this?

A: The Ramspeck Act in 1940 or 1941 authorized the in-grade raises. At that time it was every 18 months.

### **Planning Division, Bureau of Reclamation, Pendleton, Oregon**

Q: I see.

A: Anyway, so nobody was getting raises out of Mac, but the anecdote shows how inept I was at “winning friends and influencing people.”

After I had been in Denver about 18 months I got a call from E. B. Debler- “Old Deb” they used to call him. He was head of the Planning Division in the Bureau of Reclamation. When I went to see him he said, “Well, Mr. Schad,” he says, “you know, we wanted you to go work for us, but they wouldn’t let us hire you for field work and we did something about it. We’ve gotten this restriction on your ability to do field work removed and we’d like to have you over here in the Planning Section. ”

This really made me feel like I was going to have the chance to do what I really wanted to do: field work. I enjoyed the spillway design work, but the war was on by that time, and I felt as if I were working on projects that couldn’t possibly have anything to do with the war effort. I felt like I was spinning my wheels, working in the office, and I wanted to get out. So, it didn’t take me long to say goodbye to Mr. MacConaghy and transfer to the Planning Division.

At this time, the Bureau’s work was all centralized in Denver. There were no regional offices. I am not even sure that I knew that we had a commissioner. To me, the chief engineer, Mr. Walter, was the head of it all, and I just didn’t realize there was a commissioner, John Page, back in Washington. I don’t remember finding that out until much later.

Deb gave me the choice of either going out to Oregon and working there on projects under the tutelage of Glenn Sloan or of staying in Denver and working with Randy Riter on hydrology. They knew I’d worked on floods and the Bureau was authorized in 1939 to include flood control in its projects.

I decided to take the job under Glenn Sloan out in Oregon. I wouldn't be working directly with Glenn Sloan, but he was kind of the honcho for all of the Bureau's field planning.

Q: Was Sloan at Billings at this time?

A: Oh, no. Sloan was in Denver. Almost everybody was in Denver. I'm not even sure there was a Billings office. Well, there probably was—

Q: No, Sloan had been working out of the Billings office when he was working on the Pick-Sloan Plan. That's the reason why the Missouri River basin development comes to be called the Pick-Sloan Plan.

A: I know. But that was not until 1944. And he had an office in Denver. I think he did the Pick-Sloan Plan out of the Denver office. The surveys for the Missouri-Souris and the Garrison Division, and the Oahe-James units were what we in the Bureau used to refer to irreverently as "windshield surveys." There was very little field work.

Q: I see.

A: Now, the field office was undoubtedly involved in some way.

Q: I was thinking Bashore was the commissioner.

A: Well, Harry Bashore followed John Page as commissioner. I'd have to check the history books to see when it was. But John Page was in there through the 1930s. Bashore may well have been in there by this time, because it was 1942.

Q: Yeah.

A: Page probably was succeeded about 1940. Anyway, I got my directions from Glenn Sloan after I transferred to the Planning Division.

Q: Can you tell me what kind of man Glenn Sloan was?

A: Well, he was a very kindly person and he really was very helpful to me. Personally, I remember the way one of his eyes was bigger than the other

because it was obvious he had done a lot of squinting through a transit. Somebody told me that's what caused it.

But I didn't really work with him that closely. It was just a couple of meetings before I went out in the field. At the time, I didn't even recognize him as the author of-1 didn't even know they were working on the Missouri River basin plan. You should remember the Pick-Sloan Plan-the Sloan part, the Bureau's plan, Senate Document 191—was rushed in there to get it in before the Corps got its report in, because the Bureau could see the Corps moving into its territory. I'm not sure that Glenn Sloan had started on that job. I mean, it was under his general supervision—all the planning was-and that may be why he was still in Denver and not up in Billings. That's probably the reason we used to joke about how he made windshield surveys of most of those projects that were recommended. You know what that means. You drove through the area, and if you could see some flat land, that was irrigable land. I'd have to look at the date on Senate Document 191 to refresh my memory as to when it was done. [The Bureau's report was dated April 1944.]

Anyway, in April 1942 I went out to Pendleton, Oregon, drove out across Wyoming and Idaho, and I continued to get a thrill out of the great open spaces of the West and seeing places such as the Hagerman Springs along the Snake River in Idaho with all the thousands of springs coming down from in between the lava flows. And finally over the Blue Mountains of eastern Oregon and into Pendleton. I was only there for one day or so, and then they sent me over to Prineville, Oregon, to work on the Crooked River project. It's right in the middle of Oregon. From Prineville we drove up the Crooked River valley to Paulina which was just a crossroads. At that time there was just a general store with a gas pump out front and a post office in the back of the store and maybe two other houses. I stayed with a rancher named Dick Bryant about a half a mile away. We had government cars and we were surveying potential dam and reservoir sites in the valley. We also made a base map for land classification on every place you could find any flat land.

This was for the preliminary report on the Crooked River. It was a basin report, and I worked up there from about mid-April until mid-June. The weather was just terrible. It could rain one day; and the nature of the roads was such that when it rained it was a deep, kind of a gumbo mud that was so muddy your wheels would spin when you started off. And then a few hours after it stopped raining it would all dry up and you would have a thick layer of

dust. It was cold and miserable, and my survey crew-1 was the chief of party-kidded me unmercifully about my interest in climbing mountains. I guess I talked to them about climbing mountains, because right over there to the west of us were the Three Sisters in the Oregon Cascade range. I just looked at those peaks and talked about them, and I wanted to get over there and climb, but it was early spring and you couldn't do it without a well equipped party. Also I didn't feel comfortable about snow and ice.

My rodmen knew that I wanted to climb those mountains, and so they would go out of their way to locate survey points-we were doing plane table and alidade surveys-on some isolated pinnacle where there was hardly room to get around the plane table to take sights. In one place there wasn't even room to take any sights. And they would laugh at my discomfort as I struggled to set up on the little pinnacle. This was in the gorge where we eventually built the Prineville Dam for the Crooked River project.

They were kind of needling me-1 was replacing their much loved former party chief, who had been drafted, and so they probably were testing me to see how much I could take. But I had a lot of fun and I used to write to the woman who eventually became my wife, and she said that the most interesting letters I ever wrote were when I was writing from the Crooked River country because Dick Bryant was such a fascinating character. He was an old rancher and he would serve up dinner and the meat tasted a little bit different, but I didn't really know what it was. And he would say, "This is good beef, isn't it?" and then I finally realized that it was venison. He was not averse, when he needed food, to shooting a deer and having venison for a while.

They were really isolated up there. They had one of these old telephone lines. It was a single wire system, with the return through the ground. When the wire got blown down one time they hooked the remaining section on to somebody's fence wire, and so from then on they called it the barbwire line.

Even though it was isolated, word got around so that they knew when the game warden was coming up. Then they made sure that there wasn't any venison around, or anything like that. It was about 70 miles up the river from Prineville to Paulina, through a little town called Post, dirt road all the way. You could take a short cut over the hill if it wasn't so muddy and rainy that you would have trouble getting over the hill. That would save you about 10 miles.

The valley of the Crooked River was surrounded by the Ochoco National Forest, and we surveyed dam sites up on Big Summit Prairie and Little Summit Prairie, and I was in my element, because here I had my maps to work on and I was studying and figuring out the way to run the canal lines. We could actually get out and drive through the sage brush, and sometimes we'd get big chunks of sage brush caught under the bottom of the Chevrolet cars we were driving. Somebody finally got the idea of welding a steel plate under those cars so you could drive through the sage brush without getting caught.

I was up there until about the middle of June, and the weather was really getting good then, so we finished the field work. Then we had to work in the office. It was ever thus! You worked out in the field when it was rainy and cold and miserable and windy, and then when you get all the field work finished, you have to go in to the office and work up your notes while the weather is good outside.

### **Green-Puyallup Project**

In June I went back to the office in Pendleton until that office closed in September. Then I transferred to Salem, Oregon, and was sent to Puyallup, Washington, which is a little town about 10 miles east of Tacoma, where I was surveying for the Green-Puyallup project. This was to be an irrigation project which would use water from the Green River and the Puyallup River to irrigate some of that fertile valley where they grow good crops but suffer from lack of rainfall in the summer.

All of this was part of what they called the "Food for Victory" program at the Bureau. This was how the Bureau justified this work during the early years of World War II. By this time it was the fall of 1942~and it was thought we were going to have a long war and that we'd need the extra food production before it was over.

People now tend to forget the shortages of food during World War II. Everything was rationed, not just the meat. You had red points for meat and you had blue points for fruit and you had green points for canned vegetables. There were shortages of almost everything, and you did not have much choice in what you bought in the store. There was very little butter. You could buy margarine, but you couldn't buy yellow margarine. They had that mix so when



you bought margarine you had to mix it up with a little packet of yellow dye if you wanted it to look like butter. And for butter, the price was just unbelievably high so that nobody could afford it.

So the Bureau had this Food for Victory program and that's what we were working on with the Green-Puyallup project, which would have been an easy and quick project to build, because they didn't need storage since those rivers flowed all summer there, right out of the Cascades. We surveyed up and down that valley locating irrigable land. We had a hard time getting a survey crew together, and I broke every rule in the book to get the job done. I hired a 72-year-old man and I hired a 14-year-old boy as rodmen. The old man walked so slowly-he was carrying a big 14-foot stadia rod-that you had to look at him twice to see whether he was moving or on station, because he always walked with the rod, holding it up over his shoulder because it was too hard to lift it up if he ever let it get down. I got my knuckles wrapped for hiring the 14-year-old boy because you weren't supposed to hire anybody for the government unless they were 16 years old, but we got out of that all right.

One of the aspects of this was that I was working with the Army engineers in Seattle on the flood control benefits on Green-Puyallup as well as earlier on the Crooked River with staff of the Portland District. One of the things I noticed was here I was, a junior engineer-by that time, my Ramspeck raise had pushed me all the way up to \$2,100. And I noticed I was working with Army engineers who were at the **P-2** or **P-3** level, and it just struck me as unfair that I was working with these people at a much lower salary. Also I was very dubious as to the importance of the Food for Victory program.

### **Specifications Section, Seattle District**

Earlier, I had tried to get in the Army Specialist Corps as an officer because they would take people in who had physical impairments. I still walked with a limp because of my right leg being shorter. I had made an application, but nothing came of it. When I just asked somebody casually at the Seattle District if there were any openings, I was asked to send in a resume. That led immediately to an offer of a position doing war work in the Specifications Section. This didn't sound very interesting to me, but the personnel officer said, "We need you. We need you. We're doing war work. We need **you.**"

My reply was that I was not interested and went home and eventually returned to my home office in Salem. But the next thing I knew, my boss down at the Bureau, who later became assistant commissioner of the Bureau of Reclamation, called me into his office and told me, "The Corps of Engineers wants you up in Seattle. They want to transfer you."

And I said, "Oh, I talked to them, but I told them I didn't want that job." He said, "It doesn't look like you've got much choice. This is an official transfer, a war service transfer, " and he said, "I don't think you can get out of it." Well, I looked, and the salary was \$2,600 a year, assistant engineer, P-2, so I moved up to Seattle and took that job with the Seattle District.

At that time, the Seattle District was handling Alaska and our work extended as far east as Cut Bank and Glasgow and all of the rest of Montana for the military work, and we had a lot of HECP and HEDP, Harbor Entrance Command Posts and Harbor Entrance Defense Posts along the Puget Sound and out along the ocean. I was put in the Specifications Section more or less unwillingly, but it was work that I could do. In many instances, however, we were writing specifications after the projects had been built. And also, we had to follow the guide specifications for military construction which were more or less cut and dried. We also had all kinds of critical material lists that we had to follow. Some of it didn't make much sense.

One of the materials that was very critical during World War II was two-inch dimension lumber. They were using all the two-by-fours and two-by-sixes for crating military equipment that was being shipped-well, both ways, to Europe and to the Pacific theater of war. And so we wrote the specifications to prohibit the use of two-inch dimension lumber, specifying alternatives that they use, such as building barracks out of brick or stone or anything, but positively no two-inch dimension lumber.

When we got out to a construction job once in a great while, we saw what the contractors were doing. They didn't have any trouble with not using two-inch dimension lumber. They just used four-by-fours and four-by-sixes instead of two-by-fours and two-by-sixes.

That was one of the sorry aspects of the wartime economy. They would set some uniform rule in Washington which just was not adaptable to the Pacific

Northwest. There never was a shortage of lumber there, but there was a shortage of brick and building stone.

Eventually I got to be chief of the Specifications Section, after the Anchorage, Alaska, district was formed and my boss transferred up there. Before that, and a lot of people have forgotten this, the Japanese had occupied Attu and Kiska Islands out in the Aleutians, and it really was expected that there were going to be a lot of casualties before we could win them back. There were not enough hospital facilities to take care of a large number of casualties. So before we were going to move in on the Japanese on Attu and Kiska, it was decided that we needed some more hospital facilities to handle the casualties. The Corps of Engineers leased the New Richmond Hotel, which was in a rather seedy area of Seattle, down near the railroad station. The name, "New Richmond," referred to the fact that it was built around 1910, maybe even earlier than that, but was new compared to most of the rest of Seattle at that time.

I'm not sure whether the Corps leased the hotel or some other part of the Army leased it, but the Corps was given the job of converting this hotel into a hospital. Well, it was really one of the most interesting jobs that I had had because I could actually go down there and look at it with the designers who were designing the electrical layout and the plumbing and the structural work, and then we drew up the specifications for a very specific job, which was much more interesting than turning out specifications for cantonments and other standard facilities which were taken right off the shelf. And, in many cases, the specifications were being written after the project was built, as a record.

So on this job, I had a chance to use some ability, and we wrote the specifications and put it out for bids, and the hotel was made into a hospital with operating rooms and emergency power supply and lead-shielded x-ray rooms and all the things that they put into a hospital in those days. Of course, hospitals were not as complex then as they are now.

It was an interesting job, and we put it out for bids. My recollection is that the job was done for \$7.5 million, and it was finished in record time. The whole job was finished within less than a year from the time we started to write the specifications. That was the way the Army engineers did things. When they had complete control of the job they could get it done on time. We had to get waivers for the use of the critical materials involved, but we used the materials we needed and we got the waivers later—

Q: So it was a cost plus fixed fee contract, was it—

A: I don't really remember. It probably was, for something like that, because it was peculiar, but my recollection is the job cost \$7.5 million.

Well, a few weeks before it was finished, the Army decided to drive the Japanese out of the Aleutians. I can't remember which island they went to first, but they went to one of them and there wasn't anybody there, and then they went to the other one and they got there just as the Japanese were leaving. So in other words, we occupied those islands, I think without even firing a shot. Again, we were not occupying; we were just retaking our own territory.

So, the hospital wasn't needed, and I wish that was all the waste that we had in the war, but-anyway, you have to be ready, and we were ready. And it was just another example of how the Corps, when you needed to get something done, you could get it done.

But the real fiasco came later. By that time, hotel space in Seattle was at a premium. You just couldn't get a room anywhere, and the hotel owners wanted the New Richmond back. They were given it back, and the Army agreed to put it back into shape as a hotel. I didn't get involved in drawing up the specifications for bringing it back to being a hotel, and I don't know exactly how they did it, but at the very end, it cost \$8 million to turn it back into a hotel!

And so I always look on that as being one of the fiascos I have been involved in-it wasn't really my fault it was a fiasco, but it really was one of those things that kind of gives you a little bit of humility to think that so much effort was wasted.

When the war was over, I saw the chance to get back into water resources work. I was aware of the work being done on the Chief Joseph Dam, and the 308 review report on the Columbia River, as I had drawn up the specifications for the foundation drilling of the dam sites.

## Rivers and Harbors Reports Section, Seattle, Washington

I asked for a transfer into the River and Harbor Reports Section, and began work there with another old-time Corps hand, George Krutilla who eventually came back to Washington and worked at the Board of Engineers for Rivers and Harbors.

At that time, we were preparing survey report on Grays Harbor. The entrance jetties were originally built in the 1890s and had been rebuilt about 1930. But they had been almost demolished by the Pacific waves, and the peninsula north of the south jetty was washing away. There was a fishing boat harbor just inside the entrance, protected by a sand spit that was in danger of being breached. I had the job of preparing the report on a project that included the jetty rehabilitation and improving the fishing boat harbor. Local interests wanted to dredge the fishing boat harbor and protect it, but it was very obvious to me that the fishing boat harbor was in the wrong place; it was north of the south jetty in a location subject to erosion, and it appeared that the whole peninsula was going to wash away before anything could be done.

In a few days of field study I located what I thought was a better site for the fishing boat harbor inside the bay but south of the jetty where it would be protected. We sent the whole problem back to a group then called the Shore Protection Board that dealt with the shore problems of government projects just as the Beach Erosion Board was dealing with general problems of shore protection. The Shore Protection Board made a report on the problem, and agreed that the fishing harbor shouldn't be in the position it was, north of the south jetty, and that when the jetty was rebuilt it would be even more vulnerable because the sand spit that protected it would be subjected to more erosion as the littoral drift was cut off by the new jetty. The board agreed with the proposed new site for the fishing boat harbor, which-I hate to think of it now-was in a marsh area, which could be easily dredged out. We had to dredge the fishing boat harbor, anyway, and we could have made a fishing boat harbor that would have been only a half a mile farther from the entrance and it would have been on the safe side of the jetty. At that time there was little awareness of the ecological consequences of dredging wetlands.

When our draft report proposing location of the fishing boat harbor got up to the district engineer and he discussed it with the local people, he rejected the Shore Protection Board's advice, and the final report was prepared containing

recommendations to dredge the fishing boat harbor where it was and to rebuild the jetty and put armor rock on the sand spit north of the south jetty to prevent erosion. The project was authorized that way, even though it was a more costly solution, because it was the only way the Corps could obtain the necessary local cooperation. I suppose the project is still there, but I understand they have to dump a lot of eight- and ten-ton boulders in there periodically to try to prevent erosion of the sand spit and destruction of the fishing boat harbor.

Although my proposed solution was rejected, I learned a lot from this experience. First, the importance of working with the local interests from the very beginning of the planning of a proposed project. And then I learned a-well, I won't say a lot-I learned enough about shore protection and jetties and shore erosion processes to give me a little different water resources background which helped me in later years.

Q: Where do you pick up information on ocean hydrology as distinct from river? In other words, you know, did you take courses at Johns Hopkins that specifically dealt with those kinds of subjects as distinct from—

A: No. The courses that I had at Johns Hopkins, and then particularly in the graduate year, were dealing much more with hydrology of rivers. Riverine hydrology.

Q: Right.

A: And, particularly, flood control on rivers. But what an engineer does when he gets into a new field is start reading, and you go to the library if you don't have your own library, and you start reading about it, and the Corps has in its own files a tremendous amount of background information. In fact, there are some Corps disaster areas in this area. I think it was at Tillamook, Oregon, where the Corps put in jetties to protect the entrance to the harbor which cut off the littoral drift and essentially demolished an area they called the Bay Ocean Peninsula.

We had lots of pictures of that. We read reports on what had happened. The Corps has an institutional memory of these things, and it is not hard to tap into it for information. But the reason that the Seattle district engineer reversed us was that I hadn't worked closely enough with the local sponsors as the new plan was developed. A lot of this happened after I had left the Seattle District.

When I left Seattle, I thought we had the thing all straightened out. We were going to build a new fishing boat harbor. It wasn't going to cost the government as much, but the local people would have to spend more, because they'd have to build new docks and fish handling facilities for loading the fish on trucks to take it to Aberdeen or Hoquiam where it is processed.

It was after I left that the decision was made to change the recommendations-to change the report that I had prepared recommending the new location for the fishing boat harbor. But this was just part of the project. The most expensive part was the jetty, rebuilding the north and the south jetties.

When I worked on this project I found a wealth of literature, and I did read a lot of it. There's a lot of literature on the breakwaters and jetties and sea walls on the Great Lakes. Some of the worst wave action is on Lake Superior, for example, where you have tremendous wave action coupled with the extremes of temperature and freezing. But those jetties on the Pacific Coast go out for miles to keep the bar channels open. I think that the Grays Harbor jetties originally went out maybe as much as 18,000 or 20,000 feet, because they put them out past the ocean bar. The idea is to concentrate the tidal flow so that it scours a channel through the bar that is built up by sediment discharged from the river. There still may be a bar, but it will be out where it's so deep that you can get your 45- or 50-foot draft shipping over it without trouble. And that's why those jetties are so long. But there is tremendous wave action out there in the deep water.

One of the things that was found out from some of the investigations was that the waves had enough force to lift the 8- to 10-ton blocks of sandstone used to build the original jetty in the 1890s, up on top of the trestle used to rebuild the jetty in 1930, which was at an elevation of 15 or 20 feet above mean low water.

## **Marriage**

Q: What made you come to Washington?

A: During World War II it was almost impossible to use any annual leave. By the end of the war since everyone earned 26 days of annual leave each year, I had

built up a tremendous amount of leave. I had been married in 1944 and had never met my wife's family and my wife had never met my family. Her family was in Mississippi, my mother and father were in Florida, and the rest of my family-my brother and sister-were in Maryland.

And so, in the spring of 1946, I asked for, was given, leave to take two months off to go back and visit family by car. By that time, you could drive again-if you could get tires-and so we started out on February 15th to take a trip back to the Southeast and Eastern part of the country.

We had a wonderful trip, down the Pacific Coast and across the southern tier of states. On the first night we stopped at Salem to see the people I had worked with there. My former boss, Buzz Bennett, had transferred back to Washington so I didn't see him, but obtained his address. During the war the Bureau had been reorganized into regions and was expanding, along with the rest of the non military agencies. As we continued our trip we eventually got to Washington, D. C., where I looked up Buzz Bennett.

It was another one of those cases when I walked in the door and Buzz said, "Good to see you, Ted. Gosh, we need you back here, when can you start to work."

Q: (Laughter)

A: And I said, "No, that's not why I came in-I just came in to see you. How's all the family." After we had a nice visit, he said, "I'll tell you, I really would like you to come back here and work." But I said, "No, I like it out West and I want to get back with the Bureau but I want it to be out in the Pacific Northwest, because I like that and my wife likes it. She's from Mississippi and she thinks she's in Heaven with these cool summers out there."

And he said, "You ought to think about it. It wouldn't be permanent. We just want you back here for two years." Then he told me, "What we've got is a rotation plan and you'd probably have to come back here anyway if you go back to work out in Salem, because we're trying to rotate people around." He went on to say, "Once you get to know the system and how it works, you can pick your spot. Right now, we're thinking about opening up an office in Santa Barbara, and we've got a couple of other places in California, and I think eventually we're going to get into Hawaii."



Buzz was in the Project Planning Division, and he made it sound pretty good. Sure enough, when I got back to Seattle, there was a telegram offering me a job and a promotion to go back. Now, remember, this was right after the war. I always felt that the government employees financed that war by the low salaries they were paid in comparison to those paid in the war industries. I was still just a P-3. The salary had finally been raised to about \$3,500, and if I took this job as a P-4 I'd go up to \$4,300. Little did I know how much more it was going to cost to live in Washington.

My wife didn't want to come, but I remember telling her, "Well, if we go back there, your family's getting old, mine's getting old, we'll be able to visit them," and that was the argument I used to convince her to give up what she thought was Heaven and come back to Washington-for two years. Much later she said that what happened was I got Potomac fever and I wouldn't go back, but what did happen is every time I was given an opportunity to go back, the Bureau would figure out some way to promote me or give me something more interesting to do here.

#### **FIREBRICK, Project Planning Division, Bureau of Reclamation**

So, we came to Washington in May 1946, to work for the Bureau of Reclamation in the Project Planning Division-we called it a branch then, the Branch of Project Planning-and I was given the job of liaison with the Corps of Engineers. Under the Flood Control Act of 1944 and the Rivers and Harbors Act of 1945, the Secretary of the Interior had to comment on every Corps of Engineers report, and vice versa. The Corps, or rather the Secretary of the Army-he was still called Secretary of War then-had to comment on all of the Bureau's reports. This was all coordinated through the Federal Inter-Agency River Basin Commission-we used to call it FIREBRICK-and I became the special assistant to Michael Strauss, the Commissioner of Reclamation, who was the department's representative on the FIREBRICK. He had been Under Secretary of the Interior and he brought the FIREBRICK function with him when he became Commissioner of Reclamation.

So here Michael Strauss was representing the Fish and Wildlife Service and the Park Service and all the other agencies of the department, because he was the departmental representative, and I served as kind of as his executive secretary for this function preparing him for meetings and going to the meetings. Of

course, this got me into a lot more contacts with all of the federal agencies from that time on, not just the Corps but the Department of Agriculture, the Federal Power Commission and-what did they call it-the Federal Security Administration that had the Water Pollution Control office of the Public Health Service. They were never a member, but they were kind of an associate member, and the Department of Commerce eventually became a member. And the other job I had was collecting and collating the department's comments on Federal Power Commission applications for hydroelectric power projects.

Now, when I say I had that job it was because-after a year or so-I was made chief of the section. I think they called it the Coordination of Plans Section, or something like that, which was responsible for preparing the comments. Later, we set up another section to deal with the environmental questions, and I had that too, and had the pleasure of hiring John Starr, my old boss from the Baltimore District, to come over and work with me on that, because he was very much oriented toward environmental matters. In fact, after he retired from the Corps, he's written environmental columns for the *Sun* paper in Baltimore.

Anyway, he was delighted to come to work with us-I don't know how I happened to get him to come, but it was right up his alley and I needed somebody and he was a very conscientious and reliable person. He came over, probably around 1949, to handle the environmental work because I really had the two sections, the Coordination of Plans Section and the Environmental Section. By that time we could see the environmental movement building up, and also we already had to form to the Fish and Wildlife Coordination Act and were dealing with the Park Service all the time, so this was a special section set up just for that, and John Starr was a natural for it.

As a matter of fact, we were able to give him a promotion to bring him over. I'm really getting to the nitty-gritty, but that was one of the reasons he came. We gave him a promotion. But John didn't stay long because the Korean War started up, and the Baltimore District needed him, and I think they gave him another promotion to come back. So it was really a good thing all around for John Starr, and I did appreciate him-he was a wonderful person for a young man to start working for. He lifted me out of that drafting business and got me to design work; he started the program with the Johns Hopkins graduate school. And so I always thought I owed an awful lot to John Starr, and he was a wonderful person.

Q: You were the coordinator or liaison specifically between the Board of Reclamation-not the Department of the Interior, just—

A: I was working for the Bureau of Reclamation and so this section was part of the Bureau, but at that time, the Bureau had all of these functions for the whole department because Michael Strauss more or less inherited them-the original tripartite agreement, which was the basis for the FIREBRICK, was signed by John Page for the Bureau of Reclamation, and somebody, probably Specs Wheeler, as the Chief of Engineers, and somebody from the Department of Agriculture, probably Ernie Wiecking .

Q: That was in '39, you're talking about, the tripartite agreement.

A: That's right.

Q: For the Corps-that would have been Julian Schley, I guess, was Chief of Engineers—

A: Well, whoever it was, and the Department of Agriculture. And then, of course, when we brought in the FPC [Federal Power Commission], they called it for a few months, I guess, the cluadripartite agreement.

Q: Yeah.

A: And then eventually it became FIREBRICK.

Q: Of course, they organized FIREBRICK partly, as I recollect, in response to the congressional decision—

A: To abandon the NRPB.

Q: Yeah, and also to not fund the Bureau of the Budget's little shop—

A: That's right.

Q: That was involved—

A: The first thing they did was they terminated NRPB—

Q: Right.

A: -by legislation.

Q: Right.

A: Abel Wolman used to say many times that this is the only time that any agency has ever been terminated by act of Congress. Usually they just let them die, but that doesn't happen very often either.

And so the Bureau of the Budget picked up the function—

Q: Right.

A: -and they put out Executive Order 9384, and Congress refused to fund it—

Q: Right.

A: -and at that point, the quadripartite agreement, that group, was made into the Federal Inter-Agency River Basin Committee, with the position of chairman rotating among the four agencies.

Q: Right.

A: And Michael Strauss was involved in it as the Commissioner of Reclamation, following John Page and Harry Bashore. Michael Strauss came down from being Under Secretary of the Department of the Interior to be commissioner because he thought it would be more fun than being an understudy to Harold Ickes.

Q: Uh-huh.

A: Of course, he stepped into membership ON FIREBRICK, and that's how we had all those functions, and we also had a water resources committee in the department that had responsibility for coordinating the views of the other agencies in Interior.

Q: Were you getting involved also with the Soil Conservation Service at this time, or was it strictly Bureau Rec, Corps of Engineers type?

A: No, no. We dealt with Agriculture and, at that time, it was a fellow named Ernie Weicking and he was what they called land use coordinator, and Howard Cook was on his **staff**—

Q: Right.

A: And Nat Back was with him.

Q: Right.

A: Of course, these people all were in the group we dealt with in Agriculture, along with Dick Hertzler who eventually became special assistant to the Assistant Secretary of the Army. We threw bricks back and forth at each other in the form of letters. Michael Strauss was a very strong character. He really was one of the most unforgettable people I ever worked with. At one time, when the House of Representatives was controlled by the Republicans, the Congress passed a law that said, “No part of this appropriation for the Bureau of Reclamation shall be used to pay any commissioner or any regional director who is not a registered engineer or a professional engineer.” And this had the effect of terminating Michael Strauss’ salary and Richard Boke’s salary. Boke was the director of the Bureau’s Region 2 in Sacramento. And that, I think, was done pretty much by Senator [William F.] Knowland of California, who was furious with the Bureau because it was trying to get reimbursement for the irrigation allocation of the Pine Flat project. The Corps had built Pine Flat and the Bureau insisted, under the 1944 Flood Control Act, that the sale of irrigation water had to be handled by the Secretary of the Interior, or the Bureau of Reclamation.

And so that fight was brewing, and Senator Knowland wrote a book called *They Would Rule the Valley*, excoriating the Bureau of Reclamation. He thought it was a grab of power, and so this was the response agreed to by the chairman of the House Appropriations Committee that year. And Mike just laughed and kept on working, and eventually became chairman of FIREBRICK. Of course, that gave me an awful lot more exposure to all of the agency people because I was his secretary and wrote the minutes, and handled other functions like that.

Q: Well, can you sort of capsule the relationship between the Bureau of Reclamation and both the Corps of Engineers and the Soil Conservation Service at this time?

A: It wasn't so much the Soil Conservation Service that we dealt with; this was still the Harry Truman administration, and the fight was with the land use coordinator in the office of the Secretary of Agriculture. We threw rocks back and forth at each other. Agriculture was commenting on our reports, and they would tear them apart mostly on the grounds that we didn't need the production and they would quibble with the farm budgets and all the technical things like that, and Michael Strauss would answer them, and it was just like a slugging match, and I was the one who was writing the letters for Mike Strauss. I'll never forget going into his office one time with a draft of a letter back to the Secretary of Agriculture-I believe it may have been on the Colorado River basin report, which was really little more than a windshield survey, but the Bureau had been working on some of the projects for years. They had a lot of projects in the basin plan, including some of the projects I'd worked on when I was in Denver like the Rifle Gap Dam and a lot of others in western Colorado. Agriculture just tore it to pieces, and we were arguing back to them point by point. After Mike Strauss had read my draft of his response he said, "Ted, How can you write a nasty letter like that without using words like 'son of a bitch' or 'bastard' at all. It's all so polite, and yet-" Anyway, he appreciated that kind of stuff, and I took that as a compliment, because, you know, you work for an outfit and-whether you think that they're right or wrong-you express agency policy.

Now, with the Corps, it was kind of different-we were much more restrained. This was in the days when George Beard was chief of Planning or whatever the Corps called it at that time. George was definitely one of the most able people that the Corps has ever had, and he and my boss in the Planning Branch, Jack Dixon usually met face-to-face to discuss reports. Jack Dixon was an old Corps hand out of the Rock Island District.

And I had to sit in so many meetings and see George Beard talk rings around Jack Dixon and just get him completely walled in-this happened most frequently in meetings of the Subcommittee on Benefits and Costs, and—

Q: That was under the FIREBRICK?

A: Yes, the FIREBRICK actually got out the “Green Book,” the first Green Book.

George was a tough man to deal with—we had a lot of meetings with George, and also with Joe Brennan. Joe Brennan was in the corresponding position to me. He was chief of reports—this was before he went up on the Hill to be on the staff of the House Public Works Committee. He was chief of reports and Ken Bousquet was the budget man for the Corps at that time. We didn’t have too much to do with Bousquet because we were not working on budgets, but we used to call them the “Three Bs.” And we had a great deal of respect for them.

Gene Weber kind of came along after that, and took over, but I can’t remember just when that happened. But those were the people we worked with on the Corps’ staff. We had clashes on projects like the middle Rio Grande in New Mexico. I think the Bureau may have wanted to build Abiquiu and the Corps was moving in on it too. I think the Corps eventually built it. There were some other clashes on the middle Rio Grande, as we tried to coordinate the work of the Bureau and the Corps. Now, this is just me talking, and the way I remember it is that we went into meetings, with George Beard representing the Corps and Jack Dixon representing the Bureau, and George always just somehow seemed to close in on Jack Dixon and win the argument, and I’d be sitting there and feeling that it wasn’t right to interrupt and correct your boss—or at least, it wasn’t the proper thing to do. At that stage, I was probably a little more inhibited than I am now—but, the Corps would usually win the arguments because of George Beard. I thought he was just terrific; I have the greatest respect for him.

We had some of the same arguments on the Missouri basin. Now, if you can remember, the Missouri Basin project was approved in the ‘44 act and the initial stages were authorized, and I think they were as specified in the report, the initial stages.

Of course, this included the main stem dams for the Corps, but it was not as specific on the Bureau. So when the balance of the comprehensive plan was up for authorization in the 1946 act, George Beard argued that the Garrison Diversion into the Dakotas was authorized to the Corps. It was the only time we ever won an argument with George Beard, when he agreed that it should be a Bureau project. Maybe he just used it as a bargaining chip that he was prepared to yield on or maybe he knew that it wasn’t a viable project.

I used to go up to the congressional hearings, not so much to testify as to observe. In fact, the first week I was in Washington I was asked to go up to one of the hearings of the Senate Committee on Commerce on the 1946 act-so I could report when my boss, Jack Dixon, or Mike Strauss came up and tell them what the situation was. I remember that I was almost brand new in the office and I guess I looked a little bit shocked at going up on the Hill. And Jack asked me, “You don’t mind going, do you?” And I said, “No.” I really was delighted, but a little bit apprehensive—

-And even more apprehensive when I saw Senator [John] Overton practically take the skin off the representative of the Fish and Wildlife Service who was opposing the Red River Waterway on the grounds that it was going to destroy the fish and wildlife, and Senator Overton-he was somewhat like Mike Strauss, the same kind of a big man, tanned-I guess you might call it a bourbon tan-but anyway, he says, “Now, what about these catfish in the Red River? What are you worried about?” And no matter what the Fish and Wildlife Service man said, it seemed like he would say something and Overton would take another chunk of his skin off.

And then later the Corps decided to call that the Overton-Red River Waterway. I don’t know whether that’s still the name of it or not.

### **Valley Gravity Project**

Q: Yep.

A: But anyway, that was where I fitted into the picture when I got back to Washington. It did give me a lot of exposure to a lot of people, and I guess I learned a lot, because I was always the person that ended up holding the sack when we’d sit in on some big meeting and I’d have to write up the conclusions. The first time it happened was on the Valley Gravity project in south Texas. The Mexican Treaty provided that a dam would be built on the Rio Grande to provide water for the lands irrigated downstream on the American side, the problem being that, even though you have a treaty dividing up the water, the Mexicans may not necessarily pay attention to it, and the water might not be there when it got down to the lower part of the river.



So the Bureau of Reclamation always called this the Valley Gravity project, and the law implementing the treaty required that the Bureau of Reclamation fund this project and obtain a repayment contract. At an early stage in my tenure at the Bureau of Reclamation, we had this big meeting with the Department of State and the International Boundary and Water Commission and people from Texas and others, and it was more or less demanded by the Bureau of the Budget that the Bureau of Reclamation should be getting a project together to implement this law and get some reimbursement for that dam.

And so we sat around with all these State Department types and all the highfalutin assistant secretaries, and I was there for the Coordination of Plans Section supporting Jack Dixon. After we talked and talked all day and didn't get anywhere, Jack Dixon turned to me and he said, "Ted, will you write up the memo on this about what we concluded?" (Laughter)

A: I went back and I guess I wrote up what we should have concluded, and it seemed to work, because I seemed to be put in that role an awful lot. We had those meetings every year on the Valley Gravity project. We kept on and on and on arguing about it, but we never did get any reimbursement because the Bureau didn't build the gravity canal. The International Boundary and Water Commission built the dam and they eventually called it Falcon. It was a somewhat different project. But the whole idea of our meetings was to see that the U.S. would get its share of the water before the Mexicans took it.

Q: During this time, you had this controversy, usually called the upstream/downstream controversy, and in my own mind, I think of it mostly in terms of a controversy between the Soil Conservation Service [SCS] and the Corps of Engineers, particularly as it relates to the Arkansas River, but it sounds like the SCS might have as much to say about Bureau of Reclamation projects—

A: Oh, yes-

Q: -as about the Corps projects.

### **Belle Fourche Project**

A: Yes, we got involved with them more on the Western projects-I guess it may have been the Belle Fourche project in western South Dakota primarily. Studies that were made by the Geological Survey showed that after the Bureau of Reclamation built that project, there wasn't enough water to fill the dam because the Soil Conservation Service built a lot of small dams that evaporated a lot of water.

We had some arguments with the Soil Conservation Service over that project,-that's the only one that I remember specifically-but we still dealt with them through Ernie Wiecking's shop, rather than directly with the SCS. In other words, the secretary's office handled the interdepartmental fights. With Ernie Wiecking and Howard Cook and Nat Back, they had a strong team. The one person that always was there from the Soil Conservation Service was Carl Brown. He was also on the Subcommittee on Benefits and Costs at FIREBRICK and there were a lot of arguments there on the economics of the SCS program.

But I was not the principal protagonist on that. Jack Dixon was the department's member on that, and then later, Reginald Price-both of them are deceased now. So I didn't get too much involved with the economics of the Soil Conservation Service program. I did work much more closely with the Corps, and I guess somehow had a lot more rapport with the Corps because I knew most of the people, and they knew I had come from the Corps, and I knew how the Corps operated.

And the Bureau wasn't nearly as much involved in that upstream/downstream controversy as the Corps and the SCS.

At some point the Fish and Wildlife Service and the National Parks Service got tired of working with FIREBRICK through Michael Strauss. One of the reasons was that there were more conflicts between the agencies. After the Upper Colorado River Basin Compact was approved in the early '50s, which opened up the possibility of building dams on the upper Colorado River, the Bureau of Reclamation went right ahead with a proposed 10-dam project including Echo Park Dam in the Dinosaur National Monument. I had the job of negotiating that with the Park Service. At first, the Park Service was perfectly content, if we gave them \$24 million, to build up the dinosaur display area-you see,

Dinosaur National Monument was created years ago because of this quarry, and then Franklin Roosevelt extended it to take in the canyon of the—

Q: Green River.

A: -Green River and Yampa River, where they joined there, two beautiful canyons. The Reclamation Bureau was going ahead with building the dam because they had a reservation for a reservoir dating back to 1910, or something like that, just as they had on the Bridge Canyon site in the Grand Canyon, and just as they had on Glacier View up on the north fork of the Flathead River in Montana. These were all first form reclamation withdrawals. In other words, the land was withdrawn from public use for later construction of a reservoir. When the Dinosaur Monument was enlarged, the Bureau said it had no objection to enlarging it, but just remember that we've got this reclamation withdrawal and reserve the right to build a dam there whenever we're ready.

Connie Wirth was director of the National Park Service at that time and he recognized that he had no legal grounds to object to the building of the dam which was provided for in the executive order enlarging the monument. The Park Service always struggled to get money, and the promise of \$24 million to build up facilities to display the dinosaur quarry, which was the primary focus of interest there, Wirth thought was a good deal, so he signed off on the project in the Truman administration. It was not done without some fight and haggling and negotiation, and there were some other recreational facilities in the Colorado River basin plan too. At that time, the project also included, I think, Marble Canyon Dam and Bridge Canyon Dam, upstream and downstream from the Grand Canyon National Park. That was all part of what they now call the Colorado River Storage project, the idea being to provide storage to permit the upper basin to make use of the 7.5 million acre feet that was allocated to the upper basin in the 1924 compact.

So-but I can't remember exactly when, or how it came about-it was decided that it wasn't right for one bureau chief to be representing the department on this. The other thing that happened was that Bill Warne, who had been assistant commissioner of Reclamation, became an Assistant Secretary of the Department of the Interior after the Hoover Commission made its recommendations for adding more assistant secretaries. One of the things about the Hoover Commission reports was that when they recommended that you add

something new, the recommendation was accepted, but when they recommended that you take something off or combine, the recommendation was rejected or put aside for further study.

The first Hoover Commission decided that every department should have an administrative assistant secretary and should have assistant secretaries with complete power to operate in their field. So Bill Warne was made the first Assistant Secretary for Water and Power in the department, and he had responsibility for the Bureau of Reclamation and the power agencies, like Bonneville and Southwestern Power Administration.

Bill Wame may have been the one that instigated the move of the chairmanship of FIREBRICK from the Commissioner of Reclamation to the assistant secretary level. I'm not sure it made the Fish and Wildlife Service any happier. They had the same problem with getting their views represented because Bill Warne was primarily a water man, too, although he had been a newspaper editor-both of them had been newspapermen, Bill Warne from California and Mike Strauss from Chicago.

There was a continual power struggle between Bill Warne and Mike Strauss, and the transfer of FIREBRICK was one of the ways in which it was resolved in Bill Warne's favor. I admired and worked a lot with Bill Warne, too, and almost got caught in a struggle between them one time, because Bill Warne decided he wanted me to come up to work for him in the department. I had been the liaison man for the Bureau of Reclamation, on the departmental water resources committee. When an elderly-I call him an elderly gentlemen; he was not as old then as I am now-W. G. Hoyt, the executive secretary of that group, decided to retire, Bill decided he wanted me to take that job.

Bill had a personnel man in his office who spoke to me about it. It would have been a promotion for me, so I expressed interest. I can't remember the man's name, but he said he would go ahead and take steps to transfer me to the assistant secretary's office.

I assumed that he would take appropriate steps and tell Mike and my immediate supervisor, which is the way such transfers are normally handled through channels. If the Secretary of the Army wanted you on his staff, I would expect them to come back down through the Chief of Engineers and the Chief

Historian of the Army. You know how it is done. In other words, that's the protocol in the government.

Well, this man didn't do that. He just prepared the papers transferring me up to Bill Warne's office in the department at an increase in grade and on a certain day and carried them directly to me and told me where to report. It was essentially an order ordering me to go to work up there. I showed it to Jack Dixon, and he took it to Mike Strauss. Mike called me in to his office and he says, "Do you want to go up there and work?"

Well, it was with some misgivings that I was going to go up there, because I would be getting more into the political side of things, working directly for a political appointee. But I said to Mike, "Well, I'd be doing essentially the same thing I've been doing for you all these years, the function that's been taken away from us. So I know I can do the work, and they're going to give me a promotion."

And Mike says, "Is that where you want to go?" I guess I hemmed and hawed a little and finally said that I couldn't afford to turn down a promotion. Then Mike called the director of personnel of the Bureau of Reclamation over to his office to talk about what he should do about this, because I was just one of a number of people that Bill Warne had taken up to the department when he set up this new office. And Mike was seeing a lot of his best people being taken away.

So he turned to the director of personnel, Glen Thompson, and he said, "I want you to promote Schad tomorrow so that I can write back to Bill Warne and tell him that Schad is already at the grade level you are offering him and he was only going to take the job because it was a promotion."

Well, I don't know whether that's something you ought to tell about yourself. It makes me seem so mercenary, but anyway, that's what happened. I was watching Glen Thompson and he just kind of turned white-almost I thought he was going to faint right then and there. He started to say something and stuttered and stammered a little, and it was obvious that he didn't know what the hell to do. You know, what would happen if somebody said, "I want Marty Reuss promoted tomorrow." There's a lot of paperwork and someone would surely say that it couldn't be done.

But we had a little fellow as our administrative assistant in the Branch of Project Planning. His name was Cleo F. Layton. And he was one of these people who knew how to get things done. He wrote up the papers, and because I had not been in grade for a year he had to get the approval of the Civil Service Commission. This was probably a promotion from P-6 to P-7 and I hadn't been a P-6 very long. You were supposed to be a year in grade before you were given a grade promotion.

Cleo Layton knew everybody, and so, in two hours he walked the papers through the Department of the Interior and the next morning he walked the papers through the Civil Service Commission-which wasn't right next door to the Department of the Interior at the time; it was another building. I used to do a lot of walking papers through the department too. That's one way I got things done. I don't think anybody does it any more. That's why it takes so long to get things done.

And so by the next afternoon, Mike Strauss wrote a blistering memo back to Bill Warne saying that he wasn't going to release me, and that there wasn't any advantage in me going, and then he blistered him for not going through channels. Mike was better at writing memos than I was. Eventually, however, Bill got another person from the Bureau, Morgan Dubrow, to take that job and handle the coordination of the department's views on Federal Power Commission applications.

And really, when you get down to it, there's no reason the Bureau should have been doing that, but it had done that way only because the commissioner was the representative on the FIREBRICK.

But I still was having a lot of fun doing other things. We tangled with the Corps on Hells Canyon Dam on the Snake River. I was sent out to Boise on a rush job to get the Hells Canyon report in before the Corps got its 308 review report completed. The planning had been finished by regional staff but I was kind of the facilitator to speed up the completion of the report. We also worked all night one time to get our Columbia basin report up to the Congress ahead of the Corps' report. It was at the time of the big flood, the Vanport Flood? That must have been about 1948, wasn't it? Do you remember that—

## Columbia Basin Report

Q: I think the actual report was about '49.

A: Okay. So the Vanport Flood was about '48, and before the water went down, the Bureau was rushing its Columbia basin report to get it ready, and we got our report up to the-either to the Congress or the Bureau of the Budget-before the Corps did.

Q: Uh-huh.

A: And we did that by working all night, and I'll never forget this. Those were the days when you had to type things twice to get enough carbon copies. You know, they did have-what did they call that brown stuff—

Q: Yeah—

A: Thermofax.

Q: Oh, Thermofax, right.

A: That's the first copying machine-and the copies didn't look like anything. They were brown and they faded. Jack Dixon had a secretary named Mrs. Dalton, and after we hammered out the decisions on the Columbia Basin project, she typed the secretary's covering letter which must have been at least 10 pages long,-first there was a commissioner's report to the secretary, which was already in. Then the secretary's report to the President, and the Congress, -or maybe just to the President. Once we got that out, we could release the report.

We had a lot of meetings and hammered out the decisions. Jebbie Davidson was the assistant secretary that really was insisting on a postage stamp power rate over the whole Columbia basin. The Bureau reluctantly gave in on that. We didn't particularly believe in the postage stamp rate, and would have preferred a higher power rate in Idaho to provide a greater subsidy to irrigation, but we gave in just to get the report finished before the Corps did. We finally got everything finished and the long letter was typed and we were putting our surnames on the file copy. They had a block on the side of the file

copy and everybody put their surname to show approval. Sometimes it was all the way down the side and around the bottom--15 or 20 people.

About 4:30 or 5:00 A.M., everyone was about ready to go home, but we had to have another run of the long letter so we would have enough copies. Mrs. Dalton was typing it, and Jack Dixon turned to me and said, "Oh, Ted, would you mind taking Mrs. Dalton home when she finishes typing that other copy?" Of course, I said, "Yes." And then he said, "Thank you, Ted, and by the way. You always come in early. Don't you come in at quarter to eight?" And I said, "Well, usually. "

And he said, "Would you, first thing then, take this letter down to Secretary Davidson's office and get him to surname it and then get it into the secretary's office before 9:00 A.M.?" Here it was obvious I wasn't going to get away from that place until about 6:00 A.M., and then he expected me to come in before 8:00. I don't think I made it that morning. But it was a fact that the office hours started at 7:45 A.M. and we worked until 4:15, but I was usually there until 5:30 or 6:00 P.M.

**Q:** Let me see if we can go back and pick up a few things, because you are saying some things that I think I understand, and I think a lot of readers of this transcript might understand, but on the other hand, there are going to be those who need to be filled in on a few details.

So what you're talking about, of course, is a conflict that existed between the Corps of Engineers and the Bureau of Reclamation, particularly focusing on Western water development. Can you explain what was the nature of the conflict, specifically in relationship to Hells Canyon? Why did the Bureau of Reclamation feel it urgent to get the report in before the Corps?

### **Chief Joseph Dam**

**A:** Well, let me go back a little bit earlier than that to one of the first ones that came up, I think in 1946, and that was Chief Joseph Dam on the Columbia River. Now, the Bureau had built Grand Coulee but was just getting started on the irrigation part of the Columbia Basin project, and the Bureau was using the power revenues to subsidize irrigation development. You could never build any of those expensive irrigation projects without power revenues to subsidize



them. And the Corps came in to Congress and got a resolution to authorize a survey report on Chief Joseph. When you really look at Chief Joseph, you wonder why would the Corps be building Chief Joseph? There is no flood control or navigation benefit. It is a run-of-the-river power plant that serves almost as an after-bay for the Grand Coulee power plant, and the two plants have got to be operated together. It is a much different type of project than Bonneville, which the Corps built first, and that's hundreds of miles away and is required for navigation.

In 1946 the Corps came in with a report proposing to build Chief Joseph Dam. The Bureau saw that the Corps was picking off a prime power site, the after-bay for Grand Coulee. The Bureau wanted to use that site, wanted to pump out of it for some irrigation projects using the power from Chief Joseph, just it was using the power from Grand Coulee to pump up to the Columbia River plateau for the Columbia Basin project.

So the Bureau saw that the Corps was barging in here with Chief Joseph. So we had a major fight.

Of course, the Corps had its report ready first. The Bureau hadn't even investigated Chief Joseph. There was never any question of that. But the argument we developed for our spokesman at the hearings on the project, Warner Gardner, the solicitor of the department, was, "We're not playing a game of football, gentlemen, so that the one who gets the ball first runs with it. This is a serious decision that should be based on all of the facts," and he explained all these reasons why this should be a Bureau project and you shouldn't have another agency building the after-bay for a major power project. And we drew up a big colored map showing the Chief Joseph Dam in red in the middle of the Bureau's projects.

The position the Bureau was taking was that this was an invasion into the federal reclamation program. At that time, there was no way you could use revenues from a Corps' project to subsidize a Bureau's project. There wasn't any basin account at that time.

That was the initial postwar fight continuing the struggle over projects that erupted over the Pine Flat Dam before the war. The Bureau lost again. It was in the '46 act, I think, that Chief Joseph was authorized.

Of course, the Corps was authorized to study Chief Joseph by a resolution to review the 308 report and see if a dam should be built there, but I don't really know--I'd have to check up on why the Corps was proposing to build Chief Joseph. I really don't know why because it's just purely a power project.

Q: Of course, the original 308 report-

A: -had all those projects in-

Q: -had all those including Coulee-

A: -including Grand Coulee.

Q: That's right.

A: Well, and just like the original 308 report on the Tennessee got the whole TVA [Tennessee Valley Authority] system laid out,-but the Corps didn't build all of those projects. They didn't build them just because they get in there first. Resource development isn't playing football.

Q: Yes.

A: So that was the point that the Department of the Interior made and that the Bureau of Reclamation was making--

Q: Well, what--

A: -and so it was a continuation of that struggle based on bureaucratic power politics. The agency that builds a project has a lot of money to spend and a lot of people to hire and a lot of power. The argument on Hells Canyon was about the same between the Corps and the Bureau. The Bureau had been working in the Snake River basin since 1902. The Minidoka project was one of the first reclamation projects. Then there is the Boise project, and the Vale project-those are some of the original reclamation projects. In recent years the Bureau continued to work in Idaho and they built Anderson Ranch Dam and they built Palisades. Then the Corps came in and wanted to build Lucky Peak for flood control, and this was right in the middle of the Boise project. But there wasn't any irrigation; it was a flood control dam, but it had to be operated in coordination with the Bureau's projects.

I can remember working one Saturday to make a big map showing all the Bureau's projects in nice shades of blue and yellow and green, and the Lucky Peak project in red right in the middle. The Bureau was trying to take Lucky Peak away from the Corps, but it didn't work.

On Hells Canyon, the particular thing that the Bureau wanted was the revenues, the power revenues, to subsidize irrigation. In the upper Snake basin-everybody agreed that, in spite of Lucky Peak, it was primarily reclamation territory. In the lower basin, the lower Snake dams and McNary and John Day was navigation territory-the Bureau never had any problem with McNary and John Day and The Dalles. Of course, Bonneville was in there first, and Priest Rapids was built by somebody else.

Q: Yeah, by private.

A: No, it was built by a public utility district, but Rocky Reach was private.

Q: Right.

A: So Hells Canyon could have logically gone either way. It was in between. But what the fight was all about was who's going to get to build these dams as a matter of bureaucratic aggrandizement, but also it was the power revenues that the Bureau wanted. And then also, this was not the Bureau so much as it was the department under Secretary [Julius] Krug and under Secretary Oscar Chapman. The driving force was Assistant Secretary Jebbie C. Davidson, Gerard Davidson, who wanted to extend the Bonneville Power rate into Idaho, and Hells Canyon was the key instrument to do that. Power from a big generating plant like Hells Canyon would have to move both ways. Idaho is closest.

You're going to move a lot of power into Idaho, but some would go the other way, to the lower basin, and this would provide transmission lines that would provide a way to extend the Bonneville power rate which, if you remember, was 2 mills per kilowatt hour for firm power. Jebbie Davidson wanted to extend that rate up through Idaho which would have carried the benefits of public power all up through the Idaho Power Company territory.

In other words, this was the same thing that came up in our discussions of the history of the Flood Control Act down in New Orleans. Certain people were

trying to use the Flood Control Act as a means of getting federal hydroelectric power-Morris Cook and others-and, as your historian friends say, there was a hidden agenda there in the first Flood Control Act to keep that from happening. Well, whether there was or not, I don't know.

But it was not so much in the 1936 Flood Control Act but in the '38 act, when they changed the policy on dams—

Q: Right.

A: -so that you could build power.

Anyway, that was the gist of the fight between the Corps and the Bureau but when I went out to Boise in early 1948 to finish the Hells Canyon report, we were also fighting to get it done because Idaho Power Company had filed an application with the FPC to build five small run-of-the-river plants in that same reach of the river, which would have completely lost any flood control benefit, as well as kept either the Corps or the Bureau out of there, and there would be no navigation benefit of any kind.

Eventually, then, we negotiated an agreement with the Corps of Engineers on the Columbia River basin, which gave Hells Canyon to the Bureau. We got the report finished and sent it on up to the Congress. Authorizing legislation was introduced and there were hearings on it. Wayne Morse gave speech after speech on the Senate floor which we wrote for him. He would make those speeches late in the evening, and he'd go on for hours sometime. We'd write 50- and 60- and 70-page speeches for him to give-all the background on Hells Canyon, as to why the federal project was needed. I really think that that is one project that should have been built, because of its role in flood control, and the minimal adverse effect on the environment that would result.

Fortunately, we haven't had a big flood come out of the Snake River in recent years. I don't know what happened when the water from the Teton Dam failure came down the Snake. By the time it got down there, I guess the flood was pretty well attenuated. But if you ever have a repetition of those floods where the Snake peaks at the same time as the upper Columbia River-you could have a lot more damage, all the way down to Portland.

Anyway, I think Hells Canyon would have been a good project and it would have had no different environmental effects than the three small dams that the Idaho Power Company finally built. It would have taken the same land, except the pool would go on a little bit farther up the canyon, but it would have had no different effect. In fact, it was easier on the fish. There was only one place, if you wanted to run fish up above it, only one dam instead of three. But no salmon go up that far any more, I don't think.

But the whole picture was obfuscated by the fact that there was another dam site down in the canyon, Nez Perce, which would have blocked the Salmon River, and so the environmentalists attacked the Bureau's plan, arguing that the Hells Canyon was just the first step toward flooding the entire canyon. Actually Nez Perce wasn't in the Bureau's plan at all; it was a Corps proposal. Once you had Hells Canyon Dam, the Bureau didn't need to build anything else on the Snake River. And when the Corps got into the fight over Nez Perce, they found another site, which they called Mountain Sheep, which was above the Salmon River. But that's another story that I was not involved in. I was at one time going to write a book about my experience with the Hells Canyon project, and I kept all kinds of notes but, as the issue fades away, you don't get around to doing half the things that you want to do.

Q: A fair amount's been written about it, of course.

A: Well, lots has been written about it, that's right.

Q: Yeah.

A: And a lot of it has been inaccurate. Very few people know the whole background.

Q: Uh-huh.

A: That's one of the things I found out when I got over to the Bureau of the Budget in 1954, one year after Dwight Eisenhower came in and I saw the papers that had been used for the cabinet meeting where the decision was made to pull out of federal sponsorship of Hells Canyon, I found that they were inaccurate. I don't remember exactly the details, but when I looked at it, and I was horrified because the decision was made in the absence of having all the facts about those projects. Of course, it was an ideological decision-part of the

effort to get the federal government out of the power business. The thing that really killed the Hells Canyon project was Jebbie Davidson's insistence that you use it to extend the Bonneville power rate into Idaho, where there would have been great benefits with the development of the phosphates industry.

Q: I know what you're talking about.

A: Using low-cost power to develop a chemical fertilizer industry up there, Simplot-

Q: I know Simplot, yeah. It made its fortune during World War II, as I recall, selling—

A: That's right.

Q: Yeah.

A: And Simplot was all for it, because he'd get cheaper power. Idaho Power Company was actually signed up on Hells Canyon when the Bureau wrote its first report, which was going to divide the power market-4.4 mill rate in the upper Snake basin-and 2 mills for the power sold down in the lower Columbia basin. That was kind of peculiar to price power at different rates that way, but it made sense politically.

But when Idaho Power Company saw this change, which was worked out late one night in Jebbie Davidson's office in the Department of the Interior, well, that's when the Idaho Power Company dropped off the support list for Hells Canyon. Of course, that, plus the decision made in the Eisenhower administration to withdraw the federal project, doomed Hells Canyon as a federal project.

Q: Were there any overtones in this whole thing about private versus public power and the intrusion of the federal government into state and private affairs, any of that sort of thing? In other words, this is taking place against a background where we have got the McCarthy hearings and all this sort of stuff. Was it-any of that, those polemics, ever applied to—

A: Well, on Hells Canyon that was the position that Idaho Power Company was taking. Of course, the Idaho Power Company dominated Idaho politics for a

long time. Henry Dworshak was their conservative senator before Frank Church was elected.

Q: Uh-huh. Well, Senator Dworshak you're talking about. He was with Idaho Power? I didn't know that.

A: No, he wasn't with them, but he supported their position on the Hells Canyon fight.

Q: I see.

A: So it was definitely a public versus private power fight. And Idaho basically kind of resisted federal power—they wanted to have the Bureau build irrigation projects and subsidize the projects but they didn't want to have any federal hydroelectric power; the general tenor of people in Idaho was against, public power. The support for Hells Canyon came from the Simplots and the people that could see a chance to make some money and to put some pressure on the Idaho Power Company to get concessions on power rates and the irrigation pumpers. They were the ones that supported Hells Canyon, and the municipal electrics and the REA cooperatives. The preponderance of the testimony in the congressional hearings was favorable to the project.

But when Eisenhower came in, there was the feeling that the federal government had gotten too big. The same as, or similar to what Ronald Reagan said. But it was much less intensive, and I don't think that it ever got to the stage that the McCarthy hearings did—they were much more on the overall political issue of communists influencing the government.

Now, Senator Knowland, when he wrote his book, *They Would Rule the Valley*,—that was where the issue of communism or socialism showed up much more—in California. But I don't think he was very sincere about it—he didn't have any problem with the Corps of Engineers building Pine Flat Dam or anybody building a dam that made water available, as long as you didn't make the water users pay for it. There wasn't any problem about the government building dams. It was just the idea of trying to make these people pay, and the people had an argument with the Bureau.

They said, "We've been pumping this water all the time. We're pumping now—and you're going to sell us water? We don't want it. We shouldn't have

to pay for it. All you're doing is trying to sell us what's already ours." That was their argument, long before Eisenhower was elected, really-that the Bureau was trying to dominate California. In my view it wasn't that the Bureau wanted to dominate California, the Bureau just wanted to build more projects and to have an integrated system. Remember, whichever agency builds the dam keeps on operating it when it is finished.

But I've never felt that the Corps really would have built a lot of these dams if it hadn't been for the Bureau of Reclamation. And vice-versa-in other words, the fight was shared by both side.

Q: The Bureau suggested projects so the Corps wanted to build them, and the Corps suggested projects so the Bureau automatically wanted to build them, something of that sort?

A: No, it was more that the local water users wanted the Corps to build the projects so they wouldn't have to pay for the water and the Bureau wanted to build them to uphold the integrity of the federal reclamation laws. The Bureau thought it was the dominant Western water agency. The Corps of Engineers thought, on the basis of history, that it was the dominant United States water agency, and they clashed in the West.

Now, remember the Section 308 language exempted the Colorado River, specifically saying that this is not to be covered because the Bureau of Reclamation has responsibility there. That was in the law that authorized the 308 reports.

Q: 1927 Rivers and Harbors Act.

A: Yes.

Q: Ted, I want to go back and pick up some areas that we haven't really covered. As you know, beginning in the late 1940s in particular, there was growing criticism really of both the Corps of Engineers and the Bureau of Reclamation about the size of water projects, expense and so forth, so there was an increasing concern about both expense and environmental devastation.

Do you-looking back, as I'm sure you have over time-do you see any particular seminal causes for this growing concern, or do you think it's a



general kind of evolution as a result of the massive constructions going on since the '36 Flood Control Act, or whatever?

A: Well, one thing happened that really affected the reputations of both the Bureau and the Corps adversely. All during World War II some of the staff of both agencies was still working on civil functions. The Bureau had its Food for Victory program and the Corps had its 308 reviews going along, to the extent that they could get funding. I don't know how the Corps did it, but when money was appropriated for the Bureau, it was "no-year money"-available until expended. At times, the Bureau would have \$100 million or so, more or less in the bank, of funds that were appropriated and not spent, so they could keep that work going regardless of what Congress did.

That's all been changed now. Construction appropriations still are available until expended, but the committees keep a much closer track of them. But decisions were made all during World War II and for a year or so afterwards to make estimates of costs of projects at 1940 price levels, the feeling being that we were bound to have another horrendous depression after the war, just as we had after the Civil War, just as we had after World War I, and probably after the Spanish War, and so eventually price levels will simmer down to prewar prices.

So, on all the projects in the 1944 Flood Control Act and the '45 Rivers and Harbors Act, the authorizations were on a basis of costs contained in reports made at 1940 price levels. The Bureau of Reclamation also had a lot of projects under way on the same basis. For example, the Colorado-Big Thompson project had been started and the tunnel was holed through before World War II, or during it. The project was supposed to cost about \$50 million and the local interests signed a repayment to pay half, but not more than \$25 million, which was half of the estimate. Before the project was completed, the Bureau had spent \$175 million. The Corps got all those projects authorized in 1944 and 1945 and when they went to build them they cost sometimes two and three times or more than their estimates. People who were concerned with government expenditures had the feeling that these agencies were just making low estimates to get their nose under the tent and their primary motive was to spend more money.

It was just a lack of understanding on the part of the agencies of what was going to happen. The pent-up demand that caused the economy to boom when

the war was over was not foreseen. It's not so much that there wasn't so much demand after the Civil War, it's just that marketing techniques are so much more sophisticated, radio, television, advertising-you've got a much better market, and that's why we didn't have a big depression after World War II-at least that is my theory about why we didn't have a depression. Now, an economist would have something else to say about it, I'm sure.

I don't remember when the Corps stopped making cost estimates based on 1940 price levels, but until it did it looked as if here was this agency trying to get its nose under the tent and then, once it got the project authorized-say an \$8 million project authorized-they'd spend \$40 million on it. Some of that is still going on. For example, on the Tennessee-Tombigbee Waterway, which was one of the projects authorized about that time.

Q: 1946. Right.

A: And so there was a feeling that these agencies were only interested in aggrandizing. Then there were the people who were being hurt, the people whose lands were being flooded. For example, projects like at Tuttle Creek where the Corps incurred the animosity of people whose families had lived on those homesteads for a hundred years.

There's always been that kind of a backlash against the Bureau and the Corps built up, but I don't think-maybe I've been too close to it to see it-I don't think there has really been any feeling, ideologically, that these agencies were getting too big. Now, there's another view expressed by a gentleman up in Minnesota named [Adolph] Ackerman who's written books citing a book called *Oriental Despotism*. I can't remember who wrote it.

Q: Wittvogel.

A: He wrote that book, alleging that governments control their people by controlling their water supply. Adolf Ackerman has gotten a few of the engineers, for example, who are, by nature, conservative, to cite Wittvogel against the Corps and the Bureau. But when you really look at it, they are attributing motives to government engineers that I don't think are there. Admittedly, there have been some ideological issues like the public power and other issues like that, that have-that might, in some people, might have been termed as ideological, and this has led some people into fear of government