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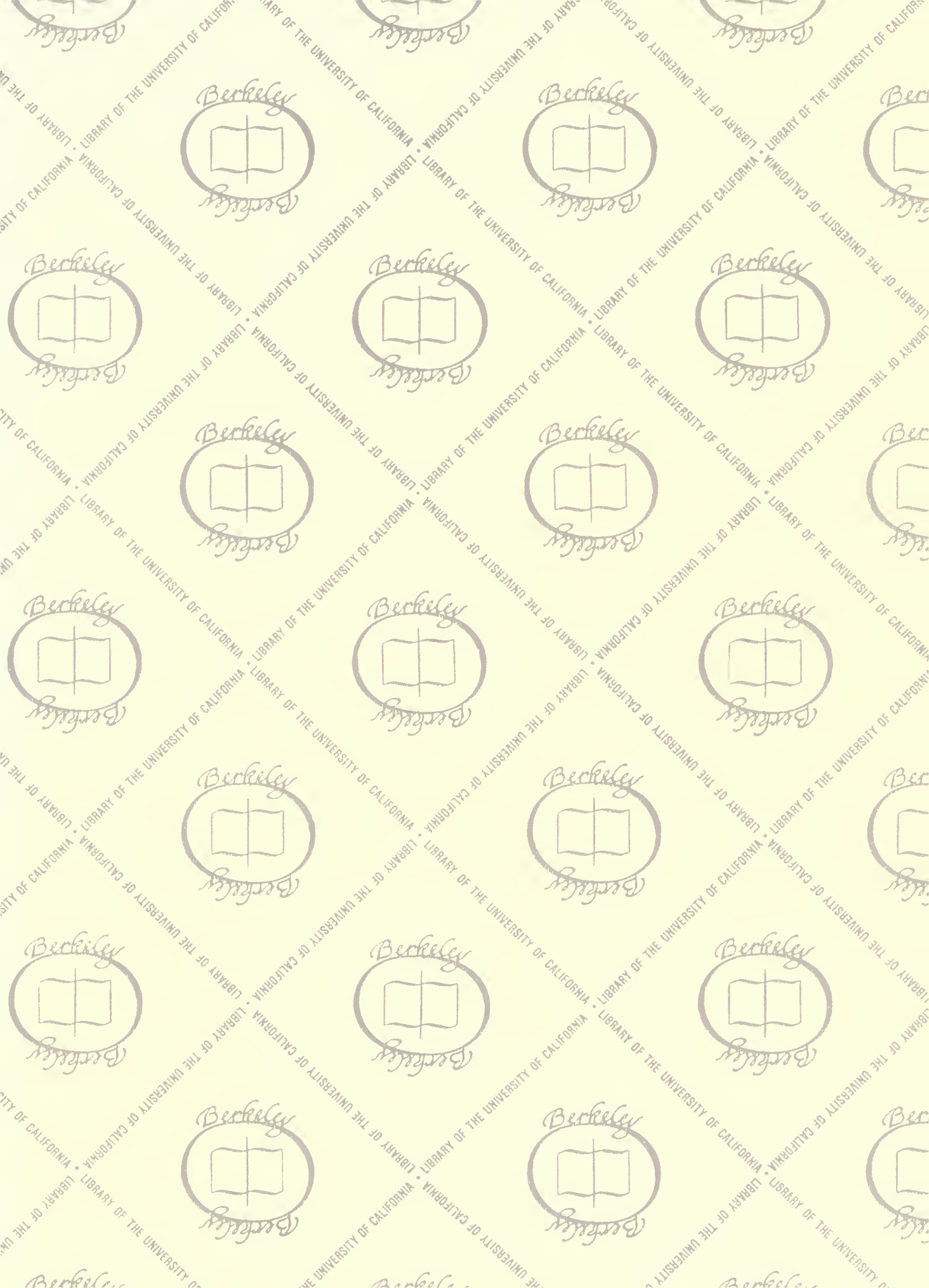
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Chester G. Gillespie

ORIGINS AND EARLY YEARS OF THE BUREAU OF SANITARY ENGINEERING

With an Introduction by

Henry J. Ongerth

An Interview Conducted by
Malca Chall

Chester G. Gillespie
1935

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Chester G. Gillespie

PREFACE

The development of sanitary engineering in California since the turn of the century is the subject of a series of interviews conducted by the Regional Oral History Office of the Bancroft Library under a grant from the Water Resources Center of the University of California.

The idea for documenting this history was initiated by Henry Ongerth, chief of the Bureau of Sanitary Engineering of the California State Department of Public Health. In a letter to Professor Arthur Pillsbury, director of the Water Resources Center, he suggested that funds be provided to interview Chester Gillespie, the first chief of the Bureau (1915-1947), and Professor Charles Gilman Hyde, head of the Department of Sanitary Engineering on the Berkeley campus from 1905-1944. David Todd, professor of Civil Engineering, provided leads for other interviews and the series came to fruition. Major funding came from the WRC with some additional assistance from the Department of Hydraulic and Sanitary Engineering on the Berkeley campus.

Mr. Hyde was not well enough to interview, but Chester Gillespie, Wilfred Langelier (chemist and water purification specialist UCB 1916-1955), and Percy H. McGauhey (director of the Sanitary Engineering Research Laboratory, UCB, 1956-1969) did tape their memoirs. As a result there is on record information about administration, teaching, and research in sanitary engineering from 1905-1971, a period which spans the time when the major emphasis of the sanitary engineer was prevention of typhoid fever, to today, when concern is with prevention and control of pollution of the total environment.

These interviews have benefited greatly from the expert advice and assistance of Henry Ongerth and professors David Todd, Erman Pearson, and Robert Selleck.

The Regional Oral History Office was established to tape record autobiographical interviews with persons prominent in recent California history. The Office is under the administrative supervision of James D. Hart, director of The Bancroft Library.

Willa Baum, Head
Regional Oral
History Office

22 February 1971
Regional Oral History Office
Room 486, The Bancroft Library
University of California
Berkeley, California

INTRODUCTION

Chester G. Gillespie was the first Chief of the Bureau of Sanitary Engineering in the State Department of Public Health. Chester Gillespie was born and raised in San Benito County, near Hollister. He entered the University at Berkeley about 1903 and graduated in the class of 1907. This was the first graduating class for Professor Charles Gilman Hyde, who had come to the University about 1905 to teach Sanitary Engineering. Later, Professor Hyde became Engineering Consultant to the State Board of Health and by 1915 promoted establishment of a Bureau of Sanitary Engineering, in what was then called the State Board of Health. Professor Hyde recommended Mr. Gillespie as Chief for the new Bureau and Gillespie became Chief, about August 1915.

Mr. Gillespie was a tall, slender, very friendly, rather shy person. He had a tremendous knowledge of the details of water supply and sewage disposal all over the State of California. He spent much time making field trips throughout the State and had a detailed knowledge of what existed in almost every community in the State. His men all referred to him as "The Chief," though not when talking to him directly. At least in the latter part of his career, Chester Gillespie worked largely by persuasion rather than through formal methods of law enforcement.

Unquestionably, in the early years, through the twenties and into the thirties, Mr. Gillespie was the most highly qualified Sanitary Engineer in the State. He had a profound influence on the development of sanitary engineering works within the State in that period. He employed each of the men that succeeded him as Chief of the Bureau, E. A. Reinke, who came to work for the Bureau about 1919; Herbert B. Foster, Jr., who came to work in the Bureau in 1931; and Henry Ongerth, employed in 1938. Moreover, many others who became leaders in the field of Sanitary Engineering worked under Mr. Gillespie for varying periods of time.

Through the entire period of Mr. Gillespie's administration the Bureau of Sanitary Engineering was a relatively small organization, always too small for the task to be done. Even as late as 1938 there were only five engineers in addition to the Chief. Early in this period the first water treatment facilities were installed in California. In the period 1915 to 1920 the typhoid fever rate dropped from 13.6 to 4.9 per 100,000 people, in part, if not largely, because of installation of water treatment facilities. Many of the community water systems were created in this period and many communities installed their first sewage treatment facilities. In this period the ground work was laid for installation of sewage treatment by the larger communities around San Francisco Bay, including San Francisco and East Bay Municipal Utility District. One of the major events of the

Gillespie administration was the suit by the State Department of Public Health against the City of Los Angeles. This suit which went to the State Supreme Court, resulted in a judgment requiring Los Angeles to install treatment for its sewage discharge to the Pacific Ocean.

Even in those days Gillespie fought for stream pollution control, going beyond public health protection, for clean streams, bays, and lakes, though there was little public support and much opposition by those who were being urged to clean up. One successful effort of special note relates to the policy by Gillespie to keep all sewage out of Lake Tahoe. This policy saved the Lake from degradation until public awareness and support to preserve this Lake took over. The Gillespie administration saw the start of sanitary engineering in California and carried through to the period immediately after World War II when standards and expectations had risen to levels that approached those of this decade of the seventies.

Henry J. Ongerth, Chief
Bureau of Sanitary Engineering

8 February, 1971
Department of Public Health
2151 Berkeley Way
Berkeley, California

INTERVIEW HISTORY

The memoirs of Chester Gillespie, the first chief of the Bureau of Sanitary Engineering of the California State Department of Health, 1915-1947, is one of three interviews on the history of sanitary engineering in California which have been undertaken by the Regional Oral History Office.

Research and and Planning: Henry Ongerth, presently chief of the Bureau, suggested this interview with his former boss whom he had known well for many years, and he volunteered to conduct the interview. His offer was gratefully accepted.

After contacting Mr. Gillespie by telephone and arranging the time and date for the taping, Mr. Ongerth spent many hours going through old Bureau files to obtain material for his questions, although his own familiarity with the Bureau of Sanitary Engineering and its personnel through the years provided its own rich background. He and Mrs. Chall, staff interviewer, discussed some of this background and decided what particular information they would like to learn from Mr. Gillespie. Mrs. Chall then prepared an outline for use during the interview.

Time and Setting of the Interview: The interview took place on January 27, 1970 in Gilroy, where Mr. and Mrs. Gillespie were living with a sister-in-law and her family. Taping was done in two sessions: in the late morning, and again in mid-afternoon after Mr. Gillespie had had lunch and a short rest.

Mr. Gillespie had been ill for several years and when interviewed was not strong. He spoke softly and slowly as he answered questions and reminisced about his long career with the Bureau. Although the passing of time may have dimmed some of the background, the turmoil, and possibly some grievances of those years, they had not diminished the feeling of excitement, interest in the job, goodwill toward his fellow sanitary engineers, and even the fun which that job obviously held for Mr. Gillespie during this thirty-two years as chief.

Editing and Completion of the Manuscript: Mrs. Chall edited the transcript and is responsible for subject headings. Because Mr. Gillespie's eyesight was very poor, he asked Mr. Ongerth to review the edited manuscript and make whatever corrections he thought appropriate. Mr. Ongerth's specific comments are indicated by the letters H. O. During the interim Mr. Gillespie sent a photograph and some newspaper clippings to insert into the manuscript where relevant. Mr. Gillespie died on April 15, 1971, shortly before the project was completed.

Malca Chall
Interviewer

18 May, 1971
Regional Oral History Office
The Bancroft Library
University of California at Berkeley

BACKGROUND OF THE BUREAU OF SANITARY ENGINEERING

Ongerth: I thought we could talk about the Bureau particularly about the early years. The Bureau started in July, 1915.

Gillespie: That was the date? I wasn't familiar with that; I guess I wasn't thinking about it before you came, but August is the date that the active Bureau started.

Ongerth: I see--not July.

Gillespie: No. In fact in July I was up back of Lake Tahoe.

Ongerth: Oh? What were you doing there?

Gillespie: Well, we were at Hell's Hole (laughter)--you know where that is on the Rubicon River?

Ongerth: Were you working?

Gillespie: No, no, just vacationing.

Ongerth: Your first report... This is the volume of the Monthly Bulletin of the California State Board of Health--I'm looking at the 1915 period here--and your first report is dated September. This reads: Report of the Bureau of Sanitary Engineering for August and September, 1915. So then, maybe you started the first of August?

Gillespie: Yes I'm sure that's right. Since I wasn't around here in July.

Ongerth: How did they get in touch with you? Did Professor Hyde [Charles Gilman Hyde] offer you the job, is that how it started?

Gillespie: It goes back a little further to...Well, it really starts with a scourge of typhoid fever that was a rampage in this country. Do you remember Pasteur?

Ongerth: Yes.

Gillespie: He founded bacteriology largely through his work on fermentation of grapes for wines. And from that it soon spread to bacteriology. From that, water works men began to realize that their water supplies were the responsible cause of the typhoid fever. So they began experimenting with slow sand filters. And they found that the removal of bacteria by slow sand filters was extremely high, way up in the 90 percents.

Charles Gilman Hyde

Gillespie: Then Massachusetts, I guess, was the earliest state to grab on to that and formed a Bureau of Sanitary Engineering. And Professor Hyde was one of the students in bacteriology and he was employed by the Massachusetts State Health Department. He used to tell this little story that I think is kind of interesting (laughter). He said that most of his work was down in the sewers, studying typhoid fever, so he always carried bananas with him because he didn't have to peel 'em till lunchtime. (laughter) But he had that experience with the Massachusetts State Health Department for a few years.

Benjamin Ide Wheeler, president at U.C. at that time, caught on to all of this and decided U.C. should have a bureau of sanitary engineering, and in looking around Professor Hyde was recommended to him. So he came out in 1905 to set up the sanitary engineering curriculum in the University of California. Up to that time there were a lot of the students, I was one of them, that didn't know what they wanted to be--they just wandered around.

Ongerth: You started at Cal in 1903?

Gillespie: No, in '02. So Professor Hyde gathered a few of us together to describe the course in sanitary engineering and among other things, he said, "Now, sanitary engineering gives you an opportunity to serve not just a few people, but literally thousands." Well, I was enough of an idealist (laughter), I guess, to grab on, and right then I decided I wanted to be a sanitary engineer and that's what I've been ever since.

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State Board of Public Health

Gillespie: And then the next move, I'd say was that, along about 1900 when Governor Johnson [Hiram], probably as enterprising a governor as this state has ever had, became governor, he appointed right off the bat a very active state board of health.* Prior to that time the state board didn't amount to much. Professor Ebright, George G. Ebright, was made president. I think Johnson had a hand in that too. Both Professor Hyde and George Ebright were aware of the typhoid menace in the state and so they approached Governor Johnson to approve of an appropriation for establishing a bureau. That was in 1915.

When they approached Governor Johnson he says, "Well, I've got two requests for appropriations here, one for the women folks--a bureau of Tuberculosis--and now comes yours for a sanitary engineering bureau." And he turned to Ebright and said, "Well, take your pick." And Ebright was a pretty fast thinker, and he said to himself, "Well the women will be a hornet in his scalp and so I'm going to pick sanitary engineering." (laughter) So it worked just that way. The Bureau got its money first. It only amounted to $30,000 for two years, and then--oh my, how the women did turn on Johnson and they got their money too! (laughter)

Chall: The same year?

Gillespie: The same year, within a few weeks.

Chall: That's the power of women, even in 1915.

Mr. Gillespie's Experiences After Graduation

Gillespie: That's right. (laughter) I had graduated by that time and I'd worked for Professor Hyde, and I had gone over filter plants all over the country to get the lowdown of 'em. One of my jobs was in Minneapolis as assistant engineer for George W. Fuller. He was probably one of the greatest sanitary engineers there ever was in this country. He had a job

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*Hiram Johnson was first elected governor in 1910, again in 1914.

Gillespie: along with Langdon W. Pearse of the Chicago Sanitary District. Evanston was just outside of Chicago, and Evanston wanted a filter plant and Mr. Fuller was engaged to design it. He needed a sanitary engineer too so he called me from the West to the East and I was a sanitary engineer for him.

Chall: Board experience by the time you got back here.

Gillespie: Yes, it was good experience--it was, really. After the filters were built at Evanston, the city wanted a superintendent of the plant and so they just naturally looked to me to be the superintendent. So I served there I think about a year or so, and then returned West. I think Professor Hyde had told me that there was some effort to get a bureau of sanitary engineering, and kind of looked on me as the logical head of it.

The Bureau wasn't ready to be formed when I arrived in the West that time. I did get a job with Sacramento. One of the things we did was to make a bacteriological survey of the Sacramento River from Sacramento down to about Rio Vista, and one of the things we described there was of great interest. That was that though there was lots of pollution just below Sacramento it pretty quickly disappeared--it was self-purification in the river. So that by the time Rio Vista was reached there was hardly any trace of Sacramento sewage. Up to that time we didn't really suspect there was such a factor as self-purification.

Then--it might have been in July, Henry, that they told me I would be the Sanitary Engineer; but I think there was this in it, that the money appropriated wasn't immediately available by July, it was some time later, and that's how that August date came into the picture.

Ongerth: I see here in this--the Board's Monthly Bulletin for July 1915--inside the front cover they list your name as being the Director of the Bureau of Sanitary Engineering. Of course the thing might have been published as late as August and they might have...

Gillespie: Sure.

Chall: July is usually the beginning of the fiscal year, anyway.

Gillespie: I think that's the explanation of that.

EARLY YEARS OF THE BUREAU OF SANITARY ENGINEERING

Chall: What did you do when you started to work on the job?

Gillespie: Here you were confronted by a lot of typhoid fever in California. So naturally we thought of measures for combatting typhoid fever. That was our first work. It lasted nearly five years.

Chall: Just that program?

Gillespie: Just that program of dealing with water. Now and then there'd be interspersed some trouble the Board was having from some city and we'd have to go out and see what that amounted to. You run on to some curious things (laughter). One was that Marysville had a sewer farm on the sides of the Feather River and the Yuba River and across the river was Yuba City. Yuba City was kicking about the smells, so I had to go up and see about the source of those smells.

I got the trustees of both Marysville and Yuba City. We went down and followed the banks of first the Yuba River. Pretty soon we come to an old dead hog along the bank and all swelled up with decay. Everybody, including all the trustees, had all the evidence we needed right there. Well this was what they smelled. (laughter)*

Ongerth: That solved that one!

Gillespie: Yes. And then another first job I had was down at San Jose, or in fact out of San Jose--up at Wrights Station, there was a family that had a fish farm. They wanted to convert the fish farm into a swimming pool, and San Jose didn't want that. So Dr. Simpson, the health officer, was asked to investigate it. He turned to the state health department for help and I was picked to help him stop this swimming pool. Dr. Simpson and I drove out in a buggy, mind you. In those days...

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*Clearly Gillespie was being sarcastic here--meaning the trustees were either lacking in understanding or eager to find some other excuse for the odor problem. H.O.

Chall: We've been wondering how you got around.

Gillespie: Yeah, well we had a buggy and we drove out to this man's property, and he had a guard at the gate and the gate was locked, and the guard had a gun, and so it didn't take him long to talk us out of wanting to get in! (laughter) So we didn't get in. We turned around and went back to San Jose.

Chall: Did he build his pool?

Gillespie: No. No, he never did. It isn't built to this day.

Ongerth: Somebody else built a pool further down though, you may remember; there was a place called Eva's. It was at Aldercroft Heights and this was above the San Jose intake. Eva's it was called--this was in later years. Now I'm talking about the early thirties.

Gillespie: I should have known about that, but I don't remember it.

Ongerth: I'm sure you did. My aunt had a place down at Aldercroft Heights and I went down there for the summer and right next door there was another summer home owned by Homer Theile, who worked for the City of San Francisco. One Sunday Burt Crowley drove Geiger [Dr. J. C.] down there, and so Geiger was down there at the swimming pool when I was, though he wasn't swimming in it. And I can remember coming back up somehow to talk to you fellows. I don't think I was in the Bureau then--this was after I graduated, I'm sure, so it would have had to be after '35.

I can remember telling you people that Geiger had been down there and you were all eager to find out if he'd been swimming in the water. (laughter) Well, Geiger was one of the people that was in the department back when you came in '15, wasn't he?

Gillespie: Geiger, yes. Yes, he was already in the state health department and he was in the Bureau of Communicable Diseases. Is he still alive?

Ongerth: As far as I know. I have not heard otherwise. I'm not certain.

Gillespie: Well, if your inquiry takes you to the early days of typhoid fever, I'd suggest that there's a couple of people that could help you out a lot, and that's Geiger and Ida May Stevens. She was mighty active in typhoid fever. Dr.

Gillespie: Ebright used to say that Ida May Stevens and myself were responsible for the big drop in typhoid fever that occurred in 1915-1920.

Ongerth: Looking at these minutes here in that period and other earlier material, when you came to work there were very few sewage treatment plants, some septic tanks, and that's about all--nobody disinfected sewage at all, did they?

Gillespie: No.

Ongerth: Some of them kept it on land, but not very many.

Gillespie: Yes.

Ongerth: Mostly it went into the streams I guess.

Gillespie: That's right.

Ongerth: And as for water treatment, chlorination was just being started, I guess.

Gillespie: It was pretty well started as chloride of lime. Professor Hyde had designed a number of chloride of lime disinfectant plants. They were scattered around the state. But then about that time--about 1915, I guess--Wallace and Tiernan Co. came into the picture.

They had machines for feeding chlorine gas. Previously to that the lime--chlorine lime--was mean stuff to handle. So they began selling their chloride--their gas chlorine machines.

Now, coming back to that question that you asked. We'd have a lot of argument with the trustees over whether their water supply was contaminated or not, so we immediately thought of a laboratory to examine the water and show the amount of contamination. And in building up the Bureau we turned to Chicago--because I had quite an acquaintance there by that time--for their men in Chicago who had had experience with laboratories. Bill Langelier [Wilfred F.] was one of them. And while we didn't engage him in the early Bureau, the University did, and he was a mighty fine professor of sanitary engineering. Another was Frank Bachmann, with the Chicago Sanitary District. He came out and joined us.

Ongerth: Did you hire him?

Gillespie: Yes. Let's see, Ralph Hilscher was another. I don't know just where he was working at the time, but anyway he came

Gillespie: out and he was an assistant engineer in the Bureau. And Joe Doman [1914] was a graduate of U.C. in those early years, and he came to the Bureau.

Ongerth: I never heard that name.

Gillespie: No? He was an active worker, and we liked him very much, but he didn't stay very long--they wanted a sanitary engineer in Connecticut so he went back there and that was the last of Joe Doman. Well, that was about the size of the Bureau in its early years.

Chall: That's three men, plus you?

Ongerth: Here in April 1916, Mr. Gillespie, they list you and Bachmann and Hilscher.

Gillespie: That's right. With $30,000 you couldn't do a great deal. We had two stenographers and those few engineers, and then we had in mind to cover the state by good inspections, so we'd know how to talk to these trustees [city councilmen] that didn't want to go along with the program (laughter). Well, we got through with our $30,000, it carried us through the biennium. (laughter)

Ongerth: Two years?

Gillespie: Yes, it was thirty thousand for two years.

Ongerth: You wrote an article for California's Health in early 1936, and you reviewed the twenty years of sanitary engineering--this is the February first issue, 1936, of the weekly bulletin (I thought it was monthly), and what you say here is, "In 1915 the state legislature, harassed by sanitary problems and pursuing the precedent of few other states, provided a Bureau of Sanitary Engineering in the State Board of Health. It has since been maintained with appropriations varying from $15,000 to $25,000 per year."

Gillespie: With each legislature you had a chance to get a little more money.

Chall: You had to go all over the state then during those years, to inspect and issue permits?

Gillespie: Oh yes, I should mention that--even when the Bureau was established, already the legislature had passed the permit system. Does that agree with...

Ongerth: Yes. Yes, it had been passed in '07.

Gillespie: Is that so?

Ongerth: It says--I'll continue where I stopped reading--"The Public Health Act of 1907 provided a permit system and state approval of plans and sites. This had been rigorously applied to sewage disposal projects, and as far as time has permitted the companion Sanitary Water Systems Act has been applied to water supply."

Gillespie: So, this is '07? The first application of that law was to water supplies though.

Ongerth: The permit law?

Gillespie: Yes. That required quite a lot of knowledge of every system that you acted on for a permit.

Ongerth: So the Board had already issued permits on some places when you came, and this was on the basis of Professor Hyde's work, I guess.

Gillespie: Yes. He had worked for the state board of health, but not on any continuing basis, just as the jobs popped up.

Ongerth: He's listed as a consultant.

Gillespie: That's right.

Chall: Was it possible for communities to establish water systems and sewer systems without coming to you for a permit? Could they try to get away with it?

Gillespie: Not legally (laughter).

Chall: Not legally. How did you know whether they were acting illegally?

Gillespie: Well, I don't know. If we knew the project was pending--we generally found that out pretty easily--we'd go and talk to them.

Ongerth: Yeah, there weren't that many places in...

Gillespie: No. There weren't, no.

Ongerth: You know, I think Ed must have told me this--I'm not certain --my impression is that you had started out, I guess in the '20s with quite an aggressive program of trying to get things

Ongerth: straightened out in compliance with the permits, and that the State Board of Health for a period in there didn't give you much support when things came to a real showdown on some of these situations. Does that accurately describe the situation?

Gillespie: Not vividly in my mind. We didn't really use that permit system or enforce it too rigidly. We went on the basis of trying to convince a city that they had a problem and that this was the best way to go at handling it. And since the city engineers knew very little about sanitary engineering, that wasn't hard to do.

Ongerth: It was the people who knew more that gave you the trouble. Is that right?

Gillespie: Yes.

Chall: How so?

Ongerth: I know in later times the consulting engineers that knew the most were the ones that gave the trouble over disagreements on details of sewage plants.

Gillespie: Well, I think that's a fair statement. Say, I wanted to ask a question at this point. In the records of the Bureau, do you find a tabulation of water systems and sewer systems in the state?

Ongerth: Yeah, we dug one out not long ago, Mr. Gillespie, that was prepared in 1923, I think.

Gillespie: Was it? I thought it was a little later than that.

Ongerth: Maybe I'm a little off on the date, but we found one recently in some of the old collections.

Gillespie: Did you save it?

Ongerth: Yes, absolutely.

Gillespie: It's a good thing to hang on to. Because sooner or later there'll be another survey made and then we can see how much things have changed over that long period.

SEWAGE TREATMENT FACILITIES

Ongerth: You said here [article in California's Health] that prior to 1915 there were about 82 sewage treatment works built in California, and you say since that time 45 of those have been abandoned. And then you go on to say that out of 181 plants built under state supervision since 1915, only 10 have been replaced. So what you're saying is that prior to 1915 there were 82 plants and in twenty years after that they built another 181.

Gillespie: The early sewage plants were practically all septic tanks. They were overrated for their capacity--they were terrible for smells, so they are the ones that contribute to this heavy abandonment. The ones that the Bureau goton to and steered 'em along better lines, they've lasted.

Chall: What replaced the septic tank then, in those days?

Gillespie: What replaced them? Well, one of the simplest things was the Imhoff tank. The Imhoff tank separates digestion, which is the source of the smells, from the liquor that's being clarified, and that was the simplest. Then we got things like contact filters, sprinkling filters.

Ongerth: They were already in existence early in your career, weren't they? In '15 and on? There were a few places...

Gillespie: Well, let's see. Yes, there were a few, like at Yountville they had a contact bed. It was (laughter) a humdinger though! There weren't any engineers out here before the Bureau was formed that really knew the science of design of these plants. Of course very soon after various civil engineers found their way into employment by these different cities, and our job was to educate the civil engineers. (laughter) And it's worked out all right.

Ongerth: Well, really in this system of having to come to the state health department for a permit, you wound up really straightening out many poor designs, didn't you?

Gillespie: Yes, yes. And early too, when it's easier to get a change made. If they get too far along, you're up against a big hurdle.

Ongerth: I asked you earlier about Paul Bovard and how he happened to be up at Santa Rosa. Apparently he was a consultant.

Services for Paul Bovard -- Former Engineer

San Francisco Chronicle 43
☆ Thurs., July 16, 1970

Carmel

Funeral services were held here yesterday for Paul Fountain Bovard, an engineer and former president of the California Filter Company of San Francisco.

Mr. Bovard, a 1906 graduate of the University of California at Berkeley, died here Saturday after a long illness. He was 86.

A native of Los Angeles, he was a consulting engineer, and was a past president of the American Chemical Society (San Francisco chapter) and a member of other engineering societies.

A resident of the Monterey Peninsula for the past 22 years, Mr. Bovard and his wife, Kathryn, had been living most recently at Carmel Valley Manor.

He is survived by his wife; two sons, Richard H. Bovard of Carmel and Robert N. Bovard of Pleasant Hill; a stepdaughter, Mrs. Peggy Arnold of Cincinnati, Ohio; a stepson, William Bradley of Connecticut; five grandchildren and six great-grandchildren.

Our Correspondent

Ongerth: Could you talk about the situation of Pittsburg and Antioch, where they both discharged sewage into the waters there which was really the lower San Joaquin tidal water?

Gillespie: Pittsburg was the lower city and subject to more sewage, you see, its own plus Antioch, and we persuaded them to chlorinate their water and they did that. But in the course of the years something went wrong with the chlorination and the result was that they had quite a little outbreak of typhoid themselves. In other words, they had lost their immunity, and were subject to a new infection. Immediately, of course--it was no trick at all--we persuaded them to renew that chlorination. As a result Antioch got very little typhoid out of that Pittsburg outbreak, though one city was just a few miles from the other.

Ongerth: But upstream.

Gillespie: Uh huh, upstream. But the tides ran every day up and down the river.

Ongerth: I guess it would move that far?

Gillespie: Oh, yes. The tides carry water and even Sacramento sewage as far as the American River.

Ongerth: Yes, they had that low flow period in about '23 or '24.

Golden Gate Park

Ongerth: Mr. Gillespie, when they built the sewage reclamation plant in Golden Gate Park...

Gillespie: Yes--oh yes!

Ongerth: Professor Hyde wrote an article about that.* Could you tell us something about that whole situation?

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*Charles G. Hyde, "The Beautification and Irrigation of Golden Gate Park in San Francisco, California, with an Activated Sludge Treatment Plant Effluent," Sewage Works Journal (November, 1937).

Gillespie: Yes. John McLaren was a person whom I knew and admired. Well, I think there was a period when he felt the need of more water for Golden Gate Park. Instead of buying it, he conceived the notion of reclaiming the sewage.

Ongerth: It was his idea?

Gillespie: It was his idea. I don't know who engineered that.

Ongerth: Well did that plant come to the Bureau for a permit and a review?

Gillespie: No. No.

Ongerth: It never did?

Gillespie: It never did.

Ongerth: I wonder why, because there was no effluent discharge I guess?

Gillespie: Well (laughter), I kind of think we looked on it as a bad precedent to show approval for.

Ongerth: I see.

Gillespie: We couldn't stop it.

Chall: Over the years now, you wouldn't consider reclamation like this a bad practice, would you?

Gillespie: No, it's been all right. I think if it was widespread it would probably be pretty badly abused and become a danger. But nobody else that I know of has patterned after Golden Gate Park in that respect.

Ongerth: No, not in the same way. So the Bureau wasn't really involved in that project in any close way?

Gillespie: No. I think we thought it was--as an activated sludge plant--it was a <u>good</u> design, though. It's my impression that somebody drank some water out of it (laughter), but I don't know who it was!

Ongerth: I wouldn't be surprised.

Chall: I think somebody always does to prove that it's safe and pure.

Folsom Prison

Chall: I notice that in 1917 the first activated sludge plant was built at Folsom prison. Is that something you had anything to do with?

Gillespie: Yes, yes. That was largely a design of the Bureau. That's how we brought in Hilscher, too, come to think about it. Hilscher had some previous experience with activated sludge and we didn't, so we got Hilscher to come out and join the Bureau.

Chall: How did it happen to be at Folsom Prison?

Gillespie: Well, let's see. That was, I guess, the aftermath of the drive on clearing up polluted drinking waters because Folsom put its sewage in the same stream that it was taking its own water out of. And they had quite a bit of typhoid themselves. And all they had was just a septic tank, it was crude (laughter), so the activated sludge plant was then a new thing that sounded good and we persuaded them to build one.

Big Basin

Ongerth: The Bureau was involved in another plant design that was an unusual advance also, and that was down at Big Basin, in the '30s.

Gillespie: In the '30s? Is that so?

Ongerth: Sure. Herb [Foster, Jr.] and Ed [Reinke] designed what was really a reclamation plant down at Big Basin and that had a sand filter as far as I know. The only sand filter in connection with a sewage treatment plant anyplace, in the State.

Gillespie: Did they have an activated sludge plant too?

Ongerth: No, I think they had a trickling filter, and then a sand filter.

Gillespie: No, I never saw that.

Ongerth: Didn't you ever see that plant? Herb and Ed designed that between them I think about 1937--it was before I came to the Bureau.

Chall: Were you in on some of the early controversies opposing chlorinating water? I understand that they were quite heated in the early days.

Gillespie: No, I don't think I'd say that.

Ongerth: No great public push against it--the chlorination--the way there was later against fluoridation. You know how much outcry there was.

Gillespie: No--nothing like that.

Chall: I see.

Ongerth: Not in the West?

Chall: I had thought there was, but maybe that was earlier in the East, at least when they were starting.

Gillespie: Mm...well, probably. Could've been earlier.

SACRAMENTO WATER FILTRATION PLANT

Ongerth: You worked on the design and construction of the Sacramento water filtration plant and then on the start-up of its operation as well?

Gillespie: No. Not the operation. In fact, I think they ran out of money at first and then they had to get another bond issue through. I had nothing much to do around the place then, and we took a little vacation trip up in Oregon and Washington, Vancouver and so on. By the time I came back I think Harry Jenks had been engaged.

Ongerth: Oh--Harry came down from Canada or someplace and he took some graduate work about the time Ed was graduating, didn't he?

Gillespe: Did he?

Ongerth: That's my understanding. What's your first knowledge of when Harry was working in the field? Then at Sacramento?

Gillespie: I was down in Hollister--my father had passed away, and I was down there for the funeral--and who should show up but

Gillespie: Harry, to want a job with the Bureau.

Ongerth: Oh! (laughter) when was this?

Gillespie: About '22 or '23.

Ongerth: And what happened?

Gillespie: I don't know. Harry got appointed. But he didn't stay very long. His father was a consultant and Harry leaned that way. But after he'd learned something about sanitation from the Bureau he took up some consulting work.

Ongerth: That's something I didn't know. You know his son John is now carrying on his father's business.

Gillespie: We had a lad in the Bureau, he was an errand boy for one of the drug stores downtown in Berkeley, and we employed him to run little odds and ends, deliver messages, and so on...

Ongerth: Corney Herb?

Gillespie: Cornelius Herb. When the filter plant was finished Cornelius got a job in the laboratory of the filter plant.

Ongerth: I see. As kind of a dishwasher and helper? That sort of a thing?

Gillespie: Yes, and examine the water.

Ongerth: Oh, really?

Gillespie: He'd gotten to be quite an expert.

Ongerth: You had taught him this in Berkeley?

Gillespie: Yes. He had picked it up in the laboratory that was in the Bureau. And then I think soon after that Harry [Jenks]--as you say I didn't know that he had designed an addition to the plant.

Ongerth: Yes, he did.

Gillespie: Well, anyway, the next thing we knew Cornelius was the superintendent of the plant.

Ongerth: Well, he was into my time. I remember going to the plant in the late thirties and he was running the plant in those days.

SOME EARLY DEVELOPMENTS OF WATER SUPPLY SYSTEMS

Gillespie: I want to tell you something here that I've thought about so far as the history of water supplies is concerned: that history should be read along with the record of growth of population and industry in California. By that I mean that the earliest people in California were these cattle men, and they had their big ranches generally close to a river or creek and that's where they got their water from. The early residents of California followed that same principle--they located near a stream. Then the missions--there were twenty-one missions come on through the years. They did the same thing. They had a few principles that seem pretty important nowadays--they located their missions approximately twenty-one miles apart. That was a day's travel on a mule back or by foot. Also, they got close to water--usually streams--if you follow every mission along you'll find there was a stream nearby. And then, of course, they were looking for Indians to convert to Christianity (laughter).

The missions, then, followed that same principle as the early farmers did of getting close to creek water for their water supply. And for a long time, as the state grew, the water supplies were simple ones. There'd be a spring, a stream. Later on they began boring wells, and then they wanted to take water in their houses and what not and they put in windmills. And later on they improved the pumps that were pumped by windmills, so they were a pressure type of pump. Well, that went on for quite a while, maybe ten, no fifteen or twenty years.

Gold mining had been started in California and as it progressed they needed more water. So they started--and this was in the Mother Lode country where the gold was--they started digging ditches to bring the water from some river or stream or reservoir, lake, down to the jets that they found necessary to do their erosion. Now those ditches began to be picked up and used by towns along the way.

Ongerth: Like Jackson, and Grass Valley.

Gillespie: Sonora, Volcano...

Ongerth: P.G.&E. ultimately acquired them and they were used for power development.

Gillespie: That's right. That became another use for those ditches. San Francisco was an early supply point for the mining industry, and San Francisco started out with just Lobos Creek.

Ongerth: In the Presidio.

Gillespie: In the Presidio. Now I think Schussler [Hermann]--wasn't he the inspiration?

Ongerth: I don't know.

Gillespie: Well, this is something you ought to check with the water department over there. I think Schussler was the early water engineer of San Francisco.

Ongerth: With Spring Valley Water Company?

Gillespie: Yes--with Spring Valley Water Company.

Chall: Does that antedate 1915?

Gillespie: Yes, that was away back around 1850 and '60 and '70s that he was active. But he perceived the need of more supply than Lobos Creek was capable of handling, and it was the next big jump now in the history of water supply--the Pilarcitos--San Francisco peninsula series of reservoirs...

Ongerth: Crystal Springs reservoirs.

Gillespie: Yeah--I had forgotten even the names of all of 'em, but they could be gotten from the city...

Ongerth: San Andreas...

Gillespie: Calaveras, Pilarcitos....

Ongerth: Yes, I think those are the three names. And they built that dam that is still there--that's Crystal Springs Reservoir--at San Mateo.

Gillespie: Oh, yes. That was an old time reservoir of Schussler. Well that was the beginning of the big jump now from creek water to the modern water supplies, and San Francisco through Schussler, started it. Now we have to jump across the Bay to the East Bay. The story there is rather interesting, I think.

East Bay

Gillespie: This man Havens [Frank] was in a position, of course, to see these Schussler string of big reservoirs on the San Francisco Peninsula, and he then put in some for the East Bay at Temescal and Lake Chabot.

About 1900, when Roosevelt was President he had a Secretary of the Interior, Pinchot, that was his name, and he was sold on the value of what they called reforestation. The idea of that was to plant trees on watersheds and hold back the rain that fell; it couldn't run off in a hurry, but it would sink in the ground. Havens caught up with that idea and that was the reason for all those trees on that watershed.

Ongerth: Is that right!

Gillespie: Yes. He planted, oh literally millions of pines and Eucalyptus. That forestation idea, though, didn't last very long. Inside of I guess fifteen years or so, they were giving it up. But the trees kept growing and along in 1900 and something they were made subdivision land. So this water company man proceeded to sell the land out to sub...

Ongerth: He subdivided it himself?

Gillespie: All those little houses that you used to see out there were due to his sales.

Ongerth: You mean like up in the area where you lived?

Gillespie: Oh, yeah. Guy P. Jones went up there ahead of us...

Ongerth: Up on Broadway Terrace?

Gillespie: On Broadway Terrace, just a little above us, and he persuaded us to buy one of these lots and we'd have it to picnic on on Sundays. So we bought one. I remember the price. It was only $670. (laughter)

Ongerth: Gee, that was a nice lot, too.

Gillespie: Yes. It had a fine view. It wasn't long until we gave up the idea of picnicking there and decided to live there. And that's how we came to build that house that we had. Did you ever see that?

Ongerth: Oh, yes, yes, you were living there when I came to work in the Bureau.

Gillespie: Well that forestation idea--I don't think you'd get that story from any other source. So it deserves some mention. If you go to the water company and quiz them on it, I think they could give you good facts.

A little more on these big reservoirs. I started with San Francisco and this string of reservoirs in the Peninsula, but I think that about 1900 or so, Schussler saw that there was still a shortage facing San Francisco, and one of the things that came out of that was the Hetch-Hetchy project. That's one of the most famous water supplies in this state.

O'Shaunessy was the city engineer then and he got John R. Freeman, a water works man of great renown in the East, and he investigated it.

And I think there's another reservoir. I haven't seen it. Cherry Valley? It's pretty good sized.

Ongerth: Lake Eleanor up there in Cherry Valley. I think there are two reservoirs up there. Can you tell us about the creation of the East Bay Municipal Utility District, about when, 1924? Someplace in there...

Gillespie: I don't know.

Ongerth: What I was interested in was the controversy that developed over whether or not they should go to the Mokelumne River; whether they should go way off there or whether they should take water out of the lower delta. Can you tell us something about that?

Gillespie: The water company that they were superseding had embarked on a program of bringing an augmented water supply into the East Bay and they were going in for a lot of filtration, getting waters near a dam, and their thought was to go down to the lower Sacramento, like in the vicinity of Folsom or between Crockett and Antioch.

Ongerth: Like the Mallard Slough intake, that was the California Water Service Company. You know that Mallard Slough was just about where the Sacramento Northern Railroad crossing was.

Gillespie: I thought that the water company was figuring on going down on the Martinez side, to tap the river in there.

Ongerth: But then somebody else had the concept to go farther upstream, to go to the Mokelumne project.

Gillespie: Yeah, I don't know who had that...

Ongerth: Do you recall what the pros and cons were of one project as against the other?

Gillespie: No. The Mokelumne River would be more like following the pattern of Hetch-Hetchy for San Francisco.

Ongerth: A better chemical quality.

Gillespie: I never appreciated that there was any heated controversy over that.

Ongerth: I thought there was some. I wasn't aware how much it was. Was Louis Bartlett involved in that?

Gillespie: Louis Bartlett? I don't know that name.

FIRST OFFICES OF THE BUREAU OF SANITARY ENGINEERING

Ongerth: When you came to work in 1915, and Hyde had been the consultant to the State Board of Public Health and he essentially had hired you, then the Bureau was housed in the old civil engineering building, wasn't it?

Gillespie: That's right. Right next to Professor Hyde's office.

Ongerth: And then did you have a fairly close relationship with him in those years?

Gillespie: Yes.

Ongerth: He kind of kept track of what was going on then?

Gillespie: Yes.

Ongerth: So you had lots of opportunity to talk with him about things?

Gillespie: Yes.

Ongerth: I think you were probably in that one place until they built the Life Sciences Building, which I think was 1930--then probably you moved--to 3093 Life Sciences Building.

Gillespie: I think this is an interesting point too, that we had a laboratory--that was housed though in the mechanical engineering building--mechanical--that wasn't what they called it.

Ongerth: Mechanics?

Gillespie: Mechanics. It was a galvanized iron building (laughter), roof and sides; everything was about the cheapest construction you could imagine. The laboratory was there until 1930.

Ongerth: Was that just in back of the Civil Engineering Building?

Gillespie: Yes. Did you know Arnson [Val]?

Ongerth: Yes--he was an instrument man, wasn't he? Val Arnson.

Gillespie: Well, upstairs there was a second story and that's where our laboratory was.

Ongerth: Then finally the Bureau moved. In the meanwhile Goudey [Ray] left sometime in the late '20s, didn't he?

Gillespie: Yes. He was down South. I don't know that he had left the Bureau. I think he merely took trips down South--that kind of a connection, see?

Ongerth: I'm thinking of later when he went to work for L.A. Water and Power.

Gillespie: Yes, well by that time he was living in Los Angeles.

Ongerth: I was wondering when that was--that must have been around 1930 when he left the Bureau?

Gillespie: Yeah, I don't think he was ever in the new building.

Ongerth: Meanwhile you'd hired Frank De Martini and later--two or three years later--Jud Harmon.

Gillespie: Yes.

Ongerth: Did you hire both of those fellows right out of school?

Gillespie: Yes. Frank De Martini I think was graduated in '27.

Ongerth: Right. You were in '07, and Ed was '17, and De Martini was '27.

Gillespie: I hadn't thought of that till now (laughter). And then Jud came in the Bureau pretty close to 1930.

Ongerth: I think he graduated in '30. And then Herb [Foster, Jr.] in '31.

Chall: What were these men hired to do, specifically?

Gillespie: They were younger, but they'd be assigned to a survey, or sampling some streams or water somewhere.

Ongerth: Just the regular work of the Bureau.

Gillespie: Yes. Same as you probably started...(laughter)

Ongerth: Right.

Chall: But by this time you had more than two or three men on your staff?

Gillespie: Yes, we did. I don't know how many we had then. Hilscher had left, Frank Bachmann--I'm not too sure--he went back to someplace in the East. I don't think Frank Bachmann was there very long. Well, there was Ed Reinke, and Doman, I guess was still with us.

Ongerth: And Goudey. And that must have been the staff in the middle of the twenties?

Gillespie: And myself. That makes four engineers, and a couple of stenographers.

Chall: That wasn't too much of an expansion.

Ongerth: You know one of the things that you did that I think is very remarkable: You did the 1930 Sanitary Surveys.

Gillespie: Yes.

Ongerth: Was that the first complete round that was made of all these facilities?

Gillespie: Yes, I think it was. If you could ever find the copies of those surveys.

Ongerth: They're in the archives.

Gillespie: Well, they ought to show the date on them as to just when they were made.

Ongerth: They were mostly in the year '30, some in '31, I think. Frank De Martini wrote a lot of those and Ed some, and I guess you wrote some of them...

Gillespie: Yes.

Ongerth: And Ray Derby did some of that work. Now how long did Ray work for the Bureau?

Gillespie: He was a pretty good man, too.

Ongerth: How long do you think he worked?

Gillespie: I don't know, but it wasn't very long. I think he got caught in that Depression in the '30s.

Ongerth: Someplace along there Joe Sanchis worked for the Bureau.

Gillespie: That's right, he did too. But the two of them transferred to the Los Angeles City Water Department.

Ongerth: You know, interestingly, Goudey and then Derby and then Sanchis in turn headed up the water quality division in L.A. Water and Power.

Gillespie: I hear from Sanchis quite often. You know he used to be a bullfighter in Spain. He was born in Spain.

Ongerth: I didn't know Joe fought bulls, I'll have to ask him about that!

Gillespie: Well, right--you do! (laughter)

Ongerth: I'll tell him you told me. (laughter)

Gillespie: But that's it--that was the reputation he had when he came to the Bureau.

Ongerth: He was a tough hombre. (laughter)

Gillespie: He didn't fight anybody up here.

STATE BOARD BECOMES STATE DEPARTMENT OF HEALTH

Chall: I wanted to ask you, Mr. Gillespie, whether in 1927, when the Board of Health became a full-fledged department this had any effect on your work. The same officers remained...

Gillespie: It didn't affect us except as to whom we would be working with. Those early years we used to work with Dr. Geiger and Ida May Stevens; they were our principal cohorts. If you ever get into the story of typhoid in California, those two would know more about that part than anybody you could put your finger on.

Ongerth: Then Dorothy Beck came along someplace too...

Gillespie: Dorothy Beck came in there. She was an assistant to Ida May Stevens.

Ongerth: She wrote up something on the epidemiology of the Santa Ana outbreak.

Gillespie: Yes. I think she went down on that. She must have.

Chall: Did you ever have anything to do with Dr. Charles Halliday who was Miss Stevens' supervisor?

Gillespie: Oh yes, yes. He was an epidemiologist for the Board.

Chall: What were your relationships with Dr. Dickie when he was the head of the Board?

Gillespie: Well, the very best (laughter). I still dream dreams about him.

Ongerth: He gave the Bureau good strong support?

Gillespie: Yes. Well, now to illustrate this point (laughter): In 1924, I think, Goudey and I were on a trip, an inspection trip. We went up through Dunsmuir and then on up to northern California and headed down toward Eureka; but near Arcata they had been doing some road work and had a soft shoulder. Goudey was driving, but I pointed something out that took my interest and Goudey lost his view of this soft dirt on the shoulder (laughter). So over we went, down and down a steep hill. Pretty soon somebody came along that had a sleeping bed up on their car--top of their car--and they loaded me into that and hauled me into Eureka, and into the industrial hospital. But the

Gillespie: doctor there didn't take any interest in me and Dr. Dickie sent Miss--let's see, what was her name, she was killed down there near Salinas, remember?

Ongerth: A physician? A nurse?

Gillespie: No, a nurse. Anyway, she came up there and went to the city health officer, Dr. Chane I think his name was, and he got me moved out of that industrial hospital into the one the city had. In a few weeks I was able to travel again and Dr. Dickie had me moved down to Oakland. First I thought I was well enough that I could go back to my home there, but he said, "Nothin' doin', you've got to go into a hospital." (laughter) So I was put into Providence Hospital and I stayed there several months.

Ongerth: Gee, you were badly injured.

Gillespie: I was, all right.

Ongerth: Ed told me the story, part of it.

Chall: What happened to Mr. Goudey?

Gillespie: Well, it just tore his trousers. (laughter) Right in front. Mrs. Gillespie read in the paper about this, and she couldn't find out anything about me, but she did know that Goudey was in--'cause first we were put in Arcata. She called Arcata Hotel and got Goudey, and he wouldn't come to the phone. He wouldn't appear in public at all. (laughter)

Chall: Didn't have a change of trousers!

Gillespie: After a bit I got put onto one of the Northwestern cars I think they were and came down to San Rafael and then over to Berkeley.

Ongerth: Back to relationships with Dr. Dickie. Did he give--were you able to get financial support that you needed for the Bureau as the job got bigger, as the years rolled on?

Gillespie: No, not too much. We did, gradually, as we kind of grew and people appreciated the services, we'd be able to get a little support for an increase. Dr. Dickie was pretty shrewd. He wasn't a spender by any means. But he certainly was good to me.

Chall: Who followed him? Who were between him and Halverson?

Ongerth: There was a doctor Brown in there.

Gillespie: Yes. Dr. Brown and Dr. Porter [Giles].

Chall: Dickie was gone for about four years. He went off to be the director of--I think it was Public Relations at the CMA, and then he came back. Dr. Porter was in there during that time.

Gillespie: Dr. Porter was formerly with the City of Los Angeles in the Health Department. Olson was the Governor at that time.

Ongerth: That was the early '30s.

Catastrophes

Gillespie: Yes. An interesting story--remember that Long Beach earthquake about '33? Did I tell you this story?

Ongerth: Yes, you did over the telephone a couple of weeks ago.

Gillespie: Well...(laughter) It was this, that as I say we went out on all these catastrophes. I was getting ready to drive down in a car, but I happened on to Dr. Geiger who was then in the city Health Department of San Francisco, and he asked me how I was going and I said, "Drive down." He said, "Well, I'm going down and I've got a special car from the SP, don't you want to ride with me?" Well, I thought that was fine. So (laughter), we go on this car, and being a special car--possibly two or three cars--it had to be sidetracked for every other passing, so the result was that it took us about three or four days to reach Long Beach. (laughter) I went then to the City Hall where Dr. Porter was stationed and he looked at me, and he says, "Where in the hell have you been?" (laughter)

The story there was that Goudey was on the job, but there was a fight on between the sewer department and the water department over chlorination. Goudey was on one side and the health department was on the other. And poor old Dr. Porter, he was caught in the middle. He didn't know who was right or who was wrong. (laughter)

Ongerth: You said Goudey was there, wasn't it Jud?

Gillespie: No.

Ongerth: Or both?

Gillespie: It was Goudey.

Ongerth: He wasn't working for the department then was he?

Gillespie: No, he might have been down there helping the Long Beach Water Department, at that time, see. That frequently happened.

Chall: What was Dr. Geiger like?

Gillespie: Oh he was fine! (laughter) I used to go out on investigations of these typhoid outbreaks with him. He'd always holler for me. One outbreak I remember was on San Pablo Creek, at the time they were building that reservoir...

Ongerth: The dam?

Gillespie: The dam, yes. He was pretty convinced it was a water-borne thing. But you know, it's a peculiarity of water-borne typhoid that it'll affect the majority of people who drink that particular water. If you find a widespread typhoid outbreak, you can be pretty sure it's water-borne and you better be looking for polluted water somewhere. But the most we could find in that was that the men used the same water for their toothbrushes! (laughter) which seemed kind of far-fetched for...

Ongerth: It would've had to be transmitted with the water they were brushing their teeth with. I'd be a little dubious.

The typhoid outbreak in Santa Ana, of course, was a really serious one.

Santa Ana Typhoid Epidemic

The Notable Santa Ana Typhoid Epidemic*

by C. G. Gillespie

The Santa Ana Typhoid outbreak occurred in 1924 and by all odds was the most devastating sewage-borne epidemic that has occurred during the life

*Mr. Gillespie's answer didn't record properly. He dictated this material to his niece for inclusion in the manuscript.

Gillespie: of the Bureau. The State Department of Health at once sent epidemiologists and nurses to assist the local Health Officer, Dr. Sutherland, and staff. I remained in the Berkeley Office of the Bureau but we sent Ray F. Goudey to the scene. Mr. Goudey had come to the Bureau only recently on the high recommendation of Professor Whipple of Massachusetts Institute of Technology, saying that Mr. Goudey was a brilliant student and indeed he was. Mr. Goudey phoned almost every day and it is from my memory of these conversations that I write this story of the Bureau's part in this epidemic. Were Mr. Goudey alive today there is no doubt that he could write a most vivid story of his part in the control of this epidemic.

In the Santa Ana Water Works there were certain wells which were pumped through a low level pressure line into a low level reservoir. One noon hour Mr. Goudey sauntered down to the reservoir and on peering into it was horrified to observe several pieces of human feces floating around on the surface of the water. To his practiced eye this offered a clue to the cause of the typhoid and explained why such typical sewage-borne diseases as amoebic dysentery accompanied the typhoid.

On investigation of the sewer system he found that one of the sewer lines presumedly was a storm sewer but also carried sewage. Some parts of the so-called storm sewer lay close to the water line that supplied the reservoir. Mr. Goudey also learned that on Monday (wash day) the sewer line overflowed on the ground and thence into the water line.

This solved the cause of the outbreak and little remained except to take care of the ill, trace down carriers, and to correct the faulty sewer and water system.

Probably the best thing that came from this experience was the adoption by the State Board of Health of regulations prohibiting the cross connections between water lines and sources of potentially polluted water.

SURGEON GENERAL TERMS SEWAGE DISPOSAL PROBLEM IN EASTBAY ONE OF NATION'S WORST

Parran Uurges Early Survey to Qualify for Possible U.S. Funds

Describing the Metropolitan Oakland water-front pollution problem as one of the most serious in the United States, Surgeon General Thomas M. Parran Jr., director of the United States Public Health Service, urged officials of the Eastbay cities yesterday to proceed immediately with a survey of the sewage disposal in order to qualify for Federal aid if and when it becomes available.

Doctor Parran, on a whirlwind visit to the Bay region, met with the Eastbay Municipal Executives' Association in the office of Mayor William J. McCracken for a discussion of pollution and the possibility of gaining Federal funds for construction of a unified sewage-disposal system. The meeting was arranged by John H. Tolan Jr., secretary to Congressman John H. Tolan.

"You have a filthy situation," Dr. Parran said, "but you are to be congratulated upon your efforts to develop a regional plan for the purification of your waterfront."

FINANCING POSSIBLE

He said there is a good possibility that Federal aid will be forthcoming under the Barkley pollution bill which was passed by the Senate and is now pending before the House of Representatives.

This bill, he explained, provides for the setting up of a division of water pollution control in the Public Health Service under which money would be made available for both preliminary studies and corrective measures. Outright grants of one-third of the cost and loans for the remainder are provided for in the legislation, he added.

C. G. Gillespie, chief of the State Bureau of Sanitary Engineering who was present at the meeting, said that two-thirds of the State pollution problem is in the Bay region and that the worst half is along the east shore.

STEP FORWARD

"If we can clear up this Metropolitan Oakland problem we will be well along the road of cleaning up water pollution in California," Gillespie said.

Dr. Parran compared the Eastbay waterfront pollution with that of the Passaic Valley, New Jersey, where a regional sewage disposal system was developed with the cooperation of a number of nearby cities and a Federal grant.

Mayor Henry A. Weichhart of Alameda, president of the Eastbay Municipal Executives' Association, told the group that a $60,000 survey of the sewage disposal needs of the eight Metropolitan Oakland cities will be undertaken within two or three months. Funds for the survey have already been pledged by the cities for this purpose. The Oakland city budget for the current fiscal year contains an appropriation of $20,000, one-half of the sum which was agreed upon as Oakland's share.

Other cities which have either pledged or appropriated funds for this purpose are: Alameda, Berkeley, Piedmont, Richmond, Emeryville, El Cerrito and Albany.

REVIEWS RESEARCH WORK

Dr. Parran proceeded from Oakland to the University of California to review research which is under way in the treatment of influenza and cancer. He was to speak before the California Academy of Medicine in San Francisco last night.

STUDY WATERFRONT PROBLEM

Surgeon General Thomas M. Parran Jr. (right), director of the U.S. Public Health Service, discussed sewage disposal problems of Metropolitan Oakland cities with C. G. Gillespie, chief of the State's sanitary engineering bureau, at the City Hall here yesterday.—Tribune photo.

Others present at the sewage pollution meeting were: City Manager Charles A. Schwanenberg of Alameda, City Engineer Walter N. Frickstad of Oakland, Acting City Manager Charles Fisk of Berkeley, Councilman George E. Bachelder of Albany, Mayor Al LaCoste of Emeryville, Mayor J. M. Turner of El Cerrito, Mayor John Bell and City Engineer E. A. Hoffman of Richmond and City Engineer John Dygert of Albany.

Parran also visited the Oakland Venereal Disease Clinic at 282 Eighth Street while here yesterday. He was influential in starting the clinics throughout the country to battle the spread of social diseases.

REMINISCING ABOUT COLLEAGUES

Gillespie: You asked me once to enumerate some of the important figures that I had dealings with?

Chall: Yes. If you can give me a little item about their personalities too that adds lustre to the report.

Gillespie: Of course Professor Hyde was my first contact and I've loved him ever since. I remember you told me this the other day, that he is now ninety-five years old (laughter). He used to pride himself on the longevity of his family and a short time after that I noticed in the National Geographic magazine there was a long article on longevity of the Hyde family. So it looks like he's still carrying on that tradition.

I think my next important contact was with George W. Fuller. He was easily the biggest sanitary engineer in this country. He had done work for the Massachusetts State Health Department, he was in charge of the Lawrence experiment station where they studied these slow sand filters and their efficiency, and by the time that I began to know him he was consultant engineer in New York city. I've told you how he brought me into Evanston as his resident engineer and how that led up to my appointment to the Bureau of Sanitary Engineering here.

And then another important figure that I met was George Whipple. He was a professor in sanitary engineering too at Massachusetts Institute of Technology. It was he who put Goudey on to us. He recommended Goudey very highly as very brilliant. Goudey was hired, came out, and we were pretty quickly convinced that he was brilliant all right. I'll tell you this little story. You know the north entrance to the University?

Ongerth: Up by Northgate, at the foot of Euclid?

Gillespie: Yes, that's it. Well, I was coming in that gate one day, there was a bulletin board right by the gate, and it said, "After the Cosmos, What?" And I read on and it was a talk by Goudey (much laughter). That was so far above me that I thought he must be mighty smart. (more laughter)

Ongerth: Did he do much of that sort of thing?

Gillespie: I think he did. He had that kind of a mind.

Ongerth: Sort of a philosophical bent, huh?

Gillespie: Yes. Now let's see, well, that's Whipple and Goudey. Sam Morris. I knew him very well. Everybody did--he had a very likeable disposition. Out in San Bernardino there was a Mr. Livingstone [Bard], the water superintendent. We developed a great acquaintance. And then at the same place I developed an acquaintance with Louis Spence.

Chall: Tell me about Louis Spence.

Gillespie: He had been for a long time working for the telephone company in that San Bernardino area. At the time that I began to know him he was appointed a sanitarian for the local health department in San Bernardino county, and so I used to see Louis pretty nearly every day (laughter). And to this day Louis and I are close friends.

Ongerth: Louis was a fine fellow--I haven't seen him for a long time.

Gillespie: One day we went out to Forty-Nine Palms on something, stayed there overnight and in the same room. We both wore glasses; so next morning I put on a pair of glasses, not knowing whose they were, and Louis took the other pair. We went on out to the Colorado River and that night coming back to San Bernardino, the stars were falling to beat the band, and some dim and some were bright, so finally I noticed that they had a peculiar look. I asked Louis if they looked that way to him. Yes, he thought they did. (laughter) So I said, "Do you suppose I've got your glasses and you've got mine?" (laughter) So for a day and a half there we'd been wearing the other fella's glasses.

Ongerth: Mr. Gillespie, Karl Imhoff came to California one time... *

Gillespie: That was along about '24.

Ongerth: Later, maybe--'29, I think. Was it '24?

Gillespie: Well, I remember it this way: Clyde Kennedy had got some land up above Los Gatos, and he had invited Imhoff to see his place. I went along with Imhoff. That was another contact I had. I knew Imhoff well.

Chall: Was he the inventor of the Imhoff tank?

Gillespie: Yes. He was the leading German sanitary engineer.

Chall: From where? Where did he live most of the time?

Gillespie: Well, in Germany, that's where he had his practice.

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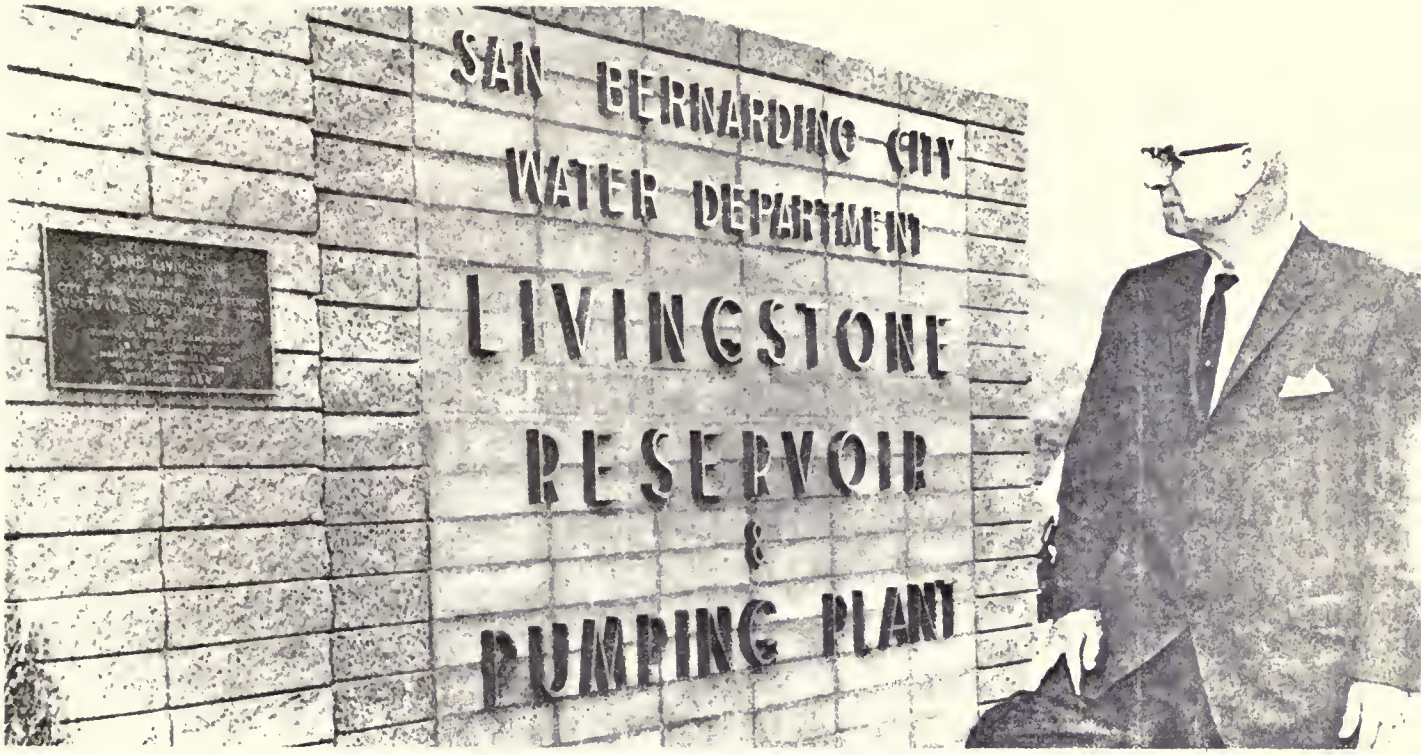
* A small album of snapshots taken throughout California by Mr. Imhoff during his visit in 1929 has been placed in the Water Resources Archives on the Berkeley campus.



D. Bard Livingstone, retired San Bernardino water superintendent, admires sign at reservoir named for him by the city water board.

Reservoir, Pumping Plant Dedicated to Retired S.B. Water Official

With tears in his eyes, retired city water superintendent D. Bard Livingstone said "I don't believe it," as San Bernardino's newest reservoir and pumping plant was named in his honor.

Livingstone, who was water department superintendent from 1934 to 1952, disclaimed all credit given him for the development of the city water system, saying it should go instead to "the most faithful and best employees I have worked with."

The new reservoir on 42nd Street near Kendall Drive in San Bernarddino's north end, has a capacity of 8.9 million gallons and, with two other reservoirs and a pumping plant, makes up the Livingstone installation.

The plant was dedicated to Livingstone by Water Commissioners Mrs. Margaret Chandler and W. R. Holcomb.

Mrs. Chandler read a resolution officially dedicating the plant to Livingstone.

It said in part that Livingstone "devoted 37 years of efficient and faithful service to the Water Department . . . in the capacity of Superintendent for 18 years . . . possessing a high sense of duty and interest in the promotion of public welfare."

Mrs. Chandler then presented Livingstone with a copy of the resolution.

Caught by surprise by the previously unannounced dedication, Livingstone was at first too choked up to speak.

After a moment, he thanked Mrs. Chandler and the Water Board, praising his ex-employees for their service to him and the department.

Then Holcomb praised Livingstone for his work as superintendent, saying he was responsible for one of the city's major water sources — two wells in Cajon Canyon northwest of San Bernardino.

"Water produced from this source," Holcomb said, "is the most economical within the city's system. During 1967, approximately 17 per cent of the water produced by the city was from this supply, costing less than $1 per acre foot."

Following the dedication and unveiling, some 200 persons were allowed to tour the new reservoir. A reception for Livingstone was given at a restaurant across the street from the facility.

The reservoir measures 254 feet by 294 feet on the interior. Because the water is to be stored underground, all that passersby can see is the dirt-covered mound where grass is starting to peek through.

By comparison, the reservoir the new facility replaces measured 343 by 165 feet and held only 3.2 million gallons of water.

The original facility was built with the help of horse-drawn wagons as an earth fill reservoir with an oil lining. In 1930 a roof was put over the open reservoir, and in 1944 gunite was applied to the sides to prevent leakage.

Last year, with the help of a 50 per cent grant from the Department of Housing and Urban Development (HUD), work on the new $387,900 faciilty was started by Lomar Corp., and all construction was completed last month.

Put into the makings of the sturdy structure were 5,247 cubic yards of concrete, 379 tons of reinforcing steel and 168 concrete and steel columns. A polyurethane sealant prevents any leakage.

The reservoir augments two others at the site and provides a total capacity at the Newmark location of 21.9 million gallons of water.

The total Newmark operation will become the main pumping station for the extraction of underground water coming from Northern California in 1972. With the four wells at the site, facilities have a total pumping capacity of 4,541 gallons of water a minute.

Two other reservoirs, built in 1956 and 1963, are a part of the total Newmark operation.

Livingstone is a former member of the Board of Directors of the California Section AWWA. 1968.

Ongerth: Emscher, I guess, eh? You know, that reminds me that in the bookcase--the same bookcases that were there when you were, there's a collection of photographs that Imhoff took on that trip he made, and in there there's a photograph of your house up on Broadway Terrace and a few other personal photographs that he had taken and I meant to bring that along and I forgot it.

Gillespie: There was Imhoff among these notables that I knew very well. I guess there was nobody else from Europe. I counted up one day how many people I had good contacts with in this State. As near as I could figure it out, there were about three hundred.

Ongerth: Well, I'm sure you knew everybody that was working in the field in those days, no question about it.

Gillespie: Well, these were people who leaned on me a good deal for their information and advice. If they didn't, I didn't count 'em (laughter) Let's see, who else is there. Sam Morris is another good friend I had, and Geiger, and Ida May Stevens, and Dr. Kellogg who was in charge of the laboratory there. Bert Crowley, of the San Francisco Health Department, Dr. Hassler of the San Francisco Health Department...

Ongerth: Before Geiger...

Gillespie: Yes, he was the head of the San Francisco Health Department. Now let's see, who else might there be. Well, there was Mr. Goodwin of the San Jose--I think he was City Manager of San Jose for a time. I've forgotten his first name. Let's see--oh, yes, and then the first two men I worked for were Wilfred Deberard. He came out on an experimental filter plant for the East Bay, see. And Langdon Pearse of the Chicago Sanitary District came out with him. And my first job was under those two.

Ongerth: Wasn't he at Chicago for many years later?

Gillespie: Oh, yes, yes. You see, the Depression of I think it was 1907 or '08 came on while that experimental filter plant was in use and the water company being a corporation found it hard to raise money, and the result was that Deberard and Pearse both left. Pearse went back to the Chicago Sanitary District, Deberard--he was a newspaper man with the Engineering News Record--and he joined them as their western representative. He stayed there till he passed away.

Ongerth: Was that the time when you and Harold Gray together worked on the operation of the filter plant?

Gillespie: No, I don't think we ever did. We went to Sacramento together, but let's see, that was over--yes it was, it was in connection with the filter plant. We were both out of U.C. with sanitary engineering training.

Ongerth: You were classmates?

Gillespie: Yes, classmates. And we thought we'd go to Sacramento (laughter) and be on the ground--if anything ever came of it, at that time.

Ongerth: Did you know C. E. Grunsky?

Gillespie: Oh yes, very well. Yes, that's another notable figure.

Chall: Did you have close relationships with various members of the State Board? I noticed you were talking about Dr. Ebright earlier.

Gillespie: Oh yes all of them. But coming back to these people that I had close contact with, there was Dr. Russell, Ed Russell, he was the Orange County health officer. And Dr. Leesem.

Ongerth: Wasn't Leesem in San Diego? Alex Leesem.

Gillespie: Yes. That's where his office was. I guess that's right. Practically every health officer and sanitarian in the state I was very close to.

Chall: Before we leave today, I wonder if I could bring us up to about the time when you retired. We haven't talked about Dr. Halverson. He brought in quite a change to the department, I would assume, when he reorganized after the Buck Report.

Gillespie: Yes.

Chall: What kind of a person was Dr. Halverson?

Gillespie: He was fine too! (laughter)

Chall: How did you feel about this major reorganization...

Gillespie: The what?

Chall: His reorganizing the department, so the Bureau was placed in one of the five divisions?

Gillespie: Well, that took place soon after I left.* I don't know--I'm not sure that it's a wise thing. It seems to me that what it amounts to is that you decentralize control. In other words, take our Bureau, now, there must be half a dozen or more, aren't there, scattered around the State, each one on his own decisions. In other words you lose the centralized...

Ongerth: That's right. You're not nearly in so close touch with what's going on, that's absolutely correct.

Gillespie: Well, let's see, is that enough of the people? (laughter)

Chall: I think so.

Ongerth: One thing I wanted to ask you about, Mr. Gillespie...the development of the sewer farm regulations: crop irrigation with sewage effluent and the numbers that were used with the coliform limits. Do you recall how those were established?

Gillespie: That was a pretty early regulation. No, I think most of those figures, the number of B. coli that could be permitted, like in swimming pools and sewer farms and so on, was based on... going back to what the standard was for water supply, going up or down a [rational - H.O.] relationship. Drinking water. There was no other basis for it.

Ongerth: I remember a time when Herb Foster and I had made a sanitary survey we spent a number of days on, on the Conn Reservoir. They were going to build Conn Dam, and I did the sanitary survey. We made a map out of little pieces of paper. We made the map from some big sheets that the division of water resources had. We made the scale convenient to the pieces of paper, and when we came back in you looked at the map and you pulled your scale out of the drawer to figure out some distance someplace,and it was a bastard scale and you were pretty disgusted with us 'cause it was not a normal scale! (loud laughter) Herb and I had worked like mad making that map, worked at night in a...you'd recommended we stay in a little old hotel there off of the main street in St. Helena. You liked those quaint places.

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* The reorganization took place in 1946, just before Mr. Gillespie retired in January, 1947.

Gillespie: Yes. I did. (laughter) Here's a good story. In the early days we had a Ford in the Bureau for traveling, and one day we were traveling homeward from Los Angeles toward Bakersfield over the old ridge route--remember that road?

Ongerth: I know the old Ridge Route, that was a pretty rough old road.

Gillespie: It was about nighttime when we came to the last place we could get anything to eat. Let me see, there was Frank Bachmann, and we were eating away and some fellow breezed in and said he was going to Bakersfield and did anybody want to ride with him. And Frank spoke up and said, "What d'ya got?" He says, "A Stutz!" (laughter) A Stutz was quite a car in those days, see? So Frank signed up for the ride. He left us and joined this other fellow. As soon as we'd finished our meal we went on ahead and we noticed this Stutz never did pass us on the way to Bakersfield. When we got to the hotel where we were going to stay there was still no Frank, and we didn't know what had become of him. We thought he'd gone over the bank. Next morning we went down to breakfast and pretty soon Frank came in and we said, "Well what became of you?" He says, "Aw, that fellow didn't have a Stutz!" (laughter) with a disgusted face.

Ongerth: You mentioned the accident with Ray Goudey up in the Arcata area, you were in another automobile accident in the '30s with Jud up someplace.

Gillespie: Well, it was right near Pinole. That was when the Depression was on, wasn't it? And a lot of people went in for oyster gathering and selling and clam gathering, and one of the spots was the mud flats out of Pinole. So on a Sunday Jud and I thought we'd go and see what we could see about these shellfish gatherers out there. Well we got out on the point, you couldn't see anything, but 'way off up the line there was a lot of little boats out, so we hurried out of where we were. We had to cross some railroad tracks, see, as we got out of that area. It was beginning to get dark--I think they called it the Shasta Run, or something like that--a fast SP train, anyway--came whizzing along. I wasn't driving here either. We landed on the tracks and the train came along and the cow catcher just swished our car--it was a brand new Buick--and hurled us down the track and the track had a bank like this away from it, and pretty soon we whizzed off the tracks and down the slope in the bottom of this gulch. Well, Jud had a bad cut on his nose, just as though it took a cleaver down his nose; but you know I had glasses on, they weren't broken, I didn't have a scratch, a tear or anything (laughter).

Chall: How fortunate.

AMERICAN WATER WORKS ASSOCIATION

Ongerth: Mr. Gillespie, I brought along something that I'll leave and maybe Mrs. Gillespie can read it to you. It's George W. Pracy's account of the formation of the California section of the A.W.W.A. [American Water Works Association]

Gillespie: Oh, yes?

Ongerth: You were involved in that, weren't you?

Gillespie: Yes, yes. Professor Hyde was really the ring leader in that but, there were probably half a dozen others that he'd invited into the meeting, and that's the way it started.

Ongerth: He mentions George Elliott.

Gillespie: Yes.

Ongerth: And Mr. Johns, who came up from Hanford. Do you know who that would be? I don't know that name.

Gillespie: I knew Mr. Johns. Yes, I'd forgotten him, but that's right, he was one of the ring leaders. Yes. Professor Hyde promoted the water works association. But I think it helped him out to have the Bureau connected with it--in it. We had some fellows from pretty far off in that meeting of that organization. I remember Mr. Johns had come up all the way from Hanford to talk about how to organize the water works association.

Ongerth: He mentions M. M. O'Shaughnessy in San Francisco. Did you have any dealings with O'Shaughnessy?

Gillespie: Yes.

CALIFORNIA SEWAGE WORKS ASSOCIATION

Ongerth: I also wanted to ask you about the formation of the California Sewage Works Association about 1928. Can you recall any of the circumstances of the formation of that?

Gillespie: It was already formed in many places in the East. We just

Gillespie Receives Fuller Award At National Convention

A signal honor was received by Chester Gillespie of W. Wilson street during the past week when he attended the American Waterworks Association's national convention in San Francisco. At a dinner in the Fairmont Hotel, the president of the association presented Mr. Gillespie with the annual George Warren Fuller award. This award is given to one member in each section of the association for their distinguished service in the water supply field and in commemoration of the sound engineering skill, the brilliant diplomatic talent and the constructive leadership of men in this association which characterizes the life of George Warren Fuller.

The national association is composed of 10,000 members making up about 19 sections in the U. S., the California group having about 800 members. In presenting the award the president commented on Mr. Gillespie's inspiring leadership and continuing energy in upbuilding research in the technical phases of water purification throughout the State of California.

Mr. and Mrs. Gillespie have been permanent residents of Banning only since last December, although they have been coming to the city for many years in connection with Mr. Gillespie's work as State Sanitary Engineer. They were impressed with our fair city not only because of its climate, but also because of the quiet, friendly atmosphere prevailing here. So, three years ago they bought a home on W. Wilson with the idea in mind of coming here permanently as soon as Mr. Gillespie retired. This he did last December, after thirty-two years of service with the State of California.

Last October Mr. Gillespie, because of his invaluable knowledge in the sanitary field, was appointed special consultant in the Research Grants Division of the U. S. Public Health Service. The purpose of this Division is to stimulate basic research in medical and sanitary sciences. There are twenty three different groups which consider applications for federal funds in these fields, and Mr. Gillespie is the representative for the eleven western states in the sanitation section. These groups meet approximately four times a year in Washington, D. C. to consider applications. Mr. Gillespie will attend the next meeting in the fall.

1947

Gillespie: called a bunch of the fellows together to see about having one in California.

Ongerth: This was something you took the leadership in?

Gillespie: I guess so. I had just returned from the East and I had some facts about their association back there.

Ongerth: And Ed became the first secretary, didn't he?

Gillespie: Yes, I think he did.

Ongerth: You don't remember who any of the people were who helped form the organization?

Gillespie: No, I really don't.

Ongerth: Of course it would have been very logical for the Bureau to be promoting something like that--trying to get it going. You spoke of having gone East. Did you attend regularly each year the meetings of the Conference of State Sanitary Engineers?

Gillespie: No, not every year, but I was also a member of the Society of Civil Engineers and they would pay my way, see? So I'd go East for those things...

Ongerth: You say the A.S.C.E. would pay your way?

Gilespie: Yes.

Ongerth: Well, you must have been an officer, or something then.

Gillespie: Well, I was (laughter) an officer.

Ongerth: I think we'd better go, Mrs. Chall.

Chall: Yes, I think we've done well with the interview.

Hey, Kids!

Saturday Is Kids' Day!
Your Chance To Help!

Saturday, Nov. 19, is National Kids' Day, sponsored by Kiwanis Clubs.

The Banning Kiwanis Club has arranged for an all-day sale of red apples, to be carried on by the boys and girls of Banning. Entire proceeds will go to the kids' welfare fund, to be used throughout the year to make kids' playtime happier and to help needy children.

This is your opportunity to help other kids and to provide fun for yourself.

It's a day when kids will help kids.

Sure, you want to do your part.

So, be on hand before 9 o'clock Saturday morning, at the vacant lot north of the postoffice and Hendricks' Market, where the bike parade will start. If you haven't a bike, you can march in the parade.

The committee wants every youngster in Banning to ride a bike or march in the parade. Streamers will be furnished to the bicycle riders without charge.

Here's all you need to bring with you:

1. A basket, bag or small box to hold the apples you will sell. (Fresh supplies of red apples can be obtained at any of the apple supply depots).

2. A little can (not a jar) to hold the coins you take in.

3. Your lunch, if desired.

4. A bike for the parade, but this is not necessary. You may wish to march.

At the end of the day the boy and girl who have collected the most money will be crowned King and Queen of Banning's first Kids' Day.

Mayor Chester Hendricks has issued an official proclamation declaring Saturday, Nov. 19, as Kids' Day in Banning.

Kids' Day may not be a success unless You help. Urge all the kids you know to help. Tell all your friends about it.

Remember, "An apple today keeps the kids at play."

The other kids and the grown-ups of Banning will be looking for you in the parade Saturday morning.

Further particulars on Page 2, Section 2, of this newspaper.

KIDS' DAY LEADER—Chester Gillespie, chairman of Kiwanis Club committee who has charge of Kids' Day celebration in Banning on Saturday.

INDEX - CHESTER G. GILLESPIE

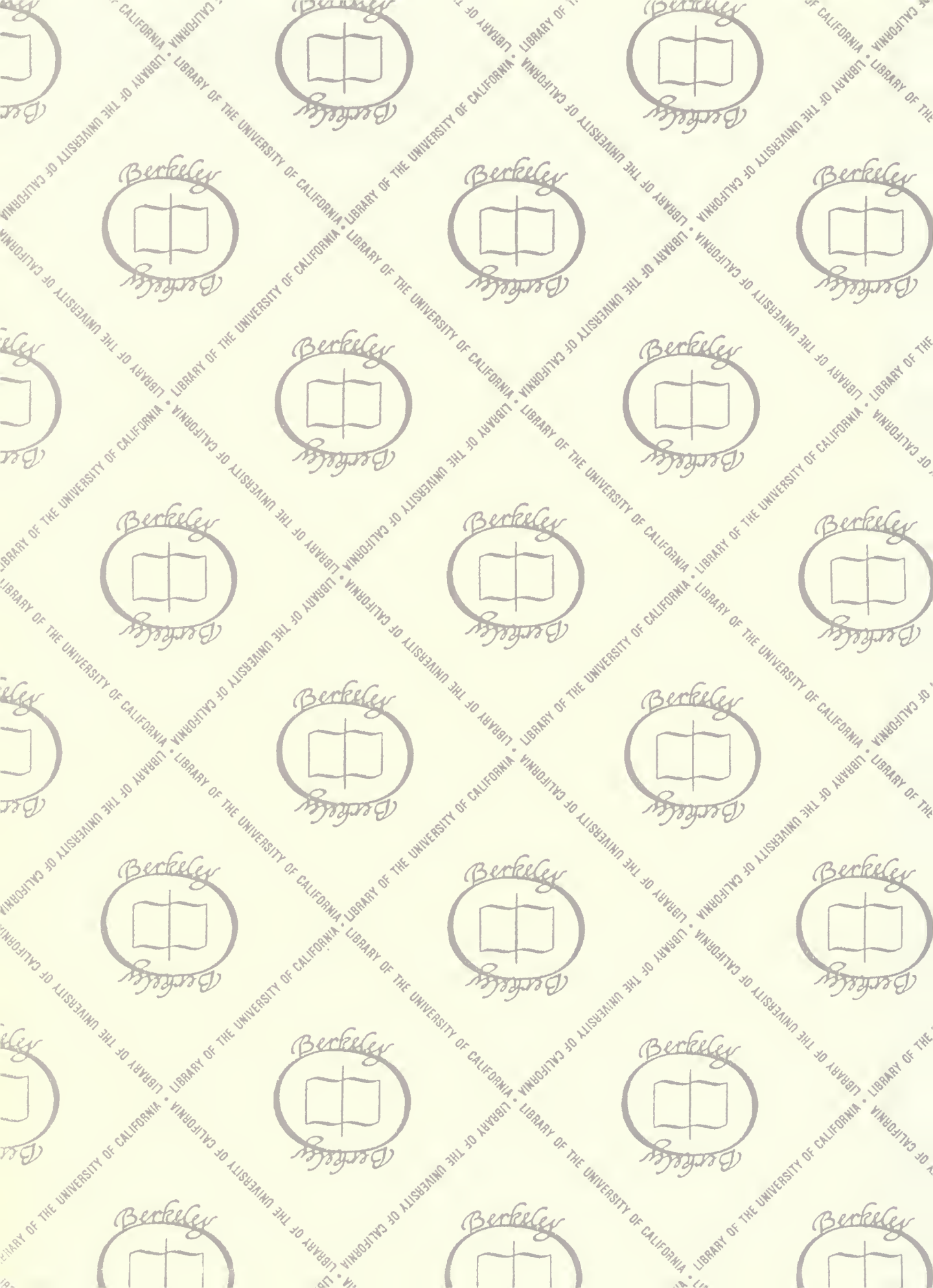
Malca Chall

Graduated from Reed College in 1942 with a B.A. degree, and from the State University of Iowa in 1943 with an M.A. degree in Political Science.

Wage Rate Analyst with the Twelfth Regional War Labor Board, 1943-1945, specializing in agriculture and services. Research and writing in the New York public relations firm of Edward L. Bernays, 1946-1947, and research and statistics for the Oakland Area Community Chest and Council of Social Agencies 1948-1951

Active in community affairs as a director and past president of the League of Women Voters of the Hayward Area specializing in state and local government; on county-wide committees in the field of mental health; on election campaign committees for school tax and bond measures, and candidates for school board and state legislature.

Employed in 1967 by the Regional Oral History Office interviewing in fields of agriculture and Jewish community history.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