An Interview with

CHIC HECHT

An Oral History produced by
Robert D. McCracken

Yucca Mountain Series

Nye County Town History Project
Nye County, Nevada

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PREFACE

The Nye County Town History Project (NCTHP) engages in interviewing people who can provide firsthand descriptions of the individuals, events, and places that give history its substance. The products of this research are the recordings of the interviews and their transcriptions.

In themselves, oral history interviews are *not* history. However, they often contain valuable primary source material, as useful in the process of historiography as the written sources to which historians have customarily turned. Verifying the accuracy of all of the statements made in the course of an interview would require more time and money than the NCTHP's operating budget permits. The program can vouch that the statements were made, but it cannot attest that they are free of error. Accordingly, oral histories should be read with the same prudence that the reader exercises when consulting government records, newspaper accounts, diaries, and other sources of historical information.

It is the policy of the NCTHP to produce transcripts that are as close to verbatim as possible, but some alteration of the text is generally both unavoidable and desirable. When human speech is captured in print the result can be a morass of tangled syntax, false starts, and incomplete sentences, sometimes verging on incoherence. The type font contains no symbols for the physical gestures and the diverse vocal modulations that are integral parts of communication through speech. Experience shows that totally verbatim transcripts are often largely unreadable and therefore a waste of the resources expended in their production. While keeping alterations to a minimum the NCTHP will, in preparing a text:

a. generally delete false starts, redundancies and the *uhs*, *ahs* and other noises with which speech is often sprinkled;

b. occasionally compress language that would be confusing to the reader in unaltered form;

c. rarely shift a portion of a transcript to place it in its proper context;

d. enclose in [brackets] explanatory information or words that were not uttered but have been added to render the text intelligible; and

e. make every effort to correctly spell the names of all individuals and places, recognizing that an occasional word may be misspelled because no authoritative source on its correct spelling was found.

ACKNOWLEDGMENTS

As project director, I would like to express my deep appreciation to those who participated in the Nye County Town History Project (NCTHP). It was an honor and a privilege to have the opportunity to obtain oral histories from so many wonderful individuals. I was welcomed into many homes—in many cases as a stranger—and was allowed to share in the recollection of local history. In a number of cases I had the opportunity to interview Nye County residents whom I have long known and admired; these experiences were especially gratifying. I thank the residents throughout Nye County and Nevada—too numerous to mention by name—who provided assistance, information, and photographs. They helped make the successful completion of this project possible.

Appreciation goes to Chairman Joe S. Garcia, Jr., Robert N. "Bobby" Revert, and Patricia S. Mankins, the Nye County commissioners who initiated this project in 1987. Subsequently, Commissioners Richard L. Carver, Dave Hannigan, and Barbara J. Raper provided support. In this current round of interviews, Nye County Commissioners Butch Borasky, Lorinda A. Wichman, Joni Eastley, Gary Hollis, Fely Quitevis, and Dan Schinhofen provided unyielding support. Stephen T. Bradhurst, Jr., planning consultant for Nye County, gave enthusiastic support and advocacy of the program within Nye County in its first years. More recently, Darrell Lacy, Director, Nye County Nuclear Waste Repository Project Office, gave his strong support. The United States Department of Energy, through Mr. Lacy's office, provided funds for subsequent rounds of interviews. Thanks are extended to Commissioners Eastley and Hollis and to Mr. Lacy for their input regarding the conduct of this research and for serving as a sounding board when methodological problems were worked out. These interviews would never have become a reality without the enthusiastic support of the Nye County commissioners and Mr. Lacy.

Jean Charney served as editor and administrative assistant throughout the project; her services have been indispensable. Valerie Brown, Jean Charney, Robert B. Clark, Anna Lee Halsig, Debra Ann MacEachen, Lynn E. Riedesel, and Marcella Wilkinson transcribed a number of interviews, as did the staff of Pioneer Transcription Services in Penn Valley, California. Julie Lancaster and Suzy McCoy provided project coordination. Proofreading, editing, and indexing were provided at various times by Marilyn Anderson, Joni Eastley, Michael Haldeman, Julie Lancaster, Teri Jurgens Lefever, and Darlene Morse. Joni Eastley proofed most the manuscripts and often double-checked, as accurately as possible, the spelling of people's names and the names of their children and other relatives. Jeanne Sharp Howerton provided digital services and consultation. Much-deserved thanks are extended to all these persons.

All material for the NCTHP was prepared with the support of the Nye County Nuclear Waste Repository Office, funded by the U.S. Department of Energy. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author and the interviewees and do not necessarily reflect the views of Nye County or the U.S. DOE.

—Robert D. McCracken
2013

INTRODUCTION

Historians generally consider the year 1890 as the close of the American frontier. By then, most of the western United States had been settled, ranches and farms developed, communities established, and roads and railroads constructed. The mining boomtowns, based on the lure of overnight riches from newly discovered mineral deposits, were but a memory.

Nevada was granted statehood in 1864. But examination of any map of the state from the late 1800s shows that, although most of the state had been mapped and its geographical features named, a vast region—stretching from Belmont south to the Las Vegas meadows, comprising most of Nye County—remained largely unsettled and unmapped. In 1890, most of southcentral Nevada remained very much a frontier, and it continued to be so for at least another twenty years.

The spectacular mining booms at Tonopah (1900), Goldfield (1902), Rhyolite (1904), Manhattan (1905), and Round Mountain (1906) represent the last major flowering of what might be called the Old West in the United States. Consequently, southcentral Nevada, notably Nye County, remains close to the American frontier; closer, perhaps, than any other region of the American West. In a real sense, a significant part of the frontier can still be found in southcentral Nevada. It exists in the attitudes, values, lifestyles, and memories of area residents. The frontier-like character of the area also is visible in the relatively undisturbed quality of the natural environment.

Aware of Nye County's close ties to our nation's frontier past, and recognizing that few written sources on local history are available, especially after about 1920, the Nye County Commissioners initiated the Nye County Town History Project (NCTHP) in 1987. The NCTHP represents an effort to systematically collect and preserve information

on the history of Nye County. The centerpiece of the NCTHP is a large set of interviews conducted with individuals who had knowledge of local history. Each interview was recorded, transcribed, and then edited lightly to preserve the language and speech patterns of those interviewed. All oral history interviews have been printed on acid-free paper and bound and archived in Nye County libraries, Special Collections in the Lied Library at the University of Nevada at Las Vegas, and at other archival sites located throughout Nevada. The interviews vary in length and detail, but together they form a never-before-available composite picture of each community's life and development. The collection of interviews for each community can be compared to a bouquet: Each flower in the bouquet is unique—some are large, others are small—yet each adds to the total image. In sum, the interviews provide a composite view of community and county history, revealing the flow of life and events for a part of Nevada that has heretofore been largely neglected by historians.

Collection of the oral histories has been accompanied by the assembling of a set of photographs depicting each community's history. These pictures have been obtained from participants in the oral history interviews and other present and past Nye County residents. In all, more than 700 photos have been collected and carefully identified. Complete sets of the photographs have been archived along with the oral histories.

On the basis of the oral histories as well as existing written sources, histories have been prepared for the major communities in Nye County. These histories have been published by Nye County Press, the county's publishing department. All the oral histories, as well as the community histories, are available on the Internet.

The Nye County Board of County Commissioners, while motivated by the study of history for history's sake, initiated the NCTHP in 1987 principally to collect

information on the origin, history, traditions and quality of life of Nye County communities that would be impacted should the nation's first high-level nuclear waste repository be constructed deep inside Yucca Mountain on federal land in southcentral Nye County. Understanding such impacts would aid in their mitigation. Moreover, if the repository were built, it would remain a source of public interest for a very long time and future generations would likely want to know more about the people who once resided in the area. If the site should be found unsuitable and the repository never constructed, then materials compiled by the NCTHP would nevertheless be available for the use and enjoyment of future generations.

In 2010 the Nye County Commissioners and Darrell Lacy, Director, Nye County Nuclear Waste Repository Office, approved funding for collection of a round of oral histories from individuals who had played important roles in the U.S. Department of Energy's effort to assess the suitability of Yucca Mountain as a site for permanent storage of the nation's high-level nuclear waste. (The term high-level nuclear "waste" is very much a misnomer. The vast majority of the energy originally present in the nuclear fuel remains when the spent fuel—i.e., waste—is removed from the reactor. The spent fuel needs only to be reprocessed in order to make the remaining energy available for reuse. The proper term is thus not nuclear waste, but "spent nuclear fuel.")

The search for a permanent storage site for spent nuclear fuel was authorized by the Nuclear Waste Policy Act passed by Congress in 1982, as amended in 1987. Initially, several potential sites for construction of a permanent repository were considered; the 1987 legislation narrowed the suitability search to one site, Yucca Mountain.

Over the years, several thousand scientists and engineers participated in the study of Yucca Mountain's suitability for permanent storage of spent nuclear fuel, with several

billion dollars expended on the effort. In all that research, nothing was found that would disqualify Yucca Mountain as a safe permanent storage site. Then, in 2008, in a step prescribed by the 1982 and 1987 legislation and based on the research findings, the U.S. Department of Energy applied to the Nuclear Regulatory Commission (NRC) for authorization to begin construction and move forward with development of a permanent repository at Yucca Mountain. The NRC was then required by law to evaluate the DOE's application and vote up or down on it—build it or forget it. That was and remains the law!

Beginning in 1983, the issue of possible construction of a permanent repository at Yucca Mountain gradually became controversial among many in Nevada. A number of high-profile politicians expressed strong opposition to the idea of storing spent fuel at Yucca Mountain from the beginning, regardless of the site's technical suitability. Several increased their political power through their outspoken opposition, essentially doing everything legally possible to block the effort. Public opinion in Las Vegas about Yucca Mountain, which was rather mild and mixed in the beginning, gradually became somewhat negative over the years, especially after 1987, when Yucca Mountain was singled out as the only candidate. Yet at the same time, public opinion in rural Nevada began and remained accepting of the program, especially in counties located closer to Yucca Mountain itself.

Nevada Congressman Harry Reid rode his strong outspoken opposition to Yucca Mountain to election to three terms in the U.S. Senate. In January 2007, he was chosen Senate Majority Leader by the majority Democrats. Newly elected President Barak Obama was highly dependent on Senator Reid for passage of his own legislative agenda. In order to mollify Senator Reid, all funding for any further work on Yucca Mountain

was killed and the Nuclear Regulatory Commission (NRC), under Chairman Gregory Jaczko's maneuvering, was prevented from voting up or down on the Department of Energy's application to move forward with development of the repository. Many believe that a vote by the NRC was prevented because approval by the NRC staff was likely. Thus, one man—in this case, Senator Reid—in effect played a pivotal role in overriding the legal process prescribed by law. The findings of more than two decades of carefully conducted research costing several billion dollars were casually set aside.

In the meantime, spent nuclear fuel continues to accumulate at temporary storage facilities located near nuclear reactors at more than 45 locations around the country, some near very large cities, including Chicago.

About the Yucca Mountain Interviews

Dr. Michael Voegele held numerous positions with DOE contractors in assessing Yucca Mountain's suitability for permanent storage of spent nuclear fuel from 1981 to 2009, and continued after that as a consultant to Nye County. Perhaps more than anyone, he has a comprehensive view of the more than three decades of research about the safety of Yucca Mountain. He personally knew many of the scientists and engineers involved in the effort, including what their work consisted of and how it all came together. Given such expertise, he played a key role in selecting the majority of individuals we interviewed on Yucca Mountain history. Dr. Voegele assisted in many of the interviews and was also interviewed by me at length. Together, these interviews provide a boots-on-the-ground perspective of the assessment process in evaluating Yucca Mountain's suitability as a permanent repository site. Individuals interviewed were Drs. Thomas Cotton, Russ Dyer, Ned Elkins, Don Vieth, Jean Younker, and Michael Voegele.

Two Nye County officials who played significant roles in the Yucca Mountain effort for Nye County over the years were interviewed. Steve Bradhurst was the first director of the county's nuclear waste office, serving from 1983 through 1993. He was interviewed twice, in 1991 and again in 2010. Gary Hollis served as a Nye County Commissioner from 2005 to 2012 and in effect functioned as the commission's point man on the Yucca Mountain project during his time in office. He also was employed on drilling efforts associated with the assessment at Yucca Mountain prior to being elected a commissioner.

As noted, the idea of permanently storing spent nuclear fuel at Yucca Mountain became a heated political topic in Nevada beginning in 1983. To be fair and to give as broad a perspective as possible, we also conducted oral histories with politically focused individuals who represented differing viewpoints on Yucca Mountain. Former Nevada U.S. Senator Chic Hecht was a strong supporter of Yucca Mountain from the outset; he was interviewed in 2004. Former Nevada Governor, subsequently U.S. Senator, Richard Bryan, a strong and vigorous opponent of Yucca Mountain from the beginning, was also interviewed. At the conclusion of that interview in 2011, although by then I was a strong proponent of Yucca Mountain, Senator Bryan told me I "had been very fair." As a professional anthropologist, I take a lot of pride in his compliment. Bob Loux from almost the outset of the Yucca Mountain effort in 1983 functioned as the state of Nevada's anti-Yucca Mountain point man in his position as director of the state of Nevada Agency for Nuclear Projects. His job, as he acknowledged in his oral history, was to do anything legally possible to prevent a Yucca Mountain repository from ever becoming a reality. As with Senator Bryan, the interview with Mr. Loux went well.

Unfortunately, U.S. Senator Harry Reid, despite repeated requests, did not make himself available for an interview.

Three additional interviews were conducted outside this Yucca Mountain interviewing effort, though still using Yucca Mountain funds. These individuals played important roles in the Yucca Mountain assessment effort. Troy Wade previously worked for the Department of Energy; he was Assistant Secretary of Energy for Defense Programs in 1987–1988. He was interviewed as part of the NCTHP. Carl Gertz was Yucca Mountain Director from 1987 to 1993 and earlier worked for the DOE at the Idaho National Engineering Laboratory. Ed Mueller worked for a U.S. Department of Energy contractor as a liaison between the Yucca Mountain project office and counties impacted by Yucca Mountain located in Nevada and California. Both Mr. Gertz and Mr. Mueller were interviewed under the Esmeralda County History Project.

Together, these interviews comprise a body of valuable information obtained from individuals representing a variety of perspectives on this important effort in our nation's energy history. A credible history of Yucca Mountain cannot be written without incorporation of such variable knowledge and perspectives. If development of a permanent repository at Yucca Mountain moves forward, such information on how the site was evaluated and on the enormous amount of work involved in demonstrating its suitability will prove invaluable once construction begins. The same applies for selection of a second or third repository site, and for the efforts of other nations to construct repositories as well. If the Yucca Mountain effort never moves forward, these interviews still will be helpful in understanding the great effort that went into the evaluation of Yucca Mountain as a site for permanent storage of spent nuclear fuel. It unfortunately

also tells how a good part of the more than $11 billion spent in evaluation was in large measure wasted, not for technical faults, but for political expediency.

Opinions expressed in this introduction and in the oral history interviews do not necessarily reflect the views of Nye or Esmeralda County officials.

These interviews have been organized into four volumes and published by Nye County Press, publishing imprint owned by Nye County, Nevada. A master index covering all four volumes is included.

—RDM
2013

INTRODUCTION BY MICHAEL VOEGELE

This series of interviews with Dr. Robert McCracken, undertaken as a part of the Nye County Town History Project, focused on the Yucca Mountain project. The Yucca Mountain project oral histories were developed as part of Nye County's efforts to record information related to the project as an ancillary part of the Yucca Mountain history exhibits in the Pahrump Valley Museum. The Nye County Commissioners believed that it was important to capture this historical information, as the Department of Energy had made every effort to disassemble the project and its records when the Obama Administration made the decision that the project was unworkable, and created the Blue Ribbon Commission on America's Nuclear Future to undertake a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel and nuclear waste.

I worked with Dr. McCracken on the selection of the interviewees, and on several occasions participated as an interviewer. We consciously tried to identify interviewees who had been involved at the heart of the technical story of Yucca Mountain. Because funds were not unlimited, we needed to select carefully a relatively small number of interviewees. There were potential interviewees that we were not able to talk to because they had moved on to other venues following the Department of Energy's termination efforts and we simply were not able to accommodate schedule problems. We also tried to ensure a balance of perspectives on the project. Readers will find that the interviews tend to focus on a portion of the project's history or a major technical element of the project. In recognition of this, we decided that there ought to be an interview that attempted to

encompass as much of the project's history as possible, bearing in mind that the relevant history covers nearly 70 years.

The interview Dr. McCracken conducted with me is that document. While my tenure on the program was longer than most, I certainly do not have firsthand knowledge of the earlier parts of the program. I have, however, long studied the origins and early history of the project. My time on the high-level waste disposal program dates from the mid-1970s to the present, and I did not necessarily have significant involvement in everything talked about in that document. I am particularly indebted to Dr. Donald Vieth for the many discussions we had on the earlier parts of the program and found it fascinating how together we helped each other remember so much of the program's early history.

I felt it was important to offer the caveat that it would not surprise me to find that a reader remembered things differently than I did, or believed that I was mistaken in my recollections. I accept responsibility for any such errors; I can only say it has been a long time. It is also important to acknowledge the time so graciously accorded us by the interviewees. I suspect that some of them wish, as I do, that there had been references available to check some of our memories. I can only say thank you for trying to help us collect some important information.

I'd like to particularly thank Nye County Commissioners Gary Hollis and Joni Eastley for their enthusiastic and unwavering support for the interview project and the museum displays, and Dr. McCracken for his skill as an interviewer.

Michael D. Voegele
2013

This is Bob McCracken talking to Senator Chic Hecht at the Las Vegas Country Club April 9, 2004.

CHAPTER ONE

RM: Senator, before we started recording you were talking about Dr. Teller and the lack of respect he had.

CH: We're discussing nuclear waste and the problem in Nevada, and how I spent so many years on this problem studying every aspect of it, seeking out the most brilliant minds in the world. No. 1 was Dr. Edward Teller, the father of the H-bomb, who was a close associate of Einstein. All my life I have sought advice from people I felt were the most brilliant in their own profession or career. So I went to Dr. Teller. He was a very humble man. He was very happy that I sought his counsel and he always had time for me. He felt that Congress should listen to the scientists more than to the political people.

Besides Dr. Teller, I spoke to the top scientists in France, Sweden, and China, all countries that had nuclear power. And after studying the nuclear problem for many years, it was obvious there was no problem. It's a political problem, not a scientific problem. People want to use different things for politics, and nuclear power has been a red flag up and down the line, probably because of incidents like Three Mile Island.

When the nuclear program in America was started, there was no issue with nuclear waste. The way the program was set up, nuclear waste was to be reprocessed and recycled, and that would be it. This plan was changed during President Carter's tenure; I've never understood why. But because it was, nuclear waste became a major problem for Nevada. The waste was supposed to come out to the Nevada Test Site. At the time the regulations were established to make the Nevada Test Site a nuclear waste storage facility, we were in a cold war with Russia. We were still testing nuclear bombs to make

sure they worked because we did not know what the situation was in the cold war, and we had to be ever alert.

There was one school of thought, politically speaking, that said we should not have any nuclear waste. But that same group felt that we should have tests of nuclear bombs because we had to be armed. I never understood this; but that was the feeling of a lot of people.

RM: That they could have bombs but no waste? That's a contradiction, isn't it?

CH: Yes. There are areas of the Nevada Test Site that you won't be able to walk on for 25,000 years at the earliest. So it seemed to be, to the people in Washington, a good spot. Nuclear waste is building up tremendously all over the United States, and it's very, very dangerous. The government is spending tens of billions of dollars studying Yucca Mountain as a repository for the nuclear waste.

This is totally unnecessary. As I said before, there is no problem. France, which is above 80 percent nuclear, had no gas and no coal after the Second World War so they had to have some type of energy. They went to nuclear. I was with members of the Senate Energy Committee—Senator Bennett Johnson was the chairman at the time. We went to France, talked to all the scientists, and observed everything—they reprocess the waste and they recycle it. There is a tiny reside left over from the reprocessing and the recycling. It is a safe residue. It was stored in a room roughly the size of a basketball court under about 10 feet of concrete. I walked over it; there was absolutely no "hot stuff," as I like to call it. Japan sends their nuclear waste to France, or they did at the time; so does China. But in America, we have a political problem.

RM: How did the political problem evolve, in your opinion? You can start in whatever era you'd like. What are the roots of the anti-nuclear phenomenon that we see in this

country? Do they go back to the ‘30s, or maybe to Hiroshima, or is it more recent—a political position that people have assumed?

CH: It became a real Democrat-and-Republican situation. Generally, the Democrats were against nuclear power and the Republicans were for it because we were in the cold war and we had to have nuclear testing. You can build a nuclear bomb and put it on the shelf, and three years later it might work, and it might not work; therefore, they have to test it.

RM: By the time the Nuclear Waste Policy Act was passed in December of ’82, they had already exploded probably close to 1,000 nuclear devices on the Test Site. How is it Nevada became anti-nuclear?

CH: That’s a good question, and it wasn’t all of Nevada that became anti-nuclear; many people felt that there were a lot of jobs on the Test Site and that we are in the nuclear age, whether you like it or not. Too many advances have been in the field of nuclear medicine and so on, and nuclear medicine is in practically every hospital in America today. To say you’re going back to the non-nuclear age is just fantasy. The labor unions, who are generally pro-Democratic and anti-Republican, were very much in favor of a nuclear waste repository because of the jobs it created, and they realized that there is a place for nuclear energy in the future.

RM: Now, you were elected in 1982. Were you in the Senate when the Nuclear Waste Bill was passed in 1982?

CH: No, I took office in ’83.

RM: I was at the first meeting the DOE held in Las Vegas March 30, 1983, about siting a nuclear waste repository at Yucca Mountain. Governor Bryan came in with his entourage and he announced that he was unalterably opposed to placing high-level

nuclear waste in Nevada. I was shocked when he announced that. In your opinion, did his decision come out of the blue? Was he staking out political territory, or what?

CH: In my opinion, he was staking out political territory, just as the county commissioner who said, "I will lay down in the track and die before I'll let them bring in nuclear waste."

RM: How did opinion change so drastically? I mean, exploding A-bombs on the Test Site was a tourist attraction in the '50s.

CH: That is correct; I used to get up in the middle of the night and watch them. The only answer I can give you is, it's politics. The Democrats were against nuclear power and the Republicans were for it.

RM: That is my perception, not being in the center of things, of what happened. Governor Bryan was the first one I know of to stake out this territory. And Harry Reid, who was a congressman then, got on the bandwagon and the other Democrats got on the bandwagon. Do you think it was purely political?

CH: In my opinion, yes. I wish you would take the time to call them up and ask them.

RM: I wonder if they'd talk to me. Harry Reid won't talk to me, I don't think. He knows that I'm for the repository and has given me a complete cold shoulder. I don't know about Bryan.

CH: In politics, I think you should talk to both sides on every issue. How can you just talk to one side and make a decision?

RM: Right. So early on, the Republicans were basically at least neutral on Yucca Mountain; is that your recollection?

CH: Let me speak just for myself, since I was a senator at the time. I was on the Senate Intelligence Committee; I'm a former intelligence agent. I'm very proud of my service to

the country, and I'm in the Army Intelligence Hall of Fame. While Stalin was ruling Russia, I was behind the Iron Curtain 18 months as an intelligence agent; a spy.

RM: That's amazing. There are a lot of good stories there, I'll bet.

CH: [Chuckles] A lot of good stories. Well, getting back, we had to test these bombs. As long as we had to test these bombs, I could not see being against a repository. But I started traveling the world and talking to people because I saw that this was a huge issue for Nevada, the state I represented in the United States Senate. I started my long trek, which took several years and hundreds of interviews, with people working with me, and after years of studying the problem, talking to the most brilliant geniuses in the world, the realization came, there is no problem. [Laughs]

RM: How did people like Bryan and Reid know how to stake out Yucca Mountain as an issue? Did they do it deliberately because they knew it was an issue that had legs?

CH: Of course, because there's a fear factor; fear factors are always wonderful political issues. You've got nuclear waste—it's far more dangerous not to reprocess and recycle it. Let's go back and get rid of it by reprocessing. I have to say, Robert, I appreciate your taking the time to talk to me, because I hope that you're on the inside to get it out to the American people that they're wasting tens of billions of dollars for an unsafe method.

Dr. Teller and I traveled to Europe together one time on nuclear waste. He said, "If Nevada has to have the nuclear waste, make sure you get the license to keep it—that it belongs to the state of Nevada. Because in 50, 75 years, it is going to be so valuable that you'll never have to have any taxes in Nevada."

RM: He saw its value in generating energy?

CH: Absolutely. He said, "You're going to run out of gas and oil, and in 50, 75 years,

nuclear power's going to be all over the world. Maintain and keep that nuclear waste in the state of Nevada's name."

RM: Did Teller ever talk about transmutation?

CH: Oh, absolutely. I brought one article with me today. It was from the Reno paper, which was never on my side politically. They were always against me. This is from Wednesday, November 3, 1999, Opinion, *Reno Gazette-Journal.* "Congress should fund transmutation research. Nuclear waste. Converting the stuff to low-level usable material is far better than a dump in Nevada. Back in the mid- to late-1980s, then-Senator Chic Hecht was largely ignored when he argued for the transmutation of nuclear waste. He believed fervently that the waste could and should be converted to low-level material that could be reused. Europe was doing it, he said, so why not the United States? But try as he might, Hecht could not transmute public and official indifference into golden enthusiasm. So it is more than a little interesting that a new report concludes that the United States should indeed investigate the possibility. Congress, having been struck by lightning or otherwise transported into a state of revelation, ordered this report a year ago. And though the result had not been released by the Department of Energy, Washington reporters have gained access to it. Hecht is more than vindicated."

RM: That's amazing. When did you first start advocating transmutation?

CH: In '83. We called it reprocessing, recycling; it was the same situation.

RM: Did you talk to other top scientists besides Teller?

CH: No one the caliber of Dr. Teller. I went to Stanford several times to meet with him and there were a lot of scientists there. When you walk into a room with Dr. Teller and maybe 20 scientists, you don't remember their names.

RM: Right. Now, you came into the Senate immediately after the passage of the

Nuclear Waste Policy Act and you saw a problem there that needed to be solved. Who was the other senator from Nevada?

CH: Paul Laxalt.

RM: What was Laxalt's attitude?

CH: He more or less went along with the administration.

RM: Which would have been Reagan, right?

CH: That is correct. The administration at that time was just beginning to get their policy together, when Senator Bennett Johnson—I don't think it was '83; probably '84—started putting together a nuclear waste policy. And we started traveling around. We found that only America has a problem with nuclear waste. Other countries have nuclear power plants, but only America has a problem. As I said, the problem was, there was no problem, but it was a political problem.

RM: When did Laxalt retire from the Senate?

CH: I think in '86.

RM: He was very close to Reagan, wasn't he?

CH: Yes. He was Reagan's campaign manager.

RM: I have an article from it's probably '87, '88, where Harry Reid viciously attacks Laxalt, saying that he never did a thing to prevent nuclear waste from entering Nevada. What's your take on that? It's obviously political, but . . .

CH: It's obviously political. Harry was a congressman then. There was a feeling in the Senate at the time that you never attacked a colleague or former colleague in Congress, but all that's changed now.

RM: Then you had Reid ascending to the Senate. Did he beat Laxalt?

CH: No, Laxalt retired.

RM: OK, then Harry Reid ran and won.

CH: Jim Santini became a Republican, and Harry Reid was elected to the Senate. Dick Bryan ran against me and won.

RM: So now you had two Nevada senators who were really milking this issue, right?

CH: To the fullest.

RM: Nye County's nuclear waste consultant, Steve Bradhurst, met with officials from the Nuclear Energy Institute, I think, in the early or mid-'80s. They asked him, "What will Nevada take to take the repository? What do they want for the repository?"

He said, "Well, how about the super collider?"

They said, "OK, we'll get you that. What else do you want?"

He said, "What about the super train to LA?"

And they said, "OK. What else do you want?"

He said, "I'll have to get back with you on that."

And I have an article in which Bennett Johnson, some time around '86, '87, says, "OK, Nevada, what do you want? We want to solve this problem. What do you want?" What's your take on what Nevada has lost because of this political opposition to the repository?

CH: You've asked a question that I've never spoken about in any interview when I was a U.S. Senator or later. You hit upon a very important point. Bennett Johnson and I were very friendly. What Nevada could have received is beyond comprehension. I was offered by the Secretary of Energy the possibility, which I felt was very forthcoming, of a huge university in conjunction with the University of Nevada, Las Vegas, that would have more Nobel Prize scientists here working on the future of nuclear power, nuclear medicine, and so forth, than anywhere in the world. Nevada had the largest laboratory in

the world—the Nevada Test Site. That was to be the university of far-reaching thinking. Dr. Teller and many other people endorsed it. This was given to me by great authority—the highest authority at the time—as a senator.

I brought it back and made an appointment with the then-head of the university, Bob Maxim, telling him Nevada would be the primary scientific university of the world. I was not laughed at, but I was told that if any professor at the university would endorse this policy, they would not have a job the next day.

RM: No kidding! So the president was responding to political opinion and pressure, right?

CH: Absolutely.

RM: Is there anything else you can say about what we have lost because of that political opposition to a repository?

CH: Knowledge is the key to the future, and the fact that you would have so many Nobel Prize winners here in Nevada, and there are parts of the Nevada Test Site where the radioactive materials have a half-life of 25,000 years. But we are in the nuclear age. You can't say we're half nuclear and not—that's sort of like the old saying, there's no such thing as being a little bit pregnant. You are or you're not. We are in the nuclear age, so let's face up to it and adapt.

RM: In your opinion, do you think there's still an opportunity for Nevada to change its ways and get smart?

CH: No, I think the opportunity has come and gone. Hard feelings and shortsightedness are overwhelming everything now. In addition to the university, I think there would have been cash amounts at the end of the year, too.

RM: In addition to the university?

CH: In addition. Plus, total funding.

RM: We're talking billions here, right?

CH: We're talking billions.

RM: Flabbergasting. [Laughs]

CH: I admire you, Bob, for calling me, because you never know what you're going to get until you interview someone.

RM: I thought, "I've got to talk to him because he was right there when it was happening." My impression all along was, the Democrats have been playing this as a cynical political issue; and I have lost respect for them because of it.

CH: This nuclear university would affect everyone in the world because nuclear medicine is the medicine of the future. Cancer is one of the most feared diseases, and nuclear medicine is on top of the cancer cure. This could be so far-reaching and beneficial to everyone. I just can't believe people would be so short-sighted. If I had cancer, and nuclear medicine could save my life, would I not do it because of politics? It's idiotic; of course you would.

RM: Right. Can you give me any more details about how Nevada's intransigent position evolved? Did you have conversations with Dick Bryan or Harry Reid about the issue?

CH: No. They staked out a spot; they were intransigent and could not be moved and felt it was a wonderful political spot to be in. And they were right. Did they represent the state? In my opinion, no. Did they represent humanity? Closing the door on nuclear medicine and putting it back 50 years? I think they did an injustice to humanity in the far bigger picture than winning an election. If you could save tens of millions of lives, which nuclear medicine has certainly demonstrated it can do, how can you close your eyes to

that? You have an obligation as a human being to help other human beings, whether they're in America or around the world.

RM: What is your sense of the evolution of public opinion in Nevada on the Yucca Mountain issue, from when you took office through when you left office?

CH: The elected officials in Nevada have been so one-sided, and the press and everyone covers them, that I don't think the people gained a true picture.

RM: What's your take on the polls now that say 70 or more percent are against Yucca Mountain in Nevada?

CH: There's been a concentrated effort to mold that opinion in the last 20 years, and it's working.

RM: Is it reversible in any sense?

CH: It is reversible if you stick to scientific facts and go back and reprocess and recycle. People asked me, "Where would you do this reprocessing? Would you do it in Nevada?" And the answer is, "No, we can't do it in Nevada because we don't have enough water; you have to be on one of the oceans." You have to have a lot of water.

But by being on one of the coasts, you don't have to worry so much about transportation. That's what they're saying right now—a train can derail, a truck can have an accident. I think in the original act laying out reprocessing/recycling, there were two spots, one on the East Coast and one on the West Coast, for this purpose.

RM: Would South Carolina have been one?

CH: I can't recollect that.

RM: Did you ever get down to South Carolina? They don't seem to be as hard on anti-nuclear in South Carolina as people in Nevada are.

CH: I don't remember anything about that. How about the people from New Mexico?

They welcomed it.

RM: Is it your sense that Harry Reid and Dick Bryan basically mortgaged the farm to keep Yucca Mountain out of here? I've heard that their hard position against Yucca Mountain has cost them all kinds of leverage in the Congress.

CH: I wouldn't know; I don't have access to that information.

RM: Apparently if they have an idea for a bill that might help Nevada, and they go to the committee chairmen or whatever, the chairmen say, "Well, we'd be for that, but what about your opposition to Yucca Mountain, for God's sake?" and then the issue is dead. Nevada doesn't get very much pork. Compared what Peter Domenici brings home to New Mexico, Reid and those guys aren't bringing home that much.

CH: Let's talk about Domenici, who is a good friend of mine. He and I both served on the Senate Energy Committee and by his speaking out, an entirely different situation developed in New Mexico than it did in Nevada. People in New Mexico welcomed the jobs. They built superhighways down to the WIPP repository, which is a medium-level waste repository. There's just a whole different attitude.

RM: And part of that is from the leadership?

CH: I think 100 percent of it's from the leadership.

CHAPTER TWO

RM: I've seen recent estimates that DOE thinks the cost of Yucca Mountain will be over $50 billion; and a lot of that money could be coming into Nevada. Let me give you a vision that I have, and see if it's in any way meaningful to you. Of course, there is the concern about the water issue. But I can see a repository out at Yucca Mountain, and I can see a nest of transmutation or recycling centers out there with reactors that are burning the recycled waste.

And there's the Western power grid, which is like a big doughnut around the West. Nevada could be sitting there pumping energy into the Western power grid, and at the same time, we could be doing major wind and solar projects out there so that the Test Site, kind of like the university proposal, could become a major energy center for the world—people could come to study and learn and see how we're going to solve humanity's energy problems.

CH: That was exactly what the secretary of energy and the politicians in Washington had in mind.

RM: There's another thing—this is a little more doable at this point. I've spent a little bit of time at Los Alamos, New Mexico. Los Alamos is kind of a science city. I've kind of got a vision of a science city out near Yucca Mountain—a planned, beautiful place where people from around the world would come to study. You would have great scientists there working on energy and solving energy-related problems. The city would be designed like a city of the future and it would be called "Science City."

My brother Mike works in the film industry and is pretty close to some of the

people who designed Epcot for Disneyland. We could get people like that involved in a pilot project to develop plans for a Science City to help sell the whole thing, maybe in Vegas, but particularly more in rural Nevada, particularly Nye County. Does that resonate at all with you?

CH: Absolutely. One has to ask this question: Fifty years from now, how much oil reserves will there be in the world? The way we are using energy, in 50 years will oil be $500 a barrel? You have to look ahead—you can't be shortsighted. As Dr. Teller said, 50 years from now, that nuclear waste is going to be very, very valuable. I question how much oil there is. If I would hazard a guess, I would say in 15 to 25 years there's going to be a serious time.

RM: I agree, Senator. You figure that China, and now India, are coming on line, and they're going to want their oil. Saudi Arabia, which is the biggest producer, gets half their oil from one oilfield, and in that oilfield, production is starting to fall. We have hideous energy problems coming our way. That's one reason I'm really interested in this whole nuclear issue. We need nuclear to . . . I hate to say it, but to save the human race. Otherwise, we've got terrible economic problems coming. We need to get this problem solved so that we can build more reactors here and cut off some of our reliance on oil. And at the same time, we're fooling with the climate of the earth with CO_2 emissions.

CH: Well, nuclear power is the safest type of power. You mention CO_2 and carbon fuel; nuclear is the safest power there is, and the cleanest. Emissions from gas-driven turbines are much different from emissions from a nuclear power plant.

RM: Do you have any anecdotes from your career in the Senate or since then that would help illustrate and give a feel for the kind of thing that's going on?

CH: No, but let me move forward to the present day. We have a problem we're just

becoming faced with, with the Muslim world. Whether the Saudi regime can maintain itself has always been a worry to everyone in the know. It's maintained itself by fear, its secret service; it's a very tough situation for the Saudis. If the Middle East falls to the Islamic militants, where would we be power-wise? This is something far different than we ever anticipated 25 years ago, but it is a reality of today, 2004. The Saudi royal family is very precarious because the militant Muslims are after them.

If the Middle East fuel supply stops, I don't know where we are at that time. Our whole way of life would change, our whole commerce would change. We have no backup energy. Now, many of us saw this 20 years ago and that's the reason we pushed nuclear energy. Fossil fuel energy is running out, and it's not renewable. Only the nuclear is renewable. But yet, the people in Congress did not want to go after it.

RM: Yes. When I talk to anti-nuclear people they always promote wind and solar, but my question is, "Well, where is the wind and solar? Why aren't you advocating that?" What was your experience with wind and solar in the Senate? Were they pushing that?

CH: I was very involved in that. Wind is expensive and it can only be used when there's wind. [Laughs] Solar is also very expensive and there's not enough to take care of the needs of America.

Let me point out something. I don't like to say anything disparaging against my former colleagues, but I found it very unusual for Dick Bryan and Harry Reid to not see fit to take a position on the Senate Energy Committee. I asked Bennett Johnson, who was the chairman of the committee, why they didn't want to be on the committee, and his answer was, too much would be thought that they should do, and they were afraid of it. I would like you to ask them why they did not go onto it. Only on a committee can you get things done in the Senate.

RM: Oh—that's where the business is done, then? Maybe that way they'd have less of a bitch, right? [Chuckles]

CH: Neither one of them ever served on the energy committee. The No. 1 issue affecting Nevada; neither one of them ever served.

RM: And you were on that committee?

CH: Of course. I wanted to be on it because of the BLM land and so on. I was far stronger with the people in northern Nevada than I was down here. Maybe that was because of serving on the energy committee. For Nevada, because of the Test Site, the energy committee was the No. 1 committee. I was elected by the people, so that's where I should be. But isn't that interesting?

RM: That's very interesting—and I never have seen anybody mention that. Better to be the loyal opposition than to have to face the challenge, I guess.

CH: It's easier to criticize than it is to be progressive. And we're going to pay for this. As I say, it could happen 25 years, 50 years, it could happen next week. There are two billion Muslims and we're just learning about their motives; we don't understand them. A Muslim can kill an American and he'll go to heaven with 40 virgins. This is completely against everything we know. Unfortunately, we're learning the hard way.

RM: And even if nothing really bad happens with the Muslims, there's only so much oil in the ground. And our society is under no imperative to use every last barrel in the ground. We've got to leave some there for future generations because oil has other uses besides burning.

CH: No question. So you have to have alternative energy. I'll repeat for the umpteenth time, if the Muslims take over the Middle East, our economy, and the world economy, will come to a grinding halt. We must plan ahead, and we have not planned ahead.

RM: What's your take on oil shale and tar sands as alternatives to the Middle East oil?

CH: You use it, and that's it. It's not renewable.

RM: Plus, it produces greenhouse gas.

CH: The only energy that's renewable is nuclear. And that will be the energy of the future in spite of what's going on. We're going to waste tens of billions of dollars. Unfortunately, people only react to a crisis; they don't look ahead, they don't plan ahead. Businesspeople look and take account of the demographics of an area—what's their business going to be like in five years? Ten years? Twenty years? General Motors has scientists that look at their cars—how is this going to be in ten years? Twenty years? Government doesn't work that way. Government only operates on a crisis basis.

RM: Right. Now, here we are at this point in Nevada with Yucca Mountain and with world energy. Given all that's happened, where should we be going? What is your view on what we should be doing and how do we solve the pickle that we're in now—if it's solvable?

CH: If I could make any suggestions, I'd say, "Go to the top people in the field of energy and sit them down and say, 'We're worried about the Middle East and worried about running out of oil. What do we do now?' And get the most brilliant minds in the world working for you." Harry Reid knows my stance on nuclear power. John Ensign does; I showed John Ensign these articles.

RM: I have the feeling that John Ensign is not really strongly against nuclear power. Do you have that sense?

CH: I don't hear much from him.

RM: I think he keeps a low profile on it because of public opinion. So what can we be doing in Nevada? Do you think the idea of trying to push a pilot study for Science City is

a good idea? I think that opinion out in the rural areas, particularly in Nye County and probably Lincoln County and some of those areas can be mobilized to some degree as a counterweight against Reid and company.

CH: You're just bogged down by your people in public office. The governor has been against it, and people in Congress are certainly not for it.

RM: Am I correct in my assessment that the Democrats were so skillful in staking out this powerful political position of anti-nuclear, that they created a climate in which the Republicans have had to go along with it keep quiet?

CH: Probably, yes.

RM: So even if a Republican were for it, he can't say it too loudly, or he has to be careful.

CH: You saw what happened to me.

RM: Do you think that was a big factor in your defeat?

CH: I think it was. But I've always said to my friends, "I did not lose the election," because right afterwards, I was appointed United States Ambassador to the Commonwealth of the Bahamas. It was absolutely a wonderful three-and-a-half years. My wife and I say they were the happiest years of our life. I continued in public service and I was rewarded with an ambassadorship. So don't cry for me, Argentina. [Laughs]

I want to thank you for taking time to call me and get these facts, part of which I have never talked to anyone about. I can see that you know what you're doing, and you've got a great background. You've got a Ph.D., which is very impressive.

RM: I can speak with some authority on the history of the southern part of rural Nevada—Lincoln County, Nye County, Esmeralda County. I have written more on those areas than anybody. That's why I think we can mobilize a little opinion out there.

CH: If I would make any suggestion, I'd say to broaden your scope not just to the rural counties in Nevada or Las Vegas, but to America and the world. If you say Nye County, someone in New Mexico or Arizona won't know what you're talking about. Nuclear medicine affects the entire world. The shortage of oil affects the whole world. And you've got the answers. So broaden your scope and say this is not just a Nevada problem; that's the tip of the iceberg. This is a world problem.

RM: That's good advice. Any other insights that might be useful to note?

CH: At the present time, if you have cancer, you're under radiation treatment. We're only in the infancy of nuclear medicine, but it's being used all over. Just think if we had perfected it and had had scientists working on it over last 20 years, how far along we would be today. People are so shortsighted, and only think of themselves for today. Nuclear medicine is absolutely for the future. In fact, many people tell me their physicians say, "We don't want to operate on you; we think radiation will take care of the problem." Just think what this means.

RM: You mentioned Bennett Johnson several times. He's seen as a heavy in Nevada. What is your take on him?

CH: We're very friendly. We went to Russia studying nuclear waste. We traveled all around the world, and he recognized there is a problem, and how to solve the problem.

RM: He's seen as one of the big factors in the so-called "Screw Nevada" 1987 amendment to the Nuclear Waste Policy Act the Congress passed. What is your take on that?

CH: He was being very realistic. We have nuclear waste in the ground in Nevada. There were different states that were studied, and obviously, Nevada was right up there because of the uniqueness of the Nevada Test Site. Over the years, different guards at the

Test Site have said one of their problems was keeping people from being in areas where they shouldn't be when they had the tests; it's very dangerous.

RM: Right. And if I remember right, the water is below the storage area at Yucca Mountain.

CH: Yes. As I've said, it's going to be one big problem when we run out of oil.

RM: I don't know if we could build reactors in time for the energy shortage we're facing.

CH: I don't know how you could build a reactor with the mood of America today. Three Mile Island changed American thinking; there hasn't been a nuclear power plant built since that meltdown. Now in France, they entered the nuclear age with great understanding. Every nuclear power plant in France is exactly the same. They have a university where they train nuclear scientists to run their plants and everything is exactly the same at every plant. It's like in some grocery store chains they put the cheese here, the milk here—any city people go to, the layout is always the same. The people in France have no fear of nuclear power and they've never had an accident there. In America, every nuclear power plant is a little bit different. This has created a problem with nuclear power plants here.

RM: And you mentioned transportation earlier. They're transporting high-level nuclear waste all over the place in Europe, and even shipping it from Japan to England on a ship.

CH: Absolutely.

RM: So the transportation so-called problem is to a great extent hysteria built up by the opposition. Would you agree with that?

CH: [Laughs] No question.

RM: Another thing that really got me was this silicosis issue at the Yucca Mountain

site—the guys who supposedly got silicosis. To me, it just showed that they will stoop to anything.

CH: Well, politics is that way.

RM: What are your thoughts about writing an article in which we could explore some of the things that you're saying?

CH: As I mentioned before, broaden your scope. Half the people in Nevada have made up their mind. Hit the different points that we've discussed and try and get an article placed in other areas.

RM: Let me ask you another question, as a reality check for myself. My sense of Nevada public opinion is that when the nuclear storage issue came up in the spring of '83, Nevadans didn't pay much attention. I mean, they'd been shooting A-bombs off here for a long time, and opinion was very soft in Las Vegas and it was basically pro out in the rural counties. DOE made a big mistake in assuming that storage was a technical issue, not a political issue. They didn't cultivate public opinion, didn't make an effort to go out and cultivate people, and basically they gave the Democrats a free ride to harp on and yap about danger and to shape and mold public opinion against building a repository at Yucca Mountain. If DOE had come in very early, offering big rewards—the kind that were later offered—it would have been a different outcome.

CH: John Herrington was the Secretary of Energy then, and he did offer inducements.

RM: Early on?

CH: Yes.

RM: When did you have that conversation with him?

CH: I had many such conversations with him. I was President Reagan's strongest supporter in the U.S. Senate. I thought he was the right man at the right time. As I told

you earlier, I was an intelligence agent behind the Iron Curtain when Stalin was ruling Russia. I thought the way Reagan handled the Soviet Union could not have been done better. He broke the back of the Soviet Union and prevented a nuclear war that could have wiped out 50 million people. When you were a strong supporter of the president, you had support from everyone in the administration. For that reason, John Herrington and I were very close, as I was with all the cabinet people.

RM: Can you give an estimate of when he made that kind of offer, or suggested that that could be in the offing?

CH: Bennett Johnson put in some legislation to give Nevada either $100 million or $200 million every year and it was voted down.

RM: It was voted down—in the committee or in the Senate?

CH: I think in the House. If Nevada didn't want it; they didn't want to give it to them. The attitude was, it's a nothing issue because Nevada doesn't want it. So that was the first offer. Then there was the offer of a nuclear university.

RM: Do you think that they could have delivered on that politically?

CH: Absolutely. Because it wasn't just a nuclear waste dump issue—it was nuclear medicine, it was running out of fossil fuel.

RM: And they could have gotten it through the Senate and the House, and then Reagan would have signed it?

CH: How could you be against nuclear medicine? You're saving lives from cancer every day.

RM: Maybe they would have used the argument—I'm just playing the devil's advocate here—that, "We can do that research at Berkeley," or Columbia or somewhere—the nuclear medicine part.

CH: Well, they did use that argument. And at Stanford—what do they call that?

RM: The linear accelerator at Stanford.

CH: A lot of scientists felt, as I said, that Nevada is the greatest laboratory to expand that. To expand the research, they had to be in areas where there was no one living, which was the Nevada Test Site. The linear accelerator at Stanford, or the idea of a super collider, whetted the appetite of the scientists. “If we can do this in a populated area like Stanford, look what we can do in an area where no one is around.”

RM: So you feel that it would have led to a renaissance, sort of, in nuclear medicine?

CH: There is absolutely no question.

RM: Did Dr. Teller think this?

CH: Of course. A man like Dr. Teller is 100 years in the future, where most people plan for this afternoon or tomorrow. And to repeat, he mentioned to me many times, “If Nevada has to take it” (he was a political realist), “make sure that you own it.

RM: I tell people that if they ever do put the waste in the ground out at Yucca Mountain, it isn’t going to stay there. There are too many uses for it.

CH: In this interview I’m trying to recollect things that are 20 years old.

RM: Sure, that’s a long time ago. We’ve got a historical perspective on it now and sometimes it takes a historical perspective to see what really happened.

CH: To say that if people would have listened to me when they won’t listen to Dr. Teller . . . One of the most humiliating press conferences I’ve ever had was when he came up and spoke to the press about these very things that I’m talking to you about, and they were insulting to him. They acted like he didn’t know what he talking about. Rude.

RM: Just a bunch of louts.

CH: No respect for the man. It was just humiliating, that’s the only thing I can say.

RM: How did he feel about it? He'd probably had that treatment before?

CH: He probably had. He never mentioned it to me.

RM: What did they do—ask him insulting questions?

CH: They acted like he didn't know what he was talking about. The No. 1 nuclear scientist of the world. Many scientists have said he's one of the most brilliant minds of all time. They put him right up there with Einstein. Dr. Teller drove Einstein to the meeting when they got together and wrote that letter to President Roosevelt.

RM: That's impressive. What was President Reagan's attitude toward the repository? Did you ever discuss that with him?

CH: No. But knowing President Reagan, he would take the energy committee and Congress's opinion based on science. Again, we have to take our mindset back to the cold war. We were in a terrible situation with the Soviet Union, and it's just unbelievable that some second lieutenant in the Soviet Union or in America didn't accidentally touch off a bomb. How it was prevented is beyond everything.

RM: I think there was a lot of luck involved. Do you have any other recollections of any committee meetings or any conversations that you might have had with people from the Nevada delegation? Barbara Vucanovich was a Republican, and I always felt that she was pretty open-minded on Yucca Mountain.

CH: She went with Harry Reid; she saw the political tea leaves.

RM: And what evolved with their hard position on Yucca Mountain was not inevitable in terms public opinion in Nevada. It wouldn't have had to be that way if there had been different voices at that time. Would you agree with that?

CH: Yes. But people were afraid of nuclear things. I toured I can't tell you how many nuclear power plants around America and the world. I had access as a senator and I took

advantage of it and I never had any fear. I don't know of anyone at the time who traveled more than I did. If you're going to do something, you've got to get every bit of information you can; every fact.

RM: Exactly. What is your assessment of the dangers the way the waste is stored now on site?

CH: It's terrible. They're running out of facilities. You could buy a Russian SA-7 with a shoulder-held missile and drive up to some of these places where the nuclear material is stored outside in casings and bomb it and destroy whole parts of America.

RM: The SA-7—that's a SAM missile, that a terrorist could get ahold of?

CH: There were so many of them around on the open arms market 20 years ago, you could buy one for $5,000 to $7,000.

RM: Oh, my God! Would one of those missiles penetrate the storage containers that they have at the plants?

CH: In my opinion, there's no question.

RM: So that's another issue, isn't it? We've got 50 or 70 or something sites where this stuff is that are very vulnerable. And destruction at one of those, as you say, could be catastrophic.

CH: Twenty years ago it was catastrophic. The way it is now, it must be even more so.

RM: Yes, because there's even more waste there. Do you think that reprocessing and transmutation are inevitable for America?

CH: They should be. Whether they will or not, I don't know. You've got to build plants to reprocess it, recycle it. An interesting interview would be why President Carter stopped the waste program.

RM: What's your opinion of his decision?

CH: Strictly unscientific. In my opinion, idiotic. He was supposed to have been a nuclear scientist.

RM: Apparently, Carter did it because he was afraid of the spread of plutonium and nuclear proliferation.

CH: I can't second-guess President Carter on any issue. I don't think that administration will go down in history as one of the finest.

RM: Do you have any other topics that you think we should cover?

CH: China wants to go nuclear. They're having so much trouble with coal and, as China becomes nuclear powered, what's that going to do to the rest of the world? Think of the amount of people in China. I traveled to China to find out from the top officials what their plans were. At that time they were building three nuclear power plants. They used the French design because France underwrote the project and loaned them the money and made a much better business deal for them than America was doing.

RM: Yes, China has a huge nuclear power program going now. They're building 20 or 30 plants. The energy curve for China is frightening.

CH: China could very well be our No. 1 adversary in the future. If you bring China into your thinking . . .

RM: They've got to use all the options for energy because their needs are so great.

CH: And they understand this.

RM: That's right; they're more rational about it than we are.

CH: In my conversations with them at the time, they fully understand that we're running out of gas and oil.

RM: And when you look at the demand curve and the production curve, it's scary. I feel sorry for my grandchildren; I wonder what those little guys are going to face because

so many bad decisions have been made in our era.

CH: When a person goes into public life, I felt you must try and do the right thing for the future and not worry about getting elected tomorrow. That was my attitude, right or wrong.

RM: I think you were right and I think history is going to prove it.

CH: We've lost 20 years.

RM: Yes, we have. And we lost that university. I expect to be viciously attacked by Harry Reid. A few years ago he and I were friendly because I had written a number of history books, and he's very interested in history. Then somebody wrote an article about me for a little thing over in Pahrump regarding my ideas on Yucca Mountain and nuclear power. He turned on me like that. He wouldn't even speak to me; he was like an iceberg. I had diverged from the party line, and that was it for me.

CH: When you have an open forum, and people can come and express themselves, that's democracy at its best. I found a very strong pro-nuclear feeling up north but certainly not down south.

RM: Would up north include Reno?

CH: Well, probably Reno, because of all the publicity, was anti-nuclear.

RM: I think the rural areas have always been pretty open to the idea, haven't they?

CH: You want to get people's attention. I'm from Missouri, and they always used to say, "You want to get a jackass's attention, get a two-by-four and hit him over the head." If you want to get the attention of the newspapers, you have to come up with something that will do it. I'm just going to bounce a few things off of you as a lead: "Nevada's Stupidity, the World's Loss." You can tell how the world would lose because of nuclear medicine in the years to come, how we're running out of oil—does that make sense to

you? At this stage of your life, wouldn't it be nice to come up with a great Pulitzer prize-type of situation?

RM: That would never happen to me.

CH: You never know. Right now, everyone has to be thinking, what happens if the Muslims take over the Middle East?

RM: Senator, even if they don't take it over, there are bad things coming. The Astronomer Royal of England, a guy by the name of Martin Rees, has written a book called *Our Final Hour*. It's his belief that, in all probability, the civilization that we have now will not last out this century. There are so many potentially catastrophic problems headed our way—terrorism, all kinds of things. People don't realize, like you're saying, that if we really start being short of energy, our economy is going to falter. And when our economy falters, people are going to die. They're going to starve. They're not going to be able to get to the hospital. The hospitals won't even be open. What happens to our economy if gas goes to $7, $8, $10 a gallon?

CH: What happens to the economy if it goes up another dime? Well, what started out to be a northern Nevada interview has escalated. [Chuckles]

RM: Yes. And you have a unique perspective on it. I think that for the kinds of things we've been talking about, your perspective is the most valuable of any politician's. If I were to talk to someone like Bryan, his position would be self-serving.

CH: Have you ever talked to Bob Miller?

RM: No, I haven't.

CH: He was the same way.

RM: Was he? What about Bob List? They hired him. I hear he's got a tremendous retainer from the nuclear energy . . . he came out in favor of it.

RM: Would you be interested in participating in something like a Science City?

CH: I would help whenever I could. Do you know Troy Wade?

RM: No, I don't think so. Who is he?

CH: That's interesting. He's the most important person in Nevada on nuclear matters. He's been out on the Nevada Test Site; he used to run the Hanford site in Idaho. He was undersecretary of energy for nuclear power in Washington when I was there. He is so knowledgeable; he's the No. 1 man in Nevada. You ought to interview him; absolutely. He's out at the university.

RM: Is he on the faculty at the UNLV?

CH: He's not on the faculty as such; he's in one of the other schools out there.

RM: I'll give him a call. I followed the Yucca Mountain issue very closely from that first meeting in the spring of '83 until '87 or '88. And then I sort of kind of watched it out of the corner of my eye—and like a lot of people, was frustrated at what I was seeing. I do a column for the Pahrump newspaper, and I thought, "I'll do a piece on the history of Yucca Mountain (particularly the history that we've talked about today) from a Nye County perspective." And in doing that, I thought that I needed to talk to you. I had my own ideas from my observations about what happened, but I thought, "Maybe I'm wrong. Best to talk to the guy who was there." This discussion has been enormously helpful to me.

CH: I use an expression that's current using now: "The dots are coming together." Talk to Troy Wade. He knows what I went through, and we tried to work together. He is highly regarded in America. I think he's tops. A nuclear missile went off off Newfoundland 30 years ago. They sent him up and a team to clean up the mess. It's been 20 years since we were talking about the energy crisis looming in America and the whole

of the world, and as far as I know, not one thing has been done in the last 20 years.

RM: I agree. It's like a big wall out there we're going to run into. There's no way to avoid it.

CH: Everyone knows that, but no one is doing anything. It is inconceivable to me that there have been no plans for alternate sources of energy; nuclear is a bad word. What do they think is going to happen in 20 years? Ten years?

The nuclear energy people back in Washington . . . I don't remember any initiative they took to be pro-nuclear. In France, they said, "We have no oil, we have no coal, we have to have energy." I don't remember anyone in the forefront pressing this type of talk in Washington. You would think the nuclear industry . . . they're sort of taking a defeatist stand, trying to cut their losses rather than look to the future.

RM: Yes, instead of going out and marketing the idea, like you would market soap flakes or something. And that inaction just gave guys like Harry Reid a free field. There was no opposition. You seldom heard a really strong pro-nuclear position—basically it was all how bad nuclear energy was. The NEA or their predecessors should have been in this state pushing it. Because Battelle had done research for DOE—I've got their document up in Tonopah—that clearly said the problem with high-level nuclear waste storage is not a technical problem, it's a social problem. And DOE ignored that.

I tried to talk to Don Vieth at DOE and said, "Hey, let's go out and check people's opinion, and find out what they're concerns are so we can address them."

And he wouldn't do it. He said, "I got burned with surveys down at the WIPP project, at Carlsbad. I'm not going to do any surveys; I'm not going to do any assessment of public opinion."

I said, "OK, let's get an independent entity to fund it, then, not a government

entity." And he wouldn't cooperate.

CH: It's like in the army. If a man is a major and doesn't make any mistakes, he becomes a lieutenant colonel. If he does something good, it doesn't mean anything. But if he makes a mistake, then he's down. That's what they call bureaucracy.

People who have government jobs are very reluctant to take the initiative because if they mess up, they're out. If they do good, it doesn't make any difference. Someone's got 14, 16 years in service. You think they're going to do anything? They're not going to make any moves. That's the problem with government. Reagan was always trying to cut government down. He said, "The smartest people in the world are bureaucrats. They get hired, and the next 30 years of their life are spent keeping their jobs till they retire."

RM: That's a good perspective.

CH: And the nuclear energy people are always on the defensive.

RM: They need to go on the offense, don't they?

CH: They see a crisis is coming to the world. Is it five years? Is it 10 years? Is it 20 years? when you're out of oil. Then what are you going to do?

RM: There's going to be a lot of suffering. Well, thank you so much for this wonderful interview.

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