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KENNETH CAMPBELL

[With comments by C. Donald Shane]

LIFE ON MOUNT HAMILTON, 1899-1913

Interviewed and Edited by
Elizabeth Spedding Calciano

Santa Cruz

1971



Kenneth Campbell
1962

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INTRODUCTION

Shortly after the administration of the Lick Observatory was transferred to the Santa Cruz campus of the University of California in 1965, the Regional History Project decided that interviews on the history of the Observatory should be included as part of our proposed University History series.

The Lick Observatory, of course, has much more "history" behind it than our own very young campus. It was almost a century ago that James Lick, a rather eccentric California bachelor, decided, although he knew almost nothing about astronomy, "To expend the sum of seven hundred thousand dollars (\$700,000) for the purpose of purchasing land, and constructing and putting up on such land ... a powerful telescope, superior to and more powerful than any telescope yet made, with all the machinery appertaining thereto ... and also a suitable observatory connected therewith."

Lick began thinking seriously about building an observatory in 1873 and included it as part of a trust he set up in 1874. Lick changed the trust and his trustees twice before his death in 1876, but all three versions contained provisions for the Observatory. Upon its completion, Lick wanted the Observatory to be given to the Regents of the

University of California.

In 1875 Lick selected Mount Hamilton, a 4,213 foot peak to the east of San Jose, as the site for his observatory and soon thereafter arranged for Santa Clara County to build a road to the top of the mountain. Lick died at the age of eighty on October 1, 1876, and thus never saw his observatory take shape, but he had set the course and construction proceeded steadily for the next twelve years. (Although James Lick did not live to see his observatory, his body was later buried at the base of the thirty-six-inch telescope.)

In 1888 the Lick Trustees conveyed the completed observatory to the Regents of the University of California; however, a great observatory is never truly completed, and over the years superb telescopes and ever more sophisticated machinery have been added. Thus the Lick Observatory is still today in the ranks of the world's outstanding observatories.

In 1891 a young astronomer, William Wallace Campbell, joined the staff of the Lick Observatory. This was the beginning of a long and fruitful association with the Observatory, for in 1900 Dr. Campbell was named Director of the Lick Observatory, a position he held from January 1, 1901, until 1930. He carried out his administrative as well as scientific work with such distinction that late in 1922 the Regents of the University of California asked him to assume the Presidency of the University.

Thus from 1923 to 1930 he carried the dual responsibility of Director of the Lick Observatory and President of the University.

In November of 1966, the Regional History Project began a series of interviews with Mary Lea Heger Shane, wife of the Director Emeritus of the Lick Observatory. This was followed by a series of interviews with her husband, C. D. Shane. These interviews covered much of the history of the Lick Observatory from 1914, the year that Dr. Shane first visited the Observatory as a student. On January 10, 1968, the Shanes telephoned the Regional History Project Office to announce that Kenneth Campbell, President Campbell's youngest son, was visiting them from New Jersey, that he had been recounting early episodes on the mountain with great descriptive flair, and that he could cover the period from the early 1900's through 1914 if we were interested in interviewing him. The editor gave an emphatic "yes", although qualified her response with the warning that because of a backlog of work, the tapes would have to remain unprocessed for at least eighteen months to two years. Since the editor had already done sufficient research on the history of the Lick Observatory in connection with the Shane interviews, the Campbell interview was scheduled for the following morning, January 11, 1968.

The interviews were held in a listening room in the

Maps and Recordings section of the Library. Dr. Shane was also present and added a number of helpful comments and suggestions. Since this was Mr. Campbell's last day in Santa Cruz and time was limited, the interview was held in one long unbroken session approximately two and one half hours in length.

The Shanes had certainly been right about the descriptive talents of Mr. Campbell. The events on Mount Hamilton came alive as he told them. His voice ran the gamut from joyful booming to mock whispering as he recounted his stories. His hands were continually gesturing and his transcript is thus filled with phrases such as "this big," "that high," and "about so wide." The editor has since inserted in brackets the appropriate distances.

It was obvious that Mr. Campbell thoroughly enjoyed the interview and his enthusiasm did not dwindle in the editing process. When we sent the organized and slightly edited manuscript to him for his corrections and approval, we did, of course, have underlined many of the words he had emphasized, but when it was returned to us, we found it peppered throughout with even more underlinings and exclamation points, for Mr. Campbell is an exuberant, vibrant man. However, he is a scholar too. He did not take his editing of the manuscript lightly. He went over it most carefully, and when he returned the manuscript his

accompanying letter explained the reason for some of his editing changes as follows:

"As you can see ... my attitude changed, after I read what I had said, from one of low pressure because it had come out so easily without effort, to an attitude of real seriousness as to the need to preserve its content for public record; and thus, if so important to preserve,, it became important to give my words a little less flippancy, or seeming indifference, and a little better choice of English here and there, but without spoiling the conversational nature of the account. If not for myself, then I owed it to my father, who never allowed himself to talk as informally or relaxedly as I can, on occasion, when the cost isn't evident, and this was such an occasion; I was really having a good time being nostalgic. I don't think I have gone far enough to spoil it; just eliminated some words and phrases that sounded flippant or lacking in respect."

We think the reader will agree that Mr. Campbell indeed did not spoil it, for the manuscript is still markedly alive. Mr. Campbell also took time to expand subjects that he had covered too quickly and to add two or three topics that had been omitted in the interview. The manuscript was also sent to Dr. Shane for his approval and corrections since he had been part of the interview, and in several instances, Dr. Shane provided factual corrections of dates and spellings of proper

names.

As the title of this volume indicates, the interviews focused on everyday life in the Lick Observatory's mountaintop community. The setting is made clear in the first few pages where Mr. Campbell describes the isolation of the community which was twenty-five miles from San Jose, the nearest town, a town that took four hours to reach by horse stage with the return trip back up the mountain requiring seven hours and several changes of horses.

The isolation of the community, as Mr. Campbell makes clear, did not seem to the inhabitants to be a hardship, but merely a fact of life. The isolation did mean, however, that the Mount Hamilton community was very self-sufficient and very close knit. In the first portion of the manuscript, Mr. Campbell describes the little Mount Hamilton school and the distinguished, indeed world-famous, visitors who trekked up the mountain to visit the Observatory facilities and the Director. The middle section of the volume is devoted first to a discussion of the way the isolated community provided itself with such necessities as light, water, plumbing, food supplies, mail, banking, health care, and communication, followed by a delightful section discussing the entertainment and recreation of the mountaintop residents -their unique golf course, the hunting and fishing, childhood games and pranks, and the

memorable early cars on the mountaintop. In the final section of the manuscript, Mr. Campbell discusses the Observatory and the various astronomers who composed the Lick staff in these early years.

It is clear that Mr. Campbell's descriptions of the mountain community reflect more than mere nostalgia -- he recalls the mountain community of his early childhood with great respect as well as devotion and viewed this manuscript as a chance to, as he himself said, "preserve a record of that extraordinary community."

It was also important to Mr. Campbell that his father be accurately represented -- not only his father as a scientist and as an administrator, but also as a person. Indeed, in response to a request from us for pictures of his brothers and himself during their days on Mount Hamilton and of his parents in this 1899 to 1914 period, he mentioned that his favorite picture of his father was his father's presidential portrait. He sent us a copy of it that he had taken from its frame on his living room table. He wrote, "Now, you may not want, this particular picture because it is taken much later in life than the years of my childhood of the story. ... But the face (and the hands) of the picture capture the integrity, the judgment, the understanding, and (maybe not) the kindness that was his; ... and the hands are so accurately portrayed, as both

sensitive, and physically capable."

Dr. Shane felt, too, that this was a picture that should be included in the manuscript, but suggested that rather than have us work from a copy, he could arrange for a photographer to take a picture of the original portrait hanging in Sproul Hall at Berkeley. He and Mr. Campbell paid for the extra cost involved in making color reproductions. The editor was more than happy to accept this handsome contribution to the volume.

The other pictures that Mr. Campbell sent in response to the editor's request were accompanied with a list of descriptions; in many cases, phrases from this list have been incorporated into the picture captions.

In constructing the name and subject index, proper names were generally included only if they had significance to astronomers or significance to those who use our Regional History index.

Copies of this manuscript are on deposit in the Bancroft Library, University of California, Berkeley, and in the Special Collections Room of the University Library at the University of California, Santa Cruz. This manuscript is part of a collection of interviews on the history of the University of California, Santa Cruz, which have been conducted by the Regional History Project. The project is under the administrative supervision of Donald T. Clark, University Librarian.

Elizabeth Spedding Calciano

May 6, 1971

Regional History Project

University Library

University of California, Santa Cruz



William Wallace Campbell
Presidential Portrait
Hanging in Sproul Hall
University of California, Berkeley

BOYHOOD YEARSAt the Top of a Mountain

Calciano: Were you born on Mount Hamilton?

Campbell: Well, in principle I was. I was the third child, and my mother and father and two children were living on the mountain. My mother went to San Francisco for the purpose of having me, and when she was well enough in normal process, she came back on the mountain with me. That's how. So in effect I was born on the mountain, yes.

Calciano: And this is 1899?

Campbell: 1899, yes.

Calciano: And you said you had two older....

Campbell: Brothers, yes. Wally was born in 1895 and Doug in 1896. A year and a half apart.

Calciano: And then did your parents have any younger children?

Campbell: No. Just the three boys. They're both living.

Calciano: Oh, that's good. How many children were on the mountain during the years that you lived there?

Campbell: It varied, but perhaps school-age it ran from as low as nine to as high as fourteen. Something like that.

Calciano: So you always had enough playmates, but no over-abundance?

Campbell: Oh, but it was enough. We had wonderful times, and I've jotted down some of those things.

Calciano: Good. We'll probably get into those right away. I was wondering, did you ever mind living on the mountain? Did you ever feel isolated?

Campbell: No. Now in hindsight as an adult it was, of course, as you know, it was a very isolated life. But we didn't know it as children. We thought it was the be all and end all. About once a year, sometimes perhaps twice, we had the rare privilege of going to San Jose, 25 miles away, but that was in the day of the horse stage; it came every day taking seven hours, brought the mail and brought the supplies every weekday, and visitors Saturday nights to see through the telescope. The Saturday night ones were huge stages -- four horses; it took four hours to go to town on the daily horse stage and seven hours to come back, and I always used to get sick going down.

Calciano: Oh really?

Campbell: Oh yes. The road is twisty, you know, as all get out. And ... do you mind slang? That kind of thing, as long as it's nice slang, not profane?

Calciano: No, no. That's all right.

Campbell: Okay.

Calciano: I was just surprised because I'm used to children getting carsick, but I never thought of people getting wagonsick. (Laughter)

Campbell: Oh yes, oh yes. The horses trotted all the way down ... well the road ... have you ever been there?

Calciano: Yes.

Campbell: Well, coming up the road ascends, then goes down into an intermediate valley called Hall's Valley, then ascends again over another ridge and down into a creek bed called Smith Creek. And then the last seven miles to the top, well there are (I suspect the number's fictitious because everybody uses the same number) supposed to be 365 sharp turns in this road in the last seven miles, and the horses trotted all the way down this road, you see.

Calciano: Oh.

Campbell: A four-wheeled stage, two horses and two or three seats in it for daily use, but on Saturday evenings, four horses, and a very large number of seats, almost like a ... well it'd hold as many people as those long airport limousines used to before buses were used instead, you know. Enormous things swung on laminated

straps, and these people....

Calciano: And these people paid their way?

Campbell: Yes, they paid to come up there; they'd come up from the Vendome Hotel in San Jose. And twice over a period of ten years that stage was held up, and they were robbed of their money and their watches and things like this. They caught one pair of them, and they ... I think one pair was the Fleming boys who....

Shane: Oh, O'Harney was....

Campbell: O'Harney, Harney, I guess it was. Yes. They caught one pair of them, but anyway we had two holdups, which is interesting.

Calciano: Yes.

Campbell: I was quite small and only heard about it, naturally. But yes, the horses trotted all the downhill part and walked the uphill part. And they changed horses three times; there were four sets of horses to do this job.

The Mount Hamilton School

Calciano: I'm interested in the little school you went to on Mount Hamilton. Was the Observatory responsible for paying the schoolteacher?

Campbell: The State of California paid her. The State had, and

maybe still does, a very liberal policy, law, of providing a teacher for, in those days, any community that could provide six children throughout the school year. My mother went away and selected a teacher from an accredited normal school, and I think they paid. Now there may have been other compensations for living up there; maybe we helped her out in other ways, certainly by giving her a husband very soon, always.

Calciano: Yes, would you tell that story again about how you changed teachers every year?

Campbell: Well I'll start at the beginning on the school, because I know you're interested in that, and I can't go into as much detail as I should; I've forgotten most of the names of the teachers, I'm sorry to say. But quite recently a friend of mine in Ridgewood, New Jersey, where I live, a lady named Mrs. Hayward (she collects postcards) had sent me a postcard of Mount Hamilton that she found on a California trip, and it had no date on it. A conventional view, but a very old one. And she wrote: "I wonder if this looks familiar to you?" In the foreground was the old corral by the big barn back then, and these two mules in the corral. I wrote back: "Familiar! I know the names of the mules!" (Laughter) I saw the windmills (gone 40 years)

and where the schoolhouse should be, but I thought, "Gee, there's no schoolhouse." I looked closer, and there was a little shelf cut in the side of the ridge, and I think this must have been the excavation for the schoolhouse, but since I went in the fall of 1904 the first time at the age of five, I think the schoolhouse must have been built about 1901, '02, or '03, right along in there; that's when it must have been built. Now before that there was education required, and I think this was done in somebody's home. And what they did for a teacher at that point, I don't know. My mother has some writings that I've got to dig out, and she may mention what the situation was when she came there as a bride. But this schoolhouse with three windows on each side and the flagpole on the end was a regular all-day school, everybody in one room, and a bench that would hold four kids up by the teacher's desk for the different classes. All day long we spent in one class or another, one grade or another, reciting on one or another subject, you know. And of course by the time you'd been there a few years -- by the time you were in sixth grade, you knew everything the eighth grade knew because you heard them recite it all the time.

Calciano: Oh heavens!

Campbell: Same room you know. And no homework. It was delightful. We'd go out at recess and in the afternoon and play certain games on one of the flat places -- there were two of them there, small. Now ... oh yes, well, the school was run by three trustees; my mother was the chairman, and two astronomers: Dr. Aitken, a very gentle, mild, kind person, and another astronomer, and I can't remember in the early days who this was. I rather think it was Dr. Curtis and then perhaps Dr. Albrecht later, although why they picked him when he wasn't married then, I don't know, but I rather think it was. But the real job, my mother was stuck with that, because she was not an astronomer and therefore she had the time, supposedly. And so she would go off to San Jose or Berkeley or somewhere on two or three expeditions during the spring and select a teacher for next year, because usually by this time the present teacher had served notice, because she was going to marry Mr. or Dr. So & So who was getting his Ph.D. or had just earned it.

Calciano: You never ran out of bachelors, did you? (Laughter)

Campbell: Well the bachelors were always coming by about three at a time, and they'd stay there for two or three

years.

Calciano: Did your mother have trouble recruiting a teacher for a mountaintop?

Campbell: She may have; she may have. But I think Mother was a pretty good salesman. I think probably she cited how much she loved it and all the advantages of it and what a lovely community. But in hindsight, she was very fussy about what kind of a girl she got to come up there, because it's like being shipwrecked on an island. These people all had to live with each other permanently, you know. In later life, now, I realize there were differences of opinion, but nobody ever saw them. We had ... well our amusements, for instance. You know that in a school you have the Christmas exercises, and you have the graduation exercises, and you have other parties, occasions, on the mountaintop. There were three weddings. The first one was in our house. One of the younger full astronomers by then, Dr. Albrecht, married my father's secretary as a matter of fact. And my father gave the bride away in our house. But everybody lives together, and nobody is ever excluded from anything, you see; any big shebang, so-called, a picnic, golf tournament, anything like

this, nobody's ever excluded. So therefore this teacher that you've picked has got to be a very nice person with a nice disposition. You don't find just anybody; my mother was always very fussy about this. I realize now, not then, naturally.

Calciano: The high matrimonial rate must indicate that she had gotten quite a fine selection. (Laughter)

Campbell: Yes. I think she did, yes.

Calciano: Well, did you feel that you were adequately prepared when you went to prep school?

Campbell: Yes, yes. Substantially, yes. Yes, I was. Well it's hardly relevant -- the last teacher, if I should start talking about it, that last teacher my mother didn't pick. She was sold the teacher by another person on the mountain, a resident of long standing who had been there as long as Mother had, or longer. The teacher was a woman about 50 years old, and I had her in the 7th and 8th grades, and she was a good teacher. I don't know what her official qualifications as a teacher were. They must have been acceptable to the State; the State paid her salary. But she was an older woman and set in her ways, and she didn't understand arithmetic.

Calciano: (Laughter)

Campbell: And I had to take my examinations for prep school on the mountain in one of the vaults of the photographic building, all by myself -- it lasted all day. I mean I was given all day to do it in, unlimited time. I flunked it, and my astronomical father had to take me over that summer and teach me advanced arithmetic -- advanced is the wrong word by university standards, but by kid standards, square roots and all sorts of problems about mixing water and wine in barrels and things like this, you know, complicated arithmetic problems.

Calciano: Story problems.

Campbell: Yes, story problems, all these things, and he had to take me over. I had no problem with him; he was a marvelous and patient teacher. But this woman didn't understand it, and she had short-circuited it. And when my time came, I didn't know it, and I flunked, and they were burned up about it. But with that exception it was a wonderful education. Everything else she taught was fine, and the whole preparation in those eight grades was just wonderful. Yes, yes, very highly taught.

Calciano: Well good.

Campbell: And then for a few of us there was an added privilege.

Dr. Aitken had had a German grandmother, and he spoke German pretty fluently, and read it, scientifically I guess. And he, out of the goodness of his heart, suggested that some of us kids, as we were getting older, might like to learn German. And four of us would go up to his office -- it went on for two or three years -- would go up to his office across from the 12-inch telescope upstairs and sit on a bench with our back to this window looking down the North Canyon 1500 feet, really precipitous, you know, just like this, you know, and he taught us German for an hour after school three times a week for two or three years. And when I got to prep school and had to take German, they had to skip me in that, and they put me in the intermediate class.

Calciano: You knew.

Campbell: Yes.

Calciano: How wonderful.

On to Prep School

Calciano: Of course now a lot of children on the mountain were sons and daughters of astronomers, but there were also

a lot who were sons and daughters of the workmen and so forth.

Campbell: Yes, yes.

Calciano: Did almost all of them go down to secondary school, or did they terminate in eighth grade?

Campbell: No, I think all of them went to secondary schools. Oh, I suppose that a great many of the girls married quite young. I know Eileen did, and Vada. But I suspect that the boys all finished secondary school, and most on to college. Yes. And maybe some of the girls did too, unless they quit and got married. I don't know.

Calciano: And all kids who wanted any secondary education had to leave?

Campbell: Yes, had to leave. And they all did. Usually to high school in San Jose or Berkeley or somewhere.

Calciano: Where would they board?

Campbell: Oh, that had to be taken care of. They had to live in a boarding house or do something.

Calciano: They weren't prep schools as we know them?

Campbell: That's right. Now, my brothers and I, only, went to prep school in the East, but we were lucky. I mean let's say we received very favored treatment, rightly or wrongly. I'm not so sure it was the right thing to

do; it was a frightfully long distance from home. I went away to school when I was fourteen, and after that I saw my family very seldom, and I think it's wrong actually to isolate a child of young teenage clear through graduate school without much current influence of his father and mother. But on the other hand, I've always been grateful for it; it was a tremendous sacrifice on their part. He was a \$5000 a year professor; we did have partial scholarships in prep school, I think, because of his reputation, but the fact is that they were sending us all the way East on the train. I only got back once (no twice; once after World War I) during my whole prep school and college career, and I think this is wrong. I think a child should be able to come home for his Christmas and Easter vacations to get to know his parents better, because he fears their rigidity a little in childhood, and when he gets to be an adult, he ought to see that they understand adults too. And I always had the impression that if I ever showed initiative socially, they'd "turn over in their grave," you know. And I think I failed to understand them as I could have if I'd been nearer in my teen-age years, my college years, and half of my long bacherlorhood,

despite their so-sacrificing financial support throughout ten years of formal education in wonderful and expensive Eastern institutions.

DISTINGUISHED VISITORS

Calciano: How many people were on the mountain in the days you were there?

Campbell: About 50. About 50 total population, men, women, and children.

Calciano: Of this, how many were astronomers?

Campbell: Oh I would think perhaps -- Donald [Shane] could answer it better than I -- but I would think that, well, I always thought of there being five or six full astronomers, like my father, and Aitken, and Curtis, and Wright, and Moore, and Tucker.

Shane: That was about right.

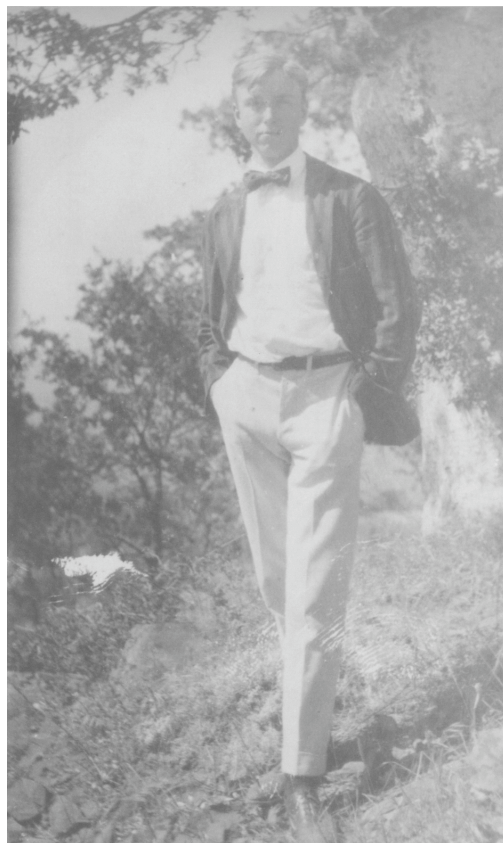
Campbell: Something like this.

Shane: And then there would be a few assistants, two or three assistants.

Campbell: Who were permanent reasonably. They were not Fellows for a Ph.D. And there were always about two or three Fellows studying for a Ph.D., assigned there for a



The graduating class, Mount Hamilton
School, eight grades, 1912.
Left to right, Kenneth Campbell, Vada
Knoblock, Rowan Curtis, Eileen MacDonald.



Kenneth Cambell
1915, age 16
Home from Prep School

couple of years, sometimes three perhaps. And actually when they were ready for their Ph.D., they and my father would go down on the same stage to San Jose and a train to Berkeley and take their oral examinations at Berkeley, which, with one exception, they always passed, because they were all dedicated men, and they were all making astronomy a career, and I know most of them had no problem. One Fellow didn't seem dedicated and didn't make it, but everyone else was.

Calciano: Then what supporting staff was there in the way of cooks and so forth?

Campbell: Well now, I think the only people that had a cook and a maid were my parents, and in those days, turn-of-the-century years, a cook and a maid were, you know, "living according to the standards expected of us," or something. I'm quoting now....

Calciano: Yes.

Campbell: I don't mean me! (Laughter) So we had a cook and a maid, but on the other hand, the Director was always being called upon by the President of the University by phone (we had an iron wires-on-poles telephone line up the mountain from San Jose, and a crank on the wall) and quite frequently we would have what we now

call a V.I.P., a distinguished foreign or U.S.A. visitor who was not necessarily an astronomer, but sometimes a great scientist, sometimes a great statesman, occasionally a missionary, like Jacob A. Riis. (I still have his autographed booklet he gave me.) But they had great statesmen and scientists like Edison, and Lord Bryce, and similar people, many from foreign lands, come and visit, so we had to be prepared at any time to entertain on almost no notice at all, because it took as long to get food up there as it did to get the visitor up. Frequently the visitors would arrive with their own dinner.

(Laughter) On the stage, the horse stage, it took seven hours to come up, as I said. (After the horses were displaced by the auto stage in 1910, it took only two hours).

Calciano: I see.

Campbell: And then they would stay overnight, and if it was just a man and his wife, they would stay in our guest room; if it was more than that, we would have to farm them out. It could still be only a limited number, but we'd farm them out to the houses of other astronomers on the mountain, but they would all come to our house for

dinner and back again for breakfast.

Calciano: These non-astronomers, were they sent there because the Lick Observatory was sort of a showplace that the University was proud of?

Campbell: Well, no. Yes, indeed they were proud of it, and it was a showplace, I guess that's true, but it was deservedly famous worldwide. It had become famous very early after its inception, and it had done fine work. For a while it was the largest telescope in the world, then Yerkes was built which is four inches bigger in diameter, 40 inches instead of 36, and then Mount Wilson's 60-inch and 100-inch, but this telescope did a frightful amount of work, and it was known all over the world. I mean the Observatory and staff were known all over the world, and their publications, and their presentations at meetings and so forth. So even the great statesmen, and Edison, and Jacob Riis, Sir John Murray, heard about this, and they wanted to see the Observatory and meet Father.

Shane: I think perhaps the visit of Lord Bryce might be....

Campbell: Well, if you want to talk about this aspect of it, yes, there were several amusing happenings. When I first recall their coming, I probably was only about

five, and it continued until I went away to school at fourteen. My brothers and I always were made to get scrubbed and dressed and sit at the table with the guests and shut up! (Laughter) And the dinners were usually my father explaining astronomy, and he was a wonderful explainer in a popular sense -- that is, he did not make a mystery of it. He could explain it to the dumbest man in the world and make him really understand some of the fascinating physical concepts, distances and magnitudes, and proportions of astronomy. They would talk astronomy all through dinner, and then we kids would go to bed, and they would go up to the Observatory. The spectroscope would be taken off, and they'd be "shown through" the telescope, and then the spectroscope would be put back on again later that night and the observer would go on with his project. And then the next morning, I recall, in hindsight now, the conversation was never astronomy; it was always the career, the calling, of the man who was visiting and his wife. That is, if he was a statesman, it would be on that subject; if he was a scientist, well, Sir John Murray of England, I remember, talked all through breakfast; we never left the table for about two hours. He talked about

exploring the bottom of the ocean way back in 1912 or '13, something like this. So breakfast was always on the visitor's subject. Well, the Bryce story: One of the most fascinating men was Ambassador (Lord, by then) Bryce, who I think was retired by this time, but he had been a very famous British Ambassador to the United States for several decades, and he liked the United States, had studied it, and he wrote about it, and his book The American Commonwealth is famous, as you well know. He was a white-haired, smiling, pleasant, piercing blue eyed man, with stiff, long, straight-out, one inch-long eyebrows just like my father's, only his were gray and Father's were black.

Calciano: What age were you at this time?

Campbell: Well my two brothers were still there, and they went away when they were thirteen, and there being a four-year difference, I must have been nine, about in there. And so we went through the routine, which I won't repeat -- it didn't seem like routine. This man was most entertaining and appreciative, and they went up to the Observatory and came back and went to bed. Well later, after he'd gone to bed -- the British, you know, put their shoes outside the door (laughter) -- and here in this little house, thirty feet square,

made of brick, with a front porch on it and a little lean-to on the back where the cook lived, and a lavatory back there and the washtubs et cetera, my father, just as he was heading for the bathroom (we only had one bathroom), there were his shoes outside the door. So my father grabbed the shoes and took them down to the rock cellar covered with two inches of dust on the floor, got out the shoe equipment and shined his guest's shoes and put them back in front of the door.

Calciano: Oh how funny. (Laughter) Did Lord Bryce ever know?

Campbell: No, he never knew. But alas (well not really, because I don't think Father cared) but the next morning breakfast was to be about eight, which was a concession, because it was usually at 7:30. (Laughter) We all came downstairs at eight, and we waited and waited for Lord Bryce to come down, and he didn't come. So about 8:30 my father went up and peeked in his door, and his bed was empty. He was gone! So we waited some more. We thought, "Gee, wonder what he's doing?" And at nine o'clock or nine fifteen he came in all smiles carrying a bunch of lupines, and his lovely kid leather black shoes that my father had shined were

all -- he'd torn all the kid leather off his shoes on those rocks; he was just a shambles, you know. And he came in with this bunch of lupines, all enthusiasm; he'd climbed all over the top of the mountain, not on the trails, just out on the mountainsides, picking wildflowers and scrambling over the rocks -- the man was about seventy. (Laughter) And so we all sat down to breakfast, and you know the British. The British elite used to, and perhaps still do, come down and have a buffet breakfast, and everything is laid out on the sideboard, and each comes down when he feels like it within a couple of hours range, and bacon and eggs are all on hot water plates and this kind of thing, and they help themselves to breakfast and sit down and chat, you know. Well apparently he was used to this. We didn't know this then, and we three boys were in the table-manner stage where Mother was really eagle-eyed and critical; if we were going to sit at the table with the distinguished visitors, we had to have good table manners and of course must never "reach." She was fussy about that. Of course we were typical boys who'd scream at each other any other time. (Laughter) And so he was talking about something, I know not what, but it was his subject, not my

father's, and he was going on at quite some length. We had a big round table that was so big that it was two-thirds the width of this room in diameter (say eight feet) and half this way, and we boys were sitting there saying nothing, and he was having a second piece of toast; he stopped talking --everybody was so absorbed in what he was saying --and he stopped talking, and he looked all around the table like this, and way over near the other edge of the table by my brother Wally was the butter dish, so he pushed back his chair like this, stands up like this, and he reaches way over there for the butter and grabs it, and you can imagine what my mother had to take after he left, you know.

Calciano: Yes. "We can do it if he can do it."

Campbell: We maintained discreet silence at the time. But we were a constant threat to the social image. (Laughter)

Calciano: Your poor mother.

Campbell: There was another time, along about 1912ish, and the international -- what's the name of that organization? The Astronomers International....

Shane: Oh, probably the International Solar Union.

Campbell: Yes, probably. Well, there was a series of meetings for a week in San Francisco of astronomers from all over the world, literally; there was a Japanese there; there was Belopolsky of Pulkovo Observatory near St. Petersburg there, and foreign astronomers from everywhere were there, and they all know each other in that profession; they correspond with each other and respect each other, and they're all good professional friends, and sometimes become very personal friends. Well, the resources of the mountain were limited. My mother had prepared for this for two or three months ahead of time. The idea was that all these foreign astronomers and wives were going to come up and visit the Observatory, about seven or eight at a time with their wives -- I don't know how many total; there were a lot of people each time, and they came up on the stage. Oh, I think by then we had the automobile stage; about 1910 they changed from the horse stage to an automobile; they came in the automobile stage, and they came up, and we could put only one pair in our house, but all the homes of the mountain (blue and white collar) were packed with beds, and they would be picked up. By that time we had a car of our own, an old White Steamer, and we could drive around and pick

these people up and bring them to our house for dinner and take them back to bed and back for breakfast, so....

Calciano: What a job for your mother!

Campbell: Well the first dinner Mother did it full blast. (In fact, she went overboard, in hindsight.) She had liquers (green chartreuse), cigars at the end, you know, and all this. We three children sat at all these dinners and all these breakfasts, and that first night when we got through dessert and they started having coffee and liquers and cigars, Mother said, "Children, I think you may be excused to the drawing room now." And we said, all in one voice we said, "In the where?" (Laughter) We'd never heard of a drawing room; it was the sitting room as far as we were concerned.

Calciano: Something she hadn't anticipated!

Campbell: Another time that same session, I think the next morning at breakfast, the same group, my mother had been to town at some time or other and purchased a huge bunch, a couple of dozen or maybe a dozen coffee cups, and here was this enormous pile of coffee cups, because our table stretched clear out into the little hall with all these people sitting around it. Well,

little boys, you know, are pretty alert to new things, and we'd never seen them before; she'd never shown us; (they must have been in the house for several weeks waiting for this thing) and there was a pause in the conversation, and my brother Doug, age about 12, said, "Mother," in a stage whisper; she at first paid no attention to him. "Mother!" Mother said, "What is it, Douglas?" "Whose cups are those?" (Laughter)

Calciano: Oh, your mother. It's a wonder she survived.

(Laughter)

MOUNTAINTOP LIVING -- THE NECESSITIES

Cooking and Heating

Calciano: What were her cooking facilities for all these people?

Campbell: We had a black range that burned wood.

Calciano: Did you chop the wood?

Campbell: No, we didn't; I mean the Observatory did. But that was a normal task. We had a sawmill, not for making lumber, but for cutting logs into shorter logs, and they got split somehow; some of it got split into the kitchen wood, and much of it left was split just enough for chunks in fireplaces. So we had a kitchen range, and for heat we had fireplaces and small sheet-iron stoves hooked into chimneys; the living room had

a fireplace, the dining room and Mother's bedroom had fireplaces, but we had them blanked off for sheet-iron stoves there. Efficient, too!

Calciano: In other words, no central heating?

Campbell: No central heating, no. And no bought electricity. I have to tell you about the electricity, too, but it came later.

Calciano: Where did the trees come from for the firewood?

Campbell: I think, oh yes, I'd forgotten that. My father loved the trees and everything about the place, and he would go off on a Sunday, sometimes with the family, and he had little square pieces of tin, I think, and nails, and he would personally select trees which were dying or too close together or something, way off a mile away or two, and mark them for cutting down.

Calciano: That was his hobby?

Campbell: Well he just took that as a part of his life; he was afraid that somebody would get careless and chop down the wrong trees, and he didn't like this idea; he would personally select the trees for the chopping. Besides which, there were dead trees to be had and so forth, and I don't know what the supply is now. Maybe they don't burn wood much anymore; I don't know.

Shane: Almost none at all.

Campbell: Well it was a hundred percent wood. There was no way -
- it was too far away to bring up anything like cannel
coal, which is used in San Francisco still, for
fireplaces. And they didn't have briquets in those
days. We also had, and perhaps other people did too, a
kerosene stove out back somewhere in that lean-to, but
that wasn't the main kitchen range. The main kitchen
range was a very fine black oven-containing cast-iron
stove with lids that you lift off with a lid lifter
and so forth to put the wood in. The irons for ironing
clothes were solid cast-iron things that you put on
the stove and put a cover over them and got them hot
and used them while they were still hot and then got
another one, you know. And then there was the matter
of light.

Light

Calciano: I was going to say, what was your lighting?

Campbell: Until 1910 we had kerosene lamps, and in 1910 my
father got the University to buy us a big gasoline
engine; it wasn't a diesel; everybody thought it was,
but it wasn't. It was a big gasoline engine with huge
flywheels that they installed up there to run a

generator, new too, and a big storage battery that took up a whole room next to it. I think they built the walls around it and attached it to the machine shop, a terribly noisy thing, I mean the engine, and they would run it on certain days like Tuesdays and Thursdays, maybe three times a week, all day long, and charge the storage battery, this thing coughing out there, only one huge cylinder, very noisy; you could hear it all over the mountain. They tried putting a muffler on it, and it blew the muffler right up in the air. I remember that. And then there were certain heavy-duty uses, like by that time, you see, we had electric irons. Once we got the electricity there, and they had wired the mountain for it, then everybody had electric lights, and they could iron with electric irons, but not room heaters, didn't have electric heaters; that was too much; that would have been too big a load on the battery for everybody to have an electric heater. But irons could be used only on the days on which the engine was running, because on the other days the storage battery would be pulled down too much by this, and you would be short of power at night, and of course the Observatory had first electrified its apparatus around the telescopes and

the little motors for control and for turning the dome and this sort of thing. (That was really the object all-sublime.) With one big exception they electrified; that exception was the moving floor in the 36-inch dome. So the Observatory needed this electricity for its purpose in life, and you couldn't pull down the storage battery, let alone whether the people's houses went dark or not. They probably still had their kerosene lamps around; they'd get along. But you were allowed to use any extra power. The night the electricity was to be turned on, unbeknown to my father (my father was a sociable and appreciative man, at least in my life with him he was, but he was the boss, and I think a lot of the adults minded their p's and q's with him probably, but he was a fundamentally kindly person) but as a surprise to him, Mr. Tucker, who was one of the most senior, in years, astronomers there got up this "funeral" procession, and they had a small casket about three feet long and that wide, open, with purple velvet all around the inside, and they put three coal-oil lamps in this thing (laughter), and then they all put on funereal black veils and things, marched on down to our house and up the front steps and opened the door singing a dirge

about the passing of the coal-oil lamps, and they had a big party that night celebrating the turning on of the electricity the first time.

Calciano: It must have been quite a wonderful evening.

Campbell: Yes. Of course we boys presently went to bed. But this is the way they entertained themselves. They were always doing things like this because they were isolated. I didn't know this at the time; I thought this was the way everybody behaves, but in hindsight they had to do this sort of thing, you know; this was their life. No such thing as going down to the movies or anything like that; it was just too far away, hopeless, you know.

Water Supply - Drinking

Calciano: What about plumbing on the mountain?

Campbell: Oh yes. It was all right. We had two sources, one not for household use. For drinking water we had in the early years, like the ones I'm talking about primarily, one spring named Aquarius. Everything, by the way, up there had an astronomical or physics name, and sometimes mythical, I mean classical, Greek classical names, but not always astronomical. Well,

there were ordinary names, too, like Mount Isabel and Black Mountain, and all the visible turns in the road up were named. But there was this spring called Aquarius, and there was a dirt road, a special dirt road that ran around the North Canyon and led to it; it was a very small spring, and they had a big concrete tank, partly underground, that collected water from the spring all week, and then on Saturday morning they had the steam pump and would burn wood under the boiler. And the man who did that sort of thing around there, Mr. MacDonald, looked after all plumbing and all mechanics and all facilities and everything, and he would go down there on Saturday mornings and fire up the boiler with wood and run the pump and pump the water about 500 feet up to the reservoir. The Observatory wasn't on the highest peak. There's another peak another 100 feet or so higher, and a third peak another 100 feet or so higher than that.

Calciano: Copernicus?

Campbell: Copernicus, yes. You know about Copernicus?

Calciano: I just have heard the name as being the highest peak.

Campbell: Yes, that is Copernicus. Well that wasn't where the drinking water was. The drinking water was on the middle one. That is Kepler Peak.

Calciano: Kepler?

Campbell: That is Kepler.

Calciano: Kepler isn't very....

Campbell: Oh yes, he was a great astronomer or mathematician.

Calciano: Oh, all right. I was going to say he isn't very Greek mythology.

Campbell: No, no, no. I said a lot of things were named after astronomers, sometimes astronomers, but sometimes if they ran out of names, they'd use Greek mythology. And of course the hundred names invented by the children were just descriptive names.

Calciano: I see.

Campbell: And that was Kepler. And then later, not too much later, about this same time, well before the electric light, a couple of years or three before the electric light, there was the Kepler Spring, so named this time because it was on the southern slope (Aquarius was down the North Canyon) near the ridge that ran down from Kepler Peak. And this was further down; it was 700 feet below civilization, and they'd decided it was a much bigger spring, and it didn't run so low in the

summertime, and so they piped down the mountainside to that one. But they didn't have any electricity, and they didn't want to put in another boiler and steam pump installation down there, so they put in a special kind of pump through which 6/7ths of the water was lost, but its energy was used to pump the other 7th up. (Laughter) Well they put the pump below the spring a couple of hundred feet, you see, and then the hydraulic pressure from the water -- all 7/7ths flowed down to the pump, 6/7ths went through it and was never seen again, and the seventh 7th was pumped up to the top.

Calciano: Never seen again?

Campbell: The rest of it went into where it had always been going, into a little steep brook, a little tiny stream than ran down the particular ravine between the ridges involved and finally down into the bottom of the canyon where Sulphur Creek was. There was a major creek down there, and we used to go fishing, way down at the bottom, about 1500 feet below the top I guess. Then later when electricity was put in, then they could capture all the water by putting the electric pump down there. I don't know whether it was all or

not, but they could fill a good-sized tank down there with water during a couple of days, and then pump on the next day when the charging engine was running up at the top of the mountain. That was the day on which you could use extraordinary power, like ironing, and they would run that pump and pump all that tankful of water up to the top, so this greatly augmented the water supply.

Calciano: So you didn't have periods of drought?

Campbell: I don't know. I think maybe we did have times when we had to be careful. I think that probably we did. Yes, it seems to me that there were a couple of times when we worried about it; we had only Aquarius when I was very small, but it didn't mean very much to me.

Calciano: You didn't want to take a bath anyway. (Laughter)

Campbell: Oh, oh, whoa, now just a minute. We were economical; even in later years we were economical. In our particular house we fixed it up so that.... We had a garden; it was difficult to have gardens up there; the deer would eat them up, but when anybody took a bath, we discharged the bath water on the garden instead of letting it run into the cesspool. So we economized on water to this extent. I don't know whether other

people did this or not, but we did that.

Shane: Well, your father had signs over the mountain: "Water on a Mountaintop is Expensive; Do not Waste It."

Campbell: Please do not waste it. That's right. He did, didn't he?

Shane: Yes.

Calciano: And did the Observatory pay for all the power and all the water instead of the individual?

Campbell: I think that's right. Yes, I think that's right. [To Dr. Shane] That right?

Shane: I think so.

Campbell: I was never old enough living there to get into the economics of it.

Shane: The householders did not pay for the water, and I don't think they paid for the power until they got city power.

Campbell: Yes. Now ultimately, and long after I had left, such as in the mid-twenties, I think, the PG&E ran a line up there. That was the end of the charging engine, and the end of the storage battery, unless the Observatory still uses it for standby. Then they had plenty of city power, first a single-phase line and later a three-phase line, much later, but this was in the mid-

twenties perhaps, or something like this. I wasn't there.

Water Supply - Hydraulic System

Calciano: On the water, I seem to remember that there is also another tank that was used for non-drinking.

Campbell: Yes, yes. I said they had two sources. Well in the dome, the refracting 36-inch telescope (being what one called then a "conventional" telescope; one that you look or photograph through instead of being a mirror that reflects light back) is a very long affair, about 60 feet long, and it is mounted on a pier about 40 feet high, so that if you aimed it straight up in the air with the photographic instruments on the lower end, it wouldn't hit the ground, you see. Well then if you wanted to look horizontally, where were you? You were 40 feet up in the air. So they had to have a huge floor in this dome, weighing fifteen tons; it was approximately 60, 70, 75 feet across, and circular, the same size as the dome, and four hydraulic pistons, and remember that this was built in 1883 or some such time, and they had no power (electricity was relatively scarce everywhere) so it had four hydraulic

pistons very much like those hydraulic pistons you sometimes still see under department-store elevators - - the same kind of thing they put under automobiles when they shove them up in the air to service them.

Calciano: Oh yes.

Campbell: The same thing exactly, except these were long and big-diameter affairs, double-jointed, that is they telescoped. There were four of them at four edge points of this circular floor, geared together so that one alone wouldn't push up one edge only and get it jammed; and then without electric power you had to have a source of water pressure to push those fifteen tons up. Now when your service station pushes the car up, they throw a little switch and a little pump turns on, and it pumps water into the bottom of that thing and up she goes. They had no switch to turn on in 1883, so they collected the rainwater on the roofs of all the complex of Observatory buildings and domes at the Observatory peak (well, we called it the "top", but it is lower, as we have said, than the two other peaks) and then they let that rain water, it was piped, run down into a saddle and into another tank (well, it was on a lower knoll, Huygen's Peak) and

then they had a couple of windmills (the ones I mentioned I saw in that old postcard) and the wind blew most of the time, and these windmills would take this water and pump it up to the top of Copernicus, a mile to the east, substantially higher in altitude, and on the top of Copernicus was this round brick tank dug down into the rock and projecting up a little, and they filled this tank in the rainy season with water, and it was always used (with one exception only, I'll tell you about) to be turned on at the Observatory by the observer by turning a wheel, and the water would squeegee into these hydraulic pistons, and up slowly would come this huge floor, you know. It would raise the floor up, and then with a big giant stepladder about twenty feet high and ten feet wide, you could aim the telescope horizontally, or at any other angle, and put the floor where you wanted it. So that's what the other water supply was for. But the barn burned once when we were small. We had our own local transportation -- the Observatory utility truck system, if you like, was two mules and a wagon. Jennie and Tom were the names of the mules, big brown mules, and they were kept in a barn, and I think Mr. Tucker, by the way, kept a horse there.

Shane: He had a horse.

Campbell: Well anyway, one night my father was away (all the bad things happened when he was away) and he and my mother were somewhere, probably raising money for an eclipse expedition or something, and we looked out of the kitchen window, and we were with Jane, this eleven-year devoted cook and servant we had. She had two children that lived in the back end of the house with her, too, who went to the school with us and played with us. And we looked out the kitchen window, and behind those windmills on Huygen's Peak the sky was all lit up, and we said, "My gosh, what a fire! Wonder what it is?" So we ran out of the house and up the road, and as we ran up the road these two mules with no harnesses and dragging their halter ropes were running down unattended, and we knew it was the barn then. We went fast and got to the barn, and sure enough the whole thing was half burned down already, but they were pouring water on this thing, and we could see these streams going up and coming down and absolutely wasted because the thing was gone; I mean I could see pouring it on a house nearby or something like this to protect that from radiation and sparks, or pour it on the trees around so you wouldn't set

fire to the whole top of Huygen's Peak where the schoolhouse and windmills were, but that isn't what they were doing; they were pouring it right into the fire. And when my father came home, he was burned up, not so much about the barn, which was a big loss and unfortunate, but because they had used the Copernicus water for this, and they were out of water to run the telescope with.

Calciano: They were out of it?

Campbell: Well, not quite, but they ran very low at that time, and I don't know what they did, whether they transferred some drinking water from Kepler over to Copernicus or what they did, but I know he was pretty upset about this. Somebody had got excited and they used the Copernicus tank, and it almost crippled the functioning of the Observatory. It was a month or two until they could get some more water; it wasn't the rainy season; that's why we had the fire.

Calciano: Normally, though, you got enough in that tank to last the whole year? It wasn't a problem?

Campbell: Yes, oh yes. It was all oily; it went through this oily machinery and oily pistons, and it would go back down into the saddle again, and the tank there kept

it, and the windmills would pump it back up again, and it was just back and forth, back and forth. It was just very oily water. It was quite a separate thing from the drinking water, and a separate piping system, but somehow they did know how to (I don't know to this day how) they were able to tap the Copernicus line and use it for hoses on that barn, yes.

Shane: Yes, well I remember when there was a fire hydrant out there on the Copernicus pipeline.

Campbell: Oh.

Calciano: Was that the only significant fire up on the mountain there?

Campbell: I think it was. We had man-made fires, but that gets into the recreational side of things. Also, years later, on my teenage summer visit, a whole mountain on the other side of North Canyon burned, but the wind saved our side.

Plumbing

Calciano: I've been wondering about the plumbing. Did you have outhouses or flush toilets?

Campbell: Oh no, we had good plumbing; we all had flush toilets. Yes, yes, and washstands and bathtubs and laundry

tubs.

Calciano: When did they come in?

Campbell: They were there when I was born, I guess. We all had them. Nobody had a problem that way. It was completely civilized.

Calciano: And then where did the sewage go?

Campbell: Private cesspools near each house.

Calciano: Oh. Isn't that all rock on top? I mean it must have been a job digging cesspools.

Campbell: They could find spots. There was topsoil some places and not others. No, they could dig them. For instance, we had lots of grass and wildflowers around, and trees, bushes, and things, so it varied. There would be places which were sheer rock outcropping, and other places where there was probably quite a bit of topsoil. And they'd find places for them, and of course you could always blast. I didn't ever watch one of these being constructed; they were all constructed by the time I was able to take it all in. But each house had its own cesspool and its own sewage line.

Calciano: That's quite good, because there were a lot of places down in civilization that didn't.

Campbell: Yes. No, they had good plumbing right from the word

go. I never saw any deficiency in this anywhere around. For example, our little schoolhouse was provided for in that way.

Food Supplies

Calciano: How often was food hauled up the mountain?

Campbell: We telephoned for food to any store in San Jose (I'm thinking now of the whole population, 50 people), but it all had to be delivered to a particular store (Barry's Market) by a certain time early in the morning, or the night before.

Calciano: One stage could carry all this?

Campbell: Yes, but it came every day, every weekday; it didn't come Sundays (I'll tell you about the heavier supplies in a minute), but it came and picked up the food for everybody on the mountain.

Calciano: So you could get fresh lettuce, and....

Campbell: Oh sure, got fresh everything. And it took seven hours to get up and ... but you couldn't have ice cream. Now they tried; we tried several times to bring up ice, and you'd bring up one of these huge slabs of ice you've seen about that long [five feet], that thick [eight inches], and about that high [three feet], and

it would be 3/4 gone by the time it got up there. You could do it. You could get ice; some would arrive all wrapped up in gunny sacks, burlap, but it wasn't worth it. You'd buy an enormous amount of ice, pay 1 per pound freight on it, and have just enough to make some ice cream when it got there, you know. So ice cream was one of the things we missed. In the wintertime you got all you wanted when it was freezing cold and you were surrounded with snow, and now and then you could take icicles off the eaves and put ice in the old-fashioned, hand-crank ice-cream freezer, but we weren't quite so anxious for ice cream about then. But if we had a winter birthday, like my brother Wally's, we'd make ice cream in the wintertime, but not a summer birthday. And in fact it's affected me all my life; I have had a tremendous appetite for ice cream the rest of my life. I never got over it. Or Wally or Doug, I guess, or my mother, all her life.

Calciano: Oh, that's funny! But it makes me wonder, did you have any way of preserving perishables in the summer?

Campbell: Oh yes. First, the mountain air temperature was always substantially cooler than in the valleys, year-round, so the problem of food preservation was far less severe. But we did need cooling of some foods, and we

did this by the evaporation process, a cooling phenomenon. When the air was dry, not humid, and this was the case on the mountain, and there was nearly always at least a zephyr of a breeze, then both food and beverages, and even drinking water for dinner, could be set in shallow pans of water (like roasting pans) on the railings of porches with cotton or linen cloth surrounding the object or bottle. The cloth acted as a wick and was always wet, and with the always-depressed wet-bulb temperature, this gave remarkably effective cooling.

Calciano: Yes, that would be effective.

Campbell: Yes. Now about the heavy supplies, every two or three weeks the freight wagon (and it wasn't ours; Abe somebody contracted for it in San Jose) would bring up everything heavy, heavy freight. It could be furniture, or if somebody were going to get a new stove, or even a piano, it'd come up on the freight wagon. So about every two or three weeks things would have been assembled -- or if they had a huge order from Montgomery Ward or anything like this. It was a four-horse affair. That's how we lived very civilized lives and had nice things by the standard of those

times. And about 1912 the University bought my father a fine big truck for us all, and was he proud of it!

Calciano: How nice! On the food topic again, what did you do about milk? Did you have a cow, or did you bring it up daily by stage?

Campbell: Ah! Milk in the younger years was raised in that intermediate valley called Hall's Valley by a woman named Mrs. Hubbard (and later by Mrs. Fleming). And she got into her buggy about six every morning with her milk for the whole mountaintop, came halfway up the mountain, a distance of about twelve and a half miles by road, and delivered milk all around the mountain and took the empty bottles and went down again. It wasn't pasteurized in those days, but it was good milk. And sometimes she would arrive early enough to take us three boys to school. (Ours was the longest walk and her first call.) So we had milk; we had plenty of milk.

Calciano: But the school was on the mountaintop?

Campbell: Oh yes, the school was on the mountaintop. We lived a half a mile from the school by road, shorter than that if we cut across the trail along the side of the mountain, the Palmer trail.

Mail and Banking

Campbell: I may never have mentioned that the horse stage had a U.S. mail contract, and the Observatory was an official post office, I mean for the mountain. And one of the astronomers, Dr. Aitken, was the sworn postmaster, and he had a lockable place where he sorted the mail when it came, and the stage driver was a sworn mail carrier.

Calciano: I see. And then how did the people on the mountain do their banking, and how often were they paid, or is this something that a boy wouldn't know, maybe?

Campbell: Oh I think the checks came by mail; I wouldn't know. Or perhaps the University deposited salary checks in their banks for them. I mean there were no banks on the mountain, and no financial facilities whatsoever. People had to bank either in San Jose or San Francisco. My father and mother used Wells Fargo in San Francisco.

Calciano: But did the stage driver do the handling, or....

Campbell: The stage ... well it was U.S. post office mail, and I think you could probably send registered mail there. I suppose Dr. Aitken could handle registered mail if he had to.

Shane: I know the postmaster could later.

Campbell: But you know, except for when you went off the mountain, there was no need for money up there, I mean green money.

Calciano: That's true.

Campbell: There was nothing to buy except postcards and stamps. There was no need for money at all on the mountain, for cash money, and everybody had banks in town.

Calciano: And you think that the pay was in the form of a check at that point even?

Campbell: Oh, I think so, oh yes.

Calciano: Because many, many places paid by cash at that time.

Campbell: Oh no, no. They didn't pay by cash up there. I think payments were all in the form of checks, yes, probably from Berkeley. Oh, back as far as I can remember, Father and Mother used checks; Mother was the bookkeeper; she ran the checkbook, and I saw it; she wrote the checks and kept strict accounting of costs. That's, of course, done by many wives today.

Calciano: What about newspapers? And news bulletins?

Campbell: Oh, the newspapers came up every day on the stage. The

Sunday papers came on Monday. We got the Sunday paper all right, but we got it Monday noon.

Calciano: Did you have any form of city government, or was the Director of the Observatory the city manager?

Campbell: [To Shane] The Director of the Observatory was, I would say, probably the czar, wasn't he?

Shane: He was the czar.

Campbell: Yes. Yes. He was a remarkable man, and I'm sure this fellow [pointing to Dr. Shane] was too, because he was Director for twenty years much later. My father was highly theoretical, but he loved to use his hands, too, and was truly a scientist, an engineer, and he understood people and money, too. When he was Director, Mrs. MacDonald (for a true example which I saw) would go into his office in the middle of a theoretical study job and ask him to fix the board on her back step, and he'd see that it got fixed pronto. I mean he ran a community of people too, and he had to see that Mrs. MacDonald didn't break her leg on that back step, as well as worrying about spiral nebulae and things like this, you know. He [Shane] knows all about it.

Shane: Yes.

Health Care and Accidents

Calciano: Well I was wondering, you know the terrain down the mountain is rather rough and so forth.

Campbell: Oh yes.

Calciano: Were there ever any lost children? I can imagine my two-year-old wandering off.

Campbell: No, no, no. I remember that a lot of my father's and mother's visitors said, "My goodness, do you let your children go out on these steep slopes and rocks and everything?" and they said, "Oh yes, it's good for them."

Calciano: Well what about the little itty-bitty kids? Did the mothers have them in fenced yards, or....

Campbell: I don't remember any. Perhaps gated porches.

Calciano: But why didn't they just wander down the mountain?

(Laughter)

Campbell: Well now, you know, I think I should be able to answer that question, and I don't think I am able to. At that age, and coming back only once as a teenager, and once after the war (World War I), I'm afraid I didn't worry very much about the toddlers.

Calciano: You weren't a mother. (Laughter) So no child was lost then? I mean killed?

Campbell: One got hurt once in a while. It's quite steep; I was impressed with how steep it is during a couple of visits in maturity, later, but it's not like the Matterhorn. I mean it isn't that steep. Oh yes, there're cliffs around. My brother Doug fell off a small cliff and cut his head open and had to be taken down to town instantly by the mule team when he was about eight or nine, something like this. But in general accidents were very few, and nobody got killed. They were a little bit afraid that we'd step on a rattlesnake, or put our hand on one, and we did once.

Calciano: You did!

Campbell: Well my brother Wally actually put his hand on one when we were climbing some rocks, but he drew his hand back instantly and got it away in time. It was something soft; it was a little rattlesnake, asleep.

Calciano: Good heavens.

Campbell: Yes.

Calciano: Did you ever have any snakebite cases?

Campbell: No, we had no snakebite cases. But we always killed rattlesnakes. The poor things. If they were awake, they would rattle to warn you and try to go away and

not attack you, but it was policy to always kill a rattlesnake, and we'd go after them and kill them inexorably.

Calciano: Was there such a thing as anti-venom then?

Campbell: I don't think so. I think just a jackknife, which we all carried, because we were all instructed on what to do if anybody got bitten. We had lots of hikes down the canyon to go swimming and fishing, and we all carried jackknives and were told to be brave and cut the wound open and suck it, but I don't think there was any other remedy than that. And it never came to pass, anyway.

Calciano: You mentioned that your mother went down to San Francisco to have you and I presume her other children. What health care facilities were there on the mountain? What if a woman went into labor two months early, or what if a boy fell out of a tree or something?

Campbell: Oh, I think, in hindsight of course, I think they had to watch out about that. She didn't wait for labor.

Calciano: How long did your mother go down ahead?

Campbell: Well she did have very good friends in San Francisco and stayed with them, the Robert Bruces, and I think that she must have gone weeks in advance, probably,

and stayed with them just to be on the safe side.

Calciano: Well what happened when measles and mumps came?

Campbell: Oh well, she'd get on the telephone, and we had doctors in San Jose; our doctor was Dr. Miller, but various ones....

Calciano: And they came way up there?

Campbell: No, they didn't. They didn't. They seldom came, only when Mr. MacDonald died, but they consulted on the telephone as to what to do about measles and what to look for and what to prevent and what treatments and grippe and all these things.

Calciano: Did you ever get any diptheria or smallpox or things? There were outbreaks in the cities in this period.

Campbell: No, no, no. And this was a handicap perhaps for the children. We didn't get any of them; we didn't get mumps or chicken pox or German measles. I think we got regular measles; I don't know how we did that, but we didn't get German measles, or the other children's things.

Calciano: You mean all the children, or your family?

Campbell: I don't think any of the children got mumps or any of those things up there; they didn't go to town often

enough. And then I went away to prep school, and I got them all. (Laughter)

Calciano: But you didn't have any really alarming things like a diphtheria wave or anything up on the mountain?

Campbell: No. We had a bad accident. Jack Bachman, when he was about ten, fell from the lower gallery of the big dome and fell down on the concrete floor below (he shouldn't have been there of course) and was unconscious for many days. Now there they hitched up the mules and took him to town right away and put him in the hospital.

Calciano: Did the mountain suffer in the 1918 flu epidemic?

Campbell: I wasn't there then.

Calciano: Oh, that's right.

Campbell: I don't know, and you [Dr. Shane] weren't quite there yet.

Shane: I wasn't there then, but I heard afterwards that they kept the travel between the mountain and San Jose to a minimum.

Campbell: Yes, yes.

Shane: And I think they avoided it.

Campbell: Yes. I recall now that Father quarantined the place as much as he could at the flu time.

Shane: Yes, they were more or less quarantined, yes.

Campbell: As much as he could. Of course they still had to get food up.

Shane: They had to get food, but that meant contact with only perhaps one person.

[Ed. Note: The following two paragraphs, written on November 5, 1970, were added to the manuscript at Dr. Campbell's request.]

Campbell: And oh yes! I wasn't born yet, by two years, and I can't believe my brother can remember when he was two (but sure can when he was 13), but in Holden's time, 1897, rats got allowed to get into the Kepler drinking reservoir and drowned there, and Wally, age two, was at death's door from the water. The stage driver, Mr. Jameson (250 lbs), instantly took him and my parents on a wild galloping ride down the mountain in half time (and I naturally suspect that they didn't take time to change horses three times -one set of horses, not four -- to save a human life, though maybe the horses were lost), and as you and I know, he lived. It could be, contrary to my kind remarks near the end on Holden (this is new knowledge since the interview), that our father, too, was at least once dissatisfied

with the management. And wrongly placed here, in this orderly account, but pertinent to the stage and Mr. Jameson, who was an important man in our daily life, Wally, at thirteen, was leaving for the "last" time to a Connecticut prep school in our then second-hand White Steamer, and they met Jameson and the up-coming stage at the Watering Trough, three miles down our road; Jameson had watched Wally grow since he had saved his life at age two by that wild ride that maybe killed the horses, and as they went past, Jameson screamed, hearable all over the top of the mountain, "Goodbye, Wallace!" Wally never saw him again. (The auto stage had long since displaced the horses, and Jameson was by then old.) These are the things that Jesus' world is made of.

Communication -- the 1906 Earthquake and the San Francisco Fire

Campbell: One interesting thing that happened up there, and of course part of it was not unusual at all, because there must be 100,000 people still alive who remember the San Francisco earthquake and fire, but from the top of the mountain you can look down on San Jose and over here to the right the lower half of the Bay comes

down with Mount Tamalpais across it, and you can see the peninsula at night, you see the lights of Mountain View and Palo Alto and right on up the peninsula. You can't quite see San Francisco. It's a little bit too hazy, even was then, but we weren't as smog conscious as now.

Shane: Once in a while you can.

Campbell: Can you? I didn't know.

Shane: Very, very seldom.

Campbell: Can you see the Bay Bridge?

Shane: I have seen it. It has to be under extraordinary conditions.

Campbell: Well, these things always happened when he was away, but my father was in Washington at the National Academy meeting. I was six, and I was sleeping with my mother. I remember because I liked to snuggle up to her big red woolly bathrobe when she was reading in bed. (Laughter) But anyway, I was sleeping with my mother in a double bed, and my two brothers were in other beds, and a friend of hers named Daisy Carpenter was there too; she had come to stay with her while Father was away. And early in the morning I heard the

wind, as I thought, blowing outside the house, and you do hear it. It goes zhzz-zhzz all around you there, you know, in the winter and spring. But then I looked over and I thought I could see the walls at the corner of the room shaking, just as you can sit in a railroad car and see the other end shake when you're on a rough roadbed. And then my mother woke up, and it began to roar more and more, and she looked at that corner of the room, and she screamed and said, "Run, boys, run!" and she grabbed me and dragged me out of bed, and we ran down the stairs and out on the front porch, and some bricks were falling off the roof. By this time everything, I think, had stopped. We went inside, and no, nothing damaged except, you know, we still had coal-oil lamps, and they had these tall glass chimneys, and then around the chimney resting on a little bitty base like this was a spherical fluted orange globe with the chimney sticking up through it, and that had toppled over from the small base and crashed on the floor. But no other damage. The bricks had come from the old-fashioned chimney -- the type of chimney that goes up and then starts flaring out this way, you know, at the top, and those bricks were loose. Mortar doesn't really hold much; it just helps

fit the bricks together stably, and those were knocked off and fell on the roof and came down in all four directions. Well that was 5:30 in the morning, and as an earthquake story I think it'll have no value to this account, because everybody knows about earthquakes, and hundreds of thousands of people, especially all those who were living in San Francisco, were much closer to it than that. But about twenty minutes to nine we were going off to school, and we looked over towards San Francisco and the Bay and saw this enormous cloud, almost like an atomic bomb cloud. An enormous cloud of black smoke, and it was angling out up at high altitude like an anvil. We looked at this thing. There was no telephone. I mean the telephone was there, but the earthquake had knocked that out, and Mother said, "They've got a big fire down there around San Francisco somewhere." Well, the horse stage didn't come. It usually got there about noon, and the stage didn't arrive. No mail, no papers, no nothing; no communication at all; we were isolated. The telephone wouldn't work and the stage didn't come. And then came twilight, and at dusk we could see this glow from over here to over there, and as it got darker and darker, it was just terrific. A great

enormous glow; it didn't change shape much; changed shape some, but not much, and not rapidly. So Mother joined the other adults and went up to look through the 12-inch telescope. The big telescope won't turn down below horizontal well, it does turn down easily, but the dome doesn't let it see below horizontal, but the slot in the dome of the 12-inch telescope lets that telescope see below horizontal, so they could aim the telescope for San Francisco which was only a few degrees below the horizon. And Dr. Aitken, who was the double-star specialist who'd spent all his life measuring how far apart and how fast revolving two little stars are up there, by using spider lines and thumbscrews and angles resulting, put his instrument on the San Francisco fire. Now all this I was told later; I was in bed. So he said, "It's about three miles of fire-front that's burning." So that's how we first knew that San Francisco was going up in smoke.

Calciano: Oh!

Campbell: Well that was an interesting little thing that happened up on top of the mountain. Even though you were isolated and couldn't talk to anybody, you could see what was going on.

Calciano: (Laughter) Yes, if you were resourceful enough.

MOUNTAINTOP LIVING -- ENTERTAINMENT AND RECREATIONThe Golf Course and the White Steamer

Calciano: You mentioned earlier that people had to make their own entertainment on the mountaintop. I was wondering what the main types of entertainment were?

Campbell: Yes. They had a "golf course" up there, a nine-hole course, the like of which you never saw.

Calciano: Who made it?

Campbell: Well, there is a place to the west towards San Jose, and near the top of the mountain you can look down and you'll see the road, pieces of it, appearing and disappearing, and down about a half mile or mile below is what we up there thought of as "flat". Now there was the flattest area of this that was called the "Brickyard," and the reason is that when the Observatory began to be built around 1883, I guess, all the buildings were made of brick, and some of the houses were made of brick, and the dormitory (the original one), and well, what are you going to do for brick? Haul it up this 25-mile road from the valley? I'm not even sure that they make brick around San Jose. So they found some clay, right there at "China Camp," so-called (probably Chinese labor then), and

built their own brick kiln. It was just a huge pile of wet clay bricks, unbaked bricks, and they built this elaborate pile with tunnels underneath it for fire, and flues, of course, and apparently at that one time they made far more than all the bricks that would be necessary to build the Observatory, and that's right in the middle on this flattest place. Well, around this pile there is an exaggerated form of "rolling" country for enough distance to get a nine-hole golf course there, and then the ninth hole is quite a ravine, and ridge both, and you have to come up a long, much steeper ridge than I have ever seen on any other golf course to the ninth hole on the flat area. And the ninth hole "fairway" crosses the road, and where the road goes around an in-bend, a culvert is there under the road to take the winter storm water through. This water had eroded a tremendous deep ditch, and speaking of topsoil, there was enough soil there to erode a ditch six or eight or ten feet deep there, more and more over the years. We called it the "Crocodile's Jaw." (Laughter) And you had to drive up this ridge and along the crest of the ridge; it sloped off pretty rapidly either way -- it wasn't a mountain ridge; it was only a hill ridge, but it was steeper

than you usually find on golf courses. But if you hooked, and it tried to go off to the left side, it'd roll right down into the Crocodile's Jaw. So we didn't need any bunkers, because the natural hazards were so great. (Laughter) And a ball would hit a rock somewhere on the course and go whizzing off out of sight, you know, down a ravine. I mean it. Now every year when the grass turned brown and high, my father usually led, carrying a torch, the line of firefighters (all the men on the mountaintop) with wet sacks and buckets, and we usually made a picnic out of it in the younger years; the women, children, everybody would take picnic baskets and go down to the golf links or the Brickyard for the burning off of the links each year.

Calciano: Oh! So you didn't mow the grass?

Campbell: No. You burned it. You know how dry our grass gets in California in summer. No grass anywhere was green after May, so there all the rest of the summer it was black. So you played golf on the black, burned links of hard-baked ground, with rocks here and there.

Calciano: Oh! Goodness!

Campbell: And the greens were not grass.

Calciano: What were the greens?

Campbell: The greens were oiled dirt. And rolled, but oiled dirt. It was quite a golf course.

Calciano: Yes. I had visions of greenery. (Laughter)

Campbell: Along about 1908 my father acquired the first automobile on the mountain. It was an old, well it was a 1906 model White Steamer. And there was a ghastly procedure to get that thing started. You reach under the running board; you turn on a little valve and gasoline fills a little cup that you can't see, and when it overflows, it drips on the ground and you turn it off. Then you light it, you see, and the burning drops of gasoline light the little pool on the ground also for a moment, and that little cup of gas heats up a bigger vaporizer, and you turn on another valve in two or three minutes, and as the bigger stream of gasoline goes into that, then you get a blowtorch flame, you see; you've probably seen a plumber's blowtorch that roars?

Calciano: Yes.

Campbell: Well the reason I'm going into this detail which doesn't sound like Mount Hamilton is that it will be relevant in a few minutes, I assure you. Well then that blowtorch heated a big vaporizer the size of a

brick with a lot of holes through it -- that was the main vaporizer. And then finally you get up in the driver's seat, turn on the main vaporizer, and it backfires a few times, and then you get the main furnace under the boiler going. This is about a seven-minute process if you decide you're going to go anywhere in your automobile for the first time after several hours of standing idle. After that you keep the "blowtorch" going. There are further other processes that I won't go into that are not relevant. That was another recreational thing that we did (our own family) in the later years: keeping that car repaired every other weekend with our father so we could go somewhere the following weekend, the alternate weekends, you know, and it was really something.

Calciano: (Laughter)

Campbell: But anyway, at the golf course we had the "great" tournament; they had it every year. My father was usually either runner-up or champion, and Dr. Aitken was equally good. Well my brother Doug, aged about twelve or thirteen, and I and all the women were there, the whole family, the whole mountaintop, all

fifty people were there; it was a picnic for everybody, and the finals of the golf tournament. And we had eaten the picnic lunch, and all we were waiting for was for the two finalists to finish, when we'd all pack up and go home. Well my self-starting brother, age twelve, said, "Let's get this thing fired up." Well now, we hadn't burned the grass where the picnic was; it was just tall, dry brown grass, you see.

Calciano: Oh heavens!

Campbell: And the car was parked right next to everybody having a picnic, all of us sitting on the ground and on their coats and things. Our father and Dr. Aitken, they had now come up over the ridge, and they were putting on the ninth green, and they were even up; this last hole was going to determine the outcome of the tournament. And while they were over there about a hundred yards away, brother Doug does all the right things; he turns the first valve, and he spills a little gasoline on the dry grass and turns it off, then he lights it, and of course the burning drops go down and WHING -- it starts burning the dry grass under the car and amidst everything. (Laughter) And he yells, "Father!" And Father was making his last putt for the championship -

- he drops his putter, and Dr. Aitken drops his putter, and they both run over here to put the fire out, you see. By this time Mrs. Aitken had grabbed her sweater and crawled under the car and put the fire out with it.

Calciano: Oh my!

Campbell: But this is the kind of thing we did; this is the kind of recreation we had. I don't know how the putting came out after that. Probably not too good. (Laughter)

Hunting and Fishing

Campbell: And of course for the younger men, by younger I mean under say 35, mostly, there was fishing, but you go down 1500 feet to do it and climb back, and there was hunting of deer and quail.

Calciano: Did you hunt?

Campbell: Not me much. I shot ground squirrels, tree squirrels, and things like that with a twenty-two. And I went out with my father a couple of times. But my brothers, in their later teenage years when they came back from school once, hunted deer and got a couple. But we did fish, and that was quite an adventure. The mountain is surrounded at a distance -- well three-quarters of a mile down there on the slope -- by creeks, Sulphur

Creek and Isabel Creek and Smith Creek. And usually we went down to Sulphur Creek, and it's stocked with trout; later we did some of the stocking.

Calciano: It's stocked?

Campbell: Stocked with trout, yes. Mountain trout. Thousands of little fishes about that long [1 1/4 inches] in a huge milk can.

Calciano: Who stocked it?

Campbell: The State provided the trout, but we did it. And we boys helped; when I got older, I helped. And so we'd take these down there, but the streams got fished out very early in the season. The season opened April 1st. This was enjoyed by lots of outsiders; we weren't the only ones. The creeks were not on Observatory property. But my father would take us boys fishing; first not me, I was too small, but later it came to be my turn, when they'd gone away to school. We'd set the alarm clock for about 3:30, and we'd leave about 4:00, pitch dark, and go down one of these ridges in the dark (many choices of ridges), and we had a flashlight to get to the bottom. And then there was this steep declivity just as you approached the creek, down 1500 feet in altitude, and you'd have to wait until it got

just light enough so you could find your way down so you don't fall then, and you got down to the creek when there was just enough light so you could barely see to put your rod and your line and your hooks and things together. Then you fished for trout and went on down the stream for, well from five to twelve, about seven hours, and then climbed up one of the other ridges, back up the 1500 feet again and came home with such trout as you could catch. And if you got one that was eight inches long, you had a whopper, you know. (Laughter) You had to throw them back if they were under five inches, so the possibilities were limited. We used to do this every year about April 1st for a few times till the stream was too fished out.

Calciano: Oh, such fun!

Campbell: And then the boys, all of us on the mountain between certain years there, age eleven to thirteen, built wooden box traps, and we set them on various ridges quite remote from the community and baited them with cow's liver that our parents could buy very cheaply and have brought up on the stage, and we visited them every three days. If you use steel traps, you ought to visit them every day because it's cruel, you know, but

with a box trap, the fox isn't hurt. He also has something to eat, because he has a good big hunk of bait there. We visited them all winter long, from about December to about April, whether there was snow or not, and we'd catch quite a lot of foxes and take them home and chloroform them and skin them. We'd carry them home alive by the way. Well I don't think it was very smart, but nobody got hurt. We put two nooses around his neck, having turned the box up on end so he couldn't jump out at you because he was way down in there, and we'd open the door a little crack, you know, to get the nooses in and with twigs get them over his head. Then we'd pull him out. One boy would pull in one direction, and one would pull the other, and he'd go through all sorts of antics for about five minutes, then he'd calm down and you could pick him up and carry him home alive. I think we were very foolish about it; they might have bit our noses off, but I don't think my father knew.

Calciano: (Laughter)

Campbell: And we put him in a box and threw a piece of cotton with chloroform on it in there to put him to sleep and kill him, and then we'd skin him. It was the strangest

thing, when we got to Hotchkiss School, Connecticut, everybody else was from Orange, New Jersey, Hartford, New York City, and everywhere else in the East. Our mural decorations were fox skins, skunk skins, and rattlesnake skins with rattles, things like this, you know. (Laughter) And they all must have thought we were Daniel Boone's grandsons!

Calciano: Yes. (Laughter) So you didn't sell the pelts?

Campbell: No, we didn't. They weren't good enough, because they were cured by salt and alum, and they were stiff. They weren't really lovely soft pelts, because we didn't do it right. You have to have quite a process for doing that.

Calciano: But you'd catch several each winter?

Campbell: Yes. Caught several each winter. Oh we gave them to friends sometimes. In fact, at school when they got rather interested, I traded some of these fox skins for something more civilized that they had, you know. Like the Gibson girl pictures they all had and I didn't.

Calciano: (Laughter)

Campbell: And it was an adjustment; it was quite an adjustment

to go into a fine boy's prep school in the East -- New England versus Mount Hamilton, and there were big differences between our lives and what the lives of these other boys had been, you know. And it was up to us to change, because nobody was going to change to our way, we were sure. (Laughter)

Baseball, Hiking, and Miscellaneous Escapades

Campbell: Well, let's see, oh yes, I mentioned the Christmas and Commencement exercises and things, fishing, hunting, golf links.... Well, I think perhaps, unless I've missed something, those were the principal adult recreations there and also some of the children's recreations, too.

Calciano: Did you play games like mumbletypeg and....

Campbell: Oh yes, some, but mostly much more active, physically athletic games. One didn't play softball in those days, but we would have played that. You know, softball baseball. And there was always a summer baseball game, too -- all the men taking part, letting the boys in too, but not the women or girls. But again that was down at the Brickyard, or the golf links, whichever one chose to call it, with the whole

population there on a picnic.

Shane: And they had tennis too.

Campbell: Oh yes, and then we had a tennis court up there. And as we got older, particularly the teenagers coming back from high school away, there was lots of tennis, and some of the astronomers played quite a lot of tennis. Dr. Merrill and my brother Wally were the best. But he didn't play often, or golf either.

Calciano: You said that you would have played baseball or softball -- what was the rest of the sentence? I'm not sure I understood.

Campbell: I don't think there was such a thing at that time as softball baseball.

Calciano: Oh! I see.

Campbell: It was just hardball. Hardball baseball.

Calciano: But you kids did play hardball baseball then?

Campbell: Not much; we used to play other energetic games, though I think we did a little. Yes, sure we did. I got a baseball in the eye once.

Calciano: [To Dr. Shane] That's how he remembers it! (Laughter)

Campbell: The girls did something else. But on the other hand,

we all did lots of hiking. And there are about 125 varieties of wildflowers around there. We knew them all. And we prided ourselves on finding the first one of this kind this year and all that kind of thing, you know. Also, there are an awful lot of different kinds of birds up there, and we knew all those. And on these larger hikes and things, the girls would go along too; we'd all go.

Calciano: Yes.

Campbell: I guess always some grown-up would go if it was a long hike with the girls along. One of the things, many, many things, that we liked to do, and I understand this is not too unusual, but it was the job of the head of one of the families up there to drive the mule wagon around on Saturday morning and collect all the garbage cans and take them down the Spring Road to dump them at the dump. And many Saturday mornings the kids all loved to pile on this wagon and go and help dump the garbage cans... (Laughter) Of course later on, when we were older, we also got in a few little children's escapades. I remember especially my friend Rowan Curtis; he was Dr. Curtis' son. We were thirteen by this time, I guess, and we had a telephone that we had made out of receivers and wires strung through the

trees, and we could call each other up, especially when we slept out on our porches in summer. The receivers were by our beds, and our beds were on our outside porches under the stars, because on those lovely summer nights in California, you know it's not going to rain. The night I'm talking about was just gorgeous; it was a moonlit night, millions of stars in the clear sky and not a breath of breeze, and warm, but not too warm (never was up there), and we said on the phone, "Let's go climb the big dome!" So we put on our sneakers and met at the road and went up to the top in our pajamas and climbed up the stairs by the darkroom and out on the roof. We went around the dome walk to the dome ladder and climbed up the dome in the middle of the night, and Dr. Aitken, it turned out, was observing; and of course it's a steel dome made of thin plates, and it went B-O-N-G, like that you know, and he came out on the roof and said, "Who's up there!" and we came down, and he bawled the hell out of us. But I don't think he ever told my father about it. And then another time we were working with wireless, they called it then, and we wanted a sheet of copper, and we both knew where, because under this long corridor in that main building, you've been in it

I guess -- it's a couple of hundred feet long -and there's a crawl space under it, so you can go in a hole at one end under the big dome and come out through a hole under the little dome at the other end. And we had been through there many times on our hands and knees with a flashlight to see what was under there, this kind of thing, and we'd seen this piece of copper lying on the ground at a certain point. So we said, "Well, we know where there's a sheet of copper lying on the ground," so we took a pair of tin shears, and we went in there, I think at night. We found our piece of copper, there it was, and we started cutting through this band. It was about six inches wide and looked some eight feet long, but we didn't want all of it; we'd just take a piece. So we started cutting a piece out of this thing, and we had about a half an inch left to go when we suddenly noticed that it was soldered to a pipe. I thought, "My God, this is the ground connection for the whole chronograph timing system for the Observatory for all the observations," and we had nearly put out of business the accurate to 1000th of a second timing system! So we went home (laughter), found some bare copper wire, fine wire used in winter to stabilize your Christmas tree tip or

for hanging a wreath, that sort of thing, and cut many notches in the ends of the two pieces, you know, and wove the wire back and forth between the notches to make it all one again. (Laughter) And it may be there to this day; I don't know.

Calciano: Oh, how funny.

Books, Teas, Picnics, and the Policy on Alcohol

Calciano: Were there any library facilities for the young people? I know there was an astronomer's library....

Campbell: Yes.

Calciano: ... but was there any access to books for kids?

Campbell: Well we never lacked books, at least in my family we didn't, and I guess they traded books. We never lacked books, and we did quite a lot of reading in my family from age ten or eleven to the time we went away to school. And I guess the others did too. I know the Aitkens did. They had lots of books. I think books was a matter of the family owning them and lending them. I think this was how we did that. No, there was no non-scientific book facility. We all lived together and



At the left:
Douglas (left), Wallace (right), and
Kenneth (bottom; 1903 "unusually
dressed up, probably for picture. Our
front yard."

The great four-foot snow if 1907.
Left to right, Doug, Wally, Ken.
"The hats were brought back from
Spain at the 1905 eclipse, called
boinas."



"My gang, 1913, with 17 year old Doug
and the 1909 Stearns at Camp Poodie.
Left to right, Leo Westwater, Rowan
Curtis, Doug, Waldo Westwater, Ken,
Alan Curtis, but Jack Backman
missing."

lent each other things. And the grown-ups did this too. The women, the mothers, lent each other books and lots of other things too. Nothing unusual, I am sure.

Calciano: Your mother, of course, must have been busy with all the entertaining and whatnot, but....

Campbell: Well, it didn't happen all the time. It happened every couple or three weeks though.

Calciano: Well what kind of entertainment did the women devise for themselves? Just morning coffee at each other's house, or....

Campbell: That sort of thing, but it was usually in the afternoon. Tea, I guess it was. Nobody drank; pure as the driven snow.

Calciano: Were there any particular holidays that were bigger than others up there? Or any particular ways of celebrating, whether it be Fourth of July or Easter or Christmas?

Campbell: Well we always, yes, we all celebrated. I mean we had goings-on often, like some of the ones I've described. In the summertime it'd be a picnic somewhere; there were three or four very suitable places to have them. I'm not talking about the Brickyard; I'm talking about the picnic grounds, or Wandels, or much farther to the east, et cetera. Then in the wintertime there would be

the school exercises for the children which would usually be accompanied by refreshments, as I have already mentioned. Occasionally some amateur theatricals were put on -- not scheduled. Just once in a while the spirit would move some group, the young people usually, and by young people I mean the assistant astronomers, the Fellows there working for their Ph.D.'s, and the computer-girls working in the computing department (there were no IBMs in those days, you know) and the schoolteacher. So the young people sometimes put on plays in the library of the Observatory, and we went to them. In fact when I came back that time as a teenager, my brothers and I were in one once along with Cora and Henry Keeler. (That was in the summertime.) No, they just used their resources for entertainment, and that plus outdoor entertainment ... well for men; I don't know much about the women, other than picnics. Well, the men and women went on hikes and things, but then the men also had the opportunity, if they were interested, to hike and to hunt and to fish, which they didn't do too much because they were all working very hard and were dedicated to their work, but once in a while they'd go out and do this. Oh yes, and there was camping. For

families one spot in particular was excellent; it was called Camp Poodie and was on the lower Isabel Creek, way down to the northwest. A narrow dirt road led there from part way up, and you could make arrangements through the Observatory secretary to reserve it for a family or two, because though it wasn't on our property, the Observatory had come to terms with the cattelander owner, Mr. Morrow of San Francisco, and had provided a table or two there for anybody to use. Also there was a narrow road that led eastward and went way past the Isabel Valley there, and this, too, was sometimes used for family camping. And by age twelve to thirteen, the boys alone would camp overnight at some tiny fall and natural poolside at the bottom of one of the canyons. They'd camp on the smooth rocks there. One such place was Galileo Pool, north of Copernicus Peak, at the bottom of the Galileo ridge, 1500 feet down.

Calciano: How nice! Now you said something a few minutes ago about nobody drinking. I guess this was in the period before the cocktail party became fashionable?

Campbell: Yes. It was non-alcoholic. There was alcohol, barely. Father kept a bottle of whiskey -- probably been there for years, and when he would go out quail shooting or

deer shooting, he would come back and would pour himself about, well about that much [1/2 inch] -- I don't know whether it was Scotch or Bourbon or Rye or what. I remember asking, "Why don't you put in twice as much, Father?" (Laughter) "Oh, Kenneth, that would make me drunk." That was all he was going to have, you know. In fact I remember they had an expression, "W & S" -- that meant whiskey and soda, but you didn't say whiskey and soda. Immoral!

Calciano: Oh no! (Laughter)

Campbell: Yes.

Calciano: In the early 1900's down in the towns, of course, there were lots of saloons and so forth, so what if the people up on the mountain were endeared to....

Campbell: Oh yes, saloons, yes. San Jose had them on nearly every corner. Well now, I may only be talking about my family. If alcohol was appreciated up there, and I'm not sure it was, it wasn't in my family; it wouldn't have been in the Aitken family....

Calciano: Well I was thinking about the mechanics, and the....

Campbell: I don't think it would have been in the Curtis family, or the Moore family. Yes, now perhaps, it could be that the Knoblocks or some of the other people who

were the skilled artisans, or the workmen. Some of them were very skilled people, like the instrument-maker's family, Mr. Bachman, a Swiss with two children. It could be that some of the blue-collar people had something to drink and just didn't say anything about it. But my father was pretty much agin it. He wasn't utterly agin it, but he believed in temperance toward the side of nothing, you know. But we always kept wine in supply, red and white, but for V.I.P. dinners only.

Funerals and Church Attendance

Calciano: Did any of the wives feel put-upon to be so far away from civilization?

Campbell: Ah ... let me see. It seems to me they ... well, of course I did pick up information (I was in a position to), but not any mention of isolation as a cause. We boys learned lots of things sitting quietly at the table listening to my father talk about somebody in the community to my mother, or vice versa. But in general I think everybody seemed pretty content. I don't recall any feelings of loneliness on the part of any of the wives being reported to my mother and my father. There were a few differences of opinion related to daily living now and then (not at all moral

values) which we knew about but weren't supposed to -- we kept our mouths shut. But one man died of cancer on the mountain. This same Mr. MacDonald that looked after all the equipment and the plumbing and so forth. He died of cancer, and I knew it was coming, because my father came home for dinner one night and told my mother that he'd seen him, called on him (he'd been sick for some weeks) called on him and had also seen the doctor who had come up the mountain, in this case (the only case) to see him. And the doctor had said it was only a matter of weeks. I was admonished to say nothing whatsoever about it. They were sorry, I think, that they said it in front of me. I didn't talk, but I knew it was going to happen, and it did, too, right on schedule.

Calciano: Well that brings up another question I had. What did you do about funerals on the mountain?

Campbell: Well they took the body down in the mule wagon to San Jose.

Calciano: Well most of the mountain would want to go down too.

Campbell: Yes, they did. I think everybody did, I mean the adults, not the children.

Calciano: Well if you only had a wagon and all....

Campbell: Oh! Good point. Good point. How did they get there?
Well now, I think you're pinning me down pretty well.
Well this was after 1910, and the stage was an
automobile by then. I guess we still had the only car
around, though.

Shane: Wright had a car fairly early.

Campbell: Dr. Wright had a car, but I think not by then. Curtis
had a car pretty early too, but I think not then. And
of course the children didn't go. So perhaps one
parent went or something like this. I don't know. But
like all funerals, there were a few days to get there.
Both Father and Mother went, of course; I didn't.

Calciano: And was this the only funeral on the mountain during
the period you were there?

Campbell: It was the only one from the mountain during the
period I was there, yes. Well that was the early days
of the thing, or the middle days, and everybody was
still in the prime of life. There were no old people
up there then. They grew older later, but not when I
was there. They wouldn't be likely to die unless you
had an accident, or cancer, like this case.

Calciano: What did you do about going to church? I'm thinking
particularly of the people who were churchgoers, or
also the Catholics who were supposed to attend weekly.

Campbell: Well now, we had Sunday School, usually it was at Mrs. Aitken's, and we all had to go. And as far as church is concerned, I think that was limited to once in a while when somebody's father who was a minister would be visiting his daughter or son on the mountain, and whenever there was a minister visiting with one of these families, they would open up the schoolhouse and have a church service on Sunday.

Calciano: Were you almost totally a Protestant group, then?

Campbell: I think we were. I suspect we were. The MacDonalds might not have been. Hey, they weren't! They weren't! Eileen used to go around with a cross on her right here! She probably was, yes. But who cared, especially me, till this moment.

Dr. Shane: Mrs. O'Neill, your cook, was.

Campbell: Oh yes, Jane O'Neill definitely was Catholic, Jane O'Neill, yes, and her two children.

Calciano: But they certainly didn't make a pilgrimage once a week down to....

Campbell: Oh, no. No, not at all. Now my mother ... my father was much less "religious." Now I wouldn't want that misunderstood; my father was very much, by my

definition at least, a Christian. And I think he believed in God. He lived as a Christian. In fact he was one of the most Christlike men I ever knew; never forgot others, nor his beloved family -- he used to mutter in his sleep about us. I don't know whether you think that's inconsistent or not?

Calciano: No.

Campbell: But he couldn't care less about church services. He never said so; he just left it alone, though he did go to those schoolhouse services; he had to, of course. Now my mother went to church down there (San Jose) every chance she got. When she went to town, she'd stay over a day if possible to go to Episcopal church services. She took it quite seriously, and took me along. But she never complained about it on the mountain. She just said nothing and did her job, and when she got the chance to go to church, she'd go to church. And I suppose the other women were the same way. And she had had her minister in San Jose come visit them on the mountain to baptize us babies, each child.

Vacations

Calciano: This was also a period when, say, in the San Joaquin

Valley, or over in the Santa Clara Valley, the wives and children would go off for six weeks in the summer to the seashore if they could afford it. I wondered if any of the astronomers' wives did this?

Campbell: People going away? Yes, yes. Is there a place called Pacific Grove around here somewhere?

Shane: Yes, down near Monterey.

Campbell: I think the Aitkens, several summers she took the children to Pacific Grove, and he joined them for his vacation, something like this. And then for three summers while we were quite small, in my case age six, seven, and eight, we spent two whole months with Jane looking after us at Carmel-by-the-Sea. And Mother there too, part time, and Father coming down weekends two of those summers; the first summer they both went to the Spain eclipse. He probably didn't come every weekend, either. He probably just came some of them. He came Fourth of July once with a whole armful of fireworks. I remember that. (Laughter) I know some of the other boys were near there. One of them, Jack Bachman, went to a place called the Big Sur, and I guess you know all about that, don't you?

Calciano: Yes.

Campbell: People were getting away on their vacations in the summertime, and we boys would tell each other where we'd been. But I don't remember now. Then too, there was that nearby family camping place I mentioned. People could go there.

Calciano: And how much vacation would the astronomers themselves have? Do you know?

Campbell: You'll have to ask him. [Shane]

Shane: One month.

Calciano: One month? Even back then?

Campbell: Is that so? I don't recall Father taking a month; hardly even a week, except once when he took a whole summer.

Shane: Well, he probably didn't.

Campbell: Probably didn't, no.

Shane: If I may interrupt....

Calciano: Yes.

Shane: There was a special arrangement for Tucker who wanted to spend his summers at his home in Wiscasset, Maine.

Campbell: I've driven through it, only three years ago, and

thought of it as his birthplace.

Shane: Yes, well it was arranged that he could go alternate summers for two months.

Campbell: Oh, really? I'll be darned. Made that deal with Father?

Shane: I suppose so.

Early Automobiles

Calciano: Now you mentioned you only got down to San Jose maybe twice a year.

Campbell: Sometimes once -- but that's before we had the car, which we got in 1908.

Calciano: And what was the occasion that would take you down there?

Campbell: Oh, frequently it was something horrible like getting adenoids removed or something like this, you know.

Calciano: Or dental work?

Campbell: Dental work, yes, dental work, that kind of thing.

Calciano: You didn't go there for your birthday or something?

Campbell: No sir, not till after 1908 for us. It was not a usual reward, although we considered it very rewarding

because it was a tremendous change and quite an adventure.

Calciano: How long would you go for?

Campbell: Well in the case of my family, my mother's father and mother, who were not only retired, but just bumping along and quite aged (probably younger than I am!) were living in a boarding house in San Jose where she had put them I think. So we'd go for several days to see them. My mother and I, not my father. And he would join us sometimes at some stage of the game, and once in a while we went to San Francisco, that is we did after we got the White Steamer. Life changed quite a bit after we got the car. I haven't told you much about that -- it's more personal than Mount Hamilton. We went through San Jose and drove to San Francisco, and about once a year we visited our wonderful friend, Mrs. Phoebe Apperson Hearst at her huge and glorious hacienda at Pleasanton. And I remember when Roosevelt sent the fleet around the world (I think it was 1907) it came into San Francisco; no, couldn't have been 1907.

Shane: No, it was 1908. I know I went from Auburn down to see it.

Campbell: Well, we drove the White Steamer to San Francisco to see the fleet come in, and we almost missed it because the universal joint let go and the driveshaft dropped down on the road.

Calciano: (Laughter) Nothing like a major crisis!

Campbell: Yes. Anyway, after we got the White Steamer, our particular family got away more than most, and then gradually other people, a few other people, got cars. And of course we were decent about it. Father and Mother would take other people down and back in our car, or take them along for a Sunday or something like this, you know. I mean we weren't hogging it, but it was the only automobile on the mountain in my middle years there.

Calciano: Did your mother ever drive it?

Campbell: No, she never drove at all, but we boys all drove when we were eleven. And we drove up the mountain when we were twelve.

Calciano: Oh, good heavens! (Laughter)

Campbell: Yes. He taught all us boys to drive at that age; didn't have to have a license then. (Well, he wrote to Sacramento, and they mailed him one back, age eleven.)

Calciano: With all these horse stages and so forth in the

earlier days, and that long trek to San Jose, I wondered if a horse threw a shoe or something, did you have a blacksmith up on the mountain?

Campbell: Yes, we were quite capable of that. But I don't know whether it ever had to be done or not. The stage would come up and stay there for about two hours, one or two hours, and rest the horses.

Calciano: But were your mules shod?

Campbell: Oh the mules ... oh yes. Yes, I guess we did shoe them.

Calciano: Did you have a blacksmith shop?

Campbell: Oh yes indeed! We had a forge. Surely we could have done it. We had very fine machine tools up there, a milling machine and two lathes, et cetera, as well as the more crude machinery like a forge, and great skills. Well, I'll tell you how I know we could have done it, because one time my father and I, when I was just about ready to go away to school, and I was driving, we were coming up one midafternoon; we'd passed Grand View and had just passed the "summit," so-called, above Grand View, before Hall's Valley, and the car gave a lurch, and the right front wheel came off.

Calciano: (Laughter) What a car!

Campbell: This wasn't the White Steamer this time; this was the old second-hand Sterns we then had. And we went up and wrested a fence post from those cattle fences there and got it unhitched from the wires and pounded it with a rock under the end of the axle with the point of the post pointing forward so it could be used as a skid, and then we slid the car down into the in-bend that is just past the summit and off to the edge of the road (it's wide at that spot), then we waited for a car to come by, and we stopped them. They kindly stopped -- I'm not sure they would today. Father had taken the broken part off; it was the spindle that sticks out that is the axle for the front wheel, the independent axle for each front wheel that swings when you steer. The vertical pin through it had broken in two. So Father stopped this car and gave them the parts which he'd gotten off and sent them up to the mountain (it was a Saturday night) to ask Mr. Bachman to please weld them. He welded these parts, and about 10:00 o'clock at night this car came back on the way home and delivered the welded piece to us; we put it back on and drove on up the rest of the way. So they did have skills, as you can see, and horse-shoeing would be no problem.

Calciano: Yes. Well now, I'm about to embark on a few questions on the Observatory while you were there and the astronomers, so if you have any other comments on the social and....

Campbell: Well, one detail of our winter life up there was the great snows, not every year, only some years, but they were really isolating when they came (for adults that is; it was adventure for us kids). In California valleys, of course, snow is unthinkable, but this was 4200 feet up, and that makes a difference. So every family had canned goods in their rock-hewn cellars against such temporary isolation, and provisions also for the V.I.P.'s, should one of them get caught up there by a storm. (Although I don't think they ever did.) Now every few years, when a snowstorm was too heavy, the horse stage, and later the auto stage (after 1910), wouldn't be able to get above the Brickyard, and then all the males, including the little boys, trudged down the slope to meet it, led by a snowplow -- one of those V-shaped wooden plows. We'd all go down to carry up the food that had been ordered, the mail, the papers, and to carry down the posted outgoing mail. When I was small, I always was the one to ride down on the plow (which was being

dragged by two distinguished astronomers) because if it wasn't loaded by a suitable weight, it wouldn't create a deep, down-to-ground path for the adults to climb up again with the loads on their backs. We boys, of course, all had to climb back up again, too, although without loads, but we climbed all over the mountain anyway, and the path back was down-to ground thanks to my "contribution" of riding down on the plow. I sure was the Tsarevitch!

Calciano: Yes, indeed! (Laughter)

Campbell: Now let's see ... any other comments. About children's recreation I've mentioned; there's only one more I left out, and that is the early days of automobiles; they began to come up the mountain from 1906 on, and we boys would stand on our porch and look down at every visible little fragment of the road as far off as you could see, including halfway to town because the road ... you could see the turn called Cape Horn sticking out from the hill way off there, and then running across Hall's Valley beyond. We gave all the turns in the road names, like the Crocodile's Jaw that I mentioned before. So we would follow these cars with binoculars from the moment we could first see them --

"Here comes an automobile!" -- and as the automobiles became gradually more numerous, we could speculate miles away as to what kind of a car it was. And we always raced up to the "top" when they got there (they usually came on Sundays, or Saturday afternoons) and looked the car over to see whether we liked it or not, what kind of a car it was, ask questions all about it, and all this kind of thing. All those Mitchells and Stoddard-Daytons and Thomas Flyers and everything.

(Laughter) That was also one of our recreations. I thought I might mention this.

Calciano: Yes, I'm glad you did. This would be about 1912, or...

Campbell: Oh, no, it started much earlier than that. It started beginning in 1906. A couple of times around 1906 one of those one-lung things that you steer with a lever instead of a wheel came up, you know.

Calciano: Oh good heavens.

Campbell: I remember that one-cylinder Cadillac that came up; came up about 1906; it barely made it. And the Rambler, and the Reo, and all those things, and then they got more and more sophisticated, of course, but we kept looking them over for many, many years, and it wasn't till just a few years before we left for school that we began to take them as a matter of course.

Calciano: Yes.

Campbell: And we had them all mentally catalogued, and we knew "exactly" all about them.

THE OBSERVATORY

The Telescopes

Calciano: I wonder if you could tell me a little bit about the telescopes that were there when you were a boy.

Campbell: Well, you see on Saturday nights, it's been changed long since to Friday nights I think, but on Saturday nights the telescope was prepared for visual looking-through (the spectroscope had to be removed) and the public was welcome to come up there on Saturday afternoon, and from as soon as it got dark until everybody there had had their few seconds turn, they would hold off their observations and give people a chance to "see through." They'd stroll through the whole Observatory and see the photographs of stars, nebulae, eclipses, et cetera, in the corridors, and have them explained by one or two of the assistants, and then go to the dome and wait their turn to look through the telescope at whatever the object would be -- the Cluster in Hercules, or the planet Saturn or

Jupiter, or the moon. I guess we didn't show nebulae much to them, because they didn't show that clearly to the naked eye. I don't know.

Shane: No, they haven't got enough brightness, not enough surface brightness.

Campbell: Yes, I guess you had to use photography to get a good visual image of a nebula.

Calciano: Were there any telescopes built while you were there, or did they just have the 12- and 36-inch?

Campbell: Well, in hindsight now -- and I didn't care then, but we were talking about it last night -- I was there when the 36-inch Crossley reflector, which had been given by a British astronomer, and which had almost the output of the big famous telescope, had its mounting completely replaced. I remember the crates of heavy parts and stuff all around the back of the Crossley when they were doing that. That's what they were for, undoubtedly.

Shane: All that was left of it, of the original, was the mirror; everything else was changed.

Calciano: Oh really?

Shane: And of course the dome was left.

Campbell: Yes, yes. And I was there when that took place, but it

would not be noticeable, because it was the same dome, and they were keeping the famous mirror, the most important part of it, inside, and then replacing all the rest, and being a little kid, I wouldn't care much. So no, I don't think that any other new telescopes were built in my time. I don't think so. Although they certainly have added some since! Indeed!

Calciano: You mentioned all the visitors and so forth, now I wondered about visiting astronomers. Were they allowed time to work on the 36-inch the way it's done now? Do you know this?

Campbell: Oh, well yes, you [Dr. Shane] can probably tell a more accurate story, but occasionally, though, one made arrangements many months ahead, and the man planned on coming for many months, a foreigner. He would arrange to be allowed, or we would invite him, to come and use the facility for a particular problem, a particular component of astronomy that he was vitally interested in and contributing to. And I think this was done a number of times, wasn't it?

Shane: Yes. He usually would come on some kind of a fellowship or something.

Housing Facilities

Calciano: Did you have housing facilities for him?

Campbell: Oh, yes. Well, I shouldn't say it quite so fast because we had just barely enough for him, but we had a dormitory for the single people. It was so badly weakened and shaken up and cracked in the earthquake of 1911, not the 1906 one, that it had to be condemned and taken down and replaced by another, but there is a dormitory there of three stories, both men and women - - women on one floor, men on another, and I don't know who was on the other one....

Shane: The middle one had a married couple.

Campbell: Oh, is that it? (Laughter) And in fact my brothers in their teenage, the summer they returned (I was too young; not so young, but they were definitely fifteen and sixteen, and I was thirteen) helped tear down the old dormitory; they worked as laborers on that job, ripping it down and chuting the debris down the North Canyon right next to it where it was hidden forever in the scrub-oak brush that the canyon is lined with. (No litter problem, you see.) So there were indeed facilities for single people there. There had to be, because there were quite a few single people (I've referred to them as the "young" people) up there,

permanently, as computers, and assistant astronomers, and technicians and so forth. People of a fairly or very high mental training. And of course the schoolteacher. And the Fellows for Ph.D. Attainment.

Calciano: Yes. Was the housing tight on the mountain? I know it certainly was when Dr. Shane was Director, but back in 1900 and so forth....

Campbell: Oh, it was never empty. Well, there was a house we once called the "empty house" when I was in school, but by and large there was never an empty house.

Calciano: But it wasn't quite the crucial problem that it came to be later?

Campbell: No. Well.... I'm trying to remember whether houses got built while I was there; I'm not sure they did. I think the building of more houses all happened after I left.

Shane: Your father started a building program very early in the 1920's.

Campbell: Oh! All right. Well then you see I was completely out of the picture by that time.

Shane: One or two had been built shortly before. The Moore house and the Wright house.

Campbell: I see. But that's after I left however. So I think it

was quite static the years of my childhood as I recall. And there was one house that was empty for some time, and that was the house at the end of the "flat"; the boarding house was at the south side of the flat. This was at the eastern end of the flat, at the bottom of the school hill. That was empty for quite some time when I was a child (I mean a year or something like this) and somebody, yes, the Moores, were finally assigned to it. But that was the one exception. All the houses were used, and I think instead of making the houses fit the community, in those times they made the community fit the houses, probably. (Laughter)

Eclipse Expeditions

Calciano: Was your father very often gone on expeditions? I know you mentioned a couple....

Campbell: Yes. Over the years, he was indeed. He also went East to the National Academy of Sciences meeting in Washington every April. I never knew what the other trips were for, though I think in hindsight that a lot of his trips had to do with fund raising for eclipses, and then the major eclipse adventures themselves. Every few years he would want to go on an eclipse

expedition to observe a total eclipse of the sun in some remote spot in the world -- you can't dictate when or where it's going to occur, but they sure do know! Exactly! Place and time, to seconds. And it's a very narrow path of the moon's shadow on the earth, sometimes.

Calciano: Yes.

Campbell: He had to raise money for this; this wasn't out of the University budget. He was admired by a banker named Crocker -- Crocker National Bank, you know, in San Francisco, who ultimately became Chairman of the Board of Regents of U.C. And then a man named D. O. Mills also contributed a good deal in early years. And I think my father was away now and then to talk with these people about money, probably. Then too, occasionally, once or twice a year, he got asked down to the Astronomy Department at Berkeley to give a lecture. So yes, he wasn't away frightfully, but he went off far oftener than the rest of the family, in fact than the rest of the people on the mountain did.

Calciano: Did your mother feel that this was sort of a cross she had to bear?

Campbell: No, no, I don't think so. I don't think so. Mother was

a terrific slave and supporter to my father -- I mean voluntary slave -- and he was her lord and master, and everything he did was just right; it didn't bother her a bit; it pleased her.

Calciano: Did she ever go with him on any of these expeditions?

Campbell: Oh, indeed she did; she went on all of them! In 1898, my oldest brother, Wally, would be three, and my next oldest brother, Doug, two, and she farmed them out to the Keelers in Berkeley and went to India for two months.

Calciano: Good heavens!

Campbell: For an eclipse expedition to India. Now she has written a very good account of that trip which has never been published and is just rotting away, called In the Shadow of the Moon on that whole trip and the crucial problems they had on that trip, such as changing the site to avoid cholera or plague, which was rampant, and you might be interested or you might not, I don't....

Calciano: Yes! Where is it?

Campbell: Well, I think I can get it for you in the next three or four weeks, if you want it. My brothers have it.

Calciano: I'd like a copy of it -- a Xerox or something.¹

Campbell: Well there's other material I mentioned to Don. She saved a lot of material which is in the possession of my brother Wally, and I talked with him yesterday about it. He thinks it'd be a very good idea to give it to you people. You'd have to plow through it, and no doubt ... she came to the mountain as a bride, and she had a number of things, and she was a pretty good writer; that is, it may include a lot of very early history about life on Mount Hamilton before my memory, though I doubt about personalities much.

Calciano: Oh, wonderful.

Campbell: But she went with him to India before I was born. I was born the next year. And then, let's see, India, Spain in 1905, and Flint Island, an island a mile long and half a mile wide in the South Pacific Ocean; they were there for two months about 1909.

Calciano: That's worse than the top of a mountain! (Laughter)

Campbell: Yes. Quite an adventure. They went via Tahiti, and then an American Naval vessel took them from Tahiti to

¹ Ed. note: Mr. Campbell obtained a Xerox copy of *In the Shadow of the Moon* which has been deposited in the Lick Archives section of the Special Collections Department of the University Library.

this little tiny island, about a thousand miles away, and then went off and left them and came back for them on an appointed day a couple of months later. Then I guess Kiev, Russia, was the next one. That wasn't until 1914; that's the one we three boys went on.

Calciano: Oh, all of you did; how exciting!

Campbell: I was gone a year from the mountain by then, in prep school, and was fifteen. And of course it was an interesting thing; I don't think it's related to Mount Hamilton, and you may remove it, but that was the summer the war broke out when we were in Russia, and we had been going to go on to Berlin and Paris and London, and all the tickets were already bought and in Father's pocket for the whole family. And instead of that, we had to go north, around the war, to Moscow, St. Petersburg, Rauma, Stockholm, Bergen, and Newcastle. Oh, by the way, to continue about my mother and her expeditions. She went to Goldendale, Washington, in 1918, Australia in 1922, and finally Ensenada, Mexico.

Shane: At Goldendale, Washington, I remember the incident of their receiving word of Douglas's being shot down while they were there.

Campbell: Oh they did?

Shane: They received the word just the night before the eclipse.

Campbell: I'll be darned. Gee, wow ... well, they didn't know whether he was alive or not. And the eclipse crisis was upon them after a month's preparation, probably, for tomorrow's two crucial minutes of totality!

Shane: Yes, that's right. They didn't know what was going on.

Campbell: [To Calciano] My brother Doug. He was the first American Ace in World War I.

Calciano: Oh, my.

Campbell: But on that series of eclipses, my father -- you may not want to use this, and also I offer it subject to his [Shane's] correction -- but my father was one of the very earliest believers in Einstein's theory of relativity, his first theory. It was most controversial then, and one of the things that Einstein said was, in effect, that, "If what I say is true, light should be subject to gravitation. Therefore," (could be, my father said it, not Einstein) "if you have stars beyond the sun," (ever so much further away, as you know, the sun being very close relatively) "coming by the sun, those light rays should be bent by the gravitation of the sun, the sun

being an ordinary medium-sized star." And so what my father tried to do, and that's why he went to Flint Island -- I don't know about Spain in 1905, but he tried at Flint Island in 1908 -- they took pictures with a special instrument called the Vulcan, and they had already taken pictures with it of the same sky six months before, because you know at midnight in the wintertime you're looking at the same sky you will see in summer at noon, and the sun at midnight is, of course, down there "under" the earth. But six months later that same sky has got the sun up there at noon, right in the middle of it.

Calciano: Yes.

Campbell: So they took night pictures of the sky six months before, of the region of where the sun would be at the time of the eclipse, on large plates, pretty accurately, and put them away. Then they would go to the eclipse, and the sun disappears, the stars come out, and they take pictures of the stars again. Are the stars the same distance apart, or did they move? This would show whether the light rays were bent going around the sun then or not, you see.

Calciano: Oh how exciting.

Campbell: He didn't succeed at Flint Island. I know they had

rain for half the eclipse. The rain stopped, and the clouds cleared away, and they got a little tail end of the eclipse. And then in Russia, we had a thunderstorm and utter failure.

Calciano: Oh.

Campbell: And then because of the war, we had to ship all the instruments, a whole carload of them, pack them up and send them up to the Russian Imperial Observatory at Pulkovo where this fellow, Director Belopolsky, was one of the men that had been at these big gatherings at our house we talked about ("coffee cups" and "drawing room", et cetera), and they remained there throughout World War I and were finally shipped home via Vladivostok on the Pacific and didn't get home until about 1921. Goldendale, Washington, had to have substitute, and less satisfactory, instrumentation. But in 1919 the British did it, and they beat him and gave to the world evidence of the truth of the Einstein Theory. But I never once heard my father crab about it, or show sadness. He was a big man, above defeat.

Shane: That British contribution should be taken with a grain of salt.

Campbell: It should? Okay. I stand subject to your correction.

Go ahead. I welcome that.

Shane: Yes. Well what happened was they tried it in Brazil, and Eddington claimed, and I think perhaps justly, to have verified it, but owing to bad weather, he only had two stars on his plates, so that it was done just from two stars, which was very inadequate.

Campbell: Yes.

Shane: But whether by luck or not, he got the right result. But it was really cinched by your father's expedition to Australia in 1922. That really sewed it up.

Campbell: Do the astronomers feel that he really did it first, or do they feel the British did it first? I don't know.

Shane: Well the books usually say the British did it first, but I think it was luck that they got the answer. I don't think they deserved the credit for the accuracy that they really came out with.

Campbell: That's so refreshing to hear.

Edward S. Holden and James E. Keeler

Calciano: I'd like to get your comments on some of the astronomers that were at the Observatory during the

years you were there. You won't be commenting on their astronomical work, but you can comment on their personalities and so forth, and also on some of your father's predecessors and successors if you knew them.

Campbell: Well, yes, we boys were privileged; we were brought up at an early age to be like papooses -- always included, but must keep our mouths shut, so we heard lots of things about people. My father came home for lunch every day, too, so we heard these personality things. (In hindsight, a real social risk in an isolated small community. But we didn't care very much. We were small, you know.) But about his predecessors, I can tell you one thing, his immediate predecessor as Director of the Observatory was Professor Keeler, and Don [Shane] now reminds me that long before that he'd been at the Observatory and was a very contributing observer and astronomer and discovered and established many things, and from this he went to a more responsible position at Allegheny Observatory in Pennsylvania and then returned as Director, but it was for only two years because he died. And my father thought the world of him. He just thought that he was absolutely tops. And in fact they had two children, Cora and Henry (I don't know which

was elder) that lived in Berkeley for a long time after he died (I don't know where they are now) and occasionally we would have those children and their mother, I guess, up to visit us on the mountain. And my father thought that professionally he'd been tops, and personality-wise he was tops, and we continued to love that family, I mean my father and mother did; I couldn't have cared less at the time, but I know this is true. And on Holden, who was the original Director, all I can say there is that I never heard my father or mother personally mention anything at the table, anything adverse about Holden. I don't recall my father ever talking about Holden. (He was over the dam, I guess.) But sometimes on the gatherings of the old guard at our house, I'd hang around as a kid, and looking back on it now, I've got a fair memory, there used to be stories about those early days when Holden had been Director, usually ending up kidding some aspect of Holden's administration, or attitude, I mean, or personality, or something, I don't really know what. So I gathered that maybe not everybody loved Holden too much, but I never heard my father personally comment on it; he never held grudges or old criticisms, and I'm not aware of any difficulties that

my father might have had with him. Perhaps he never did.

William Wallace Campbell

Calciano: When did your father come there as an astronomer?

Campbell: I think he came perhaps in 1892, maybe.

Shane: 1891 I believe.

Campbell: Was it. 1891?

Shane: Yes.

Calciano: Very shortly then after it started.

Campbell: About seven years, I guess, after it started, wasn't it?

Shane: Well after it was opened, three years.

Campbell: Oh yes ... construction was started in 1883. And then I think he became Director on the order of 1900 perhaps?

Shane: That's right.

Calciano: You've commented on your father several times; do you want to add anything about....

Campbell: About my father?

Calciano: Yes. Before we get on to Aitken.

Campbell: Oh, I see. Well, you see as a child, while my father

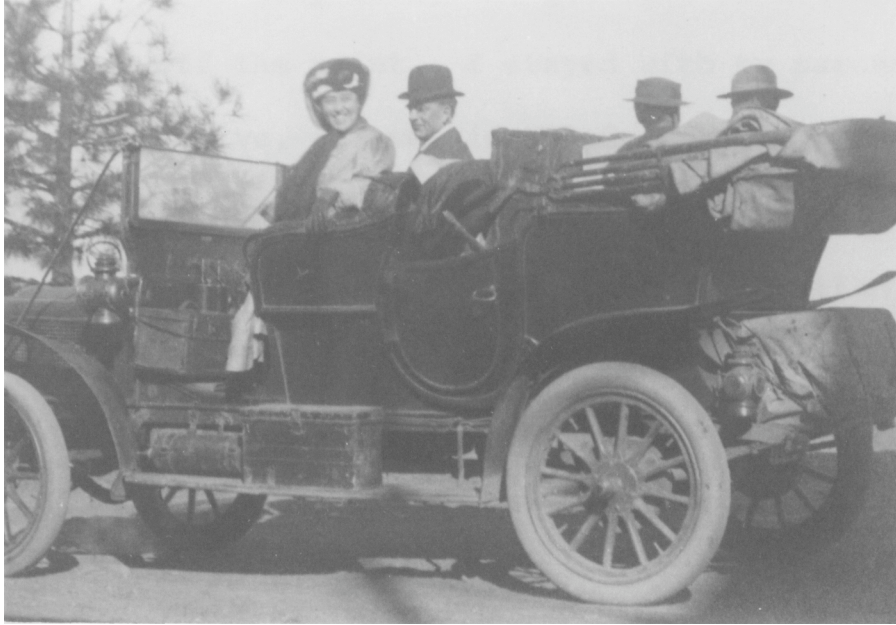
could be at times severe with me, especially when I told lies (Brother! Did I used to catch it with the razor strap.) but he was a very gentle person with his family and very all-out for his family, as well as all the other families. And we went to Europe once in 1911 -- oh, speaking of recreation, he took us all to Europe on a strictly pleasure trip in 1911.

Calciano: Not bad!

Campbell: Remember I said he never took long vacations except once when he took a whole summer? Well this was the occasion.

Calciano: Yes.

Campbell: That was strictly a pleasure trip and really not Mount Hamilton. He got typhoid fever; we walked on the Rhine and took a shortcut over a ridge to avoid a bend in the river to save time, and it was very hot, and we stopped into a farm and asked for a drink of water, and we were too unsophisticated to know that you just don't do that in Europe, at least then, and the water came out of the well in the barnyard. Two weeks later in Munich he came down with typhoid fever. None of the



"Father, Mother and me [Kenneth]
 In White Steamer, June, 1911. Community send-off from the 'top'
 starting our European trip. The fourth passenger not
 recognized, probably an accommodated neighbor riding to San
 Jose."



Phoebe Apperson Hearst, William Wallace Campbell, Thomas Alva
 Edison, 1917 at "The Hacienda" near Pleasanton, California

rest of us did, but lie was really low; he was in the hospital there for six weeks, and the family was broken up -- my two older brothers, fifteen and sixteen, had to go on for the rest of this trip alone and get back to Hotchkiss, but that's off the point. I stayed with my parents, being twelve, and we did a lot of things, stayed two months longer than we'd intended because he was so weak, and we went to Switzerland, to the Italian Lakes, to Geneva, and to Paris, and finally took a little boat for home, a different boat than was scheduled. He was better by this time, and he and I were walking around the hurricane deck, the top deck, the roof of the thing, you know, where lifeboats are (this was during a horrendous storm at sea) and I said, "I wonder if there are enough lifeboats, Father, for all of the people on this boat?" (This was just before the Titanic, by the way, about a year before, when indeed there weren't enough.) And he said, "No, Kenneth, I think probably there are not enough." And I said, "Well, I suppose if we founder in this storm, you'd grab Mother and me and we'd all three climb into a lifeboat quick and hope we'd get let down and get away." He said, "Well, Kenneth, I'd put Mother and you in a lifeboat, but you know, I don't think I would

join you; I think I'd stay around and try to help somebody else." In hindsight, perhaps this is normal behavior for most adult men, but it impressed twelve-year-old me. He was a rare combination of Christ in giving, but intolerance in living in some areas. My mother was different; in long, long hindsight I now realize that she knew a good deal about life in the great world outside, but my father was very intolerant on many things. And yet extremely kindly on fundamental things. But lest I do his understanding of people a permanent injustice, let me give you this nice story, which far, far precedes my conscious life with him, about his engagement and marriage in his youth. As an instructor, age 26, at the University of Colorado, a mathematics instructor, with a mind that was already computing comet orbits, which is about as sophisticated mathematics as you can have, he became engaged to, and in a year or two married, a cute sophomore in his class (my mother) who could add, but couldn't subtract! True! I used to hear him kid her about it, lovingly, whenever he had to help her balance the checkbook over the years. So don't think he wasn't human. And just as another example of his interest in people, I can mention that he liked the

janitor and his wife and children just as well as he liked the astronomers, and he loved all their children and ... well years later, when I was living on the Berkeley campus in the President's House (I'd been ill, and I came out and was there for two years, age 26 to 28) we went to a football game in the Strawberry Canyon stadium, and he said, "You see that band?" He said, "Do you remember little Leo Westwater who was younger than you were on Mount Hamilton? I think Leo is playing in that band down there." Little Leo, the janitor's son, one of two. The President of the University, with huge controversies on his hands, but he remembered those little kids on Mount Hamilton, and he knew where they all were and what they were doing as they matured. He was that kind of a person.

Calciano: Yes.

Campbell: Now, all these recollections of the Mount Hamilton adults really are the evaluation now by me as an adult, having only known them as a child, you know....

Calciano: Yes.

Campbell: So you don't evaluate ... oh you may stick to the evaluation that somebody didn't like you when perhaps he did, but I ran across this on the mountain as a

child only once. There was only one man that didn't like kids (now I don't mean indifference, like Mr. Tucker) and that was Mr. Hoover, first the carpenter, and then foreman of all the blue-collar people for many years. He hated our guts. He wanted us out of his way, wherever he was.

Calciano: (Laughter)

Shane: Jake Hoover.

Campbell: Jake Hoover. But here's an instance where my father wasn't always kindly. He had just been appointed President of the University, just before he went off to Australia, and he knew he was going to have to have drastic revisions to the Director's House, as he thought at that time that he was going to use it as President, which was never true. (He came up once in a while as President, but he didn't use it as headquarters, and seldom personally.)

Shane: Correction there -- it wasn't to Australia, it was to Ensenada.

Campbell: Was it? Oh. Well he left instructions, probably only to make a start, and had the money for it from the University -- what huge changes that house finally got! You can't recognize it from what it was. It

became twice as big, wouldn't you say, compared with the house it had been?

Shane: Yes. Well the answer was that the Regents would give him all the money he wanted to repair the house, but they wouldn't give him money to build a new one.

Campbell: I see.

Shane: So what he did was really to build the new one around the old one and throw the old one out the window.

(Laughter)

Campbell: Yes, yes. Well you just can't recognize it. But anyway, this was to be started, at least, while he was gone. I thought it was Australia, because he was gone quite a while.

Shane: Well I can tell you why I know it wasn't Australia. Because he came back from Australia with a great deal of publicity with reference to the eclipse (it had been terribly successful), and immediately on his arrival back, Crocker got hold of him and asked him if he would accept the Presidency.

Campbell: Yes, and Father said, "Damn," but they insisted. He really did; Mother told me.

Shane: And then the next year he went down to Ensenada.

Campbell: Oh, all right, okay, because he wouldn't have enlarged

that house before he was appointed President; it would seem to be adequate for the usual V.I.P.'s, as always. Well so ... you know we're using up an awful lot of tapes.

Calciano: It's all right.

Campbell: Well, on Mr. Hoover and Father, Mr. Hoover was a confirmed bachelor till then, and by this time he must have been 45, a very vigorous guy. He was then general foreman, and he had a terrific bellow you could hear all over the mountain when he wanted. He liked to tear things down.

Shane: Oh, he just loved it.

Campbell: And he was a terrific worker, and he liked to raise Ned physically, you know. A nice fellow ... I mean nothing wrong with his morals or anything like this, but he was just a very vigorous, huge, strong, red-blooded Indian. He wasn't Indian, but I mean this kind of a guy. Well, lo and behold, he fell in love with somebody and wanted to get married. Was that anybody on the mountain by any chance?

Shane: Yes, it was the schoolteacher.

Campbell: Was it? (Laughter) Well, so he saw my father about

improvements to his own house, or a house, because by his getting married, instead of living in the dormitory, he would be needing a house, and he was assigned one and saw my father about making improvements to that, which Father allowed.

Shane: It was a new house.

Campbell: My father came back from this long absence, facing the Presidency, and his own house had had the back part I mentioned with the cook's room and the washtubs and the toilet removed, and nothing in its place; nothing done except to tear it down! So then he looked up Hoover and said, "Why haven't you done any work on my house?" And presently, in a few days, he saw Hoover's house, and the man had feathered his nest, and it was just the most beautiful thing you ever saw for him and his bride, and he hadn't done a damn thing with the Director and President's house. He'd been there for twenty years I guess, but my father was furious, and he fired him right then and there. So he wasn't all milk of kindness, you see. This was too much.

Calciano: Yes.

Campbell: So he could act when he wanted to, and did. Perhaps I could betray now, after all these years, a permanent

trust that my father gave me. The principals are all dead long since. You'll have to use your judgment on whether you want to publish this or not -- it's an interesting story, and it's never been known. This is the first report of it ever. I had had pneumonia at Bethlehem Steel in Pennsylvania, and I was in Berkeley for two years in the President's House and had a job in San Francisco, age 27. This was the time of California's great coming-of-age in football, and Brick Morse was the football coach.

Shane: No.

Campbell: Brick Morse, yes he was....

Shane: No, he was the head of the Glee Club.

Campbell: Brick Morse? Oh yes, the coach was Andy somebody.

Shane: Yes. And Brick Morse was an ex-football player, and a great promoter.

Campbell: Well California was having wonderfully victorious teams, top of the country and all this sort of thing when Father came to town. He was President for about seven years or so, and in the middle of this pilgrimage of his (the Presidency, so late in life, was very hard on him, incidentally, and finally killed

him) it got to him that Brick Morse had been telling the football players, "Now look, you know why the alumni got you to come here, paid you to come here. You know where your allegiances lie. Now never mind this academic stuff. We'll see that you're tutored enough to pass your exams. Don't you worry about that. You're here to play football, and you see that you give your attention to that. That's what you're here for, and not for education, primarily." Father heard of this and called Brick Morse in and asked him if he'd said this, and he said, "Yes, I have," and he fired him instantly. Brick Morse was beloved to all the alumni as well as the students of the University. The Board of Regents at that time was largely alumni, and Father came to Berkeley at a time when the academic standards were low, and it had been influenced at the top to a considerable degree by the alumni -- it was pretty alumni-influenced. The last inch for dear old whosis and all that. He had been asked to raise its standards, which he did. He supported all the professors in marking harder and to flunk people, which they had been afraid to do because of pressures. And there was a man named Guy Earl, who was President of the Great Western Power Company -- I

suppose by now it must be merged with P.G. & E., isn't it? I don't know.

Shane: Yes, I think so.

Campbell: ... and was one of the Board of Regents, an older man, about Father's age. The Regents met in San Francisco on the top floor of the Crocker Bank, I think, about every two weeks. Well the papers were full of this firing of Brick Morse. The Board of Regents -- now my father told me this on a ferryboat crossing the Bay to my job and said, "You must never mention this to anyone, ever," but he just had to tell somebody. I suppose Mother knew about it. And he said that at the previous Regents' meeting, Guy Earl had gotten up and spoken for ten minutes saying, "This is going to ruin our football; the prestige of the University can only go downhill from now on; it's a horrible thing, and I think the President has overstepped his authority in this matter, and I think it should be rescinded, and the man should be taken back." That is the way my father told it to me. Guy Earl finished his tirade, and my father said, "Well, gentlemen, you know what you told me when you wanted me to be President; I didn't want to be President, and you said, 'Well, Campbell, we've always given you everything you've

asked for your community and the Observatory, and now it's your turn to help us.' And I told you then that I would come on the basis that you do not interfere with internal administration." And he said, "Gentlemen, this is internal administration. Now I'm going to leave the room, and I want you people to decide whether you want me to continue to be President or go back up to Mount Hamilton and finish my work." Five minutes later he was called in, and they said, "We'd like you to continue to be President." And Guy Earl never spoke to him again. Father wasn't going to compromise with what he had been asked to do, and had accepted, reluctantly.

Calciano: That's very interesting!

Shane: I don't know whether I should interfere, but....

Campbell: Go ahead.

Shane: ... but I can put a coda on this, if you want.

Calciano: Yes, please do.

Shane: It was the last time I ever saw your father. It was a few months before his death, and I called on him in San Francisco, and I was able to tell him a story which I've always been happy that I was able to tell

him. It seems, you know, that due to his very rigid integrity, he had done some things that made a good many of the faculty members peeved.

Campbell: I'll bet.

Shane: And there was a lot of growling, particularly among the rather far-out ones. And I used to have lunch with these people at the same table, a considerable number of them, and your father had been retired some years, and one day the question came up of under whose administration the standards of the University had improved the most, and someone said it was during your father's administration, and the next person seconded that, and it went clear around the table, and everybody said the same thing.

Calciano: How wonderful.

Shane: And I was able to tell your father that about three months before his death.

Campbell: Yes, how wonderful!

Robert G. Aitken, Joseph H. Moore, Heber D. Curtis,
William H. Wright, and Richard H. Tucker

Calciano: I wonder if you could comment on some of the other

astronomers of that period. Aitken and Moore and so forth?

Campbell: Well right here, in fact going back to the astronomers on Mount Hamilton, I think the man that I perhaps -- well, it's hard to say. Much later, of course, nineteen years later, I got to know Will Wright better, because I helped him on that eclipse expedition in 1932 with you [Shane) at Fryeburg, Maine, and Dr. Moore, who was there also, was always a very wonderful person. But in my childhood I think probably I thought the most of Dr. Aitken because he was so gentle and kind, and he taught us German, and he never seemed to have any ax to grind. I don't know whether he did or not, but looking back, he never seemed to. And I thought he was just a wonderful man. Now he was not an aggressive person, or at least -- now again it's my childhood -- I would guess now that he was not a very aggressive person. He had his work to do, and he wanted to do it. He had his family to support and was having a tough time (in hindsight, again) getting them supported, I think, educated and everything, but he bore all this in happiness, and he went along and maintained his even keel and his Christianity. Now I always thought he was a pretty

fine man in this way.

Shane: Oh, he was.

Campbell: Yes. And his four children all did well in maturity. Then, well I have nothing but good to say for all of them. Dr. Moore was a wonderful person; everybody thought the world of Dr. Moore. In hindsight, he had a lovely Vassar wife. They were both tops. Oh, Heber D. Curtis went with us on the expedition to Russia, and in fact, hah! (laughter) on the expedition to Russia (this is a propos of Heber D., but also Father) we had this carload of instruments; we took a month to set them up. We had a *dacha*, or a farmhouse, in a little village just thirteen miles east of Kiev, a village called Brovary. And on the grass here my father had the surveying instruments out, and I held the plumb bob and this and that. We put in stakes and ran a string line on nails in the stakes along a meridian line across the lawn, and then he measured off the azimuth angle at the various instrument stations-to-be, explaining all this to me -- I was fifteen. And the instruments were all to be elevated ultimately at a certain angle, and he said, "There, a month from now, at 2:13 and a quarter in the afternoon, is where

the sun will be when totality occurs." And I said, "Well, Father, how do you know you're right?" And Dr. Curtis shrieked, you know. He said, "Ken, you're probably the only person in the world who's ever dared to ask your father that question!"

Calciano: (Laughter!)

Campbell: That was Dr. Curtis. (Laughter)

Calciano: Oh, that's funny.

Campbell: He was a delightful man, and his son was my playmate, close playmate, for many years. Dr. Curtis was sent away to Chile for three years or five, I forget which, (we had an observatory in Chile also) and when he came back his son and I were buddy-buddy for a long time. He, like my father, but later, had a secondhand car, a Mitchell, and tried to keep it going all the time. He, too, liked to work with his hands; he lived next door, and my father was fond of bridge in later years, and every once in a while he'd send me over to ring Dr. Curtis's doorbell and say, "Father wonders whether you and Mrs. Curtis wouldn't like another game of bridge?" So they'd come over. We knew them well.

Father used to worry, though seldom, about Dr. Wright. At well-spaced intervals, a year apart, about, he had the feeling Dr. Wright wasn't working hard

enough. It came out once in a while, and he didn't like this, and as a child I used to hear it on those occasions. He'd say at lunch, "I'm going to have a heart-to-heart talk with him." But Father was wrong! From my own life, I know that some people think creative thoughts while they are shaving, nor can any human keep ticking around the clock. Wright was such a man, and he contributed greatly to astronomy, perhaps (but as a child I wouldn't know) as much in "engineering" as in astronomical theory. But ingenious ideas on means, i.e. instrumentation, are the very guts of astronomical progress, as my father's own earlier career had proven. Wright was working full time or better his whole life, and his contributions were many, indeed.

Calciano: Very good. You've mentioned Mr. Tucker a few times. Could you talk a little bit more about him?

Campbell: Yes, Mr. Tucker. Mr. Tucker was a confirmed bachelor who finally got unconfirmed, but not till he was 56 years old. And he had his own assignment (the longitudinal timing of star locations) which he had worked out very, very efficiently. But he grew up very much in love with the great outdoors. The astronomers all put those beautiful surroundings and their hunting

and their fishing and recreational activities highly secondary to their astronomical careers and the subjects they were vitally interested in and contributing to. They put those way up here, and the beautiful countryside way down there. But with Mr. Tucker, deer shooting, and fishing, and quail shooting, and taking his dog out, a horse in the early days (he kept it at the barn) were important too, and he never quite got over this. He loved this sort of thing, you know. So I think about half his affection was for that sort of thing as well as astronomy probably. And then he got into trouble, very superficial trouble, two or three times because he was so fond of whatever dog he had, and once in a while his neighbors would complain about his dog; never bit anybody I guess, but he was very defensive about that dog, and finally, at 56, he married my father's then secretary, Ruth Standen (she was the sister of his other secretary, Violet, who had gotten married), and they had a baby a year after, and nobody ever heard any more about the dog after that. (Laughter)

Pathetic, a whole life without love I now see, but I didn't realize it then or for long after. He was a little more reserved as far as children were

concerned. He didn't have -- well as you can see, he was a bachelor interested in certain big masculine outdoor things that we children weren't a part of (with him, that is) and it showed. (Although he did, once, take us on an all-day hike.) And we didn't love him as much; we didn't hate him, but he was a little bit severe and a little bit remote, and he didn't care about us, you know, and we didn't care about him. But these other men, we did. Yes. They loved us, like Mary and her lamb. But remember, this is a childhood appraisal, not an adult's.

Calciano: Well before we close off, are there any more comments you'd like to make?

Campbell: I think not. I may have overlooked many details, but it's so long, long ago. I am 69 now, and can't recall everything. I'm sorry.

Calciano: Oh, you've done a wonderful job, and I do thank you very much.

Trans: Doris Johnson

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Elizabeth Spedding Calciano was born in Iowa in 1939 and lived in Ames, Iowa, until her college years. She received an A.B. cum laude in history from Radcliffe College in 1961 and an M.A. from Stanford University in 1962. She is married to a physician and is the mother of three children. The Calcianos moved to the Santa Cruz area in 1962 and on July 1, 1963, Mrs. Calciano became the Editor of the Regional History Project in a half-time capacity. In 1967 and '68 she also taught a course on the history of Santa Cruz County for University Extension.