# Oral History Interview of Charlie Duke

Interviewed by: David Marshall March 29, 2017 New Braunfels, Texas

Part of the:

NASA Interviews

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## **Recording Notes:**

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# **Transcript Overview:**

This interview features Charlie Duke as he discuss the Apollo missions and how going to space affected his outlook on life.

Length of Interview: 00:38:02

Subject	<b>Transcript Page</b>	<b>Time Stamp</b>
Introductions and current events, travels	05	00:00:00
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The future of man-space flight	18	00:28:21

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# Keywords

NASA, Space Travel, Apollo, Moon walker

#### David Marshall (DM):

The date is March 29, 2017. This is David Marshall interviewing Charlie Duke at his home in New Braunfels, Texas. And we were talking a little bit about your commitments coming up; you're going to contribute to a National Geographic documentary et cetera. Does it ever get, tiring? I mean, how many years has this been going on now for you?

#### **Charlie Duke (CD):**

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Well its forty-five years,	HEAL HIOHUL, SI	HICE WE BUT DACK	HOIII— WEILLO	uic illoon. And—
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DM:

And even before that though you were —

CD:

Well, before that we did mostly PR [public relations] stuff for NASA, you know, and it — we had a thing. If you weren't on the flight crew yet, you had a thing called in the barrel, so one week a year you had —you were the guy that [door opens 0:0:52.1] when some congressman asked, they never would have liked back then, they were real interested [door closes 0:0:57.6]. So you were in the barrel, and you went to make those calls.

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DM:

Um-hm

CD:

This is my wife Dotty, David, and –

DM:

Hi, Dotty.

Dotty Duke (DD):

Hi.

DM:

David Marshall. Nice to meet you.

DD:

Nice to meet you. Welcome to our home.

DM:

I enjoyed reading your story and –

	DD:
	Oh why thank you.
	DM: I thought of you as as much an explorer as Charles [DD laughs] the way you probed and probed and searched and searched and found the answers, so very nice story.
	DD: Well I hadn't thought of it that way, but I guess it is that way a little bit isn't it, yeah.
	DM: It's so nice to meet you and let me come in and disrupt your schedule today.
	DD: Nice to meet you too. Oh we don't have anything special planned.
	DM: So, okay.  C Southwest Collection/
Q	DD:
	Yeah it's good. Can I get you something to drink?
	DM: I have some water right here. You already helped me out, so.
À	DD:
	You have some water all ready. Oh okay, good. Are you taping something
	DM: Yes, uh-huh.
100	DD:  -Hope I'm not disturbing.
	DM: Oh that's okay. Yes, no problem, thank you.
	CD: I got all that mail ready to go Donna. I'll mail it this afternoon.

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Okay.

#### DM:

And so, this has been going on a long time, and I know that the –

#### CD:

Yeah well, and then after I retired I was getting a few invitations, but we've noticed that over the years it's picked up instead of slacked off. And a lot of – we traveled to Europe two or three times a year, and Switzerland has a big interest in Apollo, Germany does. And this year we're off to Iceland. It's the fiftieth anniversary of our, one of our geology trips to Iceland, so they've invited us to come over, be a part of a little celebration. And going to Norway, and then Germany, Switzerland, Italy a couple of weeks, end of April.

#### DM:

And all about Apollo?

#### CD:

Yeah, um-hm. Well – yeah all the ones I just mentioned were about Apollo.

#### DM:

Right.

#### CD:

And it – you know we enjoy it, the people we meet are really very very friendly and they're real interested in the space program, got a real commitment to sharing it with their friends and various associations in Europe. And then we do a lot of traveling around the country. It's sort of half ministry, we share our fate, like last week we were up in Pennsylvania with a Christian couples group. And the week before that we were down at Charleston, South Carolina speaking at a leadership thing for the citadel. So it's—we stay busy, and some people pay us, some people don't. So it just depends on what God has, wants us to do, and so we're still traveling. And got a couple of weddings, relatives, grandkids, grandsons that we're going to South Carolina for that and—

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#### DM:

[Laughs] Always something. Was there ever a lull in interest in Apollo or has it been steady?

#### CD:

Yeah, I noticed after—in the early eighties I guess it was, you know, it seemed like I was doing a lot of speaking for the air force, I was still in reserves working for recruiting service. And on

those trips I could – they had me talk about the moon but from the standpoint of, look what the air force did for me. Gave me the education and flight training, and then I got to experience this fantastic job, so why don't you enlist, and those kind of things. But its picked up a lot really in the last fifteen years probably.

#### DM:

Charlie I think that will just continue as it becomes more of a historical event.

#### CD:

Well yeah, and its, you know, probably half the world's population weren't even born when we did it and –

#### DM:

It's a fascinating—

#### CD:

So its got more historical significance now.

#### DM:

And some historical events don't, it doesn't happen that way, but pivotal events, World War II, the moon landings, they're such important events in human history that they will just become more and more interesting and popular over the years, and then especially to historians it's just more valuable to that collective memory as time goes by. So [laughs] I think it'll just get busier for you probably.

#### CD:

Yeah. Well I'm eighty-one and I don't know how long I want to keep doing it. But I'm – there's only six moon walkers left alive, and Alan Bean occasionally goes, but he's more interested in his paintings. And Jack Schmitt, uh, still speaks and Buzz Aldrin, oh he's really busy, Buzz is. But John Young is basically retired. Fred Hayes does some but he works mostly with the Infinity Museum, it's a new museum in Mississippi, outside of the Stennis Space Center; so he's been involved with that a lot. So it's sort of an obligation I feel to— as long as you can go with people interested, go share the story of one program that brought America all together during the turbulent times of the sixties and talk about teamwork. And you know, I seemed like we've gotten to be a society that's more of the individualist stress than team.

#### DM:

And also, what a national effort.

Yeah it was.

#### DM:

This was like, you mentioned four hundred thousand people were involved in this project, but then all of the country was interested and all of the world was interested. And I've heard some moon walkers say in, documentaries and such, that where they went they were often accepted as their astronauts, you know whether you're in Europe of Africa or wherever it's like, you're ours too. I don't know if you ever had that experience or not.

#### CD:

Yeah, yeah yeah that true, yeah. Um-hm. Yeah we've been to a lot of places where we've spoken in Europe. The only continent we haven't been is Antarctica and we'd love to go there, that's on our bucket list but not to speak, but just to see the beauty of it all. And of course—

#### DM:

I was there last January and it was fabulous, fabulous thing because of the wildlife. I was amazed that there would be that many wildlife sightings. Of course, you know, they're pretty standard penguin, seal, whales, that—seabirds, but it was wonderful.

#### CD:

Yeah. Another one I'd like to do is—we're not real mountain climbers but I'd like to spend a week touring through Patagonia. That's—some friends of ours did that, and they were on a guided tour and said it wasn't very strenuous, but, I mean the scenery that they saw down there, it was just breath taking and I said, "We'd like to do that too."

#### DM:

That sounds like one big trip. Not too far from Antarctica.

#### CD:

Yeah, well. Yeah. Well from there you can step off over to Antarctica. There's a group, uh, I'm trying to remember now. A gal that I had met through the explores club, they were just down there with—looking for meteorites up on that high plateau, which there's no snow up there, so amazing. And they found some, and some of them probably, they think, came from the moon, you know, big explosion up there with—I find that hard to believe, but. You really got have a big explosion, but when you look at the of some of those maria basins which are all meteorite impacts, you know. And five, and—

#### DM:

It would of have to come out where forty thousand miles from the moon before it catches, earth's gravity. Is that about right?

#### CD:

Right. No it's about—earth's gravity is effective until about 200,012.

#### DM:

Oh, okay.

#### CD:

And then, moon gravity takes over. And I think that must vary because the orbit is not circular, its elliptical, and so the farther away you are, I think the less the gravity is. Or farther away the moon is from the earth I should say. So—

#### DM:

So maybe more like twenty-eight thousand miles out of where it catches earth's gravity?

#### CD:

Yeah, um-hm.

#### DM:

Okay. You know you mention in your book that for you this was a technical experience. You were geared to exactly what you had to do. Bean says the same thing by the way, you just— you know we had our checklist. But on later reflection, I know that pretty soon afterword you were talking about, golly here's the entire world as a whole, I can hold up my hand and it covers the entire earth, and then you talked about the immensity of space, the blackness of space. Did you reflect later on that and think in terms of God's creation?

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#### CD:

Later on, yeah, sure, when I, in — six years, almost six years to the day after I got back, I became believer, which I've relayed in our book through the bible study out at T Bar M tennis range out here on highway forty-six. And as I started reading the scriptures I had a sensational desire to read the bible and that event and I'd sold my business and made a lot of money and we really wouldn't — I didn't have to go really start working right away. So I just, several months of it, just read the bible and, the Genesis account of creation challenged me because my training was opposite that, you know, evolution. And — but I just made a decision, you know I want—I believe this, I can't prove it, but I can't prove evolution either, so which you going to believe? And I said, "This is God's word, its enduring and its always true," and I just believed it. And then I started looking at the heavens, and the nineteenth psalm says the heavens declared the

glory of God, the sky's proclaimed the works of hands. And so I began to see the universe and, as the uh, power of God's creation, you know, the orderliness of it, the physical laws, they always work, you know. Orbital mechanics are right, thermodynamical laws are always repeatable, you know, and there's no variation or chance and the orbit, so the orbits, and the you know, and its just. The heavens do declare the glory of God, and I saw the power and orderliness of the universe and then I – then the picture that I had, back when I flew and coming back and going, looking out and seeing this beautiful universe and it reinforced my, that part of the flight. But, as you said during the flight, it was just man that's beautiful sight. It was awesome. It never had this spiritual context to me, or even a philosophical context. I, you know—

DM:

Well your training was so technical, I know.

CD:

Yeah.

DM:

The preparation for this, and you had to follow your training and I'm sure there was just not time to ponder. Sit and ponder because you had to think of something else that was coming up. [Laughter].

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CD:

Yep.

DM:

So it's understandable.

CD:

There are a few times you could've—we, you know, we. [Muffled footsteps as interviewer walks towards the recorder].

DM:

[Whispers 0:14:58.4] It's working yeah. [Muffled footsteps].

CD:

If it was a few times when—before [Interviewer picks up recording device] you had your rest period, finished a meal and you could— we listened to music mostly. But you could have, you know, just gotten away and thought about what you were doing, but I would've thought—my mind back then was, Well what's coming up next day, and, Did I have the checklist right, and

this-that in the other, Will I get to sleep tonight and, you know. Just the mundane part of housekeeping and sleeping, and just doing the mission was what was paramount for me.

#### DM:

But at least you had time later to reflect back.

CD:

I'm sorry?

DM:

At least you had time to reflect back.

CD:

Yeah, and, yeah. That, I did putting up your hand and blocking out earth. I used that for a while, for six years talked about, you know, oneness of earth, and we're all here together and we all got them. Don't see Europe you don't see U.S. you don't see—you just see earth and we got to learn to get along with one another, and it's a noble goal, but it's impossible. And I began to see that, you know, nobody's really listening to this.

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DM:

But its ok, to talk about noble goals, you know.

CD:

Yeah

DM:

Even if we're not able to achieve those—

CD:

But then later when I became a believer I saw that there really is a possibility through the love of Jesus. Jesus unites everybody together, if you're in his—if you're a child of God. Doesn't matter what your color is, what your race is, we all belong to a family of God, and so we should love one another, and— Greatest commandment, you know, love the lord your God, with all your heart, and all your mind, and all your soul, and all your strength, the second is liken to it, learn love your neighbor as yourself. And, so, you know, that's only possible through— God loves everybody, so with God living in you, you should be able to love people like God does. If you allow God to sort of take over, I think you begin to grow more and more and more in to be like Jesus and that love really does flow out. Sometimes it's hard though.

DM:
So there is a potential for oneness.
CD:
Yeah, um-hm. [Clears throat]
DM:
When you were talking about the Apollo program out and about, and people know your various
roles there, do they ask you more about being Capcom [Capsule Communicator] for Apollo 11,
or more about your own moon landing with sixteen?
CD:
Mostly it's about Apollo Flights.
Wostly it a dood! Apono I lights.
DM:
Generally?
CD:
Yeah, generally.
DM: Okay. Special Collections Libra
Okay. SDECIAL COLECTIONS LADIA
CD:
I try to give credit to mission control in my talk, you know, they're unsung heroes. I mean they
save the day, and on our flight, on <i>Apollo 11</i> , <i>Apollo 13</i> . Just about every mission they made
decisions that were critical to continue in the mission.
DM:
Well, <i>Apollo 12</i> , I had a question about that. You sat there and watched this flash of lighting
during the launch as I recall, and what was the impression at the time? Did people think that was
an explosion? Did they know it was lighting?
CD:
It, as I recalled, it was no question to me it was lighting.
DM:
Okay.

Um-hm. I mean the clouds flashed. The vehicle had already disappeared. And then there was a crack of thunder and, you know, and a flash of lighting, a crack of thunder, and I really didn't realize that the vehicle had been hit. It just looked like a, you know, lightning in the clouds.

#### DM:

And hit twice I understand.

#### CD:

Uh-hm. Yeah, it got hit twice, and—

#### DM:

Did you see both of those?

#### CD:

Yeah.

#### DM:

Well at the time it, you know it scrambled everything, and the story goes as I hear it, and I hope you can confirm, that there was a flight engineer in mission control, young guy I think, named John Aaron, who said, "I've seen this instrumentation pattern before." Apparently something was showing up. Is it in a simulator about a year ago, tried switching the SCE [Signal Conditioning Equipment] to AUX [Auxiliary] switch and Conrad said, "What is that?" and Bean said, "I think I know what that is," and he switched it and that reset. Had you heard this story? Do you remember this story?

#### CD:

It was a lot more than that. They might have made one switch change, but—to go to a different mode, but they were basically riding in the space where the vehicle that didn't—they'd lost all of their—well I'm not sure they'd lost their flight instruments, because they still had the battery but both fuel cells dropped off. So they lost the main power supply.

#### DM.

What kept Conrad from turning that apart [Laughter]

#### CD:

To me that was the coolest thing ever. I think because they were, they still felt themselves accelerating and it was—I think they sensed that the IU—I never did talk to Pete about this, but it was—I got the—in some of the briefings you got the impression that we were accelerating, there was no unusual dynamics. The vehicle seemed to be stable, and why don't we just wait and

see what happens. And I think—then they got to— Com was up and mission control said your go, IUs working write your own trajectory and so then they started trying to bring things back online.

#### DM:

Right, okay. Well its interesting, I've asked Alan Bean this too, and all he will say is—he doesn't—I mentioned, "Yeah I heard you found the switch," and he doesn't—he totally down plays it and says Conrad saved that mission. So—

#### CD:

Yeah, yeah he's cool. No question about it.

#### DM:

I wanted to ask you a couple of questions about earlier influence to you. I knew you grew up in Lancaster, South Carolina, and that you had an interest, or your family, I think it was your mother that had an interest in family history going back to the Revolution?

#### CD:

Yeah. Yes, she was a, I wouldn't call her a genealogist, but she loved family history and, it was on her daddy's side. Waters family. And through the Waters family, one of the ancestors, Philemon Waters, was a revolutionary Captain, or something, in the revolutionary army. So down through, based on that—and then, you know what from his descendants what happened, so she's tracked everything. And—

#### DM:

Right. Well South Carolina was certainly a hotspot in the revolution, and there you grew up right among it—Cowpens, King's Mountain.

#### CD:

Yeah right around them.

#### DM:

Did you go to those sights when you were little?

#### CD:

Yeah. Not little, no. We, uh, I guess I was out of college before I went to king's mountain.

#### DM:

Okay. I wondered if Scouts ever took you up to the camp around those sights.

Well now, I don't remember, maybe so. We had a camp in Saluda, North Carolina where it was a summer camp, that you would go for a week.

#### DM:

Saluda, okay.

#### CD:

Yeah. And it was in the foothills of the Smokey's, And—

## DM:

Beautiful country out there.

#### CD:

Yeah.

#### DM:

You went—you were an Eagle Scout.

#### CD:

I was, yeah. My twin brother and I made eagle—I think we'd been in the scouts a little over two years maybe. And we worked really hard. I think it was a little bit easier to make eagle back then, you didn't have to have quite as many merit badges, but then we made eagle, and then the next—and that was in the tenth grade I think. And then the next year I went off to Admiral Farragut academy so I had dropped out of the Scouts at the point, because they didn't have Scouts at Farragut.

#### DM:

Was that good preparation though?

#### CD:

Yeah it—well, it was, yeah. It—scouts had taught you a little bit of independence and being able to, you know, do on your own, especially the camping experiences.

#### DM:

When you were in did you have the merit badges of citizenship and the nations and, you know all of those. There were a lot of citizenship ones latter.

CD:
I—yeah I don't know. I'd have to go look at my—
DM:
Merit badge.
CD:
Merit badge sashes.
Went badge sasiles.
DM:
You still have it?
CD:
Oh well, my mom saved all that stuff.
DM:
Oh that's great.
CD: And so she sent it to me. And then I gave it to the Palmetto Council Museum in Spartanburg
And so she sent it to me. And then I gave it to the Palmetto Council Museum in Spartanburg
South Carolina.
DM:
Perfect. Okay
CD:
So I'd have to go back and look. But—and I'm Order of the Arrow—that white—red arrow and
a white sash. I gave that, and my Scout handbook.
DM:
How about—
and a series
CD:
I forgot exactly what I had, but—
DM:
Is it all on exhibit?

Yeah I think so— I don't know. I haven't been by to see. I gave it to them they said, "Oh thank you very much," and—so I haven't been—I rarely get over to Spartanburg. We have relatives there but, generally we go to Greenville to visit our son and his family.

#### DM:

Ok. Hmm. Well what about, you know, you later were involved in wilderness survival training with the Apollo program. You learned the, you know some of the navigational stars and constellations. Did you pick up any of this in Scouts? Did y'all do a lot of camping and wilderness survival?

#### CD:

Well I mean you learn survive—you learn how to cook, and you learn how to trap and, you know learn how to fish and do the outdoorsy stuff. Start fires and stuff like that. So that helped me in my survival training at—in the Air Force and in NASA. I remember my escape and evasion slash survival for the Air Force was out at Stead Air Force base, and—outside of Reno Nevada. They took us up into the Sierra's and we're going to be there three or four days and I think there was three or four of us. And they gave us a live rabbit [Laughter from David] to take with us. And so the other guys, they were city guys, and so they, "Well this is going to be our mascot." Well after two or three day you know we'd been eating berries and \_[inaudible]\_ [0:27:43.9] tea and stuff like that. I said, "You guys want some rabbit." [DM laughs] And I said, "Give me that rabbit." So I whacked it behind the head then skinned it out, and of course field dressed it, then roasted it. It was—they liked it. [Laughter] I think that's probably the only time they'd ever seen a, you know—they weren't vegetarians, they were just, you know they bought their meat and I'd take that cut of meat, you know, [DM laughs] and they paid for it in the grocery store, the meat market—

#### DM:

It was helpful to have been around this kind of thing before, huh? [laughs] Well I told you I wouldn't keep you too long on this, but I do have another question for you. What is the—what do we have in store for the future as far as man-space flight?

#### CD.

Well I'm encouraged lately. Trump has announced that NASA's goal is going to be a deep space man flights using, right now, the Orion Spacecraft, which is—looks like Apollo on steroids, and that it—the missions are going to be limited because we don't have a lander yet. Without a lander, you're going to be—orbital stuff, you know deep space a rendezvous with asteroids maybe. Stuff like that. So that program's going well, and I think eventually maybe through some of the commercial guys, we'll get a lander that will land on the moon, and you can go back start building a moon base, a space station if you will, on the moon. Elon Musk is working really hard

to SpaceX, so doing that. And Jeff Bezos is with, over—blue horizon origin. And then Boinks got a space craft and Orbital ATK is trying to get theirs man rated, and there's—Elon Musk said maybe 2019 they'd be ready to take crews to the space station.

#### DM:

Do they—are they going to use big rockets, for—

#### CD:

Well NASA's got a big rocket called the SLS [Space Launch System], which I don't think has flown yet, but it's going to carry the Orion. And then SpaceX is developing upgraded vehicle—upgraded rocket for them, that will carry their man space craft, and I don't know whether it would carry a lunar module and their man stuff. Maybe they have to launch separately, But—

#### DM:

Hmm. Are these rockets as big as Saturn five?

## CD:

So, the SLS it almost is. [Yawns] Excuse me. It'll launch, I think a hundred and—the first ones like a 110 tons maybe, in to orbit. It's a bunch.

#### DM:

Pretty good.

#### CD:

The shuttle, you know the shuttle vehicle was, let's see two hundred and eighty thousand pounds.

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#### DM:

Right. I think you had mentioned in an interview or something somewhere that, that was a bit of a handicap not having large rockets that can move with a large payload if you're talking about things like a moon base.

#### CD:

Yeah, yeah. You'd, it's—right now I think—well the SLS and Saturn was, you know we put hundred thousand pounds in lunar orbit. Fifty tons. And SLS is going to be capable of doing something like that. But it'll be, I think it's going to be multiple—send a unmanned—land a habitation module. Some inflatable structure.

# DM:

On the moon.

Yeah on the moon. And then land next to it with people, and start building this thing up so it would be multiple launches, rather than just try to do it all in one big fell swoop.

#### DM:

And this is going to occur where? At the Descartes Highlands. [Laughs]

#### CD:

No they going to land down around the—either the—I think the south pole or near the south pole is probably one of the prime spots. They got a low sun angle down there, and it never, never gets really hot. And it's, I don't know, I don't remember the daylight hours, but it's more than 50 percent. Whereas our landing area, you had two weeks of day, two week of night and got really cold, so down on the south pole area, you know like seventy degrees south or eighty degrees, whatever they're looking at down there. And the lunar reconnaissance order's doing some checking. You know, they've got not only pictures but they're doing other experiments to maybe find some frozen water, ice. And I don't think that's going to be very successful. But who knows.

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#### DM:

Yeah, Yeah. Exciting.

#### CD:

And then Buzz Aldrin, or course, he—"Let's go to Mars, we've been to the moon." And, but most of the countries, China and I think Europe is looking at putting people on the moon first. I mean they're going to go to the moon first with their astronauts and then from there not launched for Mars, but then build up their experience, and then have a Mars flight. Buzz thinks we could do Mars, but I would like to see the systems that we have to—the habitation systems that would have to be on Mars for man to survive to be checked out nearby, so you have some confidence, and if anything goes wrong, you're close enough to earth to get some instant help, basically.

#### DM:

That sounds like the Apollo program mentality you know, very methodical. Let's take it a step at time and let's be sure as we work the problems along the way. Do you agree from—

#### CD:

Yeah. We did, you know, one test mission with Apollo 7. Check out the command module, then we were supposed to start checking the lunar module, but then they—we heard that the Russians were getting close, so they changed the flight plan for Apollo 8, which was, to me, the most dangerous mission we ever did in Apollo. You know, first time on the Saturn five, second time

on the command module, and once that puppy was sent off to the moon it had to work, or they're dead. And so it's very risky, but they pulled it off. The crews ready to do it.

#### DM:

Wow. Well I said I would keep this short and so I don't have any more questions for you, but if you have anything else to add.

#### CD:

No. You know with the oral—I mean it was a long interview I think for the oral history part. And—but there's some stuff on—if you want to—I think you probably looked at our website, there's some stuff on our website. I'm getting a new website done. Its going to have a lot more, me talking about pictures and stuff like that.

#### DM:

Good. There is a lot of good information there, but the book is really, really really good. It's just packed with information and then the personal experience as well. It was a great blend.

Special Collections Library

#### CD:

Yeah everybody seems to [yawns] we still selling that book.

#### DM:

Oh yeah.

#### CD:

I'm sorry about my yawning. It's not your company [DM laughs] It's just—we are—

#### DM:

Well that's just going to continue

#### CD:

We print the books, well we don't print it, but we have people print it. Thomas Nelson who published it originally has a printing division, and so we have the rights and so every three or four years we'll order several thousand copies, and store them down in the basement, then we sell them on the website, sell them on—when we go speak, in various places.

#### DM:

Ok, well I think that's just going to increase, like you were talking about the seemingly increasing interest in Apollo, so.

Yeah. Would you like to go to lunch?

DM:

That sounds good if—

[End of Recording]

