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In his own words

Bill Cobban in conversation with Kirk Johnson and Dave Baysinger, 19 February, 2010

Kirk: So Bill I want to start out and just ask you how you got into geology and paleontology in the first place? What happened and how old were you and where did you live?

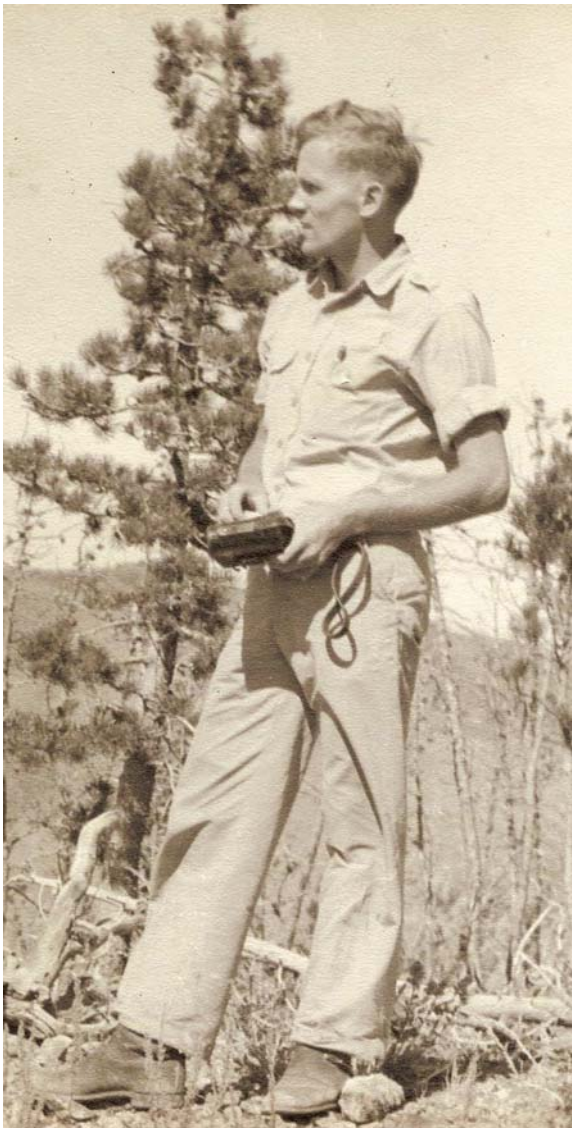
Cobban: I was raised in Great Falls (Montana), which was very fortunate because Great Falls is on the Sweet Grass Arch. It's a big structural feature that goes from the Little Belt Mountains right up on into Canada. Up north through Alberta and the city of Great Falls is located on the Kootenai Formation which is Lower Cretaceous. And when I was a kid, I wanted to be a Forest Ranger. I was always interested in the outdoors, and so I took an interest in anything else natural it seemed like. And at that time at Great Falls...see Great Falls is on the Missouri River and there is a falls right there called Black Eagle Falls named by Lewis and Clark. If you go downstream a little ways there is another falls called Horseshoe Falls and another one called Rainbow Falls and another one called Big Falls.

You go down stream toward northeast, and in each case it cuts beautiful gorges of the Kootenai Formation, Lower Cretaceous. And at any rate, when the Anaconda Copper Company built a big refining smelter there at Great Falls at Black Eagle Falls, you get electric power right there at the little dam and so on. And so they built a refining plant there. You see the copper ore is mined at Butte. And then from Butte it was sent to Anaconda, Montana to be smelted. And then it was about 97% pure or something like that. And then that stuff was sent up to Great Falls and with this electric plant there at Black Eagle Falls they were able to refine it to 100% I suppose. And they also were able to take out the silver, gold and other minor things like that. And so when they built this plant it was right in the Kootenai Formation. And there was a limestone bed right in the middle. It is about a six hundred foot unit fresh water and it had a limestone bed that had a lot of fossils. And among them were fossil fishes. And they got quite a number of them collected when they built this plant. And these fish were about a foot long and they were really beautifully preserved. And so they ended up in the Great Falls library, public library in a very poorly...almost unlighted case. And they stayed there for a long time. And I used to see them when I was going to the library and things. So I got interested in fossils, not seriously, but long about 1932 or so when I was in junior high school.

I had a pal by the name of Jack McComber who lived in Great Falls. We used to go hiking a lot and fishing and so on together. And he had an uncle who lived up in the Little Belt Mountains south of Great Falls in an old mining town. And at that time it was toward the end of the depression and nobody had work. And this little old mining town was called Hughesville. And anyway his uncle lived in this town and he was unemployed. And the rest of the miners in that town were unemployed. And most of them had moved out and their vacant cabins lying around. So his uncle arranged for us to use one of these old cabins. We did sweep up the trash into one room and close it off. It still had a stove in it and still had a bed with springs and all that. It still had windows so it was great. And so my pal and I used to go up there during the summers for two or three weeks... chip in and buy our own grub. And his father took us up there and dumped us off and would leave us there for a couple weeks. And each of us had a twenty-two rifle and we did all the time we'd go hunting. One day we'd shoot

grouse or squirrels or something. And then the next day we'd go fishing and then the next day we'd just go hiking and explore the Little Belt Mountains.

And above Hughesville there were some cliffs way up there. Now Hughesville was down on the bottom of the Dry Fork of Belt Creek and these cliffs were the Madison Limestone Mississippian Age. And we used to hike up to them, and in fact we used to shoot at the hawks that were soaring around up there. We never could hit any of them. It scared them probably. And we happened to see some fossils lying around and or course they were corals and brachiopods and that kind of stuff and we collected some. And we didn't know what we had. We knew they were fossils... that is all. So I had those for a while. I kept them and then, this was when I was in junior high school. When I got to high school,



Bill Cobban in the field, Little Rocky Mountains, Montana, 1940

my second year in high school I took a course in biology or something like that and taught by a very nice lady. Lois Pickering was her name. And anyway in the course of this little study that she gave us on biology, she drew on the blackboard a great big circle one time and then showed the septa, you know that corals have. A little ringing out from a point on these what are called Horn Corals. And when I saw them I thought, "Gee, that's what I found up there in the Little Belt Mountains outside Hughesville." So I promptly brought them into class after school let out that afternoon and showed them to her. And she had had a little geology. She was from the Midwest and so she pronounced them as probably being Devonian in age and she gave me names saying this is a Horned Coral and this is a Bryozoan. This is a Crinoid, things like that. And she thought they were probably Devonian because that was what she had back there in the Midwest where she went to school. Of course they are Mississippian, not too far off in a way. So then I started getting more interested in fossils. And then I started looking into the Kootenai Formation over there in Snooter Hill where they had collected fossil fish. I couldn't get into that area.

Along the banks of the Missouri River there are exposures of the Kootenai Formation and I collected a lot of plants, fossil plants, Lower Cretaceous in age and made quite a collection because I kept them for a long time. And then up to that time while I lived in Great Falls we did not have a car. The problem was my father had lost a leg. He told me that it was due to a horse and buggy accident one time. But my mother told my wife later that he was born with a deformed leg or something and they had to cut it off right below the knee. So he always had to put on an artificial leg which was wrapped around and strapped on and so on. So that made it so it was difficult to do work and so he had low paying jobs like he worked on the Great Northern Railroad for a while as all he did on it was sell sandwiches and coffee. You know go down the aisle and he didn't make much money from that of course. And then later he worked at the Net Cigar Store in Great Falls. In the back room where they played cards all the time. The room was completely full of smoke. Everybody smoked. It was a dreadful place. He did that kind of work and my mother had to have a full time job to make ends meet. So she was a telephone operator at the Rainbow Hotel in Great Falls. And at any rate, eventually, through my mother I met... she met a...lot of different people, and she met an archeologist by the name of Jim Brown. And he was an archeologist, but he was sort of incidental in my life because he helped me get a job with an oil company eventually. But at any rate, in these early years when I was trying to learn something about the geology around

Great Falls, I found that the Great Falls Public Library had USGS folios. They were a depository for them apparently. Have you seen these folios?

Kirk: I have seen these.
Cobban: There was a Fort Benton folio. That was the nearest one to Great Falls. That would be downstream. And then there was also a Little Belt folio. So between the two of them, I got to know something about the geology around. At that time names were very...they just said Colorado Shale or Montana Group and big names like that. They didn't have the refinement we have today. These folios were done back in the early 1900's. But that's the only thing I had to go by. And I used to study these things in the library. But then I couldn't get to see the rocks because we didn't own a car. We lived downtown in Great Falls in an apartment right down in the main part of town. Where it was within walking distance of the Rainbow Hotel where my mother worked. It was within walking distance of the Great Northern Depot where my father worked at times, and it always was within reach of the Net Cigar Store when he worked there. So we never needed a car. And finally when I was, it would be 1935, I was a junior in high school, my folks felt so sorry for me that I couldn't get out to see things that they bought a second hand Model A coupe. And so, boy, that gave me wheels. And so that year 1935, I made ten trips. My folks were very (missing word), they didn't really care, they just trusted me. I went off with a bedroll for several days at a time. And went into the Little Belt Mountains and explored them all the time. In the core of the Little Belt were Precambrian rocks. And the older the rocks were, the more I was interested in them. And then I made trips up to Fort Benton and other places where the Colorado shale which is the Cretaceous unit was well exposed and started collecting fossils.

I made ten of these trips and some of them were just two or three days. One of them, I think, was a week or so. All I had was a bedroll, not like the nice bedrolls we have today. I just had a blanket wrapped up with a strap around it. And I had a little pup tent, open at one end. We couldn't close that end. I was even sleeping out in the snow sometimes. And it was a great year of discovery for me. And I was able to make these ten trips up in Montana, clear up on the Alberta border. And over on the Blackfeet Indian Reservation where I was able to look into what is now called the true Madison Fork formation. It has lots of dinosaurs. I collected a lot of dinosaur bones and things like that. I must tell you one thing. My mother had a friend of hers who also was a telephone operator. This other lady came to our house one time and my mother asked me if I would show her some of the dinosaur bones I had picked up. So I dutifully brought in a, I think a vertebrae like so, you know, and showed it to the lady and she said, "Oh my, those must be a hundred years old."

Kirk: (Laughter)
Cobban: That was the background of this. On this 1935 trip where I made the ten trips, one of them was down in the Big Belt Mountains which are near the Little Belts over toward Helena, Montana. And there I was camped out. And while I was eating my breakfast one morning by my campfire and right close to the little road that ran by there. Here came a truck along on that road and on the side of it says Montana Bureau of Mines and Geology. And they went by me for about a mile and stopped and set up a camp. So boy I thought, "Gee, I got to meet these people." So after supper that night I walked down to where they were camped and introduced myself. I wanted to know what they were doing and they, what I was doing, because I was collecting Trilobites. And it turned out the camp had two people. One was Charles Deiss. Now Deiss was from the University of Montana at Missoula and he's a Cambrian specialist. And the other fellow with him was Charles Bell who was a graduate student. And they were looking at Cambrian sections around Montana that summer on a GSA grant. So, when I found that out, I went back and got some of my Trilobites and brought them down and showed them to Deiss and he identified them for me and then he took great interest in me and suggested that maybe I should think of going to the University of Montana. Course I was only a junior now you know. And anyway, that's how I met him. And then I corresponded a lot with him and I sent him drawings of some of my fossils and he sorta of identified them as best he could. And things like that. And then finally he even invited me to come to Missoula and join their field trip that the geology students took that spring. And so he said I could meet him at a certain little place in western Montana. That I could just follow around and learn something from the students. So I did it. I had my little pickup I could drive down there with and met them at this town and spent a week with them and learned something about putting geology on maps and measuring sections and stuff like that. Then Deiss again suggested that I come to the university. I told him that I didn't have any money. And he said that I could probably get a job there in the dorm washing dishes you know or waiting on table and stuff like that... so, great. So that's how I happened to meet him and there was only a two man department at that time. Deiss taught the paleontology, cartography and J.P. Rowe taught the hard rock, mineralogy, petrology

Bill at home with his young family ca 1955; wife Ruth; daughter Gina, sons Bill jr. and Bob

and what not...very small department…probably only about 10 students taking geology. And I did get a job in the dormitory washing dishes and waiting on tables. I managed to get through the university that way. And then in the summers, Deiss took me as an assistant to a trip all over Montana again looking at Cambrian sections and then the following year we went up to Canada, and the Canadian Rockies and he took me again as an assistant, and beautiful country up there...Grizzly Bear country. His wife went along with him and I still remember one morning we were about, Deiss and me, were about to hike up a section to measure and down in the valley we were in comes this huge monstrous grizzly bear with a cub. This cub just looked like a little dot beside her. And boy, when they walked down there, Deiss's wife said she was going with us. Otherwise she was going to stay in the camp there. She usually did during the day.

There were a lot of interesting experiences like that. And then, when I graduated, Deiss wanted me to apply to Princeton and to the University of Michigan for a fellowship which I did. But you know we were just about to get into the war. Things didn't look good at all. And the summer before that I actually got a job with the Carter Oil Company just for summer work through this guy I was telling you about that Jim Brown, the archeologist. So I gave up the thoughts of going on to graduate school and stayed and went back with the oil company again, full time for six and a half years all during the war and a little bit after it. And that was, it worked out very nicely for me because every place they sent me there were Cretaceous rocks there and fossils.

First I saw South Dakota and looked a lot along the Missouri River valley, and then over by the Black Hills and then in Montana up in Northern Montana again in the Cretaceous rock. And then I was sent down to Utah one time and spent a whole season there working in the Tertiary rocks. The Green River Beds, things like that. And then that was where I finally left the company. The war had ended, and before that, maybe a year or so before that, while I was in Montana, I met Ralph Imlay and Reeside, John Reeside. They were out looking at the rocks and collecting, mainly visiting field parties. And they had all the work from an old sedan and the door. Reeside never drove. He never drove in his whole life...strange. So Ralph did all the driving, but the door on the side of the car...something (was) wrong with the door. He had to hang onto the door to keep it from falling off. You couldn't get tires or anything in those days. You couldn't get anything fixed. But I met him up in Montana and we went out and looked at some Jurassic sections and they both suggested that I apply to Johns Hopkins University for graduate work. And they said that Harold Vokes was a very good professor there. And so I applied and was accepted. And again I got a fellowship to help pay expenses.

And so I ended up with Hopkins for three years and we stayed in Baltimore. But on Saturdays I used to take the train, the commuter train, over to Washington, sixty miles, something like that and I would spend Saturday at the museum, just working with Cretaceous fossils that the Survey had and of course my own collections. And so that helped me a heck of a lot and I was able to work on my thesis and get paid at the same time. Actually, for the third year of my graduate work I got on the Survey full time. And so that helped pay all of my expenses there at Baltimore going to school. I worked for the survey during the summers and then I worked for them for two summers and then went to school during the fall and winters. At that time there was a Branch of Paleontology and Stratigraphy, but you couldn't get into it until somebody died. It was just a small group and there were no openings. So they put me into their general geology branch. And so I was ending up mapping bentonite beds, Cretaceous, out west again. So I ended up with the Cretaceous with Max Knechtel[1], the geology chief. So we spent one summer on the Crow Indian Reservation working out of Hardin. And that was great because there were all Cretaceous again. And I collected a lot of fossils. And the bentonite beds were there were... quite a number of them. Most of them were in the Bearpaw Shale. And then the following summer I

worked again for the survey during the summer under Max Knechtel, this time on the north flank of the Black Hills where Montana, Wyoming and South Dakota come together. There we mapped all the Cretaceous beds again and the bentonite beds and so on, and it was wonderful. All the rocks were marine and a lot of fossils. So every place I went, I got to work just on the things I liked to do.

Kirk: Commercial use of Bentonites?
Cobban: No, they were being mined here and there and we were just given the stratigraphy of the unmined areas. So we would sometimes drill holes in them usually trying to find, like on the Crow Indian Reservation we got some young Indian to work for us, to do all the hard work digging up holes and things like that. It was very nice and that turned out to be a bulletin, a USGS Bulletin. And then the Black Hills work was...there was no special bulletin on that, but there was a publication. The survey had or was doing a lot of work on the west flank of the Black Hills, and we kind of dove tailed our work and their work. It so happened that Bill Ruby on the survey had mapped the north flank of the Black Hills long before we did, so I think his work, he didn't do all the detail that we did, but it was already done at one time. So we had something to go by, you know. And then after that, of course following my graduation from Hopkins, and I moved to Washington and had an office at the National Museum for five years. Then eventually I was transferred out to Denver.

Kirk: When did you first get to Denver?
Cobban: '54.

Kirk: But you had a paper in '52 a pretty significant paper.
Cobban: Well when I was with the Carter Oil Company, I located in Montana, Shelby and Cut Bank. And at that time I did an awful lot of sub-surface work looking at oil logs and so on, plus looking at the outcrops and that resulted in at that time that resulted in at that time...the Jurassic logs were called the Ellis Formation. And I split it up into three formations. And each one was very different from the other one and (I) gave new names to them. And that was published in the AAPG and that was when I was working a lot with Ralph Imlay, too.

Kirk: Ralph did a little with Jurassic, didn't he? Isn't he a Jurassic specialist? Am I getting that name right, or is that a different person?
Cobban: Well, Imlay was a Jurassic specialist in paleontology and he wrote a lot of papers on the Jurassic on the western Interior. And he described a lot on ammonites. And he was one of ...he went to the University of Michigan and got his degree there and did (so) under a guy by the name of Louis Collum. Collum had done a lot of work in Mexico, and he had his students go down to Mexico and work. And Imlay did all of his first work in Mexico as one of the students of Collum. And then later on he worked a lot further north into Canada. In fact Imlay and I, and Norm Sohl, who was a branch chief at that time, joined up with a guy by the name of Hans Frebold on the Canadian Survey located back in Ottawa. And Frebold was another specialist on Jurassic ammonite stratigraphy and we joined him one time and went up to the Canadian Rockies and looked at Jurassic sections all over the place up there. Also we had an interesting little thing. There was a beautiful little stream, I can't think of the name of it coming out of the Rockies, and we stopped up there with Frebold and Imlay and we had two students. Frebold had two students with him, grad students. And they stopped by this stream to eat lunch and we had sack lunches. And there this great big concretion I'd say six feet across or something like that right on the bank of the stream. And Frebold frequently stopped there and ate lunch during the past and picked out that spot again. And we were sitting on this log eating our lunch and a beautiful place and I happened to look at the rock and I could see there on the edge of it I could see lines like this. And they were folds in the ammonite shell. And the darned ammonite was six feet in diameter flattened out.

Kirk: Wow!
Cobban: So boy, here Frebold had never noticed it before, all that time. So of course he promptly had these two grad students chip it out and they shipped it all back to Ottawa. The thing was six feet in diameter!

Kirk: Is that the biggest ammonite you've seen in the western interior?
Cobban: That's the biggest I know about.

Kirk: Wow. Well is it one of the Parapuzozias?
Cobban: Well they would be about that size, not quite, five feet maybe.

Kirk: And it was a Jurassic one.
Cobban: Yeah, the one up in Canada that was described. I have been to that locality, too. I saw where the guy had made a plaster cast of it out there. The specimen was still laying there on the hillside. It was too big to carry. It was just an impression of a big ammonite.

Kirk: What place is that?
Cobban: It's back in the Canadian Rockies someplace. I don't remember the spot anymore. It's been described and I could find it. There was still a little plaster lying

around that this guy had made a cast of. I don't know where the cast went to.

Kirk: So you started in the late 40's and 50's working with John Reeside on the actual sequence of the ammonites.
Cobban: At the time, Reeside was putting together a GSA chart on that. They had a series of charts on the Cretaceous.

Kirk: Correlation of the GSA bulletin?
Cobban: Yeah, you pull them all out and he was working on the Cretaceous one. And he asked me to help him. So I did. Gave him a lot of help because I would see some new sections all over and had a lot of control to add to it. And Ralph Imlay did one on the Jurassic of the Gulf Coast and so on. Another person that I met while I was back in Washington was Lloyd Stephenson. I told you that when I was a student I used to go back to Washington on every Saturday and spend my time at the museum. And we'd all go out for lunch. And there was Stephenson and another fellow by the name of Cooper.

Kirk: That the guy who worked on the Permian?
Cobban: He was one of them, and then there were two or three other museum people. And what we would do...across the street from the museum was the Internal Revenue Building and they had a cafeteria. So we would just go across the street and have lunches there all the time, every Saturday. And there was this nice group of people. It was great to meet them all. So and then Reeside had about ten fossil zones that he and Stephenson had worked up together. They wrote a little paper in the AAPG one time comparing the western interior sequence with the Gulf Coast and they recognized about ten fossil zones. And so that's what Reeside had used to start on his chart and I have a lot to add to it, cause I found so much other zones in the meantime. And the history of all that is kind of Open File report of how the zonation got made.

Kirk: By that time you were definitely looking at the rocks thinking of zonation. At what time did you start thinking about adding radiometric dates to the mix?
Cobban: Let's see well...I had seen an awful lot of bentonites, you know, and then some place I must have met John Obradovich. And he, at that time, he was starting to date rock. And so when I was doing field work with the survey, I every now and then I would sample a piece of bentonite that looked like it would be a good one. Cause he told me always sample the bottom of the bentonite, the heavy minerals go down and settle on the bottom and that's where all the good stuff is. So to get a sample just scrape off the bottom inch of the bentonite and that's what you would get and that gave them good information. He could use that. If you didn't do that, you just might get strictly tailenite only, all minerals[2]. A lot of people don't understand that you really got to get the bottom of the bentonite. And so I kept bringing stuff samples to John and then eventually we put out that paper on the…

Kirk: Was that the Canadian one. Wasn't that 93?
Cobban: Yeah, 93

Kirk: That was Geological, the Canada green book that had that data in it, Isn't that right?
Cobban: Yeah, that was '70 wasn't it 1970? It was old.

Kirk: What is the date on that? 1975?
Cobban: '93 was the later paper. That makes more sense.

Kirk : So was that really the first compilation of radiometric dates?
Cobban: Yeah,

Kirk: To some degree there has been a lot of just refining that now moving forward and adding a lot more detail.
Cobban: (Brad) Singer has better material and better machinery to work with than John (Obradovich) had. So he's able to refine these numbers quite a bit.

Kirk: Any big surprises there when you were looking at the sequence and the dates?
Cobban: No actually, the first dates were. Are you familiar with that Red Bird paper?

Kirk: Yeah.
Cobban. I think we had some one there.

Kirk: That was '67.
Cobban: I think that is the first published numbers.

Kirk: OK.
Cobban: In fact that was the first good zonation was in that paper. The '67 one or the '66 whatever it is.

Kirk: and that's the one where you really had some sections, zones in one place and you could actually really lay out. You know when Doug (Nichols) and I drove up to North Dakota in August, the last field trip we had together we stopped there by the Boner Ranch and walked around in the Fox Hills outcrop there where all those nice Sphenodiscus ammonites.
Cobban: Is this in North Dakota?

Kirk: This is right there by Red Bird
Cobban: Oh there?

Kirk: You drive the highway north towards Mule Creek Junction, there's that long ridge of the Fox Hills that crosses the road occasionally.
Cobban: I collected in there, too.

Kirk: Did you have anything to do with Karl Hirsch?
Cobban: I knew him very well.

Kirk: What can you tell me about Karl? He was somebody who was around the museum when I got to the museum and he passed away pretty soon thereafter. I think he passed away in the early '90's.
Cobban, Oh? He was the egg shell man.

Kirk: Have you had a lot of interaction with amateur collectors and people who just like to collect ammonites for a hobby?
Cobban: In fact Karl used to give me some fossils from Europe that people sent him. He'd pass them on to me.

Kirk: What's it like working for the survey since the Paleontology and Stratigraphy Branch closed?
Cobban: Well the branch lets' see, when was that? They had...there was a period back there in the early 90's when they were getting tight on money and some congressman wanted to abolish the survey. Can you believe that or not? But somebody did. And I guess they had limited funds and everything else. They decided to reorganize and try to...they had to sell Congress geology. And so they, in order to save themselves, really, at that time, they had to lay off 800 people. They had a bad time back there. Eight hundred people on the survey were laid off or given early retirement, things like that. And so at that time they did away with all the Branches. There is no longer a paleontology branch. Instead they just have teams and so the survivors of the Paleontology and Stratigraphy Branch were put in various places. Doug Nichols went in with what would be the Oil and Gas Branch or team. And I am stuck in with the Earth Surface Processes team which is mainly a mapping team.

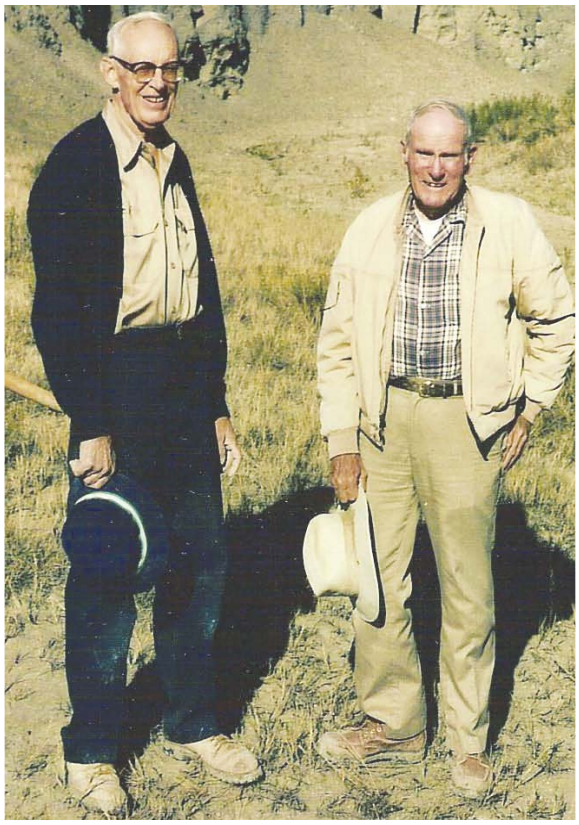
Kirk: And you have been there ever since with the survey.
Cobban. Yeah, I work for anybody, in the survey or outside. I try to help anybody I can.

Kirk: Did you map any quads?
Cobban: No, I never did.

Kirk: But you made these amazing maps of the Colorado Front Range from Wyoming to New Mexico. What's the story on those maps?
Cobban: Those were done with Glenn Scott. In fact, Glenn did the mapping and see when I first came to Denver back in the early 50's there or 54 or whatever it was, I met Glenn. Before that he had sent me fossils when I was at the National Museum so we had some correspondence. Then when I came out here, I met him and then he got real interested in going in the field or taking me in the field collecting more fossils and so on. So and then that resulted in these maps.

Kirk: There are literally hundreds of localities on those maps, just a scattering.
Cobban: Oh yeah, and a lot of them are no longer there. A lot of them are paved over with houses on them and anything else now.

Kirk: Do you have any idea how many fossil localities you have found in your life?
Cobban: I don't know but as I recall one time a couple of years ago, I don't remember how long it was. These are some of our catalogue books right here, localities. And I counted the ones that Glenn was collector on not only by himself but at least one of the collectors. It was



Bill Cobban and Glen Scott in Toms Hollow, Colorado, 1994

over a thousand[3]. I remember that. That was a long time ago. And as to myself, I don't know, but it would be way beyond that.

Kirk: Those maps are quite amazing to me, that you could map those zones across the whole front range.
Cobban: Yeah, we've got them all the way from Pueblo clear up to the state line. That's a long ways.

Kirk: What are your thoughts there are something like forty ammonite zones in the twenty million years of Pierre Shale time more or less. What was the Cretaceous seaway like? What was happening that was causing that steady rate of evolution?
Cobban: Well it actually goes back to Jim Gill, who was a guy a wonderful cartographer who I worked with for a long time. And Jim Gill was with the Fuels branch, the oil and gas branch, and he loved field work and he would get the funds to do it from the Survey to go out just to work on the Cretaceous rocks. And actually it started with a guy by the name of Harry Tourtelot. And Tourtelot had a project studying the Pierre Shale. And Tourtelot was interested in the make up of the Pierre Shale, what elements were in it and so on. And he had Jim Gill as assistant. And then Jim in connection with that was measuring a lot of sections in the Pierre Shale for a while, and then eventually he carried into the westward areas where the Pierre Shale interfingered with non-marine rocks to the west. And I used to join Jim a lot. He was a great collector and he... always had a little trailer, pulled it around and had room for about three people and then I had an assistant by the name of Bob Burkholder[4], a very good guy. And Bob and I would join Jim often because he had room enough for us in his little trailer. And Jim would just find, always park it on a government piece of land someplace, and sometimes by an old oil rig or dry hole drilled at one time and things like that. He was a great guy to work with.

But he had a real problem. He apparently had a heart condition he didn't know about, I guess. He died at age 50. Just a young man and he'd just gone into the field. In fact he left Denver with a brand new assistant, a student. They drove up to Thermopolis and set up at the KOA campground there and got all settled down for the night. Jim went over to the bar and he liked to have a drink before dinner. So he went to the local bar, and while he was having a drink he just fell off the bar stool dead, just like that. Can you imagine what a shock this was for the student? And then the bartender called the sheriff. They came in and they found on Jim his receipt for the KOA campground and that's how they were able to trace it back. That's where they found the student working there. And then they had to inform Jim's wife about this…awful.

Kirk: How did you get on the idea of doing these shorelines? Is that Gill pushing the thing into the beaches, then?
Cobban: Well the reason why...I used to put on the maps localities of *Baculites compressus* where we had them. And I did while the most useful fossils. There are about thirty-five of them I think I made[5]. And on them you could kind of guess where the shoreline was. I am sure you'd be off forty or fifty miles, but on that scale map it didn't matter[6]. It had to be beyond the collections to the west. Sometimes you could get a pretty good idea about where the shoreline was but at times you might be off fifty miles, I don't know. I don't have enough control. But there are about fifty of those maps all over in building 810 (at the Denver Federal Center).

Kirk: Are they not all published?
Cobban: No they are not. Oh, once in a while they have been published. Parts of them here and there just on a very small scale. But they are drawn on maps the size of that paper right over there.

Kirk: Wow. That seems like something that ought to be published somehow or captured somehow.
Cobban: Well, Casey McKinney. Do you know him?

Kirk: Yeah, I do.
Cobban. Ok Casey scanned them all. And they have... They are available if you know about it. You can get them through him.

Kirk: Ask Casey.
Cobban. They are I know that.

Kirk: Did you interact with any of the people who are working on the terrestrial part of the Cretaceous story, people like Erling Dorf or Roland Brown?
Cobban: Yeah I was with Brown. Brownie as we called him. Yeah I have been out in the field with him, too.

Kirk: Do you have any recollections about Brownie?
Cobban: Well of course he was very tight with his money. He would cut up a whole tire and glue it on his shoes you know rather than take them to the shoe shop. He was a great guy, though. I enjoyed him very much, very much. I also know Loris Russell up in Canada.

Kirk: Great.
Cobban: I worked with him, too. Jim Gill and I went up there and joined him and looked at various sections in Canada in Alberta and Saskatchewan.

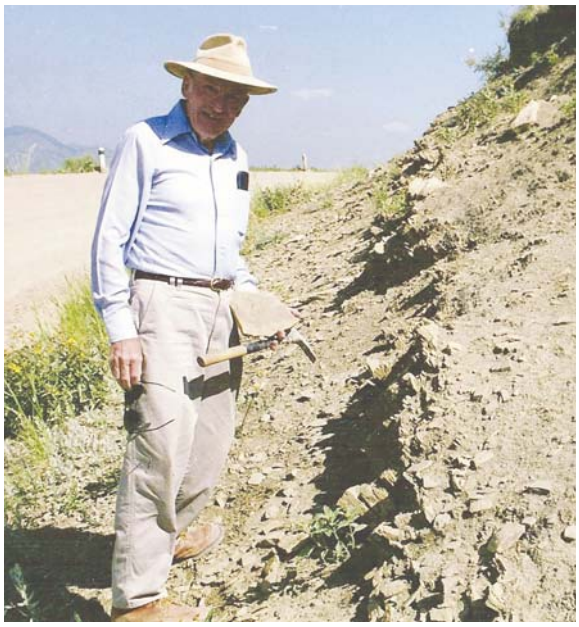
Kirk: That's interesting you spent nights in the Kootenai. Cause one of the things that Sam Bowring has

been doing to working in consort with John and Brad Singer is to try and start and look at those areas where the terrestrial and marine interfringering units and date bentonites and measures and help stitch them together. The summer of 2008 Sam and I went around and visited the Rock Springs Formation and the Alma Formation and the Frontier....several outcrops in the Dakota, a bunch of stuff in the Mesa Verde group. Because you know we've got a pretty good bracket with the ammonites, but you know within that range we could throw some dates in there and narrow things down a little more tightly.
Cobban: Incidentally, I forgot to tell you I told you, I made a big collection on plants from the Kootenai. I gave the whole thing to Brownie (Roland Brown).

Kirk: Ah, so that's all at the Smithsonian then.
Cobban: All back at the Smithsonian.

Kirk: I wondered about that. What happened to the rest of your collection that you made as a kid?
Cobban: Oh, it's all at the (unable to hear)...except for the dinosaur bones. It was originally in Great Falls and then my folks moved up to Poulson, Montana. And I think most of bones went up there and what happened after that I do not know probably in somebody's rock garden. (they both laugh).

Kirk: Could be.
Cobban: I found a dinosaur you know when I was in high school...near Great Falls. I used to collect from the Kootenai any place I could find something. And the Kootenai up there is in two parts. It has a lower half is well bedded and has lake deposits in to and things like that... and persistent sandstones and so on. And then the upper part, the upper half is very non-resistant and it's just rather soft clay stones, mudstones mostly reddish and green and stuff like that. And in that you will find different colored lenses of something in there like the purple silt or something. And for some reason you'll find fossils in those darned things once in a while. They're hard to find. But in the process of looking for things like that I came across a dinosaur, a big one. And that was downstream from Great Falls at what's called Rainbow falls. And I scraped off the mudstone around, took a nice picture of it, (I)covered it all up again. That's when I told the science teacher at the high school that there was a dinosaur out there. And then I guess he took some of his students out and they exposed more of it. And then they must have contacted a vertebrate paleontologist from the Smithsonian or someplace who...I think it was Barnum Brown.



Bill Cobban in Horsetooth Reservoir, Colorado, 1993

Maybe Barnum Brown came and dug it up I think. Yeah, I think he's the guy who came and dug it up. He dug the whole thing up and took it back to Washington. It turned out to be an armored dinosaur.

Kirk: So Barnum Brown was at the American Museum (NYC) wasn't he?
Cobban: It's at the American Museum. It's still down in the basement.

Kirk: Wow, so it's a Kootenaian dinosaur?
Cobban: Yeah.

Kirk: I'll have to ask Ken Carpenter about that.
Cobban: Well, in central Montana there was a locality that they found quite a number of dinosaurs in the Kootenai. I can't think of where that was...it was in the central part of the state. They have been found. That's the only place I know where there were pretty good material.

Kirk: Was the Kootenai sort of more or less equivalent to the Cloverly?
Cobban: Yeah...same thing.

Kirk: Yeah, cause all that stuff right there on the Montana-Wyoming line...
Cobban: Yeah, it's one of those state line faults.

Kirk: Cause that's where the Deinonychus comes from, all that stuff from the Crow reservation a lot of dinosaurs in the Cloverly there.

Cobban: Yeah, so they would be the same age.

Dave: Now that dinosaur that you found, was that from the Cretaceous or was it one of your hundred year old....
Cobban: (laughter) No, the hundred year old one...I used to go up on the Blackfeet Indian reservation which was right east of Gosserey Park and there was a formation called the Two Medicine. It's about 2000 feet thick. And it is strictly non-marine, and it does have lots of bones. And I collected up there, and it's still being collected by a lot of people. And in fact it's the one where they found all the eggs with stuff in them...up in the Two Medicine. But when I went up there, there was nobody collecting. I was the only person in fact in the whole country there was no people in it hardly. No roads...or poor roads and I had no good maps. Only thing at that time was county maps, county road maps. It was mostly worthless. But anyway I used to go up there and explore that country when I was in high school. And I used to pick up these dinosaur bones in almost any outcrop...especially teeth. I found a lot of isolated teeth. I gave them all away.

Dave: When your parents, before they got the car for you so you had some way of understanding more out in the field, it seems they were quite supportive of you. What would you tell parents today about their kids who want to find fossils and are interested in dinosaurs? Are there still parents who are like your (were)?
Cobban: Well, the problem of today is trespassing. That's one of the big problems. In those days you'd go anywhere, nobody cared. But today, boy, you'd better get the land owner's permission and stay off the Indian reservations. But there are a lot of "rock club" several of them here in the Denver area. I think kids might get into something like that and get out in the field and get help.

Dave: So in any way possible parents should help the child who has an interest in science?
Cobban: Well, it just depends what the child is interest in I guess. I don't know what to say. I just got interested on my own with no help from anybody. I never...now Great Fall has no museum, nothing like the nice museum that you guys got. A whole lot of nice stuff you can look at. I never had anything like that. The only thing as I mentioned in the Great Fall library, they had just a case with some fossil fish in it...and no light at all...just sitting there you know. You could hardly see anything. But I guess we found out what bed it came out of and said what a wide spread limestone was deposited in a lake. And you can find bits of fossil in them. I knew you could find a good fish. You could find clams and other stuff in it...snails and like that.

Dave: But you had curiosity from the beginning. How important is curiosity?
Cobban: It's particularly good. I was just telling about I'm sure if somebody excavated...scraped off the surface of a big area, and really dig that thing up, they'd get some wonderful stuff. Because it's a lake deposit and I'm sure you'd end up finding a fossil bird in it or something else you know, but it's never been done. It's full of micro-fossils by the way...just ostracods.

Kirk: Any plants in that stuff too?
Cobban: Yeah...carbonaceous stuff in it too.

Kirk: You know there's stuff that Charles Miller and Tony LaPasha were working on, very scrappy small stuff. There's not much that was very impressive. We, the Denver Museum got all the Montana collections when Charles Miller left. So we got all the Kootenai stuff here and the Morrison stuff here in Denver in our collections. Do you know much about Dave Love? He seemed to be pretty broad in covering the ground in Wyoming.
Cobban: Yeah, I've been out with him. I'll tell you a little experience with him one time in Yellowstone Park. On this Mammoth Hot Springs, we were out there looking at the section and a great big storm was coming up. And we were way up on the side of the hill you know. And so we decided we'd better get off that darned hill. And down below was the Gardiner River. Well a stream called Lava Creek ran into it. We had to head toward Lava Creek because there are some trees...there a couple groups of trees. And we were (?) quite a little ways, within speaking distance anyhow. And we decided we'd better get down and get out because this big storm was coming. And so I worked my way on down and he worked his way down and was picking up this one group of trees. And I went to the other group of trees. Well low and behold, in my group of trees...there was a bear in there! So guess who had to stay out in this rain... lightning and thunder and hailing? (laughter)

Kirk: Do you have any particular ammonite species that is your favorite for any particular reason? Or do you just like them all the same?
Cobban: They are all a lot of fun. Course I started out with the *Scaphites* mainly, because I worked with them as part of my thesis at Hopkins. But when I was out with Jim Gill, in the Pierre Shale these *Baculites* were everyplace and we found out that they could be zoned...in the Pierre Shale. And so we stuck the *Baculites* in.

Kirk: What are you working on now?
Cobban: Well the only thing I'm doing now, I'm helping the Colorado survey with their fossils. I helped the

people down in...who are mapping down in Big Bend National Park with their fossils. And also, there's a guy by the name of Steve Hook in Socorro, New Mexico who is retired and he is a great collector from in the past and brought a lot of stuff with him and he's still very active and we're working on, believe it or not, some of the oysters from New Mexico, Cretaceous oysters. And that's the only thing, otherwise I'm just cleaning out my office. Just finishing projects and just gradually moving stuff over to the other building because in another year I probably won't be around here...so.

Kirk Johnson
Sant Director of the Smithsonian National Museum of Natural History
Washington, D.C., USA

Dave Baysinger
Volunteer at the Denver Museum of Nature and Science Department of Paleontology
Denver, CO, USA

[1] Likely to be Maxwell M. Knechtel, 1962, Bulletin 1082-M USGS bentonite specialist published in the region and right time
[2] Sentence unlear in transcription
[3] Cobban's Denver Mesozoic Catalog is 15000+ localities, of which he is credited with 4894 localities, Scott credited for 1990 localities. In the original USGS Mesozoic Catalog (White, Stanton, Reeside, Stephenson, Sohl, etc) Cobban is credited with 679 localities
[4] When Bob Burkholder retired Kevin McKinney was hired into his tech position back in 1986.
[5] Kevin McKinney reports that there are more than 70 index species maps.
[6] Kevin McKinney georeferenced all of these and can be plotted to a couple hundred yards in GIS software