

May, 1977. Charles Misner interview of Hugh Everett, III (46 yrs.)

Charlie Misner: Well, it's been a great evening. I enjoyed spending our ~~18th~~ 18th anniversary with you, Hugh. Why don't you lead on (after your drink) by telling us how you got started with John Wheeler. Hugh: Well, I got started....

C- What ever made you decide to pick him for a thesis advisor?

H- Well, actually, I didn't. Somebody assigned him to me, I think, and I needed one to get my fellowship renewed.

C- Right, so it was all bureaucracy.... H- That's correct. My first year was actually spent in the Mathematics Department. C- When did you get on to, ah,

weird Quantum Mechanics? H- ~~Oh~~ Oh, it was because of you and Aage Petersen *No marks*

(from Denmark), one night at the Graduate College after a slosh or two of sherry, as you might recall. You and Aage were starting to say some ridiculous things about the implications of Quantum Mechanics and I was having a little fun joshing you and telling you some of the outrageous implications of what you said, and, ~~ah~~ as we had a little more sherry and got a little more potted ... in the conversation.

Don't you remember, Charlie? You were there! C- I don't remember that evening actually, but I do remember that Aage Petersen was around - that's entirely possible.

H- You had too much sherry. C- Was that after I was starting on the "Rainich Theory"?

Rainich (~~Sounds like Range or Rains or Rienish or Reins or Graves or Grange - nge~~)

which was known as the Rainich Theory at that time because H- Oh, I remember that... yes, that was that same C- You read his book and told us, "Look, this was a great idea - why didn't he stop there instead of going on to finish the job?"

H- I do remember that, yes. Whatever happened to that, I wonder. C- Well, we eventually decided to go on and finish the job. H- How did it come out? C- Well, only many years later we discovered - well, actually not so many years later, but actually Peter ^{Bergmann} ~~Berman~~ (sp/?) wrote us a letter and said, "Look, it's not in his book, but actually in some other publications, he did all this stuff that you wrote and had in your thesis, Misner." H- laugh - Why didn't he publish it? C- He did, but in some obscure place.

H - I see. C- So I had to do something else for my thesis instead of ~~Graves?~~ ^{Reinisch?} Theory.

H - I never knew that. C- Yeah, I spent all those years on that and eventually had to go back and turn out something on ~~quantization~~ ^{Feynman quantization} ...

H - I had to study for ~~generals~~ ^{generals} - that's what happened to me - I had to study for ~~generals~~ ^{generals}, so I couldn't follow any of that up. C - Hmm, didn't you take generals I see.

when I did? H- No, I took them a year later. C- You did; H- I think, let's see. yeah,

Yeah, right. It was the Army-McCarthy hearings as I recollect . . . I did not C- Oh all, spent all my...

that year, I remember, I was freely watching them & C- I watch them H- but you had to occasionally study and couldn't watch all of them, right? C- Oh, I in the morning

.... when I went to class. Yeah,. C- I must have gone at least once a week to

^{Bergmann's} ~~Barton's~~ class. H & C laugh. H- Once a week! All right, yeah. Oh, goodness.

C- that's just to show you that Notre Dame is so much better than Catholic U, I had

all I needed to pass generals from Notre Dame, so I had to study. H- That's true, I had to I guess,

~~did I~~, or at least I thought I had to. Laugh. Sigh. (Nancy or Suzanne? ask about

Wheeler.) H- How did Wheeler get into this? How did You pick Wheeler? C- How did I

pick Wheeler? Well, I picked Wheeler because after spending the Army-McCarthy hearings

studying for generals, or the other way around, ~~ah~~, I decided I should, because they

told me I should find a thesis advisor, and I had been working with ~~Whiteman~~ ^{Wightman} ~~H-hamham~~

C- so I first went to ~~Whiteman~~ ^{Wightman}, and he unfortunately was an honest man and said "I'd be

delighted to have you for a thesis student; I have a lot of interesting things to do,

but you should probably take notice that of my last three students, none of them has

got their PhD in less than seven (7) years." H- You know Charlie, much the same

happened to me : Now I forget who gave me advice like that but somebody said something as

much the same like that - "You can get out quicker with Wheeler." (laugh.) Let's see, I wonder,

who was that, /hmm. C- So anyway, when I went around to talk ~~with~~ ^{to} John Wheeler he

had all kinds of wonderful ideas, / ~~all of them~~ ^{focus} ~~nebulas~~ going off into the mysteries of the

universe , and anything ~~that~~ I wanted to do was just so exciting that he couldn't

possibly restrain himself and ~~all~~ it seemed that everything's possible and I ~~might~~ ^{may} as

well do it quickly and get finished and solve the problems of the universe easily at

the same time!

Page 3

Nancy E. Knowlton
Adge (Petersen)
H - What year was ~~Coan~~ ^{Adge} there? C- I don't remember/ H- Was that our first year? I/
in
C- My first year was '53 - '54. H- We were both there/the same year. C- That's right.
~~We were roommates together.~~ ^{We had} H- That's right. C- ~~For some reason ...~~ H- well, that
I think.
~~was later.~~ ^{Let's see, at first ...} C- We had this luxurious room, remember, a whole
suite, two (2) bedrooms, a bathroom and a little sitting room in the Graduate College -
I had never lived in such luxury before in my life. We were down on the first floor
in the Graduate College someplace. H - That was you and Harvey (Arnold). C- Oh, was
H-
that right? Yeah. C- Oh, that's right. H- It was me and Hale (Trotter). C- So the four (4)
of us all got mixed together... H- right, that was in the ¹⁹⁵⁵⁻⁵⁶ third year. C- Yeah H- Right
...so that's the second and first year... C- So then we had... O.K. Yeah, you were....
H- I keep trying to pin down when ~~Coan~~ ^{Adge} was there, 'cuz that's ... boy ~~by~~ hmm, C- well,
... trying to bring back ancient days ... H- I know, I know. We can probably
pin it down. Well, anyway, the whole business started with those discussions, and my
impression is, I went to Wheeler then later and said "hey, how about this, is this the
thing to do," I ~~walked~~ ^{talked} up to Wheeler. C- You already had some Game Theory going, is
that right? H- Oh, yeah. I had to do that to get my NSF ... C- I think you had some
~~no opening~~
publications coming up... H- ... I had ~~in open~~ ^{no hope in} the Physics Dept. in my first year because
nobody knew me, so I did something in mathematics... well, I got it renewed. C- Yeah.
Wheeler
H- Well, hmmm. Gosh! C- I don't know how much I did with ~~you~~ the first year, I can't
remember that at all, but I must have seen him occasionally - I don't know whether I
took the relativity ... he was... ^{course} ^{teaching it} (I know) the year before I came he taught a Relativity
course and he took all his students, including ^{Artie} ~~Eric~~ Komar, (H- Yeah, I heard about that.)
C- ^{Einstein} ~~to Spain~~ to visit ^(him) and I missed that and I always thought that was one of the
great catastrophes of my life. But I suppose he ^{(Adge) Wheeler} must have taught Relativity again.
Did you have Relativity from him that first year you were there? H- Humm. C- He
taught it that year ... I suppose he taught it the next year, but I'm not sure. H- I
think it was all about ^{GEONS} ~~GEONS~~ or something like that. C- Oh, of course it was about
^{GEONS} ~~GEONS~~, yeah. We certainly heard enough seminars about ^{GEONS} ~~GEONS~~ and whatnot. H- and
~~WORMHOLES~~, we certainly heard about ~~WORMHOLES~~. C- Yes, and I was learning all kinds of
~~worm holes~~

mathematics from Hale Trotter. ~~Of~~ Of course we ~~xxx~~ always went to Mathematics Tea - well, there ~~xx~~ only was one ... H- There only was one Tea... C- everyone went there, and that's where I learned all kinds of fancy mathematics. Of course I had a big start at Notre Dame from Arnold Ross who was the mathematics chairman there. He had me through half of ^{Bourbaki} ~~Boor-Becky~~ and things like that while I was an undergraduate. But I remember Hale and various mathematicians were helping me with ^{2-3 algebraic} ~~ultra~~proved topology and this, that and the other thing. H- I remember the day when we thought elementary particles would be obviously the way different knots would be knotted in multiply-¹ connected space and we went over there and said/^{all we've got to} ~~we~~ got to know the classification of knots and we'll have the answer. ~~They~~ they were'n't able to help us. Remember that? C- I don't remember that, but I do remember lots of discussions about knots,.... H- Hale got into that. C- Wasn't ^{2 Milnor} ~~Milner~~ solving some knot problems in undergraduate... shortly before or after that - various people were full of knot theory. H- Yes, whatever happened to knot theory? C- I think all the problems got solved. H- Oh. I thought they were undecidable or something. C- Oh well, that's a solution, you should know with your ^{word problem work} ~~work~~ ... H- Oh yes, right. C- The word problem got solved while I was there. H- My problem was solved? C- Yes/..... H- There was also this Russian who, I think it was parallel solutions or something like that. Goodness. I am trying to remember the exact history of that and I can't. ~~He~~ ^{I know} ~~he~~ that it really stemmed from that night with the really fun discussions with ~~Boan~~ ^{Adge} - flushing out the paradox. C- I don't really know which year he was there. H- I believe it was our first year. I'm not sure of that: could have been the second. C- When did Einstein give his seminar, ^(was last year) was that about our third year ~~xx~~ there? no,... H- I don't recollect. C- Cuz that was an ¹⁻² occasion, -remember that? when we arranged for Einstein to give a seminar ~~for the first time~~ at the University and I don't think he'd given one before %. H- I don't think I attended. C- Sure you did, I remember you were there. H- Really, what did he say? I don't remember it. C- Well maybe that's true - maybe I had to take notes and try to tell you - no, I would have thought you were there. H- I sure don't remember it, and I think I would have. ⁷ (Laugh)

53-54

53-54
T,
may

(Change of reel or something) C-

H- I know nothing about this what so ever ! I'm outraged! Ha! ^{Rel, hel.} Where was I?

Was it on a weekend? C- I can't remember, I doubt it. It was a Tuesday night

or something like that. H - Maybe I was in Trenton, I don't know. Whatever that

I was somewhere else.
one was, I don't know. C- I doubt I have any notes on it, maybe I actually was

trying to ^{home?} remember a few of the things he said to carry them on to you because he

made some remarks about the ^{limitations (?)} ~~temptations~~ of quantum mechanics - he wasn't quite as
determined about classical interpretations as he had been in the famous debates and

things like that. xYou know, he admitted that quantum mechanics was certainly

correct in all its predictions ...H- [?] cleaned. C- Yeah, but he was

shaken from the kind of ⁿuncleanness he worried about in his ^{tes}deba/with Bohr and he

felt that he had a basic solidity, anything that he ~~didn't~~ have to recognize

that some of the great things he said were ^overifiable. H- Hmm. Right. Somewhat

restricts your possibilities of getting out. ^{Well,} I don't know.

C- Which year was it that I went to Leyden ^{attained} with Wheeler? ^{Was that our} ~~the~~ /second year there? it
^{'s right.}
probably was. I would think that ~~xxxx~~ H- I don't remember - oh, I do remember

⁵⁴⁻⁵⁵
you're going to Leyden. Were you ¹⁹⁵⁵ ~~a senior?~~ C- It was a spring term and Joe Webber,

Peter Putnam and I all tagged along with John Wheeler for a semester when he was

^{Leiden} "visiting ^{Lorentz} Professor at Leyden (Belgium) H- Well, hmmm. What was I doing

during that time? C- Maybe you were studying for generals. H- Maybe he wasn't even

C- That's possible.
my professor ~~yet~~ then. H- Who was? I had somebody else in my first year. For the life

of me I can't remember how the hell I got ^econnected with Wheeler. Somebody advised me!

that I ought to get connected to him. C- You probably already had these quantum
^{cal} mechanics/ideas and ^{just} needed someone to talk to about them and he was obviously the kind

of person who ... H- I have that slight impression, but I can't be sure. C- We may

have started - no - in Leyden I was already working on these ^{Rainich} ~~Reinish~~ sp. ideas which

you had proposed. You found ^{Rainich's} ~~Reinish's~~ book and he said that algebraically the Maxwell

tensor can be expressed in terms of the.... H- O.K., that was indeed in our ¹⁹⁵⁴⁻⁵⁵ second year

I think, I have that feeling. C- ~~Good~~ That's probably true. H- I remember that

1954-55

Christmas vacation that I was home I played around with that and then I had to drop it I felt because I really had to work on ~~the~~ generals for that spring. So that was the second year. C- ~~So~~ you talked to me about it so I began taking it up with Wheeler ^{we} and/followed it out at Leyden, which would have been my second year, spring '54-55.

H- O.K., O.K., so maybe it was that I wasn't doing anything...oh, all right, so that started in the second year, hmm. C- So that would be ...H- Cuz I think that pre-dated me, quantum mechanics, ~~xx~~, uh, I think. C- Fall of '55, maybe, ^{(no) '54 ed} when I was back...uhm... H- Uh, noooo, no, no no - cuz I had the whole thing written by the

^(NE-est: during?) fall of '55, that whole document was done, (C- ^{gabled}) H- Yeah) C- at the end of your second year? H- Yeah. As a matter of fact, it was somewhat embarrassing because I had most of it written the real embarrassment was that Wheeler at one point was threatening to get me my PhD before the ⁵⁵⁻⁵⁶ third year had run out, and as you remember, the draft was still in force in those days and the last thing in

the world I wanted to do was do that. No, that thing was written in the winter of '55, or at least the first draft of it was. No, it was third year, '55-'56 was ^{one side} third year. He was threatening end of/tape.

So anyway, he was threatening to get me out in ^{Jan. 56} mid-term of the third year and what did not coincide at all with my plans, especially given the draft situation at that time. So that was in the third year... C- so that was ... your involvement

in the spring of '56. H- Uhh, somewhere in ~~there~~ I got involved with ~~it~~; no involvement whatsoever in my first year. C- That was the same year I was in Leyden. It was the late part of the ^{1st (1954)} year that you must have been talking with him because

H- Maybe it was...it very well... in fact it probably was because I did nothing but study for generals and things like that in the second half of that year ^{'54 '4'} (55) so, I...

C- ... second half of that year you were probably talking with him. H- Well, maybe so.

C - Because I certainly was talking to him a bit about the ^{Ranger} sp. stuff, altho I.. ^{certainly}

H - O. K., so when did the quantum thing ...cuz I must have talked to him some, and, I/ ^{is when I wrote really} you know, that summer ~~was~~ really when I was writing that first thing and Nance was

typing it and everything else (?) and the whole thing was ready by that autumn and that winter, which is what caused the threat! C- Did we spend only one year in the Graduate

College, then? H - We spent two years in the Graduate College. It was in our third year that ^{you were on} we were in Linden Lane. C- But then, I have to get that straight, because it was certainly our year in Linden Lane that I started taking Dutch lessons with ^{the} Renée ^{Franklin} ^{remember, the} Dutch girl. H- Yes, so maybe you didn't go to Leyden til then! C- That's right. H- A ha! That makes alot more sense. C- O.K. So that's how it was. H- All right, so it happened in the second year and the only question is where and what. That must have been when ^{Age} ~~Coan~~ was there. C- Did we room together in the second year, is that possible? H- Ahh, no! The first year I roomed with an Englishman and you were with Harvey Arnold, down on that first floor by the passageway. H - Maybe you were in the second year too. In the second year I roomed with Hale. And in the third year all four of us roomed together in Linden Lane.

H- All right, so what exactly happened in that second year? I guess we conclude that that's when ^{Age} ~~Coan~~ was there. C- Yeah. must've been. One of those summers, probably Wigner had arranged for me to get a job at Bell Labs. H- Yeah. C- One summer I had a job at Bell Labs. Whether that was the first summer or the second, I'm not sure.

H- All right, the ^{Rennich} ~~Reinich~~ business was the second year. C- Probably got straight the second year. H- I remember working one Christmas at home, actually calculating Christ-
allow that for me
awful symbols. (Guffaws) C- I would ~~have liked~~ the second year/to have had a course

with John on relativity. H- O.K., and I don't think I had that course, that year, or C- or maybe I never took it actually, because I had a course at Notre Dame, so I may have thought I didn't have to take one at Maryland (sic) (Freudian slip) I might have just joined his lunch group, you know, and talked with people in his office. He used ~~gangs~~ playing for discussions or to have ~~game~~ in his office with brown bag lunches or for/something. I might have joined that group without partaking taking part in the H- I was very much out of that group, I rememberthat's probably why I didn't get invited to the Einstein thing. (Laugh) .Well, it went something like this: We had those discussions with ^{Age} ~~Coan~~ and all that, and somehow, I don't yet know, I got connected with Wheeler or whatnot. "The question is, of the thesis topic, you know, what about looking into this mess here, you know, there's an obvious inconsistency in the theory or whatever I thought of it then."

wheeler (on page 7) no

C - It's strange that he would be so interested in it - all in all, because he (it) certainly went against the normal tenants of his great master, Bohr. *Do I agree? (1) 12.5.77 4/10/77*

H - Well, he still feels that way a little bit, even as recently as last month in Austin ^{Wheeler} he was a little bit that way.... *May 1977*

C- How'd he work that out? because he certainly had great respect for Bohr.

H - Oh yes, indeed. C- But he was always intrigued by his ^{advocacy} advocacy of ideas - He tried to get you and Bohr to agree. H - Yes, I spent six weeks, as you know, you ^(in Copenhagen) were there, and that was a hell of a ...doomed from the beginning... C - ?) *in 1959*

H - ... the battles of 1925 or something. C - You didn't get the chance to and he ^{seventeen} say something ~~that you~~ would relight his pipe ~~three~~ times,-that was marvelous that you could make that attempt - I don't know how old he was at the time - (1962?) ⁵⁷

H- Well, you know what really came out of that trip to Copenhagen was the invention of the LaGrange Multiplier~~xx~~ C- For what - H- No reason - it's not relevant to Physicswhy it was on the record ? - It was the truly great accomplishment of that Copenhagen trip, though; it made Lambda Corporation and several other things.

C - Which year was that Copenhagen trip? H - That was 1959, six weeks, ³the year we (Charlie and Suzanne) married, ⁴because we went over on one of the earliest Pan Am jets

H - Oh, my goodness. C- Well, Wheeler certainly kept at it once he got into it.

H - Yuh. C - I'm sure he would have been happy if he had heard ^{you} his professor's (1) your viewpoint, or at least not have ^{two people} ~~to have~~ used listened to favor/disagreeing..... *garbled*

H- Yes, well you should have been in Austin a month ago. This was on human consciousness - whether computers are conscious and so on. His work was quite relevant-

Wheeler actually read it before the assembled multitudes and all that. Then, at your ^{Wheeler} place last week, he confessed, he actually now believes it, ^(pause) except on Tuesdays, once a month, -he said/he really has to reserve one day a week to disbelieve in it and so he ..

C - I see, well that's a good perception. Most things that he's in doubt about he has a Monday, Wednesday, Friday H - Ohhhhhhhhh, O.K. Yes, right. Yes, he believes ^{really} in being very conservative I ~~believe~~ think, for some ~~body~~ body with such far-out ideas as Wheeler has, to call himself a conservative. C - Oh, well, at first, Dynamic

Conservatism, -wasn't that his battle cry when he was trying to sell GE^{GEONS} ~~MONS~~ originally? *GEONS*

(believe?)

C - The only thing revolutionary about this is that I want to ~~leave~~ see what they and switch to. H - Yes, that's right... C - "What are you going to do about it?"

H - That's right. Yes, marvellous concept. Well, that's what I did in Quantum Mechanics, too - perhaps that's where it came from, that same idea. Let's just believe the ~~xxx~~ basic equations - what's this extra jazz for? So you do get a weird and funny picture. C- That's certainly what he was doing when he ...well, you recall Kookle - KU-KU-blintzes the year before I came there, maybe my first year there - H- Oh, yes.

C- He gave a presidential address ^{Kookle} about ~~KuGooblintzes~~ to the Physical Society but then they eventually became ^{Geons} GEONS, and that even got threatened shortly thereafter when he got a letter from (the) General Electric Company saying that the GEON was their trademark for Freeon (H- Oh-oh! HA, ha!) C- and if he wished to use the word FREEON would he please acknowledge their copyright. (H- Back to ^{KOOKLE} ~~KUGOOBLINTZES~~)

C- I guess that was somehow ~~xxx~~ resolved without extensive payments from the Friends of Elementary Particle Physics. Did you ever benefit from the Friends of Elementary Particle Physics? H - Not knowingly. What.... C - Well, they were a Princeton benefactor...

H- A subversive Mafia-like organization? C- Oh, no, various people who always seemed to be students of Wheeler's. H - Uh huh! C- I must have gotten sent to a Physical Society meeting or the like or I don't know what... H- I never went anywhere! from Leyden or Dutrech

C - ^{Two years} ~~Two years~~ came up to visit Wheeler in Leyden after their generosity and ^{there were} ~~with~~ various other people who benefited from the Friends of Elementary Particle Physics which seemed to be an account at Princeton/.. H- Now you tell me!

I never got any of this largesse, that I know of. C - Maybe he figured your father was too rich.... H- My father was an Army Colonel, ~~that's~~ not rich! C- But suspicion gradually dawned on most graduate students that the Friends consisted primarily of John. H - Oh, really? C- Yuh. H- Ah, Huh! Gee whiz. Well, I didn't know anything about that.

C - He was preaching this idea that you ought to just look at the equations and if ^{there were} ~~there were~~ fundamentals of physics, ^(then) why you followed their conclusions and give them a serious hearing. He was doing that on these solutions of Einstein's equations like Wormholes and Geons. H - I've got to admit that; that is right, and might ~~have~~ very

well have been totally instrumental in what happened. C- He encouraged you to follow up on his, uh H- obviously ridiculous! C- argument that was only intended to shut up obstreperous friends like me (and Cole Moore) and ^{Qage} ~~Coch~~ Petersen. H- Yuh, right.

C- I can't think I ever had ^{very many} ~~any~~/serious thoughts about basic quantum mechanics, but

^{first?} of course Petersen ... H- Yeh, ~~none~~ of us really took it seriously at the time, except

^{Qage} for ~~Coch~~, of course, . C- Oh, actually I went through a very strange experience ...

I don't know whether you went through it, but I certainly did, as an undergraduate getting taught by people who had learned quantum mechanics in the thirties. And to

them, quantum mechanics was really a big philosophical change, and they were shocked by the whole ideas) and so forth. And somehow we were/... and felt that/every new

course in Physics you get some new kind of nonsense which seems to make sense/later well, you know, so, Q. M. is no worse than Electro~~xxx~~ magnetic fields, or $F = MA$, or whatever it might be. H- Yuh, electro-magnetism is still mysterious. Laughter. Well, goodness, I don't

know. C- Well, how did John pick you up; I mean, you had these ideas/stirred up in general conversation/ [&] you began to work out the more of the detailed mathematics of it. Where did John begin to play a role in the whole affair? Did you have a whole thesis

written before you talked to him? H- No, no. That's the part I can't quite bring back. I mean, we did have a conversation or two, and uh... Yeah, I guess...no, uh,

indeed he did/play a role; it's coming back now. You know, I said 'there's obviously something wrong here.' I showed the paradoxes and whatnot; that 'something should be done to change it.' He did keep saying 'Why?' you know, his ultimate conservatism, as he put it, kept coming through, you know, 'Why, why?' C- He kept saying "Well, maybe it's right,"

or H- Well, he kept doing funny little experiments with balls running down inclined slopes or something, I never quite got the gist of what they were but ...I can't put my finger on it on where or when... C- At least ^a ~~one~~ very important influence was to

always point out possible opposite solutions that were so far fetched that you felt you had to put Johnny on the straight and narrow track and sort of ...(Hugh's laughter)

catch...and show him how this was the way ^{Physics really} (it) was done...H- Yes, uh, huh. C- and he was always off in the ^{wild, blue} yonder... that was stretching your imagination and not allowing

you to ever do any mundane problems. But, you ^{eventually?} evidently might have had a chance of being one ahead of him on this kind of stuff. Did he have the same attitude towards you? I mean, did he try to make you think more exotically, or was he helping you focus down towards the real ^{text} test of the questions? H- Well, I don't know what to say about that. In any interaction both sides focus and do... very, very hard to untangle. "We're going to run out"

"End of this tape." Continued?

Mark's drum in background must have been distracting.

1953 - 54
54 - 55
55 - 56 } 3 yrs at Pr. Grad Sch.

met H. III summer of 55 (2nd yr)
He was looking for a cheap typist!

Spring 1977 (46 yrs,
May - 1977
(Year Hale Trotter
marries!)

(Testing, 1, 2, 3, 4, 5 - testing, testing, testing
I've got to get a drink before I (~~do this~~) can talk with you)

→ Charlie Misner: Well, it's been a great evening, I enjoyed spending our ah 18th
anniversary with you, Hugh. Why don't you lead on after your drink by telling
us how you got started with John Wheeler. H- Well I got started...

C- What ever made you decide to pick him ^{for a} ~~as~~ your thesis advisor?

H- Well, actually, I didn't. Somebody assigned him to me, I think, and I needed
one to get my fellowship renewed.

C- Right - so it was ^{all} ~~(the old)~~ bureacracy... H- That's correct; my first year was ^{actually} spent in
the mathematics department. C- When did you get on to ^{ah} weird quantum mechanics?

H- Oh, it was because of you and ^{Age} ~~(Ooah sp.)~~ Petersen, ^(from Denmark) ~~wasn't it?~~ one night at the
Graduate College after a slosh or two of sherry, as you might recall. You and

^{Age} Ooah were starting to say some ridiculous things about the implications of quantum
mechanics and I was having a little fun joshing you and telling you some of the
outrageous implications of what you said, and ^{uh,} ~~ah~~ as we had a little more sherry
and got a little more potted [?] ~~in~~ [?] the conversation. Don't you remember, Charlie?
You were there! C- I don't remember that evening actually, but I do remember that

^{Age} Ooah Petersen was around - that's entirely possible. H- You had too much sherry.

C- Was that after I was starting on the "Range Theory" which was known as the Range ^{Rains - Rienish?} ~~Reins?~~ ^{Granger}
theory at that time because ... H- Oh, I remember that...yes, that was that same... ^{Grange}

C- You read his book and told us ^{"Look, this} ~~that~~ was a great idea - why didn't he stop there
instead of going on to finish the job? H- I do remember that, yes. What ever

happened to that, ^{I wonder,} ~~do you know?~~ C- Well, we eventually decided to go on and finish
the job. H- How did it come out? ^{Well, only} ~~C-~~ Many years later we discovered...well actually
not so many years later, but actually ^{Peter Bergman?} ~~Petersen?~~ wrote us a letter and said

"Look, it's not in his book, but actually in some other publications, he did all
this stuff that you wrote and had in your thesis, Misner." H- laugh, Why didn't
he publish it? ~~C-~~ He did, but in some obscure place.