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## GEORGE W. BROWN and ALEXANDER M. MOOD

This is a conversation between George W. Brown and Alexander Mood at the University of California, Irvine, on 25 July 1984.

**Mood:** I am Alex Mood talking with George W. Brown about our days at the Princeton Math Department at the invitation of Al Tucker. Al suggests a few questions we might answer along with our reminiscences about Princeton, and we might start with the first question, 'Why did you come to Princeton?'. Do you have an answer for that George?

Brown: I certainly do. I remember very well why I came to Princeton. I'd been at Harvard and planned to study with Lars Ahlfors. But he announced that he was returning to Finland—it was the spring of 1938—and there was really nobody else I cared to work with. I was so in love with Ahlfors's specialty. I talked with J.H. Van Vleck and with E.V. Huntington, both of whom showed great kindness to me. Huntington had heard about Sam Wilks having a grant to have graduate students help edit the Annals of Mathematical Statistics. As a result I applied at Princeton in that spring of '38 and was accepted. I gave up my support at Harvard, which was quite generous, but I agreed with Huntington's advice that seven years was too many to spend in one math department, no matter what it was. And particularly with Ahlfors leaving. So that's my answer to that first question. Do you want to go to bat on it?

Mood: I majored in physics as an undergraduate. I was attracted by all those famous names at Princeton: Einstein, von Neumann, Hermann Weyl. So I applied to Princeton in the math department. I wasn't interested in laboratory physics, only in mathematical physics. The only thing they could offer me was Sam Wilks' scholarship in statistics. Well, I thought I would go there on that scholarship and take some mathematical physics on the side. But when I got there I found that that was easier said than done. In any case I soon became very interested in probability theory. It was fascinating material. So in short order I switched majors from physics to statistics.

Brown: I'd like to add something about Huntington's advice. He was a wise old man and a gentleman of the old school and very with-it socially. One of the things he said to me was, "You'll have a hard time as a Jewish boy in pure mathematics." And he said, "This field of mathematical statistics, with its applications, is much more likely to get you a career." He didn't mean it in a nasty way. He was simply...

Mood: Trying to give you good advice.

**Brown:** An honest evaluation of how things stood in the field. I just now recollected that. What's the next question we have to deal with?

Mood: Well, one of them is 'How did you come to work with Sam Wilks?'. We've already answered that one.

Brown: I think so.

Mood: Another is, 'Who are the students and faculty you especially remember?'.

Brown: Oh my. Why don't we just alternate? You give a name, I'll give a name.

**Mood:** All right. Sam's first student was Joe Daly, so I'll name him early in the game. I got very well acquainted with Joe. Later during the war I rented Joe's house in Washington. He was in the Navy and dispatched somewhere away from his home about the time Harriet and I moved to Washington, so we rented his house.

**Brown**: Let's then for the moment talk about the students in statistics. In the following year, I think Fred Mosteller started with Sam. Or did he start when we did?

Mood: No, you and I were Sam's second and third students.

Brown: Then the year after us ...

Mood: Mosteller and Will Dixon.

**Brown:** Will Dixon, and there was also a young man who didn't make it. I remember him because he'd once dived into an empty swimming pool. Do you remember the boy from Texas?

Mood: I remember his name: Villavaso. His father was a professor at the University of Texas.

**Brown:** I don't remember anybody else in statistics. Some of the other students were Ralph Fox and Edward Begle, also Norman Steenrod and Henry Wallman, who was post-doctoral.

**Mood:** Two that followed Mosteller and Dixon were Ted Anderson and Phil McCarthy. They came the year after you and I graduated.

**Brown:** You're right. But I didn't know them there as students. I remember that we used to play bridge with John Williams.

Mood: We can't forget John Williams. He was most memorable.

Brown: And was Fred our fourth, Fred Mosteller? We played regularly.

Mood: Yes, Fred was the fourth.

Brown: I'm sure I played pretty poor bridge in those days.

Mood: Those were good bridge games.

Brown: Okay, other students. We've mentioned some of the topologists, but there must have been more.

Mood: Yes, I think Harriet had a good friend whose husband was from Minnesota, John Olmsted.

Brown: I remember Olmsted very well.

Mood: We socialized quite a bit with Steenrod and Olmsted. Harriet particularly enjoyed their wives.

**Brown:** Steenrod of course was both a bridge player and a go player. Also chess and Kriegspiel. He was big on those. We can come back to the Kriegspiel later.

Mood: All right, we'll move on to the faculty. One that stands out in my mind is H.F. Bohnenblust, a marvelous lecturer. He gave a great course on real variables, explaining all the general concepts with examples. A beautifully given course.

Brown: Indeed.

Mood: And he had a excellent relationship with students. He was there almost every day at tea time in the common room. A great Kriegspiel and go player, he mingled with the students better, I believe, than any other faculty member. He was a great favorite.

**Brown:** When he came West to Cal Tech, and we were also in the West, we occasionally saw Bohnenblust, at least during the '50s.

Mood: We saw him regularly at the Rand Corporation, because in the summers he did a little consulting at Rand.

Brown: Bob Robertson was another who came West.

Mood: He's another physicist I meant to mention. I was trying to think of physicists.

Brown: A reason why you came to Princeton.

Mood: Yes.

**Brown:** Of course we all recollect Lefschetz well. Because he was sort of "papa daddy" to graduate students. He was absolutely without restraint when it came to asking a student to do him a favor. If he liked you, he would ask anything.

Mood: That's right. He wasn't bashful.

Brown: And you took it as a compliment. But if he didn't like a student, life could be hell for that guy. Occasionally, I think, it was without much foundation that he formed his likes and dislikes.

Mood: I liked Lefschetz, but I never had a course with him.

**Brown**: I listened to him lecture; I was interested in his field. Then, of course, we remember Tucker, who was then a junior faculty-member. I think I sat through one of Tucker's courses.

Mood: I didn't. I took J.H.M. Wedderburn's algebra course. Did you take that?

Brown: No, I had no contact with Wedderburn. Do you know, I never had an algebra course at any time, undergraduate or graduate? I passed my orals based upon a reading of van der Waerden in German, because it didn't exist in translation at that time. I really didn't know a lot of algebra, and I wasn't interested in those things. I learned more later on.

Mood: I liked algebra. I had a very good course under a great algebraist at Texas named H.S. Vandiver. He was a fine professor. So having that preparation and liking the subject, I tried Wedderburn's course. But I didn't really care for it much.

**Brown:** Of course I sat in on Salomon Bochner's course on the theory of several complex variables. I enjoyed that material. Who else?

Mood: The other course I remember was Eisenhart's. He gave one semester on Riemannian geometry and another semester on non-Riemannian geometry. He had written a book for each course.

**Brown**: Well, we had to know Eisenhart because he was the Dean, and Mrs. Eisenhart had to know all the graduate students.

Mood: Yes, she was Dean of the Graduate Wives.

Brown: Living at the Graduate College, I went to a couple of receptions a year at the Dean's house next door. Yes, I remember

them well. Mrs. Eisenhart never forgot a name. Do you remember that?

Mood: No.

Brown: She could meet somebody once, or never met him, and still know who he was. That was her business, to keep track of Other faculty? It seems as if Alex and I had close everybody. contacts, apart from our contact with Wilks, with almost non-overlapping sets of faculty. I enjoyed topology and continued with some courses, at least auditing them. I had some background in logic when I came-background with Willard Quine-and I heard lectures by Church and knew about John Tukey's dissertation on phalanxes. went to most colloquium talks that related either to logic or to topology. In those days I preferred point set topology. This was before combinatorial topology had kind of preempted everything, but it was on its way at the time. So Tukey was a student, I think in chemistry. Just when he changed to mathematics for his Ph.D. I'm not exactly sure, but the story is that it was in the last year of his graduate status.

Mood: It was something like that because when I took my oral, he was on the mathematics faculty and was a member of my oral committee. I'm glad Tukey changed fields freely; he turned out to be an eminent statistician.

**Brown**: He's another person whose career was affected greatly by the war. When I came back to Princeton, as you did, during the war period, Tukey was employed on the same project as I was, the project with Flood.

Mood: Merrill Flood.

**Brown**: So that's how those contacts were made. I think we've almost run through the Math Department faculty, but we should talk about the members of the Institute for Advanced Study. We were all together in Fine Hall in those days, and even tea time was exciting.

Mood: I remember von Neumann used to come to the Common Room fairly frequently, and I believe H.P. Robertson did too, less often, but once in a while. I noticed that because I was anxious to get to know him.

Brown: I took advantage of lectures by Institute faculty. That was how I happened to do the Goedel notes, which was a very interesting experience for me. Also we had the chance occasionally to hear Einstein give a lecture. But you know we had different contacts for another reason. You were married, and you had the Wyman Club, and you had home responsibilities. I was single and lived at the Graduate College.

At the Graduate College there was a kind of dinner group that sat together most of the time. The group was made up of a diversity of graduate students; I remember some in physics, some in mathematics. Tukey was a member of that group. Oskar Morgenstern, the economist, was at the Institute for Advanced Study and was at that time a resident at the Graduate College. He kind of presided over our dinner group.

Mood: That's right. Our social lives didn't overlap much. We associated with married students, mostly Williams, Steenrod, and Olmsted.

Brown: Right, living at the Graduate College led to a set of contacts that were quite different. Some more or less professional, and some less. Dick Feynman was a case in point. In those days I knew him pretty well. He was a post-doc in mathematical physics. I don't know, we may have run out of nostalgia.

Mood: I guess we ought to mention Mrs. Eisenhart's activities with the wives of the graduate students. She took that job seriously, running the Wyman Club. She wanted these girls to learn how to be faculty wives, to know all the correct social procedures. She not only had regular meetings, talking with them, but she also arranged for them to visit prominent homes, homes of very wealthy people living there in Princeton. So there would be, once or twice in a month, a nice afternoon tea at some millionaire's home in the neighborhood of Princeton, where they could practice the social graces.

**Brown:** I recall something else from the war period, when I returned to the project and was married. At that time Mrs. Lefschetz used to come calling and leave a card in the old-fashioned style, if I'm not mistaken.

**Mood:** We had a little attic apartment, one of those places where you had to dodge the ceiling all the time. Some of the faculty wives would climb the two flights of stairs up to that apartment door and leave their calling cards. I'm sure Mrs. Lefschetz was one of them.

**Brown**: A very interesting period in our lives. You weren't a father yet, were you?

Mood: No, not until after I got my degree.

Brown: Was Harriet working?

Mood: She had a job with the Gallup Poll, a clerical job. It wasn't a full time job, but when they got rush business they would call her in. So we were living hand to mouth; the grant didn't amount to much.

Brown: No, it didn't.

**Mood:** But she got 35 cents an hour, and I worked for the Educational Testing Service once, making up questions for the mathematics exams.

Brown: Sam had me grading College Board exams.

Mood: I didn't grade them, but I made up questions for them. So we both made a little extra money.

**Brown:** When I came back to Princeton, the contacts I'd made earlier had other implications. For example, at that time my wife Bobby and I both worked for Flood. But she made a little extra money. She was an engineering graduate and good at drafting, and occasionally things came her way. One of them was doing the drawings for the von Neumann-Morgenstern book.

Mood: Did she? Her drawings got wide circulation then.

**Brown:** That was the most widely unread book ever written. It was almost impossible to read, but it had to be on everybody's shelf. Do you remember Bob Singleton?

Mood: Very well, a buddy of mine. He was working with Flood.

**Brown**: He had another job, besides the one with the Flood project during the war. He was doing something else. There was, I think, a period when both Bobby and I did some work for Singleton.

has no important connection with the Princeton This math department, but I remember an occasion when Singleton asked Bobby if we'd like a kitten, because he had a cat that had just had kittens. These were part Manx cats, because they had no tails. Bobby said, "Sure, we'll take a kitten." So Bob showed up at 20 Nassau Street, the same address where we were working. Bob brought in two kittens and said to Bobby, "You take them both, or take one and I'll drown the other one." So we ended up with two. So we had these two kittens who grew into Manx cats, and we were neighbors of the Goedels at the Hun School grounds. Mrs. Goedel liked the two cats, so she went to a vet-one out in the country, Cornelia Jaynes-and got two kittens. She said she wanted them to be like ours, so she was going to chop the tails off. Bobby went to great effort to explain to her that the anatomy of the Manx cat is different and that the tail is important for balancing for ordinary cats. So she talked her out of having the tails amputated.

Mood: It was a logical suggestion.

**Brown:** Yes, Mrs. Goedel wanted to become Americanized as quickly as possible. She hadn't been here very long, and she looked to us as models, an American couple. So much for that.

Did you feel any inferiority as a result of being in statistics?

Mood: We get to the inferiority question. No, I've always believed that science should be useful. That's one reason I had avoided R.L. Moore at the University of Texas. He was such a diehard pure mathematician, claiming to be nothing but an artist and looking down on anything applied. Sam Wilks had the same attitude I have. Every once in a while he would discourse on his distaste for pure mathematics and pure mathematicians. He was a great believer in practicality. Brown: That's fascinating, because I had a different reason for not feeling inferior. I had a considerable background in pure mathematics and enjoyed it very much. I enjoyed mathematical logic, and I enjoyed topology. I had a love for doing statistics, but there were also practical reasons, to make a living and to get out of Harvard—simply because I felt adrift. I really didn't like George David Birkhoff, Joe Walsh, and other people I might have worked with, and I wasn't interested in mathematical physics. If I had been, I would have worked with Van Vleck.

I was Van Vleck's teaching assistant for one year for his undergraduate mechanics course, and I took his advanced mechanics course. I liked it, but I wasn't set for that. If it was going to be applied math, it wasn't going to be physics. And that's the way it went. Of course what confirmed my view was that in 1940 I couldn't get any kind of an academic job and went to Macy's. That also came about through connections with the Princeton math department.

Mood: It did? I didn't know that.

**Brown**: That reminds me of another student, Arthur Albert Francis Brown.

Mood: Sure.

**Brown:** Horace Levinson was a Ph.D. mathematician and a vice-president of Bamberger's. Levinson maintained connections with some of the students and faculty at Princeton. I don't know whether he lived in Princeton.

Mood: He did live in Princeton.

**Brown**: You may remember he wrote a book on probability called *Your Chance to Win*.

Mood: I have a copy of that book.

**Brown:** Horace was a friendly man, and I remember some evening beer drinking at the Nassau Tavern. At the time I was looking for a job, and I ended up with no prospects for an academic position and two interviews for non-academic positions, one of them with a chemical-research outfit who did not make me an offer and the other with Macy's Research Division, Division 5.

The reason Arthur Albert Francis Brown comes in to it is that Arthur went to Bamberger's to work in a group headed by Levinson, and I went to Macy's. I don't know whether Arthur Brown would have preferred an academic job. I don't think he ever did go back to academia, as you and I both did, off and on.

**Mood:** I had two job offers when I graduated. One at Michigan State, \$1500 a year, and one back at my University of Texas, \$1800 a year. So it was an easy decision. **Brown**: Yes, speaking of \$1800, what do you suppose my starting salary was a Macy's?

Mood: Well, in that neighborhood.

Brown: Yes, for 50 weeks. It was \$35 a week.

Mood: Those were the days when the dollar was worth something.

**Brown:** So an academic job for nine months actually paid more than this sweatshop job at Macy's Research Division. I learned a lot there, and probably the first time I ever computed an analysis-of-variance in anger was at Macy's. In fact, I think I came out with a negative variance due to rounding errors.

Mood: Very clever.

**Brown:** I had never before done any computing, which is interesting because later on I became much excited by it.

Mood: We might talk a little more than we have about Sam Wilks.

**Brown:** Right. Excuse me, but that reminds me of an Englishman who was a student. Do you remember? What was his name?

Mood: I can't think of his name. A well-known statistician.

**Brown**: And we left out Barkley Rosser. He was a faculty member then. He wasn't at that time much interested in computing and practical things.

Mood: No, he wasn't.

Brown: He was a logician. I knew him pretty well. His career changed a lot, as did many people's.

That English boy, light skin and reddish complexion—I was reminded of him because he was studying with Sam and because I saw him at the Wilks's. My wife and I occasionally went to dinner parties at the Wilks's, as I'm sure you did. There would often be another faculty couple and some graduate students. Gina Wilks was very nice to graduate students.

Mood: Yes, we went over there regularly because Sam felt a special kinship with us.

Brown: He was a Texan.

Mood: He was a much more dyed-in-the-wool Texan than ! was. But I understand that at one time he had an offer to go to Texas and didn't take it. He preferred the prestige of Princeton. But in many ways he was a real chamber-of-commerce Texan. He loved to talk with Harriet about the University of Texas. He would come up to our little apartment on a Saturday afternoon, just to shoot the bull, you know, over two or three hours, reminiscing about the University of Texas.

**Brown:** I remember him telling us proudly how he used to ride a horse to school.

Mood: Yes, I remember that. He didn't go to the University of Texas as an undergraduate. He went to a little school in Denton; he lived near Dallas. We ought to mention that Sam was a slave-driver. He really kept after his students to work. Fred Mosteller used to say Sam made him a workaholic. I think Sam did the same for me. I was never all that hard a worker until I got to working for Sam, and then I got in the habit of working all the time.

Brown: Well, I may have been a workaholic then, but I gave it up later. Somehow I gave it up, much later though—changes in career.

I remember I got interested in one of Sam's problems, and I got out of it my first publication. I asked Sam innocently, "Would this do for my dissertation?" I've seen plenty of dissertations that had less than that paper; it was a proof that the L1 test for equality of variances was asymptotically unbiased. Sam said, "Oh, gosh no. You've got to do a dissertation. We can't let you get through here in one year. Nobody gets through in one year."

**Mood:** Now I'll tell my dissertation story. The greatest shock I ever had was given to me by Sam regarding my thesis. I wrote a thesis on the distribution of roots of the second-moment matrix. I'd spent six months on it, a problem that R.A. Fisher had been working on for years.

I was proud of solving the problem. And Sam was proud of that thesis, but about a week later a delayed copy of a journal arrived from Europe. Fisher and a colleague had solved that problem, and there it was in this issue of the journal. Well, it was a big disappointment, you know, but it didn't upset me too much until I talked to Sam. He said, "It's really too bad that's published. Now you'll have to do another thesis." I couldn't believe it. He didn't say flat out he wouldn't accept it as a thesis, but he did say that I would have to try again because the policy of Princeton was that a thesis be publishable. He wanted all of his students to have publishable theses, and this one wasn't publishable. It had already been published.

Brown: He also wanted grist for the Annals of Math Stats.

**Mood:** Anyhow he put me in a depression then, but I went right to work on another problem and managed to come up with a second thesis.

**Brown:** Wilks was a hard working guy, and he made a big reputation from the period in England when he turned out so much stuff.

Mood: Yes, he was a great producer in those years.

**Brown:** Now although we have followed different paths, we have maintained contacts with a number of those people. Do you think that's of any interest?

Mood: Well, I was going to mention one other thing about Sam's slave-driving habit. He kept good track of what you were doing all the time. There were two instances when Sam couldn't get Will Dixon on the phone—Will wasn't in the building—so he sent him a telegram. Will was just a few blocks down the street, you know, but Sam wanted to be sure Will got the message.

**Brown:** He always wanted to know what I was doing, and he listened very patiently to any idea I wanted to try. It was more like a therapy session in which he didn't do anything except listen. He was very good at listening. I don't recall how I got on the problem that I did for the dissertation.

Mood: He suggested both of the problems that I worked on.

**Brown:** He would give you his time without stint, simply listening, even if he had nothing to say about it afterwards. That I remember very well. Do you want to talk about later contacts with Wilks?

Mood: I used to see Wilks when I lived in Washington during the war. He was down there regularly, and he would call me up for lunch once in a while. He demonstrated he was an absent-minded professor a couple of times. We'd go out to lunch, and suddenly he'd realize he'd forgotten to go by the bank to get money. He couldn't help pay the lunch, and he'd have to borrow ten bucks for taxi fare. Later he had his own wartime project, at Princeton, supported by the National Research Council, and gathered together most of his former students to work on it.

**Brown**: The reason I wasn't back on that is that I was already working with Merrill Flood on a different project.

Mood: That's where I got acquainted with Ted Anderson and Phil McCarthy; they came as students just after we left. They were also there for Wilks's project, so I got to know them well. I also got to know Cochran very well; the Cochrans and the Moods shared a house with one kitchen for a full year. We saw a lot of Charlie Winsor and John Tukey. They regularly came over on Sunday afternoon for tea and Kriegspiel at our house.

**Brown:** I shared an office with Charlie Winsor in Flood's project and got to know him and to love him really.

**Mood:** He was a wonderful person. It was amazing how well he and Tukey got along together. They hit it off beautifully.

Brown: Yes, Tukey was on our project. That's the period in which Tukey was getting educated in statistics. I enjoyed the contact with Winsor. After the war I went to Washington on various matters, one of which was work with the National Security Agency—Sam at one time was on their advisory board.

Mood: Yes, he did some consulting.

**Brown:** There was the applied-mathematics advisory-board for the Bureau of Standards, but I don't think Wilks was on that.

**Mood:** He was probably the faculty-member most active in the outside world. He did a great deal of consulting with commercial firms. He did some things for *Life* magazine, I remember, and he was regularly going down to Washington to consult with government agencies. On the top of that he was editing this journal. He was an extremely busy fellow.

**Brown**: Indeed he was. I remember another faculty member who was there, certainly during the war, an Irishman, with the same name as a famous poet: J.L. Synge.

Mood: That reminds me of T.Y. Thomas. A very memorable occasion for me occurred in a one-semester relativity course I took from T.Y. Thomas. I believe that it was Synge who invited Thomas to lecture for a few weeks in Ireland, and while Thomas was gone he got Einstein to take care of his relativity course for him. So for a while there we had Albert Einstein as a substitute teacher in Thomas's course.

Brown: Remarkable. We should mention Veblen and Marston Morse.

Mood: Veblen was very helpful to Mrs. Eisenhart, having the Wyman Club meet at his house three or four times a year.

**Brown**: Was it Veblen who had a hobby of climbing, who used to climb the buildings for practice? [*This must have been Alexander. G.W.B.*]

**Mood:** No, his hobby was chopping down trees. He was an axeman. Veblen had a large place with a lot of trees, and he got exercise by cutting cord after cord of wood.

**Brown:** We have again forgotten somebody from the Institute of Advanced Study: we can't leave out Hermann Weyl, with whom some of us had some contact. I hope it's not discourteous to say, he looked to me more like the proprietor of a German delicatessen than like a world renowned mathematician. But that should not take away from the things he did. He was a very important man.

Mood: Tell about your dealing with Weyl's book.

**Brown:** I don't know, that's only an indication of my being young and foolish and not knowing when to turn something down. I was at Princeton as a graduate student. Alonzo Church, who was editing the *Journal of Symbolic Logic*, received a review copy of a Hebrew translation and expansion of a famous book by Weyl on foundations of math. The original was in German, I had not seen any English

translation, and this was a Hebrew translation by, I think, Professor Frankel of Hebrew University. Church asked me if it wasn't true that I knew some Hebrew. I said, "Yes, I know some, not a great deal, but I can read it probably." He then asked me to do a review of the book.

I remember buying myself a Hebrew-English dictionary and struggling for some months with this, with the German version, with the Hebrew version, and with Frankel's copious footnotes, which were certainly not easy for me to translate. I finally did a review, and I think it got published in the *Journal of Symbolic Logic*, but it was certainly not worth the effort that I put into it. I think I was flattered by being asked.

Mood: One of our best friends was a student of Weyl's, Olaf Helmer.

Brown: Right.

Mood: Olaf translated one of Weyl's books into English I believe it was the same book.

**Brown:** Foundations of Mathematics?

Mood: Yes, Olaf translated that into English.

Brown: Was it later?

Mood: After your review of the Hebrew translation.

Brown: I could have used an English translation; my German was never very good. I had had a minimal amount of German, just enough to pass the language exams. My French, on the other hand, was very good. That reminds me of a story about Bohnenblust.

Mood: Me as well. I had studied three years of German in college, but I had never studied French. Thanks, though, to the kind heart of Bohnenblust I got past the French exam for the doctorate.

**Brown:** Let me preface my story about Bohnenblust by saying that on the German language exam Bochner was very kind to me. I read about two sentences, randomly chosen in van der Waerden, and that was it.

But it was a different story with Bohnenblust and the French exam. My French was at that time very good. I'd had a lot of French; I had continued with French in college after studying it in high school. I enjoyed the language. Boni put a book in front of me to translate from. I was going quite smoothly and nicely. I finished a paragraph and looked up, and Boni said, "Go on." I finished the next paragraph, turning a page in the process; I thought I was going very smoothly and nicely. I looked up and Boni said, "Go on." I read about six pages of this thing, and finally Bohnenblust said, "That's very good, thank you." I said, "Why did you have me read so long. I was getting worried." He said, "Well, you did it so beautifully I just had to hear more." Mood: He gave me a random passage from de la Vallee Poussin, I think. I struggled through a few sentences, and he said, "Well, I guess you can make it out."

Brown: Yes, I had had two years of high school German, and that was it. I did not do anything with it until much later. Okay, what else do we have to say?

Mood: We've covered everything that comes to my mind.

Brown: I think we agree that that was a good period in our lives.

Mood: Oh, a great period. That was a real adventure for me. Being there at a great school, surrounded by all those great mathematicians. There was such a nice atmosphere in the common room there.

Brown: Yes, I think also that coming back to Princeton for the period of the war years ...

Mood: Yes, another year and a half there in Fine Hall added much to it.

Brown: It was just that much more contact, even though we'd been gone. It is interesting that you and I, who are so close personally ...

Mood: That's right.

**Brown:** ... had such different backgrounds and such different approaches and preferences, and we did different things with the school.

Mood: And it all came together and stayed together.

Brown: Well, I have to say that I haven't known anybody else as long as I've known you, with whom I am as close.

Mood: You know, that's true. We became really brothers.

**Brown:** So when we ask "Who were the students we remember?", we have to remember each other.

Mood: How true. That wouldn't occur to us, like water wouldn't occur to a fish.

Thank you, George, for remembering the mad Hungarian, Paul Erdos. The time I saw him really mad was the day Chamberlain signed the pact with Hitler. I passed Erdos on the street, and when he saw me he started tearing his hair. He said, "Have you heard the news?" I said, "What news?" I had heard the news but didn't take it as that serious. Paul had more vision that I had. He cut out, from the newspaper, a picture of Chamberlain and taped it to a dartboard in Fox's apartment. We all got together that evening and hurled darts at Chamberlain. Brown: A marvelous story. We had lots of other visitors, of course. Sam Eilenberg was sort of a favorite character.

**Mood:** He was a real character. He impressed me so because of his knowledge of the United States. He'd been in this country about six weeks. To get acquainted with the country he just hitchhiked throughout the entire nation. I think he managed to hit every state in the country.

**Brown**: I remember that, now that you mention it.

**Mood:** I'd taken a trip from Texas to New Jersey. That was the extent of my acquaintance with the United States. So he got far ahead of me in a very short time.

**Brown**: You know I used to see Erdos on occasion, when he visited the campus here at Irvine. The poor man, after his mother passed away, was really at loose ends. He never really recovered from that; she had always traveled with him.

I was thinking back to Mark Kac, who was a very lively man.

Mood: He was. I don't think we had a course with him, but he gave a few seminar talks that were models of clarity. They were beautifully done. He was a lively fellow, and entertaining.

Brown: You didn't hear Hurewicz lecture ...

Mood: No.

**Brown:** ... because you weren't much interested in topology. He was good to have around. I'm sure we're leaving people out. Paul Halmos, remember him?

Mood: Yes.

**Brown**: Warren Ambrose was there about the same time. There were so many people, and yet when I think of a name I can see the person in front of me.

Mood: I can see Paul Halmos very well. He was a handsome fellow.

**Brown**: Of course with most of those people I lost touch after fairly short time, getting into other things. But it was a very exciting period, because of the visitors.

**Mood**: All those stimulating people. It was a tremendous environment for a graduate student.

Brown: It seems to me Halmos played Kriegspiel. Did he?

Mood: He did, yes. He was married. They visited us a few times. I didn't get well acquainted with his wife, but Harriet enjoyed her very much.

Brown: Well, I think maybe we've about run out of steam.

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Mood: I have. But we've recalled quite a number from 45 years back.

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