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Brink, Irwin J (chemistry) Oral History Interview: Science Professors at Hope College

Brian Williams

Interview with Irwin J. Brink, Ph.D. Chemistry, '52 Grad.
Interviewed by Brian Williams
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BW: So you came here as a student in '48?

IB: That's right, and I did take chemistry in my freshman year, and I had Harvey Kleinheksel.

BW: You came from Holland or Hudsonville?

IB: Hudsonville.

BW: What brought you to Hope?

IB: My parents were Reformed Church people, so I came out of a Reformed Church family. I don't remember ever seriously considering any other option other than Hope College. I think the fact that I came out of a Reformed Church family, and the fact that Hope was the closest college, probably were the two factors that really led to that decision.

BW: Was there a science reputation at the time you came here?

IB: I presume there was, but I'm not sure that I was aware of it.

BW: Did you come intending to go into chemistry?

IB: No. I came with the idea of going into engineering. Again, I don't know why, because I'm certain I didn't know much about what engineering was in those days, but I think I was aware enough that engineering required mathematics, a considerable amount of mathematics, and that is was a practical way to make a living. I liked mathematics and did pretty well at mathematics in high school. I think all of this put together made me say when I made application to Hope College that I was interested ultimately in engineering, but I really didn't know much more than that. Of course,

when I stated that when I arrived on campus, they assumed that I would be in a pre-engineering program. So I got assigned to a pre-engineering advisor right away, and that was Dr. Jay Folkert of the mathematics department. He was the pre-engineering advisor at that time. He signed me up then for a program that included a mathematics course, a course in mechanical drawing--those two courses were the two pre-engineering courses. He also signed me up for chemistry and I forget what else. I think I probably had German and English I'm sure. Probably a religion course. So that's how I got started.

BW: That was all in Lubbers Hall when you were here?

IB: The chemistry course was in Lubbers Hall. The mathematics was in Van Raalte Hall, which of course burned down. The mechanical drawing course was given in the high school, which at that time was in the E. E. Fell building on the corner of River and 16th Street. One of the rooms on the first floor, right on River Avenue, I think the room furthest to the north on the first floor facing River Avenue, was the mechanical drawing room for the high school. All of the college students who took mechanical drawing went over to E. E. Fell. The course was taught by a fellow by the name of Martin, who was the high school mechanical drawing teacher.

BW: Is that the one that Hope used for their high school? That building? Or was that a different thing?

IB: No, I don't think that ever had anything to do with Hope College.

BW: Anything you remember from, like stories on Kleinheksel or Van Zyl when you were here?

IB: I was very favorably impressed by Kleinheksel during my first year as a student here at Hope College. He is the primary reason why I went into chemistry as a major. Actually, I got off of the pre-engineering track pretty early, as a matter of fact, in the first semester at Hope. I had quite a bit of difficulty with the math course which moved rather rapidly. I told you that I had done well in mathematics in high school and liked it, but I came from a small high school and found out when I got to Hope, some students that came from larger high schools who had the same math class I had, had had some of the material we were studying which I had never had before. That course moved along rather rapidly. It's the course that would now be called pre-calculus, although it wasn't called pre-calculus--it was called general math or something like that. I should qualify that by saying if you took the general math course your first semester as a freshman, your second semester you took a course called analytical geometry. Then you didn't get your first calculus course until your first semester of your sophomore year. But I found that the general math course was a difficult one, particularly the trigonometry. I had never had any trigonometry before. It came rather fast and furious. I had difficulty handling it. The mechanical drawing was something that was completely foreign to me. I never really did catch on to it. I was in academic difficulty quite quickly after I came to Hope and was really struggling with those two courses. Finally, sometime before the end of the drop-add period, Jay Folkert, my advisor, and I decided it would be best for me to drop the mechanical drawing, and that would help me to kind of save the math course. It did. I dropped the mechanical drawing and was able to get a decent grade in math. From

then on, I didn't have any academic difficulty at all. But that took me out of all thoughts of going into engineering. Then it was a matter of not having any clear cut vocational goals in mind, but just doing my courses. I don't remember worrying very much about what I would do after I got out of college. I just kind of did the courses that I liked to do, and chemistry was one of those I really liked to do, and it was primarily because Kleinheksel. In those days, you took a year of freshman chemistry, which was general introduction, just as it is now. Then, in your sophomore year, the first semester, you took a course called qualitative analysis. Then a course called quantitative analysis in your second semester. You didn't get organic chemistry until your junior year. Van Zyl did not teach any courses in chemistry below the junior level. So all of the courses below the junior level were taught by Kleinheksel. Another fellow that the college had in chemistry at that time was named Vander Ploeg. I never had Vander Ploeg as a teacher, so for my first two years here at Hope, I had only Kleinheksel as a chemistry teacher. So by the time I had two years of chemistry under Kleinheksel, I was pretty convinced that chemistry was great. I liked it. I'm sure then it was at that point that I decided to major in chemistry, although I had no clear-cut vocational goals in mind, even at that point. But Kleinheksel was a most impressive teacher. He had a unique teaching style that no other teacher I've ever had could duplicate.

BW: What was that?

IB: First of all he was very, very formal in the way he treated students, in the classroom in particular, although he tended to be quite a formal person all the way around. He

was tall, he had a Hitler-like mustache and dark, straight hair, and as I say, was very formal. In those days, a bell rang when the period started and when it ended. So if you were in Kleinheksel's chemistry class, you got there before the bell rang and you sat in your seat and got ready for the beginning of class. When the bell rang, immediately thereafter the door would open and he would walk in. This happened time and time again. It's just the way he operated. The bell rang, the door opened, and he walked in. He walked to the front of the room and spent the first fifteen to twenty minutes of the class just asking questions. He would go around, and I think in every class period he would ask at least one question of every student in that class. If you were unable to answer the question he asked you, these were all review questions by the way, if you were unable to answer the question he asked you, you felt badly about it. He had a way of letting you know or having you feel that you kind of let him down. So as a result, students were generally pretty well prepared when they came to his classes, because it was an embarrassment to be asked a question that you didn't know. If you didn't know the answer to the question, he would go to the person next to you and ask him the same question. He would continue to do that until that question was answered. He was not a particularly good lecturer. He wasn't terribly fluent in his delivery. So I don't remember him primarily for his scintillating lectures, although they were certainly interesting. But he was a very commanding figure. He just completely commanded. There was absolutely no nonsense in his class at all. No humor, no mirth, it was all business. You had the feeling that chemistry was extremely important, if not the most important thing in the world in his

classes. The whole aura in there was that he was in charge, and that you were responding. He would let you know, both verbally and nonverbally, if he didn't think you were producing. He had a very effective way also of teaching laboratories. When you finished a set of experiments, let's just say five experiments or so, you went into his office with a group of five other students and he grilled you on questions about the laboratory work that you had done in those experiments. While he grilled you and asked you questions, he was grading the lab books. You were in there with five students, so he had five lab books there. He would pick up book number one and open it up and start looking through it, and while he looked through it, he would ask questions. So he was grading the lab book while you were responding orally to his questions. When he got through that lab book, he would put it down and pick up another one and go through it. All of that time he was doing that, he was getting answers from students. So by the time that oral quiz was over, he had his five laboratory books graded, you got your book back, and he also graded you on how well you had done on the oral examination. The only occasion I have ever had also in any course in which that sort of laboratory was conducted. The result of that was that you really knew the material.

BW: Then you had Van Zyl for your junior and senior year?

IB: Van Zyl was just a completely different kind of person.

BW: He used a lot of visual aids, didn't he? They have all of those slides on file in the Archives.

IB: Yes, although he didn't use them in class. He probably used those to give talks at the

meetings he would go off to. Whereas Kleinheksel was a very distinguished looking, tall, very gentlemanly acting person, VanZyl was very short, stocky kind of portly, and a much more earthy type of guy. He would tell jokes in class and usually they weren't very funny. He was a pretty bad lecturer. He spent little or no time in the laboratory with students. As I say, he started teaching students at the junior level when I took the organic chemistry. The organic chemistry lab was run almost completely by senior lab assistants. Van Zyl I'm sure decided what the experiments were going to be that were to be covered, but the senior chemistry majors prepared all of the unknowns, did all of the grading, prepared all of the tests, gave all of the tests, and spent all of the time in the lab, helping students with any difficulties that they would have. Van Zyl occasionally came into lab, but not very often.

BW: Did they work well together?

IB: Yes. Of course, Van Zyl was the chairman of the department. Van Zyl was always involved with the department. He was here all summer long, late at night. Kleinheksel went home at a very definite time, of course he took his papers, he did a lot of paper grading and so on at home. But you never saw him here on weekends, you never saw him here in the evening. In the summer, he just completely got away from the department entirely. He had a cottage on the north side of Lake Macatawa where he spent all of his summers. He also had an interest in the Dykstra Funeral Home, and as I understand it, kept the books for the Dykstra Funeral Home business. He devoted himself to the cottage and to doing those sorts of things in the summer. He never got involved in any of the activities here at the college that I am aware of in

the summertime. Whereas Van Zyl was here all summer long. Van Zyl was just a fantastic person at keeping in touch with the chemistry majors who had graduated. He kept voluminous card files, 3 x 5 cards on every student who majored that ever went out of Hope College while he was here. He managed to keep in touch with people rather well. There were two American Chemical Society meetings each year on a national level, and he would always have the Hope College get-together at the American Chemical Society meeting, where they would have a dinner and a brief program following it. Van Zyl just did all of that. Van Zyl made almost all of the contacts of Hope College chemistry with the outside world. Kleinheksel and Vander Ploeg were not involved with that at all.

BW: He did a lot with grad school placement, didn't he?

IB: That's right. He kept in very good touch with people at graduate schools. So most of what the outside world knew about Hope College and chemistry was tied to Van Zyl. And of course it was Van Zyl who first got undergraduate science research started at Hope College. I'm not quite sure when that happened. It happened before I got there. I think Gene Van Tammelen and George Zuidema probably were the first students that Doc Van Zyl had working on summer research problems for him. He may have had people before that, but I am not aware that he did. Van Zyl, as a matter of fact, was an entrepreneur. He had his own little chemical business that he ran in a little shack here on South Washington. He made automobile wax, I think. He also was involved with the chemical company in Zeeland. It's now called Hexell. It used to be Miles and before that still a different name. I'm not sure what his

relationship was there, whether he had financial interest in it. I think he served as a consultant, and he would also often be talking here with a fellow by the name of Jim De Pree who I think ran that chemical company. I think Gerrit Van Zoeren was the primary chemist in this chemical company. I ought to know the name of that, the Sumner Chemical Company I think it's called. It was in Zeeland. I think John Van Zoeren was their principal chemist, and I think Jim De Pree was their business guy. So Van Zoeren did the chemistry, and De Pree did the business. I think Van Zyl probably served as a consultant to that operation. He may have had some financial interest in it, I don't know. But he was always involved in that kind of project. He owned a clothing store on 8th Street, and ran the clothing store during much of the time that I knew him, certainly during the time I was a student here, and I think even after I came back here as a faculty member, I think he still had that clothing store. I think his wife took primary responsibility for running that. He also had apartments, rental units, that he was renting.

BW: A lot of other interests.

IB: Yes. He almost had to do that. You couldn't make a living on a Hope salary when he first came here. You had to have something else, some outside source of income, I think, to exist.

BW: Patterson, who used to teach biology, was a night watchman I read. He would teach in the day and be a watchman at night. Godfrey did a lot with medicine on the side. He was a doctor.

IB: So Van Zyl was responsible for building the department's reputation in terms of his

contacts with his students and his contacts with the world of chemistry out there. He would go to just about every American Chemical Society meeting as a I recall, and when he would go to these meetings he would just go up to people and say, "Hello, who are you? I'm Gerrit Van Zyl from Hope College." People got to know about Hope College chemistry that way. But he certainly was not what one would normally, and by today's standards at least, say was a real good teacher. He didn't have a very good voice. He had a very raspy voice, and he didn't modulate it much when he talked. So his lectures were certainly less than exciting. He mixed jokes in and sometimes wasn't very well prepared. He taught physical chemistry, and much of physical chemistry when I was a student here, the students taught themselves. We would lecture on a particular chapter, and he would sit in the back and the students would be up in front lecturing on a chapter. We would try to help each other out. He was generally in the classroom, but didn't teach a lot of physical chemistry.

BW: You went from here to Illinois?

IB: About my junior year, my mother asked me, "You have another year at Hope, what are you going to do when you get out?" I don't remember really having given that a lot of thought. I suppose I assumed that I would get a job, and I'm not sure I had very high standards in mind as to what kind of job I'd get. I guess I figured I'd get a job when I got out, but didn't do a lot of thinking about what kind of job it was going to be. So I went to Kleinheksel and told him that my mother had been after me to make a decision about what I was going to do when I got out of college. I really didn't have much of an idea. So I asked him for some advice. He said I ought to go

to graduate school. So on the basis of his telling me that I ought to go to graduate school, I decided to go to graduate school. He was a graduate of Illinois, and at that time, Hope had at least one student every year going to the University of Illinois in chemistry. Sometimes more than one. I remember I made applications, and I got accepted to Wisconsin and Illinois. I'm not sure I applied anywhere else. But I got accepted at both of those places, so then I had to make a decision between the two. I decided to go to Illinois, and I think the reason I probably did is that more Hope students were going to Illinois than where going to Wisconsin. So I went to Illinois.

BW: How well do you think Hope prepared you for that?

IB: As I told you, when I came to Hope I had a tough first semester. After that, I did very well academically. But I struggled academically with first semester. When I got to graduate school, I struggled also academically the first semester. It was very difficult for me. I felt like I had an extremely good preparation in the courses that Kleinheksel had taught, and reasonably good preparation in organic chemistry, which was Van Zyl's. But I felt very unsure of myself in physical chemistry, which is the field that I actually chose to go into, and I chose to go into that before I went to Illinois. Why would I choose to go into physical chemistry when the way physical chemistry was taught here was so shaky? I guess I just liked it, and felt it was a challenge. I just wanted to do it when I got to graduate school. But I didn't feel very well prepared, and wasn't very well prepared in physical chemistry when I went to Illinois. What you had to do then when you went to a place like Illinois, you took entrance exams. At that time, it was an entrance exam in inorganic chemistry,

analytical chemistry, organic chemistry, and physical chemistry. We took four. As a matter of fact, I did well enough in three out of the four, it was organic actually that I didn't do the best, I did well enough, believe it or not, to move right into their graduate physical chemistry. I did well enough with the physical chemistry test to go right into the regular program in physical chemistry. I did well enough in inorganic and analytical chemistry. Those were the courses that Kleinheksel taught. So I didn't take any makeup courses. So in that respect, I guess I was fairly well prepared. I had to go back and do a makeup course in organic chemistry. But I never was all that crazy about organic chemistry, so in that sense, I guess it's not surprising. I guess what is surprising is that I did well enough in physical chemistry to not be required to take a makeup course in physical chemistry. I think it was probably true at that time, where physical chemistry preparation of a lot of students going into the university was not real good. So I was in kind of a comparative situation.

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IB: I like the people at Hope, and thought the world of Kleinheksel and Van Zyl. I had a dream that it would be nice to come back here and really help the program out in physical chemistry. But I must confess that when I was at the University of Illinois, I certainly didn't give that much thought, and interviewed at a lot of places prior to getting my Ph.D. there--all over the country. I had a number of job offers, and as a matter of fact, accepted a job offer at the Kellogg Company in Battle Creek in kind of in a pseudo-executive research kind of position. It was a very unusual position, and

part of that unusualness was what intrigued me about it. So I kind of decided to go there. However, I didn't get out to finish my degree as rapidly as I thought I had thought I would, and so took longer between the time that I accepted an offer from the Kellogg Company and the time I was actually able to arrive on the spot. By the time I arrived on the spot, I thought that my salary ought to be higher than what I had signed on for. So I told them that. One thing led to another and finally they decided that if I was that interested in salary and was making an issue of that after I had already signed on, that they didn't want any part of me. So they said, no thanks we're no longer interested in you. So that kind of left me high and dry, although I had had a lot of job offers. Job offers were readily available at that time in chemistry. I wasn't very worried about it. During the course of those events, I guess I stopped and talked to Van Zyl and told him what was happening, and a very short while later, probably only a week later, he called me and said would you be interested in teaching physical chemistry at Hope College. Once he became aware of the fact that I was no longer committed to the Kellogg Company, he evidently had gone to President Lubbers and said, hey, we really need somebody to teach physical chemistry for us, and I've got a guy here who is available. It must have gotten Lubbers' approval, and offered me the job. So it came up really kind of suddenly, and certainly unexpectedly. In the situation that I was in, as I told you, I was always interested in going back and teaching chemistry at Hope College after having been here, so I decided to do it. I've been here ever since.

BW: Did you know Jekel pretty well, I mean from the student days?

IB: Oh yes, oh sure. There were about five of us, five, six or seven of us as I remember who were really hard core chemistry majors in our class. So we did all of our labs together. We knew each other pretty well, at least when we got to be seniors. As I remember, Jekel had Vander Ploeg for at least I think a couple. I had Kleinheksel much more than Jekel. We knew each other pretty well.

BW: He came a couple years before you did?

IB: That's right, he came here, well, I don't know if it was two or one year before I did. I guess by that time, Vander Ploeg had taken another position, and that left an opening for Jekel. So that when I arrived, it was Jekel, Kleinheksel, Van Zyl, and myself that constituted the department.

BW: How did that feel to come back?

IB: I think it felt pretty good. I don't remember too much about it other than the senior class that year was a very, very good senior class. I remember teaching it, you took physical chemistry then as a senior, so that my first class of physical chemistry was really a very good class of students. Hope had a lot of very good chemistry students in those days. I think probably at that time, or shortly thereafter, we had more chemistry majors than we have now, and the school is quite a bit larger now than it was then.

BW: Not too long after you came, you started getting the grants from the National Science Foundation?

IB: You mean myself?

BW: Yes.

IB: Well, I guess the first grants that Jekel and I got was a Research Corporation grant, which probably we did in the late '50s or early '60s.

BW: There was one that you did in Iowa.

IB: That was a NSF grant when I went to Iowa for a summer. Not too long after that, I had a petroleum research fund grant where I went to Washington to the National Bureau of Standards for a summer.

BW: Was Ed Wichers there then?

IB: Yes he was, and that's how I happened to go there. Ed Wichers was, as you know, a Hope graduate who was a Ph.D. in chemistry. Was he the first Ph.D. in chemistry?

BW: I think so. There were three of them.

IB: John Van Zoeren was the first graduate student, but John never got a...You see, John Van Zoeren was one year ahead of Ed Wichers. John Van Zoeren I think went to Illinois, didn't he?

BW: Yes.

IB: But he never got a Ph.D., did he?

BW: I don't believe so.

IB: I don't think so either.

BW: There were three that went there altogether from that class of '13. I think he was the first one, or another one might have in the same year, 1917.

IB: So another one went. Then Wichers was next year, wasn't he?

BW: Wichers was '17 I think too.

IB: He was the same?

BW: Yes.

IB: But I know that John Van Zoeren was Ed Wichers' lab assistant at Hope College, which leads me to believe that Van Zoeren was a year ahead of him.

BW: Could be.

IB: Ed Wichers told me one time that it was because of John Van Zoeren that he decided to go into chemistry, that he, Ed Wichers, decided to go into chemistry. The way that happened was, John Van Zoeren was serving as a lab assistant under Godfrey, and he would prepare the unknowns and so on, and supervise those. Wichers got so intrigued with analyzing these unknowns, he liked it so well, that really that was what got him into chemistry. He said one of the things that Van Zoeren tried to do, he tried to give tricky unknowns to trip him up. So he kind of took that as a challenge, and he said that really turned him on to chemistry. He says, as a matter of fact he remembered doing one unknown he spent hours and hours and hours on it--just couldn't figure it out. Nothing, no test turned out right. He said what it was, was distilled water. So that leads me to believe that Van Zoeren must have been a year ahead of Wichers here at Hope. It could be that they went to graduate school at the same time, and for one reason or another that Van Zoeren didn't go right away.

BW: You mentioned Bill Dehn in 1910, said was the first to get it, but I couldn't find a record of him ever.

IB: How do you spell that?

BW: Dehn, I think. There was a picture that Ed Wichers returned not too long ago and it was a picture of the lab in Van Raalte Hall with all of the names. He had name which

said Bill Dehn, first Ph.D. in chemistry. But then all of the records, I can't even find the name. So I don't know.

IB: You can't find any records of such a person ever having come to Hope College?

BW: No. That's kind of interesting. I think the picture has Ed Wichers in there. It was 1911 or 1912, the picture was, I think. I couldn't figure that one out.

IB: There is nobody else living from that era?

BW: Not that I have found yet. I haven't made contact with anybody. Ed died not too long ago.

IB: That's right. But it was through Ed Wichers who made contact I think with Van Zyl and said he had something _____. Van Zyl put me in contact with Ed and it was through that.

BW: You were around the time this summer institute started?

IB: Yes, as a matter of fact, the summer institute that Gene Jekel is running now was preceded by other summer institutes before that. I remember teaching a summer institute for high school teachers, but I don't remember when. Do you have the first...?

BW: '62 maybe?

IB: That could well be. Was Vander Werf here then yet?

BW: I don't know. '63 maybe for him. I'm not sure.

IB: I think maybe we were teaching summer institutes before Vander Werf came. It was Vander Werf I think, who got Jekel going on the current track that he's on. But we taught summer institutes in chemistry and mathematics before Vander Werf got here.

BW: How much did Vander Werf do for the sciences do you think?

IB: Oh tremendous. Vander Werf, I think, probably was the most important figure in where we are in the sciences at Hope College today. He came, of course, at the time when science was very much in the forefront. So he came at a very opportune time to expand science at Hope College. He had a lot of contacts throughout the country, and he was certainly the inspiration for the big jump that we took in the sciences here at Hope College during the '60s.

BW: Were the sciences overemphasized at all? He has been accused of that a lot.

IB: Yes, he has been accused of that. I do know that his strategy was that you build on your strengths. I think Cal felt that one of Hope College's strengths, maybe its greatest strength before he came, was chemistry. So when he came, I think his strategy was to build on strength with the idea that you then have a model that you can use to then work at bringing other programs up. I think that was what his strategy was. He expressed that in my hearing on more than one occasion. So I think he came with the strategy of strengthening chemistry. Of course he came obviously at a very critical time. As far as chemistry was concerned, he came at a time when Van Zyl and Kleinheksel were close to retirement. So this, with the exception of Vander Ploeg, this was Hope College chemistry for the last forty years. Here you've got essentially your program that is going to go out and obviously this is a critical time. So he was certainly the pivotal person in the history of the chemistry program. It was his decision then to try to build upon what was already there to make it even better, and he did that by hiring some very good young faculty people at that time. He hired

Doug Nekkers, Dave Klein, and Jerry Mohrig at that time. These were very good people. A little later, Dwight Smith. And then, of course, a little later when Mohrig left, Doyle. Those people really lifted the chemistry program to significant new heights. As I say, that occurred at a critical time. But obviously, Vander Werf extended the sciences, to strengthen the sciences in other areas too. It was during that time that we started the geology program. It was during that time that the physics department just was revolutionized.

BW: It was about that time that they just about doubled their faculty.

IB: Right. You see, part of that happened through the fact that we had three large grants that Hope College got at that time that supported the sciences. One of those was a Sloane Foundation grant, which was a major grant. Another one was a grant from the Research Corporation, which was also a major grant to the college. Then the third one was a National Science Foundation grant that was major. When I say major, it was several hundred thousand dollars, I think. That obviously allowed for big expansions in the sciences. So biology certainly increased in strength, although I personally feel that the growth in strength in biology may have occurred more after Vander Werf left than during his time, but I think he got it started. Chemistry, of course, had a big jump. Physics revolutionized. Started the geology program. Those are your main sciences.

BW: I've worked on this thing for awhile (showing a paper). The total faculty, then the science faculty, and the breakdown by the fields. And you can kind of see when he came from that because there is a big jump in the number of science faculty in each

field.

IB: It's not surprising that the number of faculty jumped, because as I said, we got all of this outside money to build these programs. The thing that is really surprising, is when that money dried up, that the programs continued. Hope College wasn't the only school advancing at science programs at that time. That was kind of common, just because all of that outside money and all of the Sputnik emphasis that we had then. So most colleges were expanding their science programs during that time. But when that outside funding dried out, an awful lot of those colleges then started cutting back on their faculty. They started firing faculty. Hope never did that at all. We never let one faculty person go because we no longer were getting outside funds. Somehow, Hope College had the commitment to continue those programs after the outside funding dried up. That's really the significant thing that happened in terms of the advancement of science at Hope. The advances that Vander Werf instituted were not reduced when funding became scarce later on. And there again, you should say, why at Hope College weren't those programs cut back, whereas at other institutions they were? The only answer that I can give to that, and I don't really know for sure is, but my guess is the only reason for that is that Hope had had a strong tradition in the sciences, and that tradition kind of carried the day. I think a lot of other four-year colleges that didn't have the strong tradition in the sciences added several science faculty members when all of that money became available. Then when it dried up, there wasn't the tradition there to say, well, we better keep these programs going. They represent the strength of the college. So that's my guess as to why Hope

maintained its program momentum, where a lot of other schools didn't.

BW: Is that part of what cost Vander Werf? He kind of left under a cloud, didn't he?

IB: Well, yes, that was a...When the sciences were expanding as they did at that time, and he played obviously the key role at that. But there were a number of other factors going on, not the least of which was the availability of all of this outside funding. He couldn't have been able to do that without this outside funding. Plus the fact he had all of these outside contacts which meant that when we applied for grants, we got most of what we applied for. But when you're building one aspect of the college, there is a natural tendency for those who aren't involved in the building, to say hey, you know, we're getting left out. So I think it is a very natural thing that these feelings would develop. But Cal was the kind of person who wasn't very effective at bridging those gaps then, in terms of trying to mollify, if you will, the concerns that some of the non-science faculty had. So I think it's true that during his time here that there was a rather strong polarity developed between the science and the non-science part of the college. Although I wasn't terribly much a part of that. I tended not to get involved in those kinds of things. But you talk to a number of other people, and I think that was true. And of course there were other things about Cal that some people didn't like. That also added to that whole problem. I don't know very much about the details of Cal's leaving. I never was privy to that, so I don't know what the dynamics of all of that were.

BW: What other trends or developments do you think were important during the time you've been here?

IB: Well, of course, then what happened when Van Wylen came on board...I think during the Van Wylen era, we had a tremendous upsurge of quality in other departments in addition to the sciences. But I think sometimes that was all started already in the Vander Werf era. So to say that Vander Werf neglected the other aspects of the college and put all of his emphasis on science, I don't think it is true. He laid the ground work, and that was part of his strategy to have a strong science program as a kind of model for other departments to follow. A lot of that was centered on professional activity of the faculty members. What he did was he brought on board faculty members in the sciences who were very active professionally. They were publishing, they had contacts with other chemists in the outside world, they were writing grants. So a highly professionally active science faculty is what he brought in, and I think that very strong professional activity is now reflected, and is present in all aspects of the college. I think in one respect, that's exactly what Vander Werf had in mind. But I do think that the majority of that actually happened under the Van Wylen leadership. The thing that characterizes the Van Wylen leadership is the tremendous stability that the college had during that time. We were just remarkably consistent under that fifteen year period that Van Wylen was here, whereas during the Vander Werf era, things were very inconsistent. There was a lot of coming and going in the administration, a lot of turmoil and so on. But it's clear that the academic programs moved steadily ahead in all areas of the college, while Van Wylen was here, not so much so in the sciences as in the other areas, because the sciences had already experienced big advances before Van Wylen got here. But nonetheless, I do think

we've had good solid growth in the sciences since he's been here, in terms of the quality of the programs.

BW: Did he do much for the physics? He's kind of listed as a physics teacher.

IB: He's listed as a physics, but as you know he was a engineer. No, I don't think that he did anything more for physics than he did for chemistry. I think he simply provided the environment for all of the sciences as well as other departments to flourish. Part of the reason that things went so well is that during the Vander Werf era, a lot of good people were hired who carried those programs out, and Van Wylen supported them.

BW: What do you see for the future?

IB: The college is very strong. I think it's the strongest it's been in its history. And that's not only true in the sciences, it's true I think all across the board. So I think we're in a very good position, both in the sciences and the non-sciences. In the sciences, there are difficult years ahead, though, primarily because of the cost of doing science, and particularly at Hope. We put so much emphasis on teaching through research. Research is an expensive business, and it's getting more expensive all of the time. The real challenge that we have now in the sciences, is to be able to continue to effectively carry on our teaching through research theme. That is going to depend on whether or not we can get the sources of funding to make it possible for us to do that. That's not going to be easy. It's very difficult to do. But that's not true of just Hope College, that's true of science education in the United States. That's a general problem that all of science education in the United States has. The problem of

being able to continue to do it with the high costs that are involved. I think it's going to require some specific efforts to raise funds for science activities that go beyond what we have done in the past. Raising funds for special equipment funds, at least that has been started, and I think that that needs to be continued at a much higher level, mainly to bring in funds into an endowment that the return on which can be used to maintain and purchase scientific instruments.

BW: That is about all I have to ask, unless you can think of anything to add.

IB: If I think of other things, I'll let you know about it.

BW: Okay.

IB: Now, I've got something I want to propose to you.

(end of recording)