

AARON IHDE: A LIFE FROM BASCOM'S HILL

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This article is based on taped interviews with Aaron Ihde, conducted by Laura Smail on May 3, July 22, and August 1, 1983, in Madison, Wisconsin (1). All quotations, unless otherwise indicated, are taken from the interviews.

The Social Lessons of Undergraduate Education

By his own admission, Aaron Ihde was a "raw" freshman when he came to the University of Wisconsin in 1927, with little understanding of "university social life and social organizations." He lived at Tripp Hall for the first two years, but during his sophomore year he was invited by a fellow student in the quantitative analysis laboratory to visit a campus fraternity house. After Ihde went through the usual "hocus pocus" and consulted with his parents about finances, he decided to go ahead and join the fraternity. Ihde later regretted this decision, because of the "subterfuge and artificiality of such organizations." He moved to the fraternity house in his junior year, where he found living conditions to be worse than those he had just left in the dormitory. He wasn't concerned about the food or the sanitary conditions, which were about equal to those in dormitory life. Instead, it was the relationship with his fraternity brothers that was bothersome.

The relationships proved to be very artificial. There was an attitude that one owed everything to his fellow brothers, even if these fellow brothers didn't pay their fraternity dues and bills, and were a drag on the rest of us who did. At that time, 1930 and 1931, hard times were clearly evident, and there were many in the fraternity who had hard going. Most of us tried to keep our bills current, but there were some who ran up bills in the hundreds of dollars. Many

times they ended up graduating while never meeting those bills, which were carried on the organization's roles. In fact, that organization went defunct about 1933 because of the unpaid bills and the failure of the organization to keep up (2).

For Ihde, it was a case of "getting blood out of turnips," which was especially difficult when some of the turnips were "very resistant to being squeezed." He also found the social arrangements superficial, especially when the fraternity teamed up with some sororities and expected the members to date only women from those specific houses. Coming from a family that "looked askance at alcohol use," Ihde rebelled against the "inordinate amount of drinking" and the parties that often began and usually ended with "much drunkenness." Although Ihde finally realized this was not his kind of organization, he had several good friends in the fraternity and his graduation was approaching, so he remained through his last two years.

Although Ihde was not a Lutheran, he had become a member of a fraternity that was founded by Lutherans and mostly restricted its membership to Lutherans. He was appalled at the prejudice he found directed towards other religious groups. There was also bias of another sort. A student with only one arm was rushed by the fraternity. He was a "personable fellow" and many of the brothers supported his membership. But the physical handicap was sufficient for at least one member to blackball the individual's candidacy, because the fraternity house was on a street with heavy student traffic and some members did not want to have an image of everyone in the house not "being physically fit." Many years later one of Ihde's students asked him to come to a fraternity house for dinner and give a short talk to the membership. Ihde was glad to accept, and made the evening

“very interesting” by talking about “Why Fraternities Should be Abolished.”

While he managed to continue his precarious fraternity membership, Ihde also looked disapprovingly at The Experimental College, an organization whose short-lived existence paralleled his own undergraduate years on campus (3). This radical program was established by Alexander Meiklejohn in 1926 as an experiment in liberal arts education.

There was a certain amount of looking down noses at the Experimental College students because they didn't go to classes regularly, and therefore there was some question of whether they had to do any studying. The set-up of the E-College was that they did a lot of reading and met with tutors. Formal classes were almost non-existent, and those of us who had laboratories six hours a week resented their never getting up on the Hill. The E-college students were not very popular on campus and Glen Frank [University of Wisconsin President] called them guinea pigs at the Freshman Convocation. Other students picked up that term and continued to call E-College students “guinea pigs, even to their faces.” There were cases where the E-College students were thrown into Lake Mendota by other students, and sometimes the reverse occurred. But then, “there was a good deal of throwing of unpopular people into the lake in those days.” E-College students were often suspect of being “dirty radicals.”

They might have been communists, and certainly they were socialists or worse. They were tarnished with a broad sweep of a brush. There was a disproportionate number from out of state, including New York. New Yorkers were suspect generally at that time. Even Jewish students were suspect and not well accepted by the student body, suspect as to whether they really belonged on the campus, especially if they came from Chicago or New York.

There might have been a “certain element of envy involved, but more importantly, there was a real lack of understanding of what Meiklejohn and his faculty wanted to do.” Years later, Ihde revised his original estimation of the E-College, because he found that many alumni had “a broad and deep outlook on life and many of them” were very successful in their careers.

Ihde pursued athletics as a respite from these distractions. Because he had played some football in high school, Ihde was a walk-on for the freshman football team. He lasted all of two weeks, and then “was demoted to an intramural program which supplied players to scrimmage against the varsity.” Quickly learning that

he had no future in the football program, Ihde “wisely turned in” his suit and sought out other means of satisfying the freshman athletic requirement. He talked to Dad Vail (4), who told him that, at six feet, he was rather small for the rowing program. He finished that first year by taking swimming classes.

Vail died the next summer, and when Ihde began his sophomore year, he showed up at the crew house. Without a permanent coach, the team was relying on the captain from the previous year to take over the coaching duties, and Ihde “slipped into the squad” despite his supposedly small size. When George “Mike” Murphy later became the permanent crew coach, Ihde's size was never mentioned. Murphy, who was smaller than Ihde, had been the stroke on the University of Washington team that won the national regatta in Poughkeepsie. Ihde remained on the crew for three years, but the Depression was taking its toll. His 1931 team was the last to make any trip for some time as funds for new boats and off-campus trips evaporated. In fact, the 1931 team had no preliminary competition and only raced at the Poughkeepsie nationals (5).

An Industrial Interlude

Ihde had always felt he wanted to be a teacher. After receiving his chemistry degree in 1931 (6), Ihde wanted to attend graduate school, but in the depths of the Depression there were no graduate assistantships available and his parents were having a hard time keeping the farm going. When a job in Chicago became available, Ihde “grabbed it,” but in doing so postponed his desire to spend the rest of his life in the classroom. He was one of only three chemistry graduates that year who had a job on commencement day.

I went to Chicago, to the Blue Valley Creamery Company, a modest-sized food company headquartered in Chicago with 24 branches scattered around the Midwest. I was their chemist. They had a laboratory associated with the office and plant in Chicago, a fairly well-equipped laboratory with one bacteriologist and one chemist. The Director of Research spent most of his time as chief of the manufacturing department.... The sign on the door said “Research Laboratory,” but I would characterize our operation as “control and development” rather than research. We were trouble-shooting. When a consumer complained about the quality of the butter, we found out why the butter was causing the complaint.

As a single-product company, the Blue Valley Creamery was floundering during the Depression. Ihde devel-

oped a line of salad dressings that supplemented the butter sales. But he became bored with the lack of real research and soon realized that he didn't want to spend the rest of his life doing that sort of work. As the Depression problems exacerbated the company's financial position, Ihde became disillusioned with some of the company's tactics and its tendency to "operate on the margin of proper ethics," something he also saw as characteristic of other companies who were competitors.

We were asked to do things I didn't exactly approve of, such as adding chemical flavorings to butter when it was being churned rather than ripening the cream the old-fashioned way and producing a well-balanced flavor. By adding one or two chemicals you got what I thought ... was a harsh flavor, but it was cheaper to do it that way.

Returning to Graduate School

These experiences caused Ihde to rekindle his interest in the academic profession, but he also realized that it was necessary to have a Ph.D. to operate at the university level. After corresponding with Professor Henry A. Schuette and having many discussions with his wife Olive, Ihde "burned his bridges" and returned to Madison in 1938, just six months after his daughter was born, to begin work on his Ph.D. Still unable to get an assistantship, Ihde began with the several thousand dollars he and his wife had saved during his tenure in Chicago, and some assistance from his parents. He did not get any Wisconsin Alumni Research Fund money because he "wasn't in that superlative class of graduate students that attracted WARF money." In fact, Ihde admits that his high school and undergraduate records were not "particularly brilliant," which he blames on his tendency to examine in depth those things that interested him, while not completing all of his assigned work.

Initially, Ihde came back to Wisconsin to work with Schuette, who was a food chemist, because he had done some undergraduate work with him and he "liked his field." But during Ihde's time in Chicago, vitamins had become an important research topic, and Schuette was not doing any vitamin work. This caused Ihde to pursue a minor in biochemistry, which was then in the agricultural school. Harry Steenbock was one of a team who taught the first course Ihde took, and eventually Ihde "hooked up with him" because of his work in Vitamins A and D. Ihde found that the biochemistry department "was not blessed with many great classroom teachers," describing one as a "bumbler," another as a "neurotic," and others as marginal.

He was not impressed with Steenbock's teaching either. "Straight-laced and moralistic," Steenbock tended to "find fault with very nearly everyone. In his laboratory, he expected the student to be there early and be there late." If a student disappeared for a few hours, Steenbock would be waiting for an explanation when the student returned. He could be kind and understanding at one time and "mean" at another time. Steenbock's temperamental mood swings caused much unhappiness for some students in the last stages of their work.

Ihde ran into Steenbock's inflexibility when he took the introductory biochemistry course but did not sign up for the laboratory. Steenbock sent a message to Ihde, demanding an explanation. Ihde responded that he had been doing food analyses for seven years in Chicago and would rather take something new and more advanced, rather than repeating work he was already familiar with. Steenbock brought out a list of experiments and said that he doubted Ihde had done everything on the list. Ihde confessed that there were some procedures he was not familiar with and offered to do them. But Ihde "didn't see any point in taking the whole course



Aaron Ihde at age 34 (c. 1943), shortly after he returned to the University of Wisconsin as an Instructor.

because a lot of it was redundant." Steenbock was unwavering, insisting that the course was a requirement and no one was going to get a biochemistry minor without it. Without any recourse to an appeal, Ihde took the entire course. Ironically, when he took the course, the two teaching assistants came to Ihde to get some of the problems resolved, "because they didn't know what the answers were."

Ihde, however, managed to get along well with Steenbock, although he wasn't sure why.

I got away with some things that I don't think other people generally did. For example, I was doing some work on the effectiveness of unsaturated fatty acids on rats, in connection with Vitamin E deficiency. I had over 100 rats for a couple of weeks, and these had to be attended to every day. On Saturdays and Sundays I often brought my wife and little girl along. Bringing a non-biochemist woman into the animal laboratory was probably not done. Steenbock came in one time and found my wife and daughter there. I introduced them and he was very gentlemanly. He came to be very fond of my little girl because she could fill the feed receptacles in the rat cages and enjoy it. She did it very professionally and he thought sure she was going to become a biochemist. He treated my wife and daughter very well, despite the fact that he wouldn't have put up with another student bringing his girl friend in.

While Ihde's biochemistry minor work with Steenbock eventually resulted in a publication (7), his work with Schuette in chemistry continued. There was a striking contrast between Schuette and Steenbock.

There was a fine esprit de corps in the group, and we had a tendency to help one another a great deal. There was a lack of competitiveness and a friendly cooperativeness in the group. [Schuette] was a low-key person who didn't look over a grad student's back at eight o'clock every morning ... to find out what you had accomplished last night. On the other hand, if you were in trouble, you were always welcome to step into his office ... and discuss the problem. My feeling about research in the two departments was that I enjoyed the chemistry department more than I enjoyed the minor problem that I did in biochemistry.

Ihde introduced new chromatographic techniques into his food research, under Schuette's watchful eye. He was encouraged by Schuette to explore these new possibilities, but at the same time Schuette would make sure he didn't stray too much into difficult waters. Four publications resulted from his work for the Ph.D., which he received in 1941 (8).

From Freshman Chemistry to the History of Chemistry

When Ihde began teaching at Butler University later that year, he found that many times a student would understand a rather complicated concept best if he could see how it unfolded, "how the best minds in the field who first caught this concept came about catching it." As a result, he began using historical anecdotal material very early in his teaching career. Ihde also didn't hesitate to teach students things that were erroneous, if it "could help them see the thing unfold properly."

I think there was a latent interest in history that goes far back, even to my youth. I have always had a tendency to wonder how we got from here to here, and that involves history. By the time I was out of college, I was deeply interested in the history of food legislation. In fact, Dr.

Schuette had planted some of that interest as an undergraduate. I even started to write a history of food legislation at that time, a history that has never been published and never really completed in proper form (9).

By the time World War II ended, Ihde was "deeply interested in the history of chemistry." He was teaching freshman chemistry, which he had been brought back to Wisconsin to do in 1942. The little bit of research he was doing "wasn't going very well" and he had feelings of indifference towards the experimental research. Early in 1946 he went to the department chairman, Howard Matthews, and asked if the course in the history of chemistry was ever going to be taught by Norris F. Hall, the professor whose name was listed with the course in the catalog. Matthews assured him that Hall would not be doing anything with it, so Ihde took over the course. Convinced that the history fit in very well with his teaching of freshman chemistry and would make him a more effective chemistry teacher, Ihde was determined to look much more into the history of chemistry.



Olive (left), John (center) and Aaron (right) eating lunch during a field trip sponsored by the Wisconsin Academy of Sciences, c. 1953. Aaron is wearing his beret, which was to become an integral part of his campus persona.

Lord knows, teaching freshman chemistry can be a losing game if you don't find an approach that interests the students. So I revived that defunct history of chemistry course in the summer of 1946 and taught it practically every year since then, until my retirement. In fact, I developed a very broad-based history of chemistry program at the university. Once I was into it, I was hooked!

Initially, Ihde did not have much interaction with the History Department. The History of Science Department at Wisconsin had been started as an independent department by Dean George C. Sellery, who brought Henry Guerlac to the campus in 1941. Sellery was adamant that Guerlac should not be in the History Department, because "History would not treat science sympathetically." Guerlac was at MIT during the war, and when he then went to Cornell, Dean Mark Ingraham hired Marshall Claggett and Robert Stauffer to replace him. Shortly thereafter, Erwin Ackerknecht began the history of medicine program, and George Urdang took over the history of pharmacy. This four-man department included Ihde in their activities as the fifth man, and eventually Ihde received a joint appointment to the department.

The chemistry department tolerated Ihde's activity in history as long as he didn't give "too much visibility to it." When Ihde decided in the 1950s that this indeed was the direction he wanted to move in, Farrington Daniels, the chemistry department chair, "started digging in his heels" and told Ihde bluntly that he would never get anywhere.

Farrington was not inclined to look with great favor on somebody who wasn't doing experimental research. Daniels was of the opinion that history was something you could do on evenings and weekends, and a chemist ought to be working in the laboratory. He told me that very frankly. Yet, when I had a job opportunity to go into the New York area [at Consumer's Union, Mount Vernon, N.Y.], he suddenly found that he loved me very much and that the department loved me very much and I shouldn't leave. I was investigated for a job with Consumer's Union in which I would have been in charge of their laboratory and their publications. They ran a quite sizeable laboratory, including a fair amount of chemistry and a lot of physics and some biology. My position would have been director of that activity, so my scientific background would have fit in there very well. It was a very tempting offer because my take-home would have more than doubled. When I got this letter inquiring if I was interested, I took it to Daniels and laid it on his desk. From that point on he worked very hard to get me promoted in a department that

didn't want to promote people who were not hot-shot experimentalists.

In spite of this support, Ihde's salary was kept low until H. Edwin Young became Dean of Letters and Science. At that time, Ihde was offered the deanship at Northern Illinois University and Young persuaded him to turn it down. For the next few years after that, Ihde's salary "began responding."

Joining the Integrated Liberal Studies Program

In 1939, a faculty committee issued a report that dealt with the place of science in the general curriculum in the Letters and Science. This report had some influence in creating the History of Science Department, but more importantly, it started the faculty thinking "about how general science courses in the university ought to be approached." Earlier attempts to create survey courses in each of the sciences were soon abandoned because "they were counterproductive." In part, this was because "they were taught by someone who wasn't particularly interested and taken by students who were anxious to work off the science requirement as inexpensively as possible."

Ultimately, another committee chaired by Robert Pooley of the English department recommended to the faculty a new department that was called the Department of Integrated Liberal Studies (ILS). Established as a two-year program in general studies, the ILS avoided the isolationism of the defunct Experimental College. Unlike similar programs in other universities, it did not recruit a separate faculty to staff this program. Instead, it "borrowed its faculty from existing departments," thus using faculty already established in their academic discipline.

The sciences were always the trouble area in programs of this type, and "some schools didn't even try to include the sciences. Where they did, the science courses were generally the weak spot." Two committee members, Richard Hartshorne of the Geography Department and Homer Adkins of the Chemistry Department, were at odds over how the sciences should be handled. On one hand, Hartshorne "wanted to create a completely designed program." Adkins, however, argued that the course should not be written by the committee. "Instead," Adkins said, "Let us simply designate what the course should deal with, and then look for a good faculty member to teach it and give him a free hand to teach

it as he sees fit." Fortunately for Ihde, his chemistry colleague prevailed.

As presented to the faculty, the science program called for a "Physical Universe" course which would draw its material from chemistry, physics, and astronomy. That was followed by an earth science course that was mostly geology, but could include meteorology and some geography. A one-year biology course then completed the sequence. All of this was implemented in the fall of 1947, when Pooley was appointed chairman of the department that was to administer the ILS program. Pooley immediately began to recruit "what turned out to be an excellent faculty, with two or three exceptions."

In his faculty search, Pooley shrewdly approached the department chair first and asked for permission to speak to a particular faculty member that he was interested in, rather than approach a faculty member directly.

I was picked early to teach the Physical Universe course. Pooley came to my chairman, Matthews, and sought permission to talk to me. I was interested. I had been interested even before. I had talked to Adkins at least once or twice about this program while it was still in the process of being created. I think that Adkins may have given Pooley my name and Pooley followed it up. I think my general chemistry teaching had become known around the campus to the point that I might have been looked at anyway ... Effective undergraduate teaching was one criterion Pooley was looking for. He was also looking for people who had the vision to meld together material from several different disciplines, as I put together material from astronomy and physics as well as chemistry.

Building on the reputation he had established in the freshman chemistry program, Ihde continued to have a "good rapport" with the students in the ILS program and his course was very well received by the students. Not all of the new ILS faculty, however, enjoyed the same success. Courses in anthropology and the social sciences did not receive high student ratings. In some cases, faculty were asked to leave ILS and return to their department. Later, when he was ILS department chair (1963-1970), Ihde tried to work with several faculty members to get them "to see their shortcomings and do something about them."

It is my own feeling about history that a student coming into the subject fresh must not be bogged down by all sorts of endless detail. Instead, the student should begin to appreciate the flow of ideas, the flow of experiments in history of science, the significance

of certain experiments, to the exclusion of all sorts of detail.

Ihde tangled with one faculty member "rather viciously" because he could not see Ihde's approach. Ihde sought to help him rather than "boot him," but without much success. When this particular course became a disaster and student activism increased, the faculty member offered to withdraw, and Ihde "immediately accepted his resignation." In spite of these isolated incidents, the ILS faculty "was much better than a student would run into by accident in the usual selection of courses. In fact, they were not only good teachers, they were so good in their own research that many were frequently on leave or away from the campus, necessitating temporary replacements that were often inadequate."

When Ihde began teaching the physical universe course in 1948, he found it "challenging" and "one of the most exciting periods" in his life. The astronomy component of the Physical Universe course was a subject with which Ihde was totally unfamiliar. (Ironically, Ihde later felt that he did his best teaching in astronomy.) Feeling on "unsound ground" in astronomy, he sought out Joel Stebbins, the observatory director.

We had a very interesting talk. I said to him that I had reservations about my ability to handle the astronomy in the course. He said to me, "Well, Ihde, you have a Ph.D. in chemistry, don't you?" "Yes." "Therefore, you must know some chemistry. I understand that chemists also study some physics, don't they?" "Yes." "So you ought to be able to handle the elementary physics." Then he looked me in the eye and said, "Now, Ihde, if you can't learn enough astronomy to handle the elementary aspects of astronomy for a course like this, you should never have been given a Ph.D. in science."

Having Stebbins' blessing, Ihde began to prepare himself. He felt that in order for his students to appreciate his case history on the transition from an earth-centered to sun-centered universe, they should go out at night and learn to identify constellations and planets. Of course, Ihde needed to learn in advance what he expected his students to know. He spent a lot of nights "star gazing" and systematically exploring the constellations with published star guides. His wife warned the neighbors not to be alarmed if they saw a man "prowling around" their backyard "in the dark of the night." By the time he started teaching the course, he felt he had a "solid background" in sky lore. For many years, Ihde and his assistants would meet the students after dark on Observatory Hill and study the evening September sky. For many

years these personal observations were supplemented with a field trip to the Adler Planetarium in Chicago.

Ihde found that astronomy was the perfect way to introduce the course, because of the large variation in science background of the freshmen. Some had four years of high school science, while others had no back-



Aaron at age 47 (c. 1956).

ground at all. But none of the students had any experience in astronomy, and that subject became a great leveler to start out with.

I learned in this experience that students many times understand difficult material best if it appears before them in the same way that this appeared before important scientists. For example, if a student sees a body

of facts develop in the way that scientific leaders who uncovered those facts see them develop, a student has a better understanding of them. Many college science teachers teach science from the present state of the art, with no consideration of where the ideas came from.

There were no laboratory sessions in the physical universe course. Ihde compensated by giving a "significant amount of exercise work" and performing many demonstrations during his lectures.

A Year at Harvard

Ihde himself was away at Harvard in 1951 - 1952, and his course was turned over to four other people. "That pretty much proved to be a disaster," because "it was a case of everybody's responsibility and nobody took the responsibility." But his experience at Harvard was invaluable.

My approach and the approach of some of the others was that we won't attempt to cover these fields. We will look at a few of the important developments. It was a kind of case history approach. James B. Conant of Harvard had just published his book *On Understanding Science* (10) and started his case history science course in the Harvard general education program. I was immediately influenced by that, and my

leave of absence ... was to go out to Harvard for that year and work as a teacher in that program. I was intimately associated with Leonard Nash and Thomas Kuhn, who were Conant's right hands ... I was already using some of the ideas but I developed them further in my own course.

Ihde found that much of the content of the Harvard course was similar to his own, but there were differences. Harvard had cases on electricity and fermentation, which were new to Ihde. He started his course with the Ptolemaic view of the heavens, the earth-centered view, and then followed the transition to the Copernican view of the sun-centered heavens and the reasons for it.

It was a beautiful case to use for students at the freshman level, some of whom had virtually no science, and a few had a fair amount of science. But this was not something out of high school science, and it was a beautiful example that could be used to show how scientists think, how they cling to outmoded ideas in spite of better evidence. I always thought that my course in the physical universe was a course in how scientists work and think rather than a course in astronomy, physics, and chemistry.

Ihde's year at Harvard and his interactions there with George Sarton and I. B. Cohen served as the catalyst that forever diverted his scholarly field from laboratory research into research in the history of chemistry.

Expanding the ILS Program

The ILS program was designed to be an integrated program, and initially the ILS faculty met often to discuss how their courses actually meshed with each other. One instructor could use another's material "to amplify" their own teaching. But meeting with each other wasn't enough to guarantee relevance and relationships. Ihde, and some others, actually attended all the lectures of their colleagues in the program. It was a time-consuming process "beyond the line of duty," but it was a sign of dedication to the program and its ideals. As new people came into the faculty, however, this kind of activity diminished.

Ihde attributed the program's success, particularly in the early days, to the ILS students.

It was presumably a general group of students in letters and science, but it turned out to be a self-selective group that was a bit better than average. There was no requirement that the students had to come with a particular high school achievement. They selected the program on their own.

In the 1950s, the Education Department was establishing an elementary education program and wanted to require the ILS curriculum of its students in the first two years. Ihde and his colleagues resisted that, saying that students would be welcome to elect the program, but should not enter because it was required. A significant number of these majors did elect ILS courses, but "they had difficulty with the program and they tended to drop off after a few years."

Another group that was involved early in the early ILS program was the Ford Scholars. The Ford Foundation sponsored this program, which took very bright high school sophomores and juniors and "sent them off to college."

The people setting up the Ford Scholar program wanted to put everybody in the ILS. We objected as a faculty to that, because we foresaw certain problems and we thought it would be well if some were in and some were not in. For one thing, this was a very sizeable group of students, between thirty and fifty, and in a program of not more than 200 students, it would have skewed the student population rather badly. It turned out that these kids were very bright, but they were also socially immature. They were a problem almost from the very beginning.

ILS was a "tough-grading program," but the bright Ford Scholars were picking up the highest grades, leaving the regular students further down in the grade distribution. Many were loners, but they were also arrogant about their intellectual ability, which "turned off" the other students in the class. Ihde felt that the worst problem, however, was their attitude that the ILS courses were an interlude that was preventing them from getting on with what was important and reaching their professional goal. What was important to them was the science and mathematics that would allow them to "become great research scientists right away, or go into medicine at an early age." The ILS faculty did not try very hard to keep the Ford Scholars in the program, and their numbers quickly dwindled and the program itself was eventually phased out.

The ILS program was never well-advertised, and attracting high school students to it was always a problem. In fact, the early enrollments never reached the maximum of 300, which was "disappointing" to Ihde and his colleagues. "The best recruiters proved to be the students themselves," as they would return to their high schools and talk about their experiences and report "it was a good program and they ought to try it." Eventually a group of high school teachers developed who had learned about ILS and recommended it to their stu-

dents. On the other hand, the freshman advisors at Wisconsin were "often antagonistic towards ILS and either deliberately withheld information" or otherwise dissuaded students from the program. "ILS was never popular with the faculty." Ironically, a large number of faculty children were in the program. Some programs, especially interdisciplinary ones, welcomed ILS students because they tended to do very well. But many departmental programs were "not terribly enthusiastic."

In spite of these attitudes, Ihde shared the enthusiasms of others teaching in the program, and "thought that everyone ought to be attracted to it." The program grew slowly. It became quite popular in the early 1960s, and the enrollment finally reached the 300 peak. When ILS went to the faculty and asked for a 400 peak, it was "surprisingly" approved. But breaking the 300 barrier didn't last long. While students could only enroll in the program when they entered the university as a freshman, they could leave at the end of any semester. Once the numbers approached 400, the attrition rates began to rise. Ihde attributes this to marginal students who weren't satisfied with their grades and soon left. After 1965 the student numbers never broke 300 again. "The rest of the university was always looking for ILS disasters," and this decrease in students was viewed as a "portent of failure."

Ihde's lecture in the "Physical Universe" course would include the entire freshman ILS class, but the discussion sections were held to twenty and were handled by teaching assistants. Recruiting these assistants was a problem, however, because "most graduate students did not have the breadth of disciplines that some of the ILS courses demanded." Ihde solved this problem by looking for students who had an interest and ability in teaching and had a background in one of the physical sciences, usually chemistry. In weekly meetings, Ihde would go through the forthcoming material and help them anticipate problems and questions. This was a successful carry-over from Ihde's own experience as a teaching assistant in the chemistry department, where this was a common practice.

Long after they had left the classroom, many students would seek Ihde out on a campus visit, and remark that his asides and digressions were things that they had never forgotten. Many remembered his remark before the first examination in the Physical Universe course. Ihde would explain that it wasn't necessary to get an "A" in the course to be a success in life, but "hopefully they would develop some appreciation of science that would stand them in good stead in the future." The

students claimed this was “one of the best things he ever did,” because it caused them to have a more “level-headed” attitude towards examinations and grades.

I was always ... a tough grader, and I felt that only very outstanding students deserved A's. I was probably a soft touch for a B, but A's had to be earned and very definitely represented a lot of understanding of the subject matter.

Ihde continued to teach his freshman chemistry course while he was active in the ILS program. This meant that he taught an overload “compared to most chemistry professors,” but he never felt “overburdened” because he enjoyed teaching freshman chemistry. He gave that course up only when he became chairman of the ILS department in 1963.

Surprisingly, [Chemistry Department] chairman Matthews was unenthusiastic about my taking on this [ILS] job, but if I were to continue teaching freshman chemistry, he would tolerate the deviance. I have a feeling that the course clicked very well in the first few years, and Matty was actually rather proud that I was involved in ILS. By the time he retired, he was telling people what a nice job I was doing.

Ihde taught in the ILS program until his retirement in 1980. He saw ILS going downhill during the period he was chairman, citing three reasons for that development.

Mr. Pooley and I got badly bloodied when we attempted to create a second ILS program called Basic Studies around 1962. It would vary from the original ILS program with a smaller number of required courses based to some extent on required elementary courses in the professional field. Students going into engineering, agriculture, medicine, we thought could benefit from the program, which had many of the objectives of ILS but was planned in a tighter way.

The faculty soundly rejected this idea, especially the humanists and some of the scientists. Secondly, the ILS also suffered from curriculum changes in other areas that made the program unattractive to many students. Thirdly, Ihde saw the student discontent contribute to the slippage of the ILS program, which peaked in 1964 (11).

Surviving Student Unrest

As ILS moved into the 1960s, it faced a new challenge—this time not from skeptical faculty and administrators but rather from the students themselves.

In the fall of 1948, we brought together 200 students who didn't know what they were getting into, and we didn't know what we were getting into. Pooley proved to be an exceedingly able administrator who

not only had good control of his faculty but immediately developed a rapport with the students. Things worked out very harmoniously. The students developed an esprit de corps that was very much a part of the program. Over the years, that esprit de corps held pretty well until we got into the age of dissent, when the capability of getting together easily and often caused them to think of ways of rejecting the ILS program.

Ihde attributed that early student attitude to a device that Pooley initiated at the beginning. By having the stu-



Aaron at age 61 (c. 1970) lecturing at a session of the Wisconsin Academy of Sciences, Arts, and Literature.

dents attend the same discussion section number in all four courses, Pooley kept the same students together in a small group, helping them to get acquainted quickly with each other and feel comfortable in a recitation situation. “In the age of dissent, the students took advantage of the situation to mount complaints” about

being in class with the same students all the time, and the arrangement was abandoned. Pooley also had an ILS student dinner early in the first semester as another device to having students and faculty get to know each other. These innovations were important to the esprit de corps, which led the students to initiate their own newspaper, the *ILS Pioneer*. Containing everything from poetry to faculty profiles, it was a great success from the start, “and it was a popular part of the student activity up until the 1960s.” It fell by the wayside in the age of dissent, when students started preparing competitive newsletters “with vile language” that took the program to task.

As chairman of the ILS program from 1963 to 1970, Ihde went through the very worst part of the student unrest.

In 1970, I decided I couldn't take it any longer and I told the faculty about six months earlier that they

shouldn't elect me again. At the time I retired from the chairmanship, I was a very unpopular person with the students. Within a year, the students were eating out of my hands. I was now an ordinary faculty member, a teacher, and they liked my course. Suddenly, I had the kind of popularity that I had had back in the 1950s and early 1960s. But while I was an administrator, I was their enemy. They were not even sure of me in the lecture room and as director of one of their courses.

From the beginning, the ILS program attracted "a disproportionate number of rather liberal, even radical-minded students" that added "some attractive color" to the program. By the 1960s the radical student movement at Berkeley had spread to Wisconsin. Ihde and his colleagues were "rather complacent" and thought that it couldn't happen in Madison, because Wisconsin had "always listened to students and given them a hearing." It came as a surprise to many when they found out just how out of touch they were with the radical element. The ILS student body was "ready-made to be a leader in the dissent movement."

I remember one morning when I went into my lecture room where most of the students were assembled for my Physical Universe lecture. I saw ... my demonstrator talking to a very young person at the back of the room. This chap came to me and said that he requested an opportunity to speak to the students on relevance in academic affairs. I recognized that this was trouble, but I told him I would give him five minutes to state his case. When the bell rang, I moved back several rows and sat down among some of the students, after telling the students that this young man wished to make a statement. He started in by condemning courses like this as having no relevance to things that were important these days. Professors were teaching them reactionary points of view, giving them no opportunity for input into course material. His case was actually poorly presented. I found out later that he was a boy from Brooklyn who was moving across the country, attempting to create student disturbances.

The outsider's rambling presentation continued until the students started chanting, "We want Ihde!"

His message was crushed through the student chant, which picked up intensity. Finally he said, "I am requesting the students in this class leave trivialities of this sort and go out and start the revolution." He started to walk up the stairs to the back of the room, apparently expecting students to follow him. He had a few henchmen planted in the back of the room and they followed him out. The rest of the students re-

turned to their places. I used the rest of that period, not to discuss science, but to discuss the problems that had been raised by this intrusion.

In the ensuing discussion, the relevance of the history of science was never addressed. Instead, the discussion centered around whether the United States was an imperialist nation, as charged by the intruder. All parts of the political spectrum were presented, and Ihde thought the ex-

perience was "healthy" and "fruitful." In the next few years following this incident, there was "a great deal of attack on the content of the ILS courses." Ihde believed that "down deep in their minds, students had the attitude that it [ILS] was as good a program as was available in the university, but ... they weren't going to admit that anything was good."

What bothered Ihde most about the dissent movement was that students "assumed whatever they wished." This included a lot of "very false history of the university," including the charge that the ILS program was created in 1948 and had never been changed. Ihde denied that this was true and vigorously asserted that his own course changed "very drastically" over the years, and he continued making changes almost to the point of his retirement.

One of the problems that students have in criticizing a university is that they are transients. They are around for only four years. As a result, they do not see programs in the same way that faculties see them. ... I think that faculty ought to philosophize more than they do, about the subject, about the university, about the world in general. I have sometimes felt



Son, John (left) and Aaron (right) in 1990.

that I did my best teaching on a one to one basis when a student came into my office, where there were no straight and narrow paths that the discussion must follow. I sometimes did some of this in the classroom. I had a tendency to get off the subject in the classroom ... I felt that even departing from the subject matter in favor of philosophical or historical points of view was perhaps one's best teaching.

In 1968, Ihde was scheduled for a trip to the State University of New York Albany, where he was a consultant to the History of Science Department. He was scheduled to leave early in the afternoon, but student dissent was at a very high level, particularly in the ILS. When he went home for lunch, he discussed it with his wife, who ventured that his place was in Madison. Ihde agreed, and arranged an evening meeting at the Episcopal House for all ILS students, teaching assistants, and faculty.

We had quite a knock-down, drag out evening, lasting from 7 until 10:30. Some of the students wanted to pass a resolution that the university take action to condemn the U.S. policies in Viet Nam. The faculty was successful in getting that watered down a great deal. Several resolutions were passed at that meeting expressing a lack of sympathy with the Viet Nam situation and other things dealing with ILS policies.

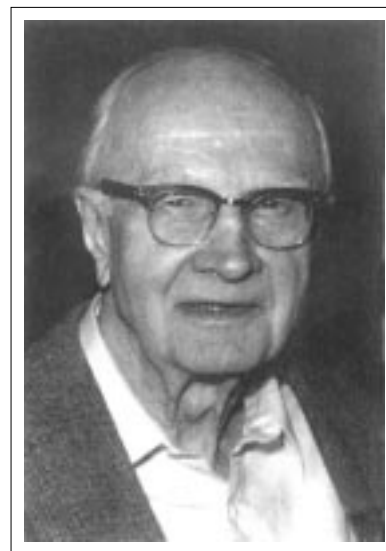
This was the first of several evening meetings where there was a great deal of "heady give and take" between ILS faculty and students which addressed the relevance issue of the ILS course content. About twenty students comprised the activist core, both freshmen and sophomores. Some of the ILS teaching assistants were actually "egging on" the students, meeting with them privately and giving them ideas about the course of action they should take to criticize the program. These were the same people who were heavily involved in the 1970 strike of the new Teaching Assistant Association (TAA), an action in which ILS "suffered quite a bit." Although none of Ihde's assistants participated in the strike, many of the nonscience assistants did strike, leaving the program "in a shambles." Many ILS students were very supportive of the strike, and the TAA took advantage of them and persuaded the student leaders to picket lectures. Those students who were not supportive did not have the courage to cross the picket lines. Ihde was "never supportive of the strike" and thought that "many of the issues could have been resolved short of a strike."

It's my feeling that TA's represent a rather unusual group. They are not full-time students, nor are they full-time faculty. They are really faculty assistants who are helping to get a teaching job done, and by doing that they can support themselves to a signifi-

cant degree in their graduate studies. They will not be permanent members of the faculty, and therefore I fail to see why they should have a substantial voice in determining academic policy.

Although Ihde was in "total disagreement" with the TAA's demand for input into course content, he was sympathetic with their class-size argument. He felt an effective section could not be run with 25 or 30 students, because it is difficult to get all students involved in a discussion with that many students. For Ihde, 20 students was a maximum size, although he preferred numbers even smaller than that.

As for the Vietnam war, my stand drifted from sadly supportive of the early action in Viet Nam to very strongly opposed to the Vietnam action in the later years of the decade. I had some feeling in the beginning as [John F.] Kennedy and [Lyndon] Johnson were beginning to escalate this thing that it was the most unfortunate thing that the country could become involved in, because we were beginning to make progress on racial problems, and here comes this Vietnam war, tearing the country to pieces ... I think my early impression was that ... probably we have to do what we are doing in Southeast Asia, but probably we ought to do it around the conference table rather than on the battlefield. I became more firmly of the position that we were doing the wrong thing as that issue escalated ... I was in great sympathy with the anti-war movement, but I was not in sympathy with the way they were getting their point across. Basically, I am a simple person, and I prefer to see issues resolved by discussion rather than by violence.



Aaron at age 83 (c 1992).

But, despite the ups and downs, Ihde felt that, in the final analysis, the ILS program had been a success.

Many of the ILS students have done very well in their professional careers, and the program at least didn't hurt them. I like to think that part of their success is in some ways attributable to ILS.

Those That Count

Aaron Ihde was the consummate juggler of his deep interests in many academic and intellectual activities. He was a master teacher of undergraduates in the ILS and general chemistry programs at Wisconsin. He established himself as a preeminent historian of chemistry with a record of publications and students that will remain his legacy for future generations. Throughout all of this, there was one person who remained foremost in his thoughts, and that was his wife Olive. She often accompanied him to professional meetings, student seminars and outings, even in later years when advanced arthritis confined her to a wheel chair. She often took an intellectual interest in the topics under discussion and provided her husband with sage advice on more than one occasion.

My wife has been a gem! She has been fully supportive of my entire career. In fact, she many times gave me sound advice which I probably would have overlooked if I had to come up with it myself.

REFERENCES AND NOTES

- University of Wisconsin Archives, Oral History Project Interview #263.
- The fraternity Ihde joined was Delta Pi Epsilon. While Ihde was a member, they sold the house and went to another one, and then joined Theta Kappa Nu, a national organization.
- The Experimental College was a two-year program which had a single course on the nature of society and social order in which a single grade was given at the end of two years. The grade was meant "to establish not what the student had done but what the student was capable of doing." In order to establish a feeling of community, shared dormitory living (men and women) became part of the experiment. See <http://www.sit.wisc.edu/~psohandbook/beyond/exp.htm>.
- Harry Emerson [Dad] Vail was a professional sculler who became a legendary coach at Wisconsin. The Dad Vail Regatta began in 1934 and is now the largest collegiate regatta in the United States.
- The financial struggles of the Wisconsin crew team during the Depression are detailed in an oral history interview with Murphy, University of Wisconsin Archives, Oral History Project Interview #217.
- In this interview, Ihde did not discuss his undergraduate experience in the chemistry department (1927-1931) because he was then writing *Chemistry as Viewed From Bascom's Hill: A History of the Chemistry Department in Madison*, published in 1990.
- D. S. Anthony, F. W. Quackenbush, A. J. Ihde, and H. Steenbock, "Antiacrodynamic Potency of Seed Oils," *J. Nutrition*, **1943**, 26, 303-307.
- A. J. Ihde and H. A. Schuette, "Honey and the Lead Contamination Problem," *Food Research*, **1939**, 4, 555-562; A. J. Ihde and H. A. Schuette, "The Chemistry of the Rye Germ," *J. Am. Chem. Soc.*, **1941**, 63, 2486-2487; A. J. Ihde and H. A. Schuette, "Thiamine, Nicotinic Acid, Riboflavin, and Pantothenic Acid in Rye and its Milled Products," *J. Nutrition*, **1941**, 22, 527-533.
- A. J. Ihde, *And Still There is Death in the Pot: A History of the Pure Food Movement*, University of Wisconsin, Department of Special Collections, Memorial Library, Manuscripts, Call Number MS 378. This was probably composed between about 1938 and 1941.
- J. B. Conant, *On Understanding Science*, Yale University Press, New Haven, CT, 1947.
- At the time of this interview, the ILS program was in serious trouble. It has since been revitalized and is quite successful once again. For more on the current ILS program, see <http://www.wisc.edu/ils/>.

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