Recollections of the Chemistry Ph.D. Program At the U. of I. in the Early '40s

By: John C. (Robby) Robinson, Jr.

Preface

For some time, I have wanted to collect remembrances of "the way it was" from the older alumni of the School of Chemical Sciences at the University of Illinois in Urbana- Champaign. I have had the opportunity to talk to many alumni of all ages. Whenever I ran into one of our older graduates, in the course of my work as editor of the School's Alumni Newsletter, I would encourage him to send me his recollections. Unfortunately, few did but John Robby Robinson took me seriously and provided a number of his favorite recollections.

In some measure, his stories parallel and, in two cases, duplicated a small collection by Professor R.C. Fuson, which has had a very limited distribution. Robby was not aware of Fuson's stories and received a copy only after the stories in this collection had been written. Fuson's were elegantly crafted and might be considered "a view from the top" whereas Robby's less formal reminiscences might be termed "a view from lower down."

Robby wrote more stories than could be included in this collection and I have, with his permission, exercised my editorial prerogatives to select, abbreviate, and amend. I hope you will enjoy his vignettes from the early 1940s.

Ellen Handler, Editor

In the Beginning

When I left Boston in 1939, 1 was a loner whose intellectual development had far outrun his social development.

I had lived at home until September 1939; a dayhop at B.U. where I'd brown • bagged my lunch every day.

Mixed groups made me uncomfortable and, while I tolerated the feminine sex as tennis partners none too graciously, I was not comfortable with anything resembling a date. I had never had the time or money to join a fraternity.

So, I took the bus to Illinois to meet my pal, Woody. For one year, we ate in a boarding house with six or eight others, all but two of whom were grads in the chemistry department. I learned to manage my own finances.

After that first year, I joined AXE House and lived with 44 other men, men whose Big Ten pedigrees had scared the bejesus out of me a year before, despite my degree from B.U. Now I found myself competing successfully with the best of them. For a thorough description of AXE House and its inmates, see "A History of the Zeta Chapter of Alpha Chi Sigma at the University of Illinois, 1908-1998."

To be sure, I hadn't shaken my discomfort with women, though I'd managed a handful of dates. But by 6/43 I had met Kay whom I later married. And, in addition to two summers of preps (see below), I'd worked for a summer just outside of New York in my chosen field. In four years, I'd found myself.

The AXE House, My Home at Illinois

From June '40 to June of '43, the AXE house at 606 W. Ohio Street, Urbana, was where I hung my hat. I held no offices (other than Assistant Bung Starter for a time). My roommate, except for a short time when we acquired a third, was B.C. McKusick, a.k.a. Mac or Koosik.

I remember hearing that our house had originally been designed as a sorority house. When the sorority went belly up, which conjures up an interesting picture for a sorority, the Zeta Corporation bought the property and the Alpha Chi Sigma house was born. Evidently, the only conversion that had been done was to remove the doors from the toilet stalls in the second and third floor washrooms. I am certain that those thrones had no doors in my time! But, after all, in the thirties, we were having a depression and who could afford alterations?

I doubt if there had been much structural change especially downstairs, which consisted of two large lounges and a room for the staff. The upstairs consisted of two-and three-man rooms for the 44 brothers, plus a large sleeping porch that held about 20 two-level bunks and a few singles. Several windows of this sleeping porch were always open, good weather and bad, from +98 °F to -25 °F. I had a lower bunk next to a window and more than once awakened to find snow in my slippers.

The lower lounges had five or six leather divans and matching chairs. Except when a gathering was imminent, two or three card tables were left up, ready for the next bridge game. We even had an upright piano but it didn't get much use. In-house music was a cappella, such things as "Die Schnitzelbank." We even had "Eine Chernische Schnitzelbank," a German version:

> "Ist dass nicht ein grosser Flasch?"
> "Ja, dass ist ein grosser Flasch! "
> "Oh die Schoenheit -an der Wand"
> "Ja, dass ist ein Schnitzelbank .....

u.s.w.

House Routine

Since we almost always ate at the House, we hoofed it between AXE house and Noyes six times a day. Yes, six. For in those days, it was de rigueur to push back the frontiers of science for three or four hours in the evening too. Not that we rushed back to work right after meals, for usually a couple tables of bridge got started. Also, in one of the larger upstairs rooms, one could always find four brothers playing, and two or three more kibitzing, at a game of Schaffskopf. Apparently brought south from the German areas of Wisconsin and Minnesota, this was a fast moving card game of partners. Partners changed with every deal and one could not know which of the other three was his partner until two or more tricks had been played. Premature guesses about partner • ship that proved faulty brought forth blood-curdling howls of anguish.

The morning paper was considered a necessity and, on one occasion, the cause of quite a dust-up. Tradition, habit, and inertia dictated that we subscribe to the *Chicago Tribune.* In 1942, a few of the brothers "with concerns" got fed up with the mouthings of publisher Bertie McCormack (a.k.a. Colonel McCosmic) and demanded a change. So we voted, just barely, to shift to a St. Louis paper, I think the *Post Dispatch.* While the news out of St. Louis was far less biased, no sports page in the country could hold a candle to the one put out by the famous Arch Ward. As Arch worked for the Colonel, our trial with the St. Louis paper fizzled quickly.

Weekend Sport

For a few years, the boys ran a spring softball game at a park a couple of blocks east of the house (probably Carle Park). That Saturday morning outing bore no resemblance to anything athletic. The most important piece of equipment was a quarter keg of beer, planted ortho to first base. Purchase of the suds for the occasion caused one minor spat in the house. Commissary Baker, was, unfortunately, a strong prohib • itionist. So, being forced to put in the order, he opted for the cheapest bilge he could get. This did not sit well with the house connoisseurs, the other 95%, who had developed a taste for Michelob, in those days available only in the keg. The connoisseurs prevailed.

The Fall and Spring Dance

Each semester the house ran a Saturday night "bellyrub." I recall a lot of cleaning up and hiding of unsightly items as the date neared. In addition, since I was one of two hermits at the House, I was usually pressed into service as an operations aide. The tasks of an operations aide were ever challenging. For example, on one occasion, a requirement for admission required us to separate each brother from his date at the front door. One of us weighed the date on a bathroom scale that had been converted to read metric, while the other accosted the brother with "You got two seconds! Quick! What's your date's weight in grams?" The answers could have been appropriate for a small dog or a large horse. But there was one guy who hit the answer within one Kg. A physical chemist, of course!

Our primary job throughout the evening was to keep the chaperones' glasses full and to play bridge with them, or otherwise keep them out of the way. As the chaperones were newly married brothers and their wives, they knew better than to interfere.

Unforgettable Events

I'll never forget the incident of the rubber check. It was a hard and fast house rule that any brother who wrote a check that bounced had to make amends at the next house meeting. It happened, and the miscreant was a first year graduate student already married. His only house expense had been for three or four meeting night meals, certainly not a large sum. Since most of us were unmarried men, we also became the poor devil's inquisitors.

Upon indictment, the felon arose, looked sheepishly at this shoes and began, "Brothers, it's like this. My wife and I have a joint bank account," and he never got to finish. We all yelled, "That's all, Brothers" and pelted him with left over rolls from the dining tables.

My fellow brothers are unlikely to have forgotten the famous incident of the bicycle in the tree. As I remember, about three or four of the fellows bought used bikes each year. These bikes were more at risk around the house than they were anywhere else in town. One Saturday night, a free spirit among the brothers managed to hoist one of these bikes about 10 or 12 feet up into the crotch of a small tree that grew beside the front walk. Bob Foster, the bike's lawful owner, managed to hoist himself into the tree and peddled while we watched with admiration, until he brought his steed back down. It was a glorious photo opportunity and some mementos may still exist in shoe boxes around the country.

I mentioned my proud status as a hermit but I lost it before leaving the AXE house. After a visit with Brother Chris Best, I began to receive lightly scented letters from a KEG in Marietta, Ohio, letters aptly dubbed in a scientific environment as "The weekly sugar reports." The uncertainty of the war years resulted in a "lightning" courtship lasting from 8/41 to 6/46 and a marriage of over 50 years.

Financing Life at AXE

House costs, that is, rooms and all but a couple of weekend meals, ran $28 or $29 per month until the Fall of '42. Then our officers were forced into a $2 monthly increase. This loss in spending power was mournfully quantified as beers per month at the local Bunny's Tea Room. Since the going pay rate for a half-time teaching assistant and university fellows was $60 per month, ten month basis, our house costs consumed about half our earnings.

Saturday night's meal was our night to live it up. A sirloin steak dinner at the 20 Taylor Tavern, near the I.C. station in Champaign, set us back 75 cents. A post • doc who was part of our group occasionally flaunted his superior economic status by ordering a T-bone for $1.25.

Beyond 20 Taylor, there were perhaps three upscale restaurants in the area. There was Katsinas (Katsy's) in downtown Champaign favored by Bob Fuson and his boys, a converted farmhouse somewhere a mile east of downtown Urbana, and the Lincoln Room of the Urbana Lincoln Hotel (now Jumers). To me, the Lincoln Room was IT and I got there only for 5 or 6 Saturday nights in my four years.

Today's students might envy one especially affordable service we enjoyed. Back in the glory days of the railroads, every major train carried mail and railway express cars. One of them had a special deal on laundry boxes. These were stiff, fiberboard containers, packed with dirty clothes, which the carrier took anywhere in the country at a very cheap rate. We sent our laundry home every two weeks. Because my folks in Boston had "a deal" with a local laundry service, it was cheaper for me, about $1 less, to send the laundry home than to use the local facilities. Besides, the return load usually contained a box of brownies.

We rarely traveled although we were probably better served with transportation in the '40s than today. Most of us got to Urbana by train or bus. The major train was, of course, the Illinois Central, I.C., but there was also the New York Central Big Four with a daily run from Peoria, through C-U to Indianapolis. An electrified inter • urban, the Illinois Terminal, made several daily runs between Danville and somewhere in West Central Illinois. The major bus line was the Chicago-Memphis-New Orleans Greyhound. A feeder line to Indianapolis also served the area.

I remember that it cost me about $30 or $35 to get from Boston to Urbana on the 'Hound and about $45 or $50 for a round trip home that first Christmas. By train it was nearer $70 round trip. The fare on the C-U city line bus was 5 or 10 cents. I forget because I only used it between the AXE house and downtown Champaign to see a Friday or Saturday night movie.

Summer Preps

I have always had a special place in my heart for the old Summer Preps Program, or, if you want to be stuffy about it, Organic Chemical Manufactures.

I got that soft spot for three reasons:

1. It provided the wherewithal by which I could eat for two summers, when summer jobs, any summer jobs, were hard to find.
2. With profits from the sale of some of the chemicals produced in summer preps, the department funded a special research assistantship, which supported me for five and a half semesters.
3. It gave me a fast lesson in many laboratory techniques and reactions, which proved helpful when I arrived in the real world.

I have no idea when Summer Preps began, probably some time in the late twenties or early thirties, but I'll give you ten to one Speed Marvel had a lot to do with it. Sometimes, when he was reminiscing, he spoke of the end of World War I, when he was just beginning graduate work and had to start with ethanol and acetic acid to make acetoacetic ester, which he apparently needed for further synthesis.

With the growth of the Chemistry Department's Organic Division, I guess it became evident that you could save time by producing in summer the specialty chemical starting materials needed by the graduate students for their research. The years 1940 and 1941, when I was there, were probably the golden years for Summer Preps. Harold Snyder was in charge. I had previously indicated that I intended to work for Harold and was therefore named Assistant Prep Boss for the summer of '40. That was my FIRST management post! It was worth 3 or 4 cents per hour premium, which wasn't bad considering that the rate for the untitled was 35 or 40 cents per hour. In the summer of '41, I was promoted to Prep Boss under Harold and added another few pennies per hour premium.

The work for Harold and his two assistants began in April as we looked over the chemicals on order. With Red Dalton, the Organic Division's colorful storeroom guardian, we decided what we might need and what might get broken in the way of glassware

As soon as school was out in June and students not staying for summer research had left, a couple of us rounded up all the ironware in the department ring stands, clamps, rings and the like and deposited our goods in the big lab in the southeast corner of the second floor, used for undergraduate organic classes during the year. The prep gang of about 25 distributed themselves throughout that whole lab. Space variations depended on the complexity of the preps each man was assigned to make.

The biggest space was always taken by the luckless devil who made mesitylene. In the early '40s, Bob Fuson's group was using it by the liter. They tacked on various side chains for study of restricted rotation. Whereas today mesitylene could probably be a sidestream of any petroleum refinery, in the '40s it was made by condensing acetone by means of sulfuric acid - or was it fuming sulfuric?

The yield of mesitylene was lousy; the yield of a black, dense, sulfur-bearing useless tar was high. This meant that 22 liter balloons were much in evidence, together with 55 gallon drums for the tar. We had big steam distillation set ups and moderately big stills. Every day for the whole ten weeks saw the start of a run for that preparation.

My own preps for both summers, in addition to my honcho duties, involved pressure equipment that operated hot at 25,000 p.s.i. My normal junior staff appointment in those years was not called "teaching assistant." It was carried on the books as "special research assistant." The job entailed the maintenance and operation of the department's high-pressure equipment. So, for two summers, I produced hexamethylene glycol and decamethylene glycol by the high-pressure hydrogenation of adipic and sebacic esters.

Today, in the '90s, 35 or 40 cents per hour, 8 to 10 hours a day, 6 days a week, in a steaming hot Illinois lab without air conditioning sounds pretty brutal. But I don't remember it that way at all! First, it was something to do during a ten-week period that would otherwise have been wasted. Second, it meant 35 cents per hour, 24 days a month. That was a big $85 monthly at a time when the usual school year assistantship was paying $60 per month.

Fifteen years later, at the end of the '50s, when I was a recruiter at Illinois for my employer, I noted that none of the organic candidates spoke of the Summer Prep experience. It was sad to learn that the program had been discontinued.

A Mishap at the Preps Lab

One of our assignments required that we make an intermediate, chloroethyl methyl sulfide, if my memory is right. One of our lab mates, Addison, (not his real name), was in charge. He had completed all the necessary steps to produce an intermediate for the amino acids needed by Professor Rose for his nutrition research.

One of the intermediates we needed to make was a first cousin to a mustard gas, chloroethyl methyl sulfide, I believe. Addison had completed the necessary steps to produce the pseudo-mustard product and now had to extract it from the reaction mixture with chloroform or carbon tetrachloride, dry the extract, distill off the $CHCl_3$ or CCl_4 and then vacuum distill the sulfide intermediate. Even though this material had a high boiling point, even under a vacuum, it was a bad actor and the whole procedure was done in a hood.

Addison had distilled off the solvent and, in removing the receiver from the fraction cutter, he somehow cracked it and a small amount of the solvent distillate spurted out and hit the top of his trousers. Within a minute or two, he was in the lavatory, washing his clothes and himself with copious amounts of soapy water. But even though the amount of the high boiling intermediate in

the low boiling solvent forerun was insignificant, it was more than enough to cause trouble. By midnight, Addison knew that he needed help. He had begun to blister, just a tad, but painfully.

My friend spent the next two or three weeks of a hot Illinois summer in a Carle Hospital bed, under a sheet draped like a tent with some sort of a heat lamp at its apex. He suffered a constant cycle of painful events. He developed a blister that led to irritation. The irritation led to a specific reaction peculiar to the male species. That reaction led to the breaking of the blister. The breaking led to a reforming of the blister. Reformation of the blister led to irritation and a rerun of the cycle. Eventually, the problem area healed. But one final treatment was needed to get Addison back in shape. Three weeks after discharge, he was back in the hospital for a circumcision.

Even now when I think about it, I wince!

For at least the next two years of summer preps, chloroethyl methyl sulfide (I believe that that was the pseudo mustard gas) was called the "Addison Memorial Intermediate."

(Slightly modified from article in *School of Chemical Sciences Alumni News*, June, 1995.)

The Amino Acid Diet

One of our tasks in Summer Preps was to prepare starting materials for Professor Rose's biochemical group. During this period, Professor Rose was carrying out a major study to determine the adequacy and the essentiality to life of the various amino acids that constitute proteins. Beginning with rats and dogs, and eventually working with humans, he fed his subjects a precise mixture of synthetic amino acids dissolved in a glass of water, augmented by vitamins and by cellulose cookies for sugar and roughage. We delivered to his group a number of the pure acids, lysine, methionine et al., as well as intermediates, which were enroute to other acids. The two human guinea pigs, doctoral candidates in biochemistry, were under virtually constant medical care to insure their well being.

Half way through the experiment, one of the subjects suffered a severe attack of appendicitis, which caused much consternation in the ranks. For him, the experiment ended abruptly and he underwent an appendectomy. Apparently, he suffered no exceptional problems from the experimental diet although his colleagues feared that the temporary changes in his alimentary system would somehow impede his recovery from this major operation. Ultimately he earned his Ph.D., and, according to news accounts, became a VP of a well-known chemical firm.

Another subject lasted the full course of the diet. At the end, he proclaimed loudly that, on the day that he finished, he was going down to our favorite steak house, the 20 Taylor Tavern, and get the biggest T-bone steak they sold. He did, but he couldn't eat more than a fraction. His stomach had accommodated to the size of the experimental diet. It took quite a few days before he was back to normal.

The Flavor of Chemistry

Virtually everyone gets minute traces of what they work with on their skin and clothes, gasoline

on the auto mechanic, perfume on the girl at the Estee Lauder counter, scent on the gardener. It happens to chemists too!

In the early '40s, almost all of Fuson's men were hanging side chains on mesitylene analogs, in the process going through aryl • acetic acids and their esters. Three of the lads took off early one warm spring evening, going directly to a Champaign movie, where they found seats in the middle of the auditorium.

Two hours later, when the house lights came on, they found they constituted an island with four empty seats in all directions north, south, east, and west.

Arylacetic: aids, you may recall, all have an aroma much like that of a cramped, over-used gymnasium with a malfunctioning ventilation system.

Scrap Sodium

The disposal of scrap sodium metal was, and I presume still is, a royal pain in the kiester. The chemists brought their creativity to bear on the problem and devised some famous solutions.

En route to a movie one Saturday night, three of the lads stopped by Noyes to pick up a jar of scrap sodium and took it along to the little park, (possibly the forerunner of Scott Park)where the Boneyard crossed Springfield Avenue in Champaign. They ambled about until the coast was clear. Then they loosened the lid of the jar and tossed it into the stream.

Joining the onlookers attracted by the small but noisy explosion, they intoned gravely, "Goodness Gracious! Whatever could that have been?" and drove off to the movie. After the show, the driver dropped off his buddies and returned to Noyes Lab to pursue his research, not an unusual late night event in those days.

The good burghers of Champaign who had witnessed the flash had also noted the license number of the disappearing car, and reported their information to the Champaign police department (C.P.D.). Since there was no electronic tag search system in those days, it took the police some time to chase down the car. Part of the problem was geographic. The offence took place in Champaign and the car's owner was located in Urbana and on university property.

Thus it was a case of C.P.D. to U.P.D. to the Campus Cops, who finally located one of the culprits hard at work at his lab bench. Thinking fast, the student explained that the mixture he was watching was unbelievably hazardous and could not be left. The cop bought the story and sat down on a lab stool while the culprit took an occasional temperature reading, as he proceeded to wash up all his dirty glassware, of which he had plenty. As the sun rose, he finished his cleanup, shut down the reaction, and accompanied the cop to the C.P.D.

Within a day or two, it was noised about that the C.P.D. had phoned Professor Marvel at about 4 o'clock in the morning. Speed is said to have responded, "Scrap sodium you say? Hell, we'll give him a medal."

Another scrap sodium story involved Sewage Park, somewhere in East Urbana near the city's waste disposal plant. It was considered a good place to contemplate nature.

One of my lab mates and his wife bicycled out there one Sunday afternoon. Thoughtfully, he had packed up our lab's jar of scrap sodium to enliven their excursion. Seeing no one around anywhere, he pitched the jar into the effluent stream where, of course, it blew up noisily. To their utter surprise, three (mixed) pairs rushed precipitously out of the nearby bushes and pedaled furiously westward. Sewage Park was off limits to the undergrads, but who knows ... ?

Another famous story evolved from the scrap metal drives that were a constant feature of WWII. They were organized all around the country after Pearl Harbor. Householders were encouraged to take old pots and pans and, in fact, any metallic junk to collection centers in their cities and towns for conversion into weapons. Of course, the University cooperated and the chemistry department asked us all to round up any broken ring stands, tripods and clamps and drop them off at a collection point in the Noyes basement.

The departmental notice on the scrap metal drive suggested a unique possibility to our creative thinkers. They organized a sub-rosa scrap sodium drive and chose my long-suffering roommate, Blaine Chase McKusick to collect it. Koosick, of course, was kept uninformed of this honorary post and returned to his lab one afternoon to find jar upon jar of the stuff all over his lab bench.

Even today, Mac recalls that the disposal was exceptionally arduous. However, the project being a total departmental effort, he never found a way to even the score.

Testubemanship
With Apologies to Stephen Potter's "Gamesmanship"

(This is an abbreviation of an anonymous tract generally attributed to C.F. Jelinek.)

The Fancy Equipment Gambit
The B.C. McKusick melting point bath is an example of the adman's maxim that a package, if fancy enough, can make any product attractive. Young McKusick thus set out to build a most impressive gadget. It was, in fact, a device to determine melting points of organic compounds to be devised by its builder but, by the time he had juxtaposed lenses, metal blocks, thermometer holders and much more, he had invested into a once simple unit the awe and majesty of a Buddha. And within a week he had established a solid reputation amongst lesser personages.

A senior colleague quickly brought McKusick down to size. To his query regarding the accuracy of the melting point apparatus, Mac was forced to admit that he'd had no occasion to use it. He had not yet prepared any chemicals. Little was heard from McKusick after that concerning his impressive apparatus.

Nonchalance in a Catastrophe
A researcher in Fuson's notorious four • man lab (Room 260) found himself with a roaring ether fire. The student and two lab partners battled the blaze. But not the fourth, P.B. Welldon, who merely leaned back on his stool and regaled the firefighters with a couple of verses of "I don't

want to set the world on Fire". His sang-froid in the face of danger became legendary amongst that era's graduate students.

The Prins Award
The assertion and maintenance of the status of first among equals is a struggle when the equals are all reading of the same research in the same journals. One student, Bob Foster, however, conceived a simple ploy to accomplish this: Learn a little about an obscure reaction that no one else has ever heard of so that the savant seems infinitely more learned than his compatriots.

This would have worked well had he stopped after a couple of casual mentions of his topic of choice, the Prins Reaction. The student, however, overdid it, and thus prompted his weary listeners to strike. They secured, suitably decorated, and presented to him the Prins Memorial Shovel.

The Facial Gesture
Professor Fuson's control of his eyebrows was legendary. The raising of an eyebrow has, of course, long been a tacit expression of doubt. So, when a student made a dubious presentation to him, the upward displacement of the eyebrow, either one or the other, increased with his degree of doubt. But when he raised each eyebrow alternately, the student always blanched at the degree of disagreement so indicated.

The Christmas Bell
Fuson was partial to rubber-soled shoes with the result that many a researcher, who was being boisterous, loud or abusive, suddenly realized that Fuson was standing at his shoulder. One Christmas, his group presented him with a cowbell to warn the group of his presence. Always appreciative of humor, Fuson announced his arrival in the lab for a few weeks by carrying the cowbell. However, eventually he fell back on his old habit of appearing from out of nowhere at the side of a hapless student.

Total Immersion
When McKusick took his Qualitative Organic Analysis Course (Chem 38), Bob Gunther was the junior staffer overseeing the laboratory sessions. Everything poor Mac did or proposed to do, right or wrong, produced loud guffaws from Gunther.

On the last day's laboratory session, Mac conjured up a reason to get Gunther over to the bulletin board, which was right at the safety shower. In a masterpiece of timing, he drenched his tormentor. Although this was considered a poor way to influence an instructor, it did elicit the grudging admiration of Gunther ... after he had dried out.

What's in a Name?
In my first year of graduate work, I took a lab course with Dr. R.L. Shriner during which he assigned me to check a procedure prior to its publication in *Organic Syntheses.*

"Together, we will sign as checkers," he told me and then asked, "How do you sign your name?"

Seeing my confusion, he explained. "If you publish a great deal in the future, there will be lots of Robinsons out there and, the more exact you are, the less likely you are to be confused with other Robinsons".

He went on, "If I were to start over, I'd publish under the name not of R.L. Shriner but of Ralph Lloyd Shriner".

Then he added the final kicker. "Look at the Chief. Roger Adams never was R. Adams". And with a twinkle in his eye, he continued, "It hasn't hurt him either that Adams comes at the beginning of the alphabet".

I took R.L.'s advice and, from then on, have been John C., Jr.

Never Underestimate the Chief

Everybody knew it. The Chief, Roger Adams, single handedly ran the organic seminar. All aspiring organic doctoral candidates had to take it for credit for two semesters, performing once each semester. Everybody else in the division, senior and junior staff, sat in on it. The chief gave formal approval to the speaker on the topic to be addressed, advised on the slant that should be taken; reviewed the summary that the speaker would hand out; wrote the final exam for the course, and graded the finals.

Generally, each weekly session had two speakers, each allotted twenty to twenty-five minutes. Prior to 1941, the topics had to be selected from a recent edition of a foreign journal, sometimes French, usually German. With the outbreak of hostilities in Europe, foreign journals arrived less frequently, German ones not at all, so that this rule had to be relaxed.

Anyway, by the end of the semester, we would have been exposed to twenty-five or thirty topics and authors dealing with all phases of organic chemistry, analysis, proof of structure, synthesis, reaction mechanics, etc. No student could possibly master the details of such a broad spectrum of subject matter and the chief had his work cut out for him in writing a meaningful final exam.

Though unpredictable, his exams were not impossible and the course grades seldom caused real pain. Inevitably, therefore, word began to spread that the Chief never read the exams. It was rumored that he used the marking system of that anonymous prof • essor who stood at the top of the stairs and allowed the exam papers to float gently from his hands. Grades were determined by how far they fell and where they landed.

This possibility was discussed over beer one evening in the spring of '39 by a handful of doctoral hopefuls taking the course for credit. They devised a ploy to test their theory. Each one was to write on his exam paper after the answer to question 5, "Dear Chief, if you read this far, drop around to the AXE house next Saturday and have a beer on me." Exams and grades followed as usual but not a word from the Chief. We now knew that he did not read the seminar exam papers.

A year and a half later, one of the conspirators, (Mr. Milton, not his real name), who was one of the Chief's best men that year, came up for his final. Traditionally, the final was almost entirely a thesis defense, although a few stray questions were always possible. Finally the defense reached

its end. "Mr. Milton," asked the Chief, "What is the structure of the product which T Milton struggled to answer. "No, Mr Milton, that's not really it. And, by the way, you gave the same wrong answer on the seminar final sixteen or eighteen months ago."

Professor Fuson's Legendary Gifts

Beyond all others, Fuson was a master with language and a perfectionist. When he wrote a book or a chapter, or an article, he used to give his graduate students a final draft and ask them to proof read his work. I never heard any of his boys correcting the scientific content, nor the grammar. The real job was catching the typos and, particularly, the punctuation errors. It became a sport. They'd pore over these typewritten manuscripts for hours, two or three times, and then turn them back, convinced that the masterpiece was now perfect.

At this point, Fuson would undertake a final proof reading and it delighted his soul to find an uncorrected comma or a missing period. He'd let the guys know that they had missed. It happened often.

Fuson had other equally astounding talents. He was the first of the Big 4 (Adams, Shriner, Fuson and Marvel) to make a personal impression on incoming graduates as he handled Chem 130, the Advanced Organic course. Without question, he was the smoothest and the most lucid lecturer I'd ever listened to. His lecture notes for a 50-minute session were contained on a 3 x 5 index card. And when he signed off, the bell would ring within ten seconds.

Fuson used to attend the annual "Meet the Faculty" night for all new graduate students, sponsored by AXE house. To be truthful, it was a beer-bust and senior staff as well as junior found the Michelob barrel frequently. At the fall '39 session, a person previously mentioned got a snootful so that the next day in his 130 class he was nursing a king size hangover. About five minutes into his lecture he announced formally that "this lecture will be resumed at the next scheduled period," and strode briskly from the hall.

All would-be organikers arranged a conference with Fuson during our first semester. This gave us an opportunity to see Fuson in action. He was a clean desktop operator. During our conference, all he had on his desk was a pad and pencil. A visitor to his office might talk steadily for ten to fifteen minutes, after which Fuson would repeat verbatim what the visitor had said. Fuson had taught himself Gregg Shorthand.

He had also taught himself to read chemical Russian. After I left Illinois, I heard that he'd managed to obtain a couple of Russian editions of *Organic Syntheses.* In those days, the Russians published whatever translations they wanted, international copyright laws be damned. So by comparing parallel editions, Fuson picked up technical Russian. Another Fuson tale is that he was fluent enough in Italian to read a paper in Italian at a meeting of the Italian Chemical Society.

Finally, Fuson was a gourmet, famed for his expertise in wine. In the early '40s, a restaurant of high regard was Katsina's Tavern in downtown Champaign. Fuson and Katsinas were, I believe, well acquainted and, once or twice a semester Fuson took 3 or 4 of his guys for a Saturday night at Katsinas. On one occasion, Fuson was reported to have ordered a gourmet wine and, in due

course, smelled the cork and took a sip. "Acid," he snorted, raising his eyebrows alternately (as he was wont to do) and spit into his napkin. Katsinas without hesitation called for a new bottle. Several of us have been waiting for 50 years to get a bad bottle and emulate the master. I never have ... or, if I have, my plebian taste buds didn't know when they had a bummer!

Even when he grew old, the legends continued to grow. Towards the end of his career, Fuson suffered a cerebral accident. The story is that he was at home in his apartment at the time. Still able to move somewhat, he called the medics and advised them that he'd wait for them in the apartment lobby. The aftermath of the story is that he lost the use of his right hand and arm and re-learned to write left-handed. A most remarkable man!

The Farwell

It was not an arm of the Chemistry Department.

Neither the exterior nor the interior was distinguished in appearance.

Its most important feature was location. It was the only institution of its kind across the street from Noyes Lab and the Annex. Yet The Farwell played an integral part in the lives of the scores who pursued higher learning in the field of chemistry during its existence.

Nine or ten months after my arrival at the University of Illinois, I began to visit The Farwell regularly because AXE house did not serve meals in the summer months. After my move to AXE, an elder brother suggested breakfast at The Farwell. When we walked in, he sang out, "The specialty of the house, Chuck." I echoed his order. Chuck set before us a breakfast roll and a cup of coffee.

"So what's so special about this?" I grunted. Rab's answer was "What's on the roll can be brushed off and nothing can live in the coffee."

The Farwell was simultaneously a coke bar, a restaurant, a sub-post office, and a notion store. But most important, it was a laid-back, comfortable place where anyone from Noyes Lab or the Annex could relax for a few minutes.

The Farwell had two rooms. The smaller one held a large, round table that could seat eight or ten people. That center • piece was universally recognized as the private domain of the senior staff of the Chemistry Department, especially the Organikers.

The Chief, when he was in town, took his breaks there, as did Speed Marvel, Bob Fuson, Ralph Shriner, Harold Snyder, Charlie Price, Bill Emerson, and Bob Carlin. Quite often, John Bailar and Lou Audrieth of the Inorganikers sat in as well. That Farwell round table was the site where a lot of fancy, and fanciful, chemistry was discussed and where many personal links were forged.

The big room was home to junior staff, along with various non-chemists whose paths led them into the area. Many first meetings, known as coke dates, were held there. These were cheap dates where couples could size each other up and decide whether it might be worthwhile to make an evening of it sometime soon.

The best word to describe the atmosphere of The Farwell is "gemütlichkeit". It was not famous for food, drink, or breakthrough research ideas but I can assure you that they will be making snowballs in Hell before a shiny, aluminum, customized food van parked on Mathews, outside of Noyes lab, can become another Farwell,

A Coke Date and Its Aftermath

One of the characteristics of The Farwell was that it was frequently the locus of a "Coke Date," a preliminary skirmish wherein two parties tried to determine whether future social contact might prove mutually desirable. Sometimes the outcome was unexpected.

Lem (not his real name) had been fixed up with a certified doll for a February dance. Unfortunately, the girl's plans went awry. She had to cancel out. Rather late in the game, the fixer-upper secured a substitute for Lem to escort to the dance. For 24 hours Lem was agreeable but doubts set in. He quickly phoned the girl suggesting a get-acquainted coke date at The Farwell. There's no record of the young lady's evaluation of Lem, but it's clear that he was somewhat less than enthusiastic.

And so, a day later, the day before the dance, Lem phoned the girl to cancel out, offering as his excuse that he'd broken an ankle in a fall on an icy sidewalk. The brothers got wind of this base misrepresentation and felt he should be given cause to regret it.

The first act of retribution came quickly at the next house meeting. We had a new brother in AXE who, being married, ate there only on meeting night and hence was a strange voice. From an upstairs extension phone, he arranged a ring back, which was picked up in the meeting room.

"Some guy wants to talk to Lem Avery."

Lem stepped into the phone booth and closed the door. The caller identified himself as the father of the girl Lem had stood up. He was calling long distance from somewhere downstate and he harpooned Lem for his actions and his lack of consideration for his poor daughter's feelings. After ten minutes of this, he closed with the observation that this was the third time she'd been stood up since September. Lem exited the booth, flushed and sweating and, completely off his guard, plopped down into a seat full of water.

But that's not the end. Those were the days of Hadacol and a dozen other magic cures that were touted on the radio and mail came in to Lem from all sorts of pitchmen. They offered goat gland extract, bone strengtheners, muscle toners, stuff for tendons and joints, even a few phone calls.

It was already spring when a stranger appeared in midafternoon at the AXE house door. Naturally, the brothers were all down at Noyes pushing back the frontiers of science, except for one who was studying at the house, or maybe writing a thesis.

"Is Mr. Avery in?"

"Why, yes, I'm Avery."

"You can't be. You got both your legs."

The light began to dawn on Avery. "You must want Lem Avery. I'm Mike Avery," which was true. We had two Averys at 606 West Ohio.

"Can you help me? I'm a prosthetic salesman and word came to me that an Avery at this address needed a wooden leg."

"Not really," Mike answered. "He was walking OK this noon."

By now, the salesman was just a tad warm under the collar.

"Dammitall! I'm on a special trip out of Chicago just to see this guy and I want to meet the ghoul who started this."

Mike, a soft spoken Southerner, mused, "You know, it could have been a wily competitor who fed your employer a false lead."

The salesman turned away. "Yeah, maybe. But you can bet your *** I'm going to get more information before I do another trip like this."

As he slammed the door of his car, he called back, "I hope the SOB that set this up needs two wooden legs! Soon!"

Thus ended Lem's involuntary penance. Not that he didn't deserve more. It was fear on the part of his tormentors for their own hides that stopped such events.

Maybe they'd gone too far already.

The Onset of WWII
"In 28 months, the United States will be caught up in a Global war".

In September of 1939, as I began my doctoral studies at the U. of I., if anyone had said that to me, I'd have suggested he get the crack in his crystal ball fixed. But the prediction would have been right and I have some vivid memories of those events.

To understand the "baggage" our age group was carrying in 1939, you have to go back 8 to 10 years, maybe more. My generation had gown up in the aftermath of World War 1, "The War to end all Wars." I remember a book in the early '30s depicting the horrors of WWI. The mood of the country was, "Never again! Never!"

Of course, we'd heard radio reports of the problems that the Finns were having with the Russians. We had read of a clown named Mussolini, who gleefully described an air bombing of Abyssinian civilians. We heard of the horrors of Hitler's Germany. We knew awful events were occurring but it was all happening far away, beyond the great pond known as the Atlantic Ocean, which was a formidable barrier between those events and us.

Besides, over here we had a horrendous economic problem, the Great Depression. Everyone from FDR on down was thinking about the depression and, by the fall of '39, had been doing little else for nearly a decade.

My family, like many others, had been hard hit. Several of my kinfolk, including my father, had been forced to take low • paying jobs and several more, including my brother, were "Between Engagements." Who worried about a Reichstag fire or an Austrian Anschluss thousands of miles away? We had more immediate problems.

Yet on registration day in 1939 in Urbana, without realizing it at the time, I saw an omen of things to come. My roommate and I were moseying through Noyes Lab, learning the layout, when we happened on Dr. Harold R. Snyder and his wife opening up cartons of books and journals and stacking them on the shelves in his office. We learned that those books had been crated just a month before for shipment to England where Dr. Snyder had been appointed to a postdoctoral fellowship. When the alarm bells rang all over Europe during the summer of '39, the Snyders were strongly advised to stay home.

An incident in the fall of 1940 also indicated that the Army was expanding Chanute Field. In September '40, Blaine McKusick, my roommate-to-be at AXE house, had boarded a train for Champaign at the 12th Street IC station in Chicago. Like many would-be students, McKusick had fallen asleep, expecting to wake up in Champaign. When his fellow travelers began to shout, "Here we are! Here we are!" he collected his three suitcases, golf bag, and tennis racquet and scrambled off the train. When the train moved off, he discovered that he was in Rantoul in the company of a group of enlistees reporting for induction at Chanute. (Addendum: McKusick made it to Urbana via his thumb.)

Events flowed on rather uneventfully. I worked a second year at "Organic Preps" and, at the end of '41 summer school, four of us took a motoring trip down to New Orleans and back up to the car owner's home in Ohio. No problems with gasoline. Train seats to Boston were easily available.

Then came December 7, 1941. 1 remember sitting in the AXE house parlor, listening to FDR's "Day of Infamy" speech. But I remember even more vividly, sitting there a month or so later, listening as someone in Washington was pulling numbers out of a fish bowl, numbers which determined the order in which each draft board would call up its registrants. The lowest number held by any AXE house registrant was 21 and he became the object of much gallows humor since he was expected to get the call very soon. Certainly, we all knew of the probabilities of deferment, but we also knew the difference between probability and certainty.

Rather quickly, the probabilities began to take firm shape. It became apparent that scientists and engineers were in short supply relative to the mushrooming need and that graduate students in these fields would, in general, be recommended for deferral. The home draft boards, where most of us were registered, made their own decisions on deferral and board members were not necessarily swayed in their decisions, no matter who tried to persuade them.

People like myself suddenly became very popular with recruiters. In the spring of '42 the ACS meeting was in Memphis. Gas was not yet rationed so a postdoc with wheels took three or four of us south with him. I went down with the faint hope of landing a summer job in industry. The place was alive with recruiters, all with instructions to "Grab anything that moves." I saw a research manager from US Rubber Laboratories, then in Passaic, NJ, for all of 15 minutes, got an offer, and never saw him again even though he arranged a summer job for me.

By the fall of '42, we began to see changes at the University. The Navy had set up an accelerated program for training officers, the V-12 program. It also set up a short course for training signalmen, near the stadium. Noyes Lab acquired a new federal tenant, which became known informally as the Rubber Lab

The Japanese incursion into Southeast Asia had cut off the nation's supply of natural rubber and a search to make synthetic rubber was in full swing. With Dr. Marvel's expertise in polymer research, it was inevitable that he would be drawn into the hunt. The big laboratory in the southwest corner of the second floor was taken over by a branch of the War Production Board (WPB) seeking to make synthetic rubber and a number of graduate students transferred to the project, which was directly administered by Dr. Marvel.

The aura that surrounded this new laboratory was strange to us because the concept of secretiveness entered our lives. We had all lived, eaten, played tennis and cards, and discussed our research freely up to then. Suddenly, a half dozen of our buddies were off limits for discussions of their research.

For secrecy, the location of the rubber lab relative to the physical layout of the building didn't help either. Although there was a central corridor on the second floor connecting the campus arm with the Mathews Street arm, we often used the aisles of the two big labs facing the Annex as passages. As it would probably have been unsafe to lock off the rubber lab, an occasional stray wandered in where he wasn't supposed to be.

I remember one day when a second lieutenant with shiny new gold bars was seen to wander through. It turned out that he was on a security inspection mission for the Army. A couple of days later, Dr. Marvel received a formal letter from the Army, reporting a serious breach of security. The shavetail had written that he could easily read a label on a bottle of acetone, sitting on the reagent shelf, and, if word got to Hitler or Tojo.... The day Speed got that letter was the only time I ever saw him steamed up. "If you ever see one of those *** near that lab again, get me and I'll personally throw him out!" It was lunchtime and he had offered two or three of us a ride out to the AXE house on his way home. He was so agitated that he was three blocks past our house before we managed to stop him.

By the end of '42, shortages had appeared. In September of '42, I had joined a buddy who was driving back to Urbana from Southeastern Ohio. For Christmas of '42, we made the same trip by train. No gas. The trains were running full, as I had discovered six or eight weeks earlier when I took an interview trip east. It was particularly difficult to get a Pullman reservation out of Washington DC because the federal agencies put a hold on anything reservable as soon as the space went on sale. Four of us on that trip were stranded in Washington by a flood further south.

We lucked out when we picked up last-minute federal cancellations, especially since it was a Friday night.

I was lucky. I received an all but automatic deferral from my draft board in Massachusetts. So I was never called up but the draft did bounce me with a carom shot. In my fourth year, 1942-43, I was a University Fellow, which meant no teaching, no departmental duties, full time for research. I had completed all non • research requirements.

Arriving back at the AXE house from my October interview trip, I was greeted by a chorus of "Robinson, you're teaching." It was not the usual horseplay. Uncle Sam had tapped one of our first-year grad students and I was the only grad student "free" to assist teaching a section of organic for pre • meds and home-ecs. So I unexpectedly taught for almost two semesters in my final year.

The Book

Since the old AXE House was an all-male establishment fifty or sixty years ago, we heard many discussions on women. And, I am sure that the associations of Eve's descendants did, and still do, hold parallel seminars on Adam's offspring. Plus ça change, plus la méme.

By and large, the 1940 resident brothers who held the floor were blowing hot air and everyone knew it. One, however, kept coming up with observations that seemed to show a genuine knowledge of the subject, real enough that he was frequently queried about the source of his knowledge. His standard response was, "Aw hell, guys! I've read a book."

In due time, he passed his finals and the commencement day arrived. It wasn't unusual for families and, occasionally, girl friends to attend the ceremonies. And even to take a peek into the house at 606 West Ohio to see where the object of their affections had hung his hat during the three or four years he was in faraway Urbana.

Sure enough, one beautiful Saturday morning, in came our all-knowing brother with a young lady on his arm.

"Fellows," he announced, "Let me introduce you to the book!"

They had been secretly married for four years.

Ave Atque Vale

A few of the fellows used to refer to the 20 postcards that signified passage of the qualifying exams, the language exams, the preliminary exams, and the final exam as the four aces. In May of '43 I had three of them in hand and was awaiting the fourth as I began to stack my books in a trunk and my clothes in a couple of suitcases. Moderately sure that I'd passed the final, I was planning to bypass the cap and gown bit to usher at the wedding of my buddy, Chris Best, in Marietta, Ohio.

I couldn't have put it into words then but I know now that between September '39 and June '43, while I had been aiming single mindedly at one goal, my social development had all but caught

up to my intellectual development. In many ways, those four years were the best in my life. Certainly, I had changed more in those years than in any other four-year period before or since. I liked Noyes and the people there. I knew that the future was going to be different but I could only guess what it might be.

My pals were equally eager to enter the real world and I am sorry that I haven't kept track of more of them. I know that some were anxious to get on the road to their first million, or the Nobel Prize. Many were itching to get married. I suspect that a few of them heading for postdocs may have been trying to delay change. Alternatively, they may truly have wanted to push back the frontiers of science in an academic environment.

We all react differently to attainment of that Ph.D. I once heard that Bob Fuson and a classmate, on attaining their degrees, took several beers to the banks of the Mississippi in Minneapolis, and set fire to their P. Chem books.

As I wrote to a friend some weeks later, "When the results of my finals - the ace of spades - arrived in the mail, I slowly finished my packing and got ready to take the midnight rattler. It was over."

Funny, I was kinda sad.