

*Cybernetics of Cybernetics* interview notes by Jamie Hutchinson

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NOTES FROM CONVERSATION WITH JOHN DAY  
21 October 2004, 10:00 a.m., by phone (Day called me)

grossman—finest programmer I ever worked with, retired and gone back to composition. Had degree in music composition.

Grothe

Rosenboom—1965, my freshman year, he lived next door in the boarding house. From quincy. I'm from kinmundy. Only classical music I could get in kinmundy was WSM out of Nashville four nights a week. Didn't like grand ol' opry. Very green coming to UI, wanted to learn about classical. Went to performance of bartok string quartet, thought it was a bunch of noise. Few months later, heard some great music coming from David's room, knocked on door, turns out it was the same bartok. So I had grown!

Recall cage concerts at assembly hall and ag pavilion. Contemporary music festivals. John garvey, great guy.

CAC concert in 72 or 73—brun, grossman

My music ed began in 20<sup>th</sup> c.—stravinsky, bartok, schoenberg. Got to Beethoven and Mozart later.

At UI in late 60s, EE major. UI centennial celebration, there were lectures as part of it, saw HvF give lecture at Union. Thought: "what a cool guy! This is somebody I want to work with!"

So signed up for heuristics seminar in 67, took 3 or 4 semesters of it, though might not have been officially enrolled every time.

BSEE '70, MSEE '76—after BS, worked on iliac iv, Arpanet, cac. Worked on networking protocols for MS

HvF retired in '76, day and wife moved to houston, wife did postdoc there.

Visited HvF and Mai every time went to California—once or twice a year.

"von" comes from HvF's grandfather, architect who designed ringstrasse around Vienna.

In 97, Austrian tv followed him around Vienna and back to California. That was time he showed me medal from legion of honor award—one of few times let himself brag. Modest man. Mai told story of grandfather and ringstrasse, not Heinz.

Day helped with microfiche project, compiled bibliography.

Worked on ecological sourcebook.

C of C probably the *most* professionally done of all the books—by then we had it down!

Metagames oversized, like WUC, contained cutouts.

C of C used in course at UC santa clara—they pushed for reprint. (look into this. See: <http://www.well.com/user/abs/curriculum.html>. Says san jose state republished in 1986. This site: <http://www.nlp.biz/Books/advanced.htm> says future systems edition was prepared for 1995 ASC conference.)

"von Foerster taught me how to think." –took us through process of tearing things apart and finding the subtle inflection points. Ask: what are we really doing? What is really going on?

Concept of the observer

Two anecdotes:

Teach an urn

HvF disagreed with skinner, told story of teaching an urn. Fill with red and white balls, say "we're going to teach it to dispense only red balls." Pour out a ball—if red, reward urn by returning. If white, punish urn by taking out, not returning. Eventually, urn will dispense only red balls. Moral: reward/punishment in eye of observer.

Ashby: conditioned response a natural property of all systems above a certain level of complexity, and not a very high level, 12 levels or so. Not the fundamental driving force skinner said.

Hire dancer

HvF wanted to hire for visiting prof a guy who developed notation system for movement. Wrote up papers and took to Jordan. Jordan said, "Heinz, I didn't say anything when you wanted to hire a psychiatrist (ashby). I didn't say anything when you wanted to hire an oriental philosopher (gunther). But a dancer!

HvF ended up getting him hired by women's PE department.

Day worked on OSI networking model. 7 levels. Day was in charge. Lot of insights from way HvF thought: what is really going on. It's not always what we call it.

One small, trivial example: a certain protocol ID in lower level was really identifying the *syntax* of the protocol in higher layers, not protocols themselves. This led to answers to other questions, explained many things. People had thought, well, it doesn't happen much, let's slough it off, but it turned out to be important.

In science, when everything goes together right, no special cases.

Learned to tease out fine points of distinction from HvF. Sometimes, of course, this is a distraction from what's important. But other times, like example above, it turns out to be key.

Day collaboration with Kowack: "I may have found a general theory of networking."

You learn that the problem is telling you the answer. The patterns fell in my lap.—that ability is from HvF. Without his classes, I wouldn't have been able to do it.

Advice to students:

I was really green. Started in summer, took 2 classes, then light load in fall. Allowed me to familiarize with campus in summer, then be able to manage biggest workload of life during fall. By spring, I was fine.

HvF master at explaining scientific concepts to people who knew nothing about them. His advice to people trying to explain tough concepts to nonspecialists: "Make it a story!" For example, Glen would be trying to explain something about computers to a person in seminar, having trouble, Heinz would say, "Make it a story!"

[idea: C of C and narrative]

HvF exercise for heuristics students: would make them write about something, but not allowed to use adjectives.

Strip out everything but essentials.

[in this respect, HvF communication pedagogy in line with creative writers, don't know about tech writers]

Day keeps repeating about how Heinz prompted you to "see what's really there, what's really going on." Then, what model fits?

--interesting, lot like bardeen in that respect. Holonyak would probably agree. But the difference was mastery v. discovery.

Day went on to collect models, and that saved him from the hammer/nail problem. (if all you have is a hammer, then everything looks like a nail)—notion of tools. Whole earth catalog.

Joseph Needham, *Science and Civilization in China* (Cambridge UP, 1954), seventeen volumes and counting.

BARBARA FORD INTERVIEW NOTES  
(3 August 2004, Mortensen Center in UG Library)

Was in library school, met engineers in Sherman hall, a couple were interested in cybernetics and studying with von forester. Might have met ken Wilson in Sherman hall, not sure.

Heinz and mai's personalities attracted people as much as the subject matter.

Technical knowledge (or lack) was no barrier for VF.

Met VF thru ken Wilson.

Had just got back from peace corps in central America, looking for connections, looking for different ways to think about things. Cybernetics took me out of my niche. VF helped people step out.

Social connections led to course.

MS in international relations → peace corops → apply to law school and lib. Sch. → went to lib. Sch.

Course was chaotic but stimulating. In seminar, VF would ask question, then a *lot* of discussion. Very open intellectual conversations. So many classes are focused—you don't bring your whole self. This course, you brought your whole self.

VF did attend some of small group meetings.

Lot took place at his house, very social. He brought guests, students had chance to really interact personally with them.

VF was at point in career where doing what he wanted to do.

VF's strength was in bringing people together and opening their minds.

*Communication:*

With group from diverse disciplinary backgrounds, you can't assume—you really have to explain yourself. That's still important in my cross-cultural work today. (Though culturally, EE 271 was not that diverse—all white, as best I can remember, middle class college kids.)

Graphics: words don't always do it. Learned usefulness of charts, they help you see things in different way. Also useful for personal communication tool. Many ways to express self.

Group was fairly open to BF's womens rights issues.

Heinz always had people hanging around whose status was unclear. (Response to my question about enrolled vs. nonenrolled participants. Reminds of Tate's comment: Heinz collected people.)

Ken Wilson was more serious than rest. It was his professional life. Might have been VF's teaching asst. a lot of us were just "dipping in," but not KW. I didn't need the course.

At time, I evaluated course as good, interesting, stimulating. Though not best course I ever took. Was not easy—other classes, you find out what spose to do, then you do it and that's it. This course, you were constantly tested and pulled by fellow students and by Heinz.

We felt we were in the presence of a great person.

*Library science connections:*

Computers were not a big deal yet in libraries. Learned other ways of looking at things and tools to use. Not a concrete thing, but important.

*Format of Cybernetics of Cybernetics:*

It was a group project. Was lot of fun thinking about how to do it. We knew a regular book wouldn't do it. Group project, but VF was guiding force.

Glossary—I was interested in how to organize information and get people to what they needed. In 73, started working at INHS organizing literature on soybean entymology, so learning about scientific information.

The warmth of the VFs. Their home, their openness. If you were interested and engaged, they invited you in.

They gave VF some glasses from mexico.

Doesn't remember what PLATO group did. She did do some programming on plato at some point, but doesn't remember plato group role in EE 272.

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Interested in getting in touch with other class participants. I said I'd put together directory of alumni and send it out after project. Will probably get her, Glassman, Holloway together for memory jogging session.

Notes from Jeff Glassman Interview  
3 September 2004, Green Street Coffee House

Had been on/off student for some years, just return from year-and-a-half of adventure and travel—wanted something interesting and exciting, not typical student experience.  
21 years old—a *young* 21.

Had been studying sociology and anthropology, when returned started independent study—interest in performance started in '71.

Brun's seminar in experimental music composition was primary focus.

"Scene" (my term, JG agreed) surrounding HvF and Brun seminars—students drawn to loose ends, things that had never been done before. (compare JG's "scene" with Ford comments about social aspects of seminar.)

seminar was crowded, students from social sciences, math, engr, music—all were welcome. Also, HvF and "all these crazy professors" would attend.

Seminar was a way for JG to enter science w/o extreme disadvantage. Everyone had certain skills—e.g., computer people knew how to program machines, but filmmakers knew about architecture of visual imagery.

Political situation in country meant "ethical questions were legitimate." Interest in bottom-up democracy applied to meetings, courses. Counterculture was still breathing.

"Scene"—faculty, students, credit and noncredit, lurkers, community people, etc.

Check out "metagames."

Meat of course for JG was full seminar meetings, not group meetings. Maybe different for others who were more involved, pulled more weight.

Participation disparities led to some friction. JG had "guilty conscience" about not doing more, but that was what he was there for. Others (Ken Wilson, et al.) were there for more, and so did more.

JG rarely spoke up in seminars. "observer mode." Wanted to hear HvF and guests more than students.

Some "head knocking" in seminars—disagreements over what should be talking about. Experiment—one person wore medallion with 3 colors. 1—subject matter. 2—approach to subject. 3—conduct of meeting. Person with the floor picked the color. Didn't use Robert's rules. Developed own rules for dealing with "pandemonium" (JG's term). Meeting conduct was a hot issue.

European seminar model. (Brun German, HvF Austrian).

JG doesn't remember anything about grades (like Ford).

As far as evaluation, JG didn't consider the course to have "stopped." Was always an HvF seminar, always a scene from year to year. The name might change, but it went on. However, JG was "elated"—"what I went to university for. New things, new people—shared common motivation but different backgrounds."

Controversies in course (over participation, etc.) were not vindictive or vengeful, but honest. JG was dedicated to the Brun seminar—his primary interest.

Convergence of art, science, politics. HvF would probably call politics "ethics."

2<sup>nd</sup> order cybernetics informs JG's performance work—emphasis on ethics, like Brun.  
-the basic ideas still excite me  
-I return to the articles, use them with current students  
-part of foundation of what I do—one leg that my performance work stands on—speech, movement, framing scenes.

School for Designing a Society spun off from Brun (also HvF) scene. Parenti, Enslin, Brun were founders. Steve Sloan (deceased) taught cybernetics there for years—cybernetics library.

HvF seminars:  
Seminar on cognitive studies  
Heuristics  
Cybernetics

HvF wanted to start Center for Cognitive Studies (this might have been the big NSF or Dept. Educ. Proposal that fell through before he retired).

Other 272 students:  
Pat clough—a professor somewhere  
Hackman—west coast lawyer  
Kowack—computer startup exec for local company, can't remember name  
Sloan—mark enslin and susan parenti can tell you about him  
Umpleby is sort of famous



## NOTES FROM MICHAEL HOLLOWAY INTERVIEW

20 September 2004, 4:00 p.m., Holloway home 305 S. Cottage Grove, Urbana

Contact info: 384-5140, [mchollow@prairienet.org](mailto:mchollow@prairienet.org)

"Accident" that I ever ended up HvF's student. Was undergrad student taking usual courses with usual dingbat professors, then KAPOW! And the times, with Vietnam and counterculture, made it more amazing. I said to Jeff Glassman: Do you realize how lucky we were?

Was 30 at time, on/off English major, but English dept. boring, many friends were composers, working w/Brun, Martirano.

Knew HvF from either (1) Jerry Brieske, upstairs neighbor, HvF student, or (2) Ed Gruberg, HvF student

Knew all these "wacked out" people who were engineers, didn't fit stereotype.

Thing that really did it was FREE BOOKS. Only hazard was crossing Green St.—could walk in BCL and pick from publications on display. That was Heinz's "bait" or "trap"—he would sit in office and keep eye out for who stopped by. He came out and introduced himself to me.

Party in summer 67 or 68—idea of heuristics class discussed. Was "amazing" seminar. All reading first 2 weeks, then projects. Reading was Wittgenstein Tractatus! Cyber seminar grew out of that.

Helped Maturana perform L'sGA

Became draft eligible in 1964. Counseled people on resistance. Common idea was you had 3 choices—go to Canada, go to jail, or go to army. Helped people find other ways to avoid.

MH went to Eugene (boring), then to Rosebud Reservation S.D., then to U Iowa performing arts center that was Rockefeller funded—corporations were smelling revolution, so funded liberal stuff, gradually withdrew funding and states didn't pick it up. Stayed there 2 years, it dried up, then back to Illinois. BS from LAS 1969.

Grad school in English. HvF was faculty sponsor, called Paul Hoover at Unit 1, got him to hire MH. Probably ended up with as many biophysics hours as English hours.

Helping with cybernetics seminar was return favor for HvF's help. Helped with proofing, editing.

HvF was "hated with a passion" at UI. Partly because he was Austrian. People associated that with german, still soon after WWII.

Started working here soon after WWII, when engineering was still power generators and transmission. Administrators (Everitt, Jordan) saw where things were going, looked to hire broader people. Heinz could talk to people in all disciplines. But that quality also made lot of people resentful. People tried to do him in.

Howe has story about somebody who spent night in post office trying to retrieve letter they sent against HvF, realized had put own head in noose.

[Howe email: [yair5763@aol.com](mailto:yair5763@aol.com)--might be 5764 now. Heard he has had some illness, might be in Chicago.]

people hated bcl

amazing how HvF could take air force money and do great stuff.

Jack (John Easley), coinvestigator cog studies proposal, NSF—told Holloway reason proposal turned down because they were going to do it with satellites—beam propaganda about birth control etc. into villages, get people to hook up to power grid, buy appliances, etc.

Cybernetics seminar:

Everybody had their own area they knew about. (Authority lay where knowledge was.)

People so busy with other things, work needed to be done, so if you had the initiative that gave you lot of free reign to do own thing.

Main disagreements were due to personalities, not different disciplines and majors.

Was commonly said problem with social sciences was they aren't scientific. HvF said problem with soc sciences that they aren't *social* enough.

Talking w/MH HvF was sometimes critical of Beer, Brun—they had followers, disciples who could be rigid. Always had reflexive defenders at conferences. MH was peripheral to Brun group and observed that danger, but remained friend to Brun. That was downfall of Korzybski—his disciples.

HvF different. Lots of students, admirers, "disciples" if you will, but no party line. Following less of a cult.

Pask was at outer edge, *amazing*. I saw him once after 15 years and he picked up our last conversation in mid-sentence.

How cybernetics informs MH's writing today:

Know how information systems work—feedback, logic

Relation between contradiction and paradox

Hard to separate cybernetics from heuristics.

"The biological computer in the Biological Computer Laboratory was Heinz's brain."

—Michael C. Holloway

Fernando Flores—chile and threat of good example. Cybernetics in Chile were applying Marxian, other ideas to real world. [Kissinger "made the economy scream."]

Understanding of poetry as system. How art and poetry work.

Decay of information slower in poetry than jazz, r&b. Jazz used up language from 1910 to 1970, r&b 1945-1970, etc. Poetry slower decay, thanks largely to small audience! [laughs] Better comparison: poetry/music in general.

Chinese poetry influences kept English language poetry going in 20<sup>th</sup> century, otherwise I think it would have run out of gas.

Still go back to Cybernetics of Cybernetics to "fill the well" for poetry. Periods of writing, periods of reading, thinking, studying. Find CyberOfCyber very fertile, powerful ideas. Better than a lot of "accessible" scientific journalism today—I'll read it and think, so what?

Frustration with postmodernism—don't think we've solved problems of modernism yet.

## NOTES FROM INTERVIEW WITH RICHARD HERBERT HOWE

By phone, 19 October 2004, 11:00 a.m. CDT, 212-677-6506

Met hvf thru brun in 1968. had been taking brun composition seminar, played in ensembles, etc. brun said should meet HvF. Signed up for heuristics seminar.

Was absolutely, totally fascinated by BCL.

Took one of each publication, buried myself that summer reading them.

"chicho" maturana came for Miller lecture in spring '68. Thursday, April 29, 1968, 8:00. he gave informal preview of miller lecture at heuristics seminar—most extraordinary intellectual performance I've ever seen.

Was working as student in dcl. Made appt. w/HvF to talk about maturana—at that time, I had good ability to repeat entire lecture after two hearings. HvF impressed, offered me student asst. job in bcl on the spot. I was thrilled.

Had been floundering academically. HvF helped me find program in English Dept. where could manage to get degree. (later, PhD '82 in sociology). Am grateful to him.

Connection to hvf more personal than intellectual.

Weekly bcl seminars.

Took courses with ashby, gunther, etc.

From Heinz, learned you don't need prequalifications to dive into a subject and learn all you can about it. (Jim Rebitzer: HvF interested in discovery, not mastery.)

Fall 1969, bcl reprinted chicho's "neurophysiology of cognition." RHH did translation. Chicho not easy person to edit—ego.

BCL was intellectual center of my life. Was belated in becoming serious undergrad. Most friends getting their phd's by then.

C of C a more ambitious successor to heuristics courses.

"I feel peculiar about it [c of c] now, and I'm not sure why."

I've gained appreciation for the other side of the equation.

Seems superficial.

World looks different after you've mastered a thing or two, learned something.

Get beyond fascination, stimulation, entertainment.

I think hvf did know what lay behind and beyond all those subjects (physics, etc.), but that was not what interested him.

RHH later technical writer for center for advanced computing (CAC). Demanding work. Attention to grammar, punctuation, style, usage, etc.

Then into business. Expert witness for law firms in antitrust cases. Worked on Microsoft case. When tens of millions are at stake, people pay attention to punctuation. Best readers I ever had.

Was in computer business.

Artist—draw and paint.

Nothing sticks with me as deeply in reflecting on life as Chicho's Miller lecture. It has never stopped speaking to me.

Had to submit "artist statement" for recent exhibit, found myself paraphrasing maturana.

Toward end of life, HvF referred to self as "the dinosaur." Last of that central European, classically educated breed. We (at U of I) never ran into anything like that before. High energy, showman, but with depth. Impossible not to be bowled over.

I don't think we did good job on metabook.

At time, was absorbed with idea of language as vast entailment structure. Idea came from Weston via HvF. (HvF's appropriation of Weston ideas caused some tension between the two.) One could navigate as one pleased.

Weston did study of dictionary. Looked at nouns—what nouns used to define a noun, then what nouns used to define those nouns, etc. found that all are entailed within "it", or lead back to "it." Thingness. But with verbs, they don't end up anywhere, go in circles.

So that's what led to metabook.

**[idea: metabook—crystals of words. Frozen words—rabellais story]**

People have to know how computer industry works to know whether a behavior is monopolistic.

Learned: don't compartmentalize. I do one thing, but do it in different ways. That comes from Heinz.

HvF was physicist, but he didn't take that to mean he couldn't be a biologist, or a musician, etc.

Society grown more bureaucratic, compartmentalized.

HvF was polymath. When people struggle to master one thing well, he could master many things effortlessly. And what's more, he didn't give a shit about mastery! Some people found that insulting.

Was amateur pianist. Accompanied Hotter on Schubert lieder sometime in 1930s.

Also photographer.

HvF legacy lies in the recipients of his generosity. C of C may contain some of that. But for me, CofC not salient part of experience w/Heinz.

NOTES FROM GLENN KOWACK INTERVIEW  
16 Sept. 20004, telephone 650-279-0990

GK spent last 2 years high school reading whole earth catalog, UI "huge disappointment."

End of freshman year or early sophomore, met brun and HVF—"all of a sudden I was living in the whole earth catalog."

Seminar a terrific experience—90% because of HVF, so cheerful, charismatic

Started UI in 1972, graduated 78 w/degrees in psych and math, minors in computer science, other subjects.

Was in Unit 1

BCL was intersection of many fields.

HVF made me realize I was avoiding math, helped me get courage to study it.

He had intellectual honesty, kindness.

Jim Rebitzer was most productive member of group, especially at end.

Story: one day at seminar, somebody disagreed with Sherwin gooch in a way he found insulting. Big stack of books on his desk. He picked them up, dropped them, said "I will have to be asked to return to this class!", picked up books, and headed for door. Heinz was on top of it. Just as Sherwin put hand on door, HVF said, "Sherwin, will you return to the class." So nice about it, disarming. Sherwin turned around and came back.

Placard around neck, colors to represent meta, indirect, etc.

"Vienna sausage" story—HVF laughed.

HVF encouraged freewheeling debate and reflection, but always brought it back to reality. Later seminars tended to have more artist/humanist types, so discussions became less focused and technical. Couldn't talk about Stirling numbers, etc.

BCL was doing fundamental research, really hard stuff. Weston's speech processing, etc.

HVF took hard concepts and linked them to daily life.

As seminars became less technical, discussion couldn't be rooted in hard science anymore. How to relate hard sciences with soft.

You understood the world differently when you came out of HVF's class.

Did some nude photography with girlfriend (in feedback photo series), didn't go in book.

Disappointing when GK and Hackman went to California to deliver book to Stuart Brand. He said, "oh, thanks. Bye." Must have been sick of visitors. HVF disappointed to hear of that, too.

Entailment structures were hypertext.

Evaluation of seminar not changed in intervening years. Wouldn't want *every* course to be like that. Like Tom Lehrer said, "I liked high school, but I wouldn't want to go back."

*What has stayed with you?*

Single biggest thing, and this is very important—HVF's genius was in paying attention to what you said. If you said something foolish, he would ask what you really meant.

It was an effective discourse beyond anything I've seen before or since.

Anybody had a legitimate voice. If you demonstrated incompetence, HVF would question you about what you were thinking and how—if you couldn't answer, you knew you had to go back and work it out.

Didn't lord it over you.

Gave you confidence and footing to learn new and difficult things.

Learned the world is one thing—you can determine the connections.

GK thinks reason a lot of early, fundamental DOD research later went unfounded is because it revealed how hard the problems were, how far we had to go. Plus, computing power wasn't what it is now. Problems were harder than anybody thought. HVF, Weston, people like that pointed the way, but couldn't get the results.

GK now CEO of internet startup—under wraps for now.

HVF was looking at fundamentals. Nice to see that, not so much of that going on now.

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Notes from meeting at Za's, Champaign, 14 June 2005, 1:00 p.m.

Was a crazy time during BCL—not just the sixties, but the explosion of post-WW II spending. "Everything was dreams."



Not sure what actually came of BCL in practical terms, "but HvF inspired a lot of people."

Brun was an *amazing* communicator.

BCL research helped point in right direction: What was nature doing? Look at nature as model. BCL succeeded through influence. Cybernetics deserves credit for signal/communication/control revolution—before that everything was power.

Some talk about how, in science, younger generation has to kill off older, but keeps some of older around ... not quite sure the point. Freudian ... Harold Bloom.

Told him about Holonyak's "charlatan" comment. Kowack response: never saw HvF say or do anything without sincerity, integrity.

Told story of meeting Timothy Leary at HvF's in Pescadero. Nice, smart guy—but bad leader of psychedelic movement. Talks about psychedelic movement in similar terms as cybernetics—a grab, an experiment, a reach for understanding that may have been inaccessible at the time, premature perhaps, even failed. But still worthwhile, serious.

Also mentioned J.P. Getty III, missing ear, was there.

"At the end of the day, Heinz gave us hope."

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Further notes from photo hand-off, 23 June 2005, Sixth & Healey, Champaign

When came to UI, "I discovered myself in a bottling company!" *Bottling company* was a commonly used term to describe compartmentalized, factory style educational environment at UI.

Professors didn't connect their field to other fields and to real world.

**HvF and Brun were "always making connections."**

HvF: you help to invent the world. Read his article, "Responsibilities of Competence." About how "soft" sciences are the really hard ones, "hard" sciences easy.

HvF: You're already connected, you just need to see it.

"hard" science types gravitated toward HvF, became more "touchy feely" but still rigorous; whereas, "soft" field types gravitated toward HvF and thought they had "entered the Venn diagram of rigor. But they hadn't really." In later years of BCL, became more dominated by the soft types, less rigorous. Not a bad thing, necessarily, but what happened.

NOTES FROM BOB REBITZER INTERVIEW  
20 September 2004, 1:30 CDT, telephone 415-547-5424

BR now senior VP for business processes, United Behavioral Health

Was freshman at UI that year, 73-74, in Unit 1

"romantic notions of being a scientist, save the world."

Unit 1 allowed students to take seminars.

My brother and I were hugely disillusioned with UI—huge lectures, etc. someone told me about HvF, so went to visit him and he let us in the seminar. It was overwhelming—a new world for me. I knew that it would change my life.

Took brun composition seminar following year.

B.S. honors biology 1977

Planning and editorial was "organic"—didn't envision endpoint, rather meandered. Somebody, like howe, would write an essay, and we assembled concepts.

BR had idea of doing something like buckminster fuller in his books. E.g., *I Seem To Be A Verb*—montage.

HvF brought in the concepts—McCulloch, Ashby, etc. Felt they needed and deserved the recognition.

I think Heinz knew in beginning there would be a book, but it evolved. The book was the deliverables, but negotiable what it would look like. HvF allowed it to evolve.

Was some tension sometimes. One session, HvF "suggested" we might look at a certain thing. Next week, nobody had. That was only time I saw him lose his temper. Said: "Do I have to assign things?" If he suggested, was understood: do it.

Editorial buck stopped with Heinz.

At one point, we had picture of thoughtful looking man we wanted to put on cover. Heinz said No. Turns out it was Toscanini. We didn't know. Heinz said, if you put that on cover, I quit.

Not a lot of formal editorial meetings. Somebody would write something, and it "found its way in."

HvF had big impact on final book. "Hugely visual person"—lot of layout must have been his ideas.

Seminar gatherings:

HvF was very open—no question trivial

There were arguments, but ... [sentence trails off]

Was magician—remember once he made chalk disappear. I was very impressed.

Don't recall guest lecturers being very dynamic.

Session after Chilean coup—heinz very upset because didn't know where Maturana was. BR felt special empathy with Heinz because German Jewish parents, Holocaust survivors. Accents similar. HvF invited BR's parents to tea once when they visited. Mai was witty, wonderful host.

Brun played big role—obsessed with political impact of language. Philosophy of composition was it shouldn't be too accessible because once you understand something, you stick it in a box and that's it. It's real power is when you are trying to understand it.

HvF just the opposite. Liked to make things relevant.

So hard stuff in book probably more due to Brun, easier stuff more due to HvF.

Howe brilliant. Translated from German. Habermas. Sort of permanent grad student at time, emotionally troubled. Got PhD in Montreal or someplace. Then flipped and became business executive. Now I hear he's flipped again and gone back to being a philosopher and homosexual.

*What has stayed with you from course?*

Different levels.

Level 1—skills. Project management. Heinz didn't worry we didn't know how to make a book, let us figure it out. Ever since, I've been doing project management. For HvF, effort didn't matter, output did. Didn't matter if it took you 2 seconds or days. Also, not interested in excuses.

Level 2—cognitive skills. Learned good sometimes to try and read something you can't understand. [compare above comment about Brun and accessibility.] Maturana was tough—read it closely, thought things through. Learning out of sequence. Can be good.

Level 3—openness to new ideas. HvF never shut anything down because it was new—was tolerant. Told me and Jim, "you need to learn to cherish what's implicit in a thing."

HvF also interested in our personal development. Not like other profs. Genuinely interested in what we would do. I think he might have been disappointed I didn't become scientist, but took some pleasure in Jim's becoming social scientist.

Friendship persisted. Visited him in California. Helped some people he referred to me for career assistance.

Cybernetics might play a role in current profession when analyzing systems and process control. But mainly was interested in the biology stuff—maturana and varela. So when dropped biology, pretty much dropped cybernetics.

"The seminar was my fundamental educational experience at U of I."

Interested in pickering, asaro material.

Wants ken Wilson contact info. Also glenn kowack.

Grants killed by (1) Nixon anti-intellectualism, (2) liberal antiwar politicians, Mansfield amendment.

Pinned everything on huge grant my sophomore year—natural language processing computer.

HvF went from being one of biggest grant winners in dept. to smallest.

When that fell through, ECE wanted to put him out to pasture, assigned him introductory course. HvF was thrilled! In Europe, most distinguished profs teach introductory courses. So he spent a summer redesigning curriculum, and when department saw it they said No. Then he decided to retire.

BR got bits and packets idea from Shannon, probably. Somebody showed him the book and he read some of it.

Brother Jim contact info:

[james.rebitzer@weatherhead.cwru.edu](mailto:james.rebitzer@weatherhead.cwru.edu)

216-368-5537

chair of econ dept. at CWRU

## NOTES FROM JIM REBITZER INTERVIEW

24 September 2004, 1:45 CDT, telephone o: 216-368-5537, h: 216-295-1419

Give regards to R.H.H.

Was freshman at UI, looking to be bio major, unit 1. cyber seminar was among seminar offerings that unit 1 students could take.

Hvf made "enormous impression":

1. life and science are adventures of discovery
2. he paid attention to people, very egalitarian. Would pay attention even to the dumbest, wackiest person so if/when they hit on something good, he'd be there.
3. affinity with hvf as refugee. Rebitzer parents and other family refugees, recognized accent, etc.
4. time of radicalizing activity on campus. HvF deeply affected by chile coup and fate of maturana. Rebitzer identified with that.

Everybody was not engaged to degree bob and i were, and bob much more engaged than me. He put everything else aside for this. Without him, class could not have functioned as it did.

There was a level at which nobody knew what was going on, except Heinz.

Don't think cloughs really "got it." Good artists.

Tom reh was roommate, most talented and gifted student I knew, could everything effortlessly—extraordinarily gifted as a scientist. Don't even remember him being in the class. It had no impact on him.

HVF not interested in mastery. Other science and engineering classes rely on rote, drill, repetition—absorb material. Not Heinz—perhaps because that part was so easy for him. Idea of necessary "toolkit" not so important for him. OK to read stuff you don't understand. You learn about discovery and connections between ideas.

Remember hvf discussing behaviorism and how wrong it was. None of us had really learned that much about behaviorism and I knew they were smart people who were serious about what they did, so I asked Heinz: how do you know not to spend 20 years working on something that's going to end up being wrong? He said, if you want to keep score, play tennis, don't do science. It's not about right or wrong, it's about discovery.

Attention to language. Science and life about discovery. Science a communicative enterprise, so pay attention to language. When you write a paper, know exactly why every word is there. That was real eye opener for me.

He had these lines you thought were throwaway lines, but they come back to you years later. Said to me, economics can't progress without adequate psychological model. Well, turns out last 15 or 20 years economics has been working of developing good psychological model, so he was right. Well, econ did make progress with cartoon psych model, but making more progress now with improved model.

In terms of mastery, only things that have stayed with me are:

1. ashby. His Introduction to cybernetics, I read carefully. Helped me in economics later, because gave good understanding what a model really is.
2. maturana. I read more the philosophical stuff, autopoiesis, not so much the biology, like the frog eye essay. Wonder how the philosophical stuff and cybernetics furthered his sciences. My theory is he went to chile, which lacked "big science" money and equipment, and decided to do kind of investigations that require less wealth. Like the Russians were really good at theoretical math—it's cheap.

The book:

The images. HvF interested in early ideas of what books might be. Wanted us to Imagine we didn't know what a book is, then ask What would it look like?

Hyperlinks—entailment structures, other connections

Good ideas keep getting reinvented.

One dead end of seminar was focus on epistemology—I haven't met a problem that was solved by it. A distraction. Economists who end up focusing on epistemology end up going nowhere.

End of first year, wanted to drop out—disillusioned. HvF talked me out of it—said attend classes as if you were an anthropologist and just observe.

Nothing particularly from cybernetics has stayed with me except ashby helping me understand good model. What has stayed with me:

-love of discovery

-community of discovery—hvf was spectacular at assembling community of discovery.

-science a communicative activity. Since I'm not so great at lot of technical stuff in economics, try to be good at communication, both in writing and teaching. HvF has shaped my writing and teaching.

Applying cybernetics to social engineering a dead end. Failures of the centrally planned economies taught us that. Hard to design social systems for independent, autonomous entities.

Philosophically, HvF was individualist—believed in making information available and letting individuals decide.

"always act so as to increase the number of choices"—a good, rough approximation, though game theory etc. has shown it's not always true. But a good place to start.

Feedback important in economics, but not discussed in those terms.

HvF doomsday article—I interpreted it as ironic. Feedback will alter the course, and we won't hit that point. HvF antimalthusian. Sure, you can extrapolate as if things will continue on same course, but feedback enters and you change course. (apply to all prophecy? 1984? So the effective prophet is always proved wrong?)

Mental illness. Was left wing idea that mental illness was just society unable to accommodate alternative modes of cognition. HvF didn't buy it. Story of delusional student who visited him, left notes all over office saying "help me." There are diseases of the mind—that realization helped me in helping steve sloan.

Was there 3 or 4 years later when steve had schizophrenic breakdown. Called his family. Was there when they came and strapped him up and committed him to Covenant 5<sup>th</sup> floor.

At time of seminar, I didn't know how to judge steve. Remember a presentation he gave about nature of math functions—that they were by nature hierarchical and "antiegaltarian." HvF accepted it as reasonable proposition and engaged in dialog. Maybe was an early sign of steve's illness..

"crazy intensity" to everybody in the class.

Holloway drug addiction.

Glassman—gifted, quiet, good values. Worked on a drama for a long time, developed notation system on one page. His career might have been limited by brun.

Howe—brilliant. "got it." Also French horn player.

Glenn kowack a "complete madman"—really quick study at all the computer stuff.

Paul Schroeder—raw ability, but some sort of emotional block kept him from progressing in life career. Met him years later in western mass, he was roofing. Deeply moral. Glad to hear of phd and faculty position.

Steve sloan—mentally ill.

Wilson—bright, pragmatic. Sometimes I wondered whether, working with Heinz, he would develop whatever skills a PhD engineer needed.

Gooch—I couldn't figure him out. He was skeptical HvF might be a charlatan, but I think that lessened. Iconoclastic.

Brun: mixed feelings. When I left there, I evaluated him glowingly, but different feelings now. Was brilliant. Respected in world of modern music. Extraordinarily attuned to language, like hvf. But language was whole game for brun, not Heinz—heinz felt was real world out there to discover.

Brun controlling and manipulative—did things with students that shouldn't be done. Assembled cult following that separated itself from world with hermetically sealed linguistic structures.

HvF was open, respected individual autonomy, didn't judge.

Brun controlling, intruded in life of students. I think glassman's career limited by Brun. He had a need to control and dominate. I became very close to his first wife, and he was not nice to his kids.



NOTES FROM PAUL SCHROEDER INTERVIEW  
8 Sept. 20004, telephone 207-866-7766

ASC archive at Illinois.

Schroeder enters roster with Cybernetician #5 (February)

BS political science 1968. Bronze Tablet. Gave student address at Centennial Convocation. Very involved in education reform.

"took" 272 as noncredit, nonstudent—also Brun composition seminar

became antiwar in 1966.

Phd fellowship to Stanford, became 1A (draftable), completed MS in 1 yr (nonthesis), then left and was drafted in 1969.

Refused induction twice, arrested twice, applied for CO status

1970—government dropped charges, returned case to local draft board (Milwaukee), PS was granted CO status.

71-73: hospital orderly in Madison, then to Nebraska to "recover" for a year.

85-86: back to school for library degree

so, period of 68-2004 was dislodged from academe, which is where feels he should be.

Had met HVF thru John White, friend of Johnny VF (killed in peace corps)—HVF agreed to receive small groups of freshmen in home. Was "suddenly hooked"—never met anyone more dynamic, never met more loving people than HVF and Mai. They loved everyone and everything. Loved their colleagues—ashby, pask, maturana, et al.

[pask "entailment nets" model for book format—pangaro can tell more of entailment nets.]

272 **third** big HVF seminar. 1—heuristics (horsley commission, pig farmer in legislature, picture in whole univ catalog about lsd injection, heuristics course proposed by bruce badanoch (dec.)) 2—metagames. 3—cyber cyber.

POINT proposal came out of course—sent to Brand in January, as PS recalls. Also, HVF "syllabus" in parabook probably written midyear, idea for book grew out of course.

PS worked as researcher for 6<sup>th</sup> Illinois constitutional convention c. 1970, helped HFV testify for horsley commission.

Anyway, while in Nebraska, thought of Brun and HVF: whatever it is they have, this is my chance to get it. So back to Illinois in January 1974.

Worked odd jobs, including orderly in Mercy Hosp. Psych ward.

HVF interested in self-organizing systems—272 was exercise in SOS.

Crowded. Standing room only. People would come and go. Lot of people involved that aren't on rosters and lists.

Class room first floor EE bldg. (room 100 or so).

Talks about color system, also flags for interrupting, etc. Dots in book maybe related to 3 colors. Ask Wilson. PS recalls maybe you were supposed to punch the dots or something.

Metalevels.

Patinkin drawing in cyber #5—printer objected went to Jordan. PS doesn't remember how resolved. Context of Horsley Commission made it worse. Assignment was to "distinguish yourself"—that's what she did. HVF wanted environment where everybody could be self. Issue was printed, PS doesn't remember exactly how. HVF parable about red & green lights—I want to get someplace, not challenge the lights. Crisis was typical of HVF seminars. Always testing limits.

[compare Tate, Holonyak stories about art, nudity, porn in EERL—Lena]

bonding among class members—PS best friends with Steve Sloan. Also friends with Wilson, Holloway

women class members: Jim Rebitzer's girlfriend (can't remember name, get from Reb.), Pat Clough

ask Ken Wilson about Frank Garvey—caused some sort of stir.

Lot of people participated who are not on lists. (Garvey not on list.)

Check out BCL report 13.1, Oct. 1970, "Heuristics"

Tell Ken Wilson to call Schroeder!

Contact:

Kowack—in Palo Alto

Hackmann—also in Palo Alto

--maybe Rebitzer knows their numbers

interesting silicon valley connection:

rebitzer, kowack, hackmann, gooch, more?

Notes from Tom von Foerster interview  
25 October 2004, 516-576-2406

born 1941, don't really remember much of war years.

Was new physics TA at Harvard during cy of cy seminar, called father to discuss teaching. Later instructor at Harvard.

HvF philosophy of teaching: students not inferior to instructor—equivalent as human beings. Instructor knows the subject matter, but students know other things. So you have **dialog**. Knowledge is generated, emerges—**not** "piped" from instructor to student.

Mai was the enabling background of HvF career. He'd call at 3:00 in p.m., say how many coming to dinner. She'd say OK, and it was ready. Heinz was the neurons, Mai the glia.

At one centennial conference or something where a lot of people were there, Mai looked around the room and said, "I've fed every one of these people."

Late 70s, bottom fell out of academic job market. Got job at physics today. Was managing editor for over 10 years.

Cy of Cy is definitely a scientific publication. Prime example of HvF teaching philosophy: assignment was to make a book about what they got out of course, and in so doing they got something out of course. (very cybernetic process.) both a publication and an assignment. They did it for themselves.

Think there were two reprints.

-guy at UC sta. Cruz, maybe Duve (?), might have done 200 or so for a class. He published McCullough papers and some hvF collections.

-future systems

cy of cy not too useful as intro to history of the ideas—best go to sources.

" marginally useful as historical document

" very useful as sociological document that reflects what going on among students, university

starting point for history of ideas.

The novel formatting, organization, navigatio, etc.—wonderful ideas for that purpose.  
Like a weblog.

Mentions science web sites with novel designs, no examples.

Entailment structures like what you try to do on the web.

NOTES FROM STUART UMPLEBY INTERVIEW  
13 September 2004, telephone: 202-994-1642

CyberCyber seminar one of many things SU did with BCL

Senior year of undergrad, did interdisciplinary research project on social implications of science and technology. Had grant from Dan Alpert. Worked with Charlie Osgood in psychology on conflict resolution, peace studies.

That led to futures research. Couldn't just be against war, had to be for something, so futures research, studying ecological systems, etc.

That led to masters thesis work: Delphi exploration game, people could explore alternative futures. Based on PLATO.

Discovered PLATO had lots of other uses: conferencing, networking, email, databases. Early versions of lotus notes. Using software to involve people in projects.

Cybernetics was theoretical basis for this work.

Cybernetics was the theory.  
PLATO was the laboratory.

So worked w/Ashby and HvF in BCL

Seminar funded by POINT grant. Book attempt at **Whole Earth Catalog for cybernetics**.

[interesting to compare thumbnail descriptions: web site before its time, cybernetic book, WEC for cyber, primer for cyber]

book was later used in chile, passed around in jail among imprisoned cyberneticians. Flores (?) went on to write important book on AI with winograd at stanford.

"coffee table book"—browsable, participatory, kinesthetic. Punch dots provide tactile appeal. They say people learn different ways—hearing, seeing, touching. Book uses as many senses as possible. An involving book, and that is very much in keeping with cybernetics.

SU was PhD student at time (PhD '75), so doubt was enrolled. PhD in communications, application of cybernetics to social systems. Looked at what happens to society when communication media change, new systems put in place. HvF was on committee.

"kept in touch" through ASC activities.

BCL was headquarters of US cybernetics research during 60s and early 70s, just as Michigan was HQ of general systems research.

Kennedy won election touting "missile gap"—well, there was also talk of a cybernetics gap. Soviets were investing a lot in cybernetics because of their centrally planned system. Only thing is, cybernetics has a lot of feedback while central planning doesn't have much feedback. But that was origin of ASC—close the cybernetics gap. [note newspaper article about trip to Tennessee, HVF et al. Discussing soviet advantage in cybernetics.]

In 1975 SU went to GWU, got grant about electronic information exchange among small communities—used that to keep BCL together via email, virtual BCL.

That got expensive cause didn't have internet yet—pay for long distance, all real time, no pc's and email. So ASC was revived—continued BCL.

Now HVF society in Vienna has HVF papers.

<http://www.gwu.edu/~umpleby/>

--moderates cybcom, keeping community together, forum

NOTES FROM KEN WILSON INTERVIEW  
10 Sept. 2004, 10:00 a.m., CDT, telephone: 303-442-1296

departmental pubs office for Cybernetician, UI printer for Cybernetics of Cybernetics.  
Name "Lilian Beck" rings bell.

KW did BSEE at Oklahoma state, 1972, got interested in system theory, advisor was UI grad, knew of HVF

MSEE '74 from UI. Did some phd work—courses, prelims—but HVF retired, BCL went under, so dropped out around 1977.

Visited UI thanksgiving 1971—HVF treated him like nephew—took him to house, gave desk in BCL

MS thesis on cybernetics: went to Santiago chile w/HVF summer 1973. HVF and Maturana taught course, KW was "scribe"—for MS thesis wrote it up. Jordan resisted a little, but was lot of work, learned lot. Beer also in chile at time, but didn't see much of him, mostly hung out w/maturana.

Being TA for seminar didn't put KW over others—seminar was self-organizing system, not hierarchy. HVF: "redundancy of potential command where information has control."

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PRINCIPLE OF REDUNDANCY OF POTENTIAL COMMAND

power resides where information resides. (Warren McCulloch)

[http://pespmc1.vub.ac.be/ASC/PRINCI\\_COMMA.html](http://pespmc1.vub.ac.be/ASC/PRINCI_COMMA.html)

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little of book written by members—was thought process on how to do something original with the format

"the book was a web site before its time."

Things hypertext could do: nested structures, pointers, targets, emulate entailment structures.

PLATO "peripheral" to course—umpleby and Valerie lamont worked on PLATO

Format of book evolved from thinking cybernetically, not from using PLATO

KW came around too late for the heuristics class. Might have been in metagames. Was always a Heinz seminar—name changed, but people just called it "heinz's seminar," whatever it was.



KW agrees w/Schroeder that syllabus-type document in parabook was written after course started. Book idea evolved from the group, evolved out of need for a "cybernetics primer."

Experiment in communication.

"People understood Brun but didn't like him. People like Heinz but didn't understand him." Brun seminar discussions "more precise in some ways."

Dots—way to connect concepts and terms—stuff you could do on web. Some controversy over dots. HVF liked that you had to get through stuff to get to targets, and that may be one advantage over hypertext where you jump straight to targets, though maybe ways to program otherwise. Brun talked about getting distracted in encyclopedia, forget what originally wanted to look up.

KW also in Brun's composition seminar. Wrote poetry, drama. HVF, Brun, and Maturana three main profs for him.

Mix of people "wonderful mélange"

Some of best computer scientists are former musicians. Big shots at Center for Advanced Computing were former Brun students—Grossman & Groty (might know how to get in touch w/kowack). Brun said was because structures of good composition same as structures of good program. Brun did computer graphics at CAC.

Brun a "major factor" in course.

Brun "difficult." Was "critical, hard on students and colleagues." But brilliant—once you understood him, you loved him.

Experiment with medallion and colors "enlightening experience." We carried that thinking into the book. You passed the thing to person talking and they would hang it around neck, change colors to signify mode.

HvF "most influential person in my life ... marvelous teacher." He was a showman, you know he used to work as a magician. He would entertain and educate at same time. You weren't *just* his student.

HvF was "black sheep" at Illinois, but recognized internationally. Remembers when funding dried up and HvF finally decided to tell Jordan he would retire, came back to lab and said, "Jordan clicked his heels with glee at the news."

"no idea" how he handled grades.

Stayed busy with production and printing of book into summer, several of the students stuck around to work.

"one of the most amazing experiences of my life."

HvF "always had a course" everybody just called it "Heinz's seminar," whatever it was.

KW stuck around until 1977, then dropped out. Worked about 6 months with Weston on modeling ideas.

Alum and friend dan udovic had a startup in new jersey (formerly of bell labs), invited KW out to work there. Dan was good engineer, bad businessman—company eventually failed. Made software for microprocessor development.

Then KW did system mgmt. for a foundry.

Then to ATT, systems engineer. They said I was first job prospect to call self a systems engineer, even though that's what they had been trying to get their people to do for years. Cybernetics background was big benefit—systems concepts helped a lot in work for ATT, still today.

1995 ATT moved KW to Denver, later downsized and he became consultant in boulder—"expert witness" helps in court fights.

Learned lot about communication—most engineers don't know how to speak or write.

272 alums:

pat clough was graphic designer, both cloughs were "brilliant". Heard Rodney might have had some mental problems. Pat is reclusive.

Kowack—crazy guy, went to CAC or spinoff of it (this agrees with glassman).

Hackman—went to law school out west (agrees w/glassman)

Ran into Glen Schultz at Bell Labs. Schultz wasn't really in the class, was in psychology or something—"studying" the class. Sometimes we resented that. Once he asked class how many were left-handed.

Zielinski came and went

Most active were: rebitzers, sloan, howe, Schroeder, zielinski, cloughs, glassman, kowack

Also, secretaries were big help—roberts, kershner

Frustrating that abramowitz listed first—book often credited "Abramowitz et al." Don't think Abramowitz even finished course, not active contributor, didn't do anything.

Dancer pictures are United Mime Workers—glassman, Feldman, debra langerman (sp?), can't remember who tall guy is.

## NOTES FROM JOHN ZIELINSKI INTERVIEW

12 Sept. 20004, telephone 831-234-2559

was enrolled student in CyberCyber. Involved in earlier seminars, maybe not enrolled, not sure. Maybe in Brun's seminar.

Barbara vogel—good contact, article on dept. peace web.

Entailment structure—influenced by Paskian entailment structures for probability and statistics. Chart was about 6 feet wide by 2.5 feet high.

Not formal student of Pask, many conversations. P was guest in HVF seminars.

Metabook—most important word "information"

Bs physics, bs chemistry, ms computer science 1976

Was enamored with Heinz—incredible opportunity, left UI when Heinz retired, quit PhD work, even though Heinz not official advisor—was mentor.

Also friend—held my first daughter when born. Shared my personal problems with him.

HVF and Chi Kung master (Tsu Kuo Chih?) two biggest mentors in life.

Chart—richard howe came to me, said "sign it. It's the best thing in the book."

Course came out of grant from POINT. Z recalls book was goal from get-go. (here he seems to agree w/HVF, not with KW and PS.)

Seminars and book brought together intelligentsia of cybernetics community.

Book attempted to elucidate cybernetics and 2<sup>nd</sup> order cybernetics. Was great event, the top people, sharing vision.

Diversity of academic backgrounds "worked totally well." Cybernetics common to all fields. Group also united by respect for von Foerster. Everybody had something to contribute.

Z's career: left UI for Burroughs in Arizona, track food distribution. Computer programs didn't work, people were doing it manually, then inputting in computer.

Then to small company, also a mess.

Did some PLATO programming, then study Chi Kung.0

Entering "real world" after school, realized it had to be saved. Devoted self to that 20 years ago.

Departmentofpeace.net—cybernetic concepts applied to conflict resolution.

PLATO was not important in class.

Sherwin Gooch—"wild man, brilliant" wrote some program for PLATO, got machine to go in circles, resonance frequency—not sure, ask Sherwin. Brilliant guy.

Have always looked at world seriously. Uncle was priest. Got out of school, saw destruction of ecology. Realized if wanted to save world, had to save self first. Personal responsibility to save world—vow 20 years ago to do nothing that didn't contribute to saving world.

Department of peace is culmination of everything I know.