

The  
Computer  
Museum  
300 Congress St.  
Boston, MA 02210

COMPUTATION  
DEPARTMENT  
OFFICE

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*Copies to Staff  
Bouchers*

February 2, 1984

Mr. George Michael  
Computer Research Group  
Lawrence Livermore Laboratories  
University of California  
P.O.Box 863  
Livermore, CA 94550

Dear Mr. Michael:

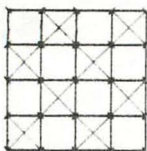
I am developing an exhibit focusing on Seymour Cray as part of The Computer Museum's "Second Generation" Gallery. Gwen Bell gave me your name as someone who could provide me with information relating to Mr. Cray's career. I am specifically interested in the history of Mr. Cray's involvement with computers, i.e.: the machines he was involved in designing, the characteristics of those machines, the success of those machines, his work style, the dates of his career with CDC, etc. Of course any additional information that you might have at your disposal which you could pass on to me, such as his educational background, and pre- and post-CDC careers, or people you could put me in contact with, would be extremely helpful and contribute to a better exhibit.

As part of the exhibit we would like to include video tapes of Mr. Cray himself, and of his machines running. Gwen believes that you might have some video tapes which would suit our purpose, and that you also might be amenable to making a tape of your Cray I in operation with our assistance. I would like to pursue both these possibilities with you. I look forward to hearing from you, and will call you sometime next week to answer any questions you might have. Thank you for your time and attention.

Sincerely,

*Gregory W. Welch*

Gregory W. Welch  
Exhibits Operations Manager





Western Regional Office — Sunset Office Plaza  
1874 Holmes Street, Livermore, CA 94550 415/447-0217

SEYMOUR R. CRAY

October 1980

TITLE: Chairman of the Board  
Age: Fifty-five  
Education: B. S. Electrical Engineering, University of Minnesota  
M. S. Mathematics, 1950 University of Minnesota

AT CRAY RESEARCH:

- 1972 - Mr. Cray founded the company, with four others, serving as a Director Chief Executive Officer and President.
- 1977 - (October) - Remaining CEO, he relinquished the Presidency to J. A. Rollwagen and became Chairman of the Board.
- 1980 - (September) - Remaining Chairman of the Board, he relinquished his position of CEO to J. A. Rollwagen.

PREVIOUSLY:

- 1957 - 1972 - Mr. Cray was with Control Data Corporation; he was a company founder and a director from 1957 to 1968; at the time of his resignation in 1972 he was a Senior Vice President.
- 1951 - 1957 - He served with the Univac Division of Sperry Rand Corporation and its predecessor companies, Engineering Research Associates (1951 - 1953) and Remington Rand (1953 - 1957)

TECHNICAL ACHIEVEMENTS:

At Control Data, he was principal architect of the CDC 1604, 6600 and 7600.

At CRAY Research he has designed the CRAY-1 computer system and is currently leading the design effort for CRAY-1 enhancements.

1972



Seymour R. Cray

The Harry Goode Memorial Award has been established as an annual award to honor and encourage outstanding contributions to the information processing field. Established in 1964, the 1972 presentation marks the ninth time the Harry Goode Memorial Award has been given.

President— AFIPS Board of Directors— Walter L. Anderson  
Chairman— AFIPS Awards Committee— Fred Gruenberger

Harry Goode Memorial Award Committee:

Dr. Robert R. Johnson, Chairman— John W. Carr—  
Alan J. Perlis



AMERICAN FEDERATION OF INFORMATION PROCESSING SOCIETIES

takes pride in announcing the presentation of the

1972 HARRY GOODE  
MEMORIAL AWARD

to Seymour R. Cray

For his contributions to the conceptual and detailed design of several large-scale, high-speed digital computers over a period of more than 15 years.  
For his contributions and leadership in developing practical multiprocessing systems embodying a large number of very innovative computer concepts.

Presented December 7, 1972

1972  
HARRY  
GOODE  
MEMORIAL  
AWARD



In March of this year, 1972 Harry Goode Memorial Award winner Seymour R. Cray left his position as Senior Vice President of Control Data Corporation to found his own firm, Cray Research, Inc., in a clearing on the wooded land on which he was born, near Chippewa Falls, Wisconsin.

He entered industry in 1951 after two years as an instructor of Mathematics at the University of Minnesota. His first position was as a Project Engineer with Engineering Research Associates, Inc. Put in charge of design of the control section of the first ERA 1103 Computer System, he introduced concepts of self-checking, by machine, of the machine. His own description of this work is given in a 1954 paper entitled, "Computer Programmed Preventive Maintenance for the ERA 1103 Computer System". He also originated improved pulse transformers for special digital circuit applications and magnetic-drum reading and writing circuits for large digital systems.

Cray spent the next five years with Remington Rand Univac. Here he supervised development of the Naval Tactical Data System. Although his work included design, coordination, programming, and assembly of the many diverse elements of the system, at least three of his contributions stand out as significant steps forward in the field of data processing. He developed a special-purpose computing system using solid-state components; he developed a generalized incremental computer logic for drift-free, real-time computation in aircraft; and he introduced mechanized programs by which computer systems were designed with the assistance of a large-scale scientific computer.

In 1958, Cray and long-time associate William Norris joined together to form Control Data Corporation. Cray supervised the design, development, and construction of the company's first 1604 Computer and its associated equipment, as well as large-scale, special-purpose data-processing systems. One of these machines was soon at work in the numerical analysis laboratory of the University of Wisconsin at Madison. Another went to the University of Illinois. Others were used nationwide, making important contributions to weather prediction, oceanography, satellite control, atomic energy testing, flight simulation, and in many other scientific and engineering applications.

Recognizing, however, that the future success of Control Data depended on continued progress in computer design, Cray, established their Chippewa Laboratories which he was to head for the next decade.

Housed in its own 24,000-square-foot building overlooking the Chippewa River, this laboratory eventually grew to a staff of 50 under Cray's leadership. It was here that the industry's largest computer system, the Control Data 7600 was designed.

Although larger systems are presently under development at Chippewa, Cray's concepts are still further in advance of current hardware. Therefore, early this year, he decided to realize his own plan for a computer laboratory, a chief requisite of which would be absolute silence. Thus, Cray Research was born.

As holder of numerous patents, granted and pending, as a continuing pioneer who has constantly pushed back the frontiers of computer design, size and speed, Seymour R. Cray has indeed earned the respect of the computing profession.

## The Harry Goode Memorial Award

Harry H. Goode, born in New York City on July 1, 1909, was a pioneer and leader in the field of system engineering. One of the first scientists to fully comprehend the powers and abilities of computers, he formulated many principles of system engineering and developed techniques for the design, analysis and evaluation of large-scale systems. He was instrumental in initiating early systems projects including the Typhoon computer and Whirlwind computer at MIT. Among other activities, he participated in the study which led to the Bomarc missile, and he conceived and developed the Air Defense Integrated System Project.

In addition to his scientific contributions, Mr. Goode advanced the information processing sciences through his teaching at the University of Michigan and his many publications on statistics, simulation and modeling, vehicular traffic control, and system design. One of his most important achievements was coauthoring the first book on "System Engineering" which classified and regularized systems and their design processes.

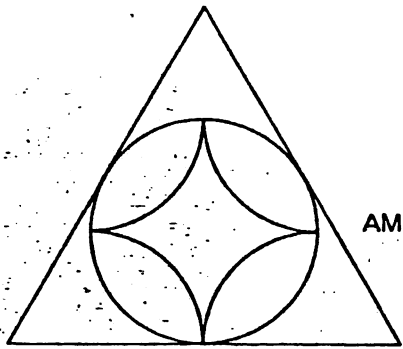
Mr. Goode, statistician, mathematician, electrical and chemical engineer and professor, was a member of the IRE, now IEEE, professional group on electronic computers and of the computer advisory committee of the Society of Automotive Engineers. As chairman of the National Joint Computer Committee, he led this group in creating an expanded and strengthened organization, AFIPS, to help meet the needs arising from the rapidly growing information processing technology. Mr. Goode died in an automobile accident before AFIPS was formally chartered.

The Harry Goode Memorial Award has been established in recognition and appreciation of Mr. Goode's invaluable contributions to the information processing sciences. Its purposes are to encourage further development of the field and to acknowledge and honor outstanding contributions to the information processing sciences.





The Scribe Accroupi, the famous Egyptian statue in the Paris Louvre, inspired the noted European sculptor, Andras Beck, in the conception of the Harry Goode Memorial Medal. In the sculptor's own words, The Scribe allegorizes man's intellectual effort, while the AFIPS emblem symbolizes the machine that aids and supports human effort in this field. The arrow is the signature of the Hungarian-born sculptor, former Professor of Sculpture at the Budapest Academy of Fine Arts, who has resided in France since 1957.



**AMERICAN FEDERATION OF INFORMATION PROCESSING SOCIETIES, INC.**

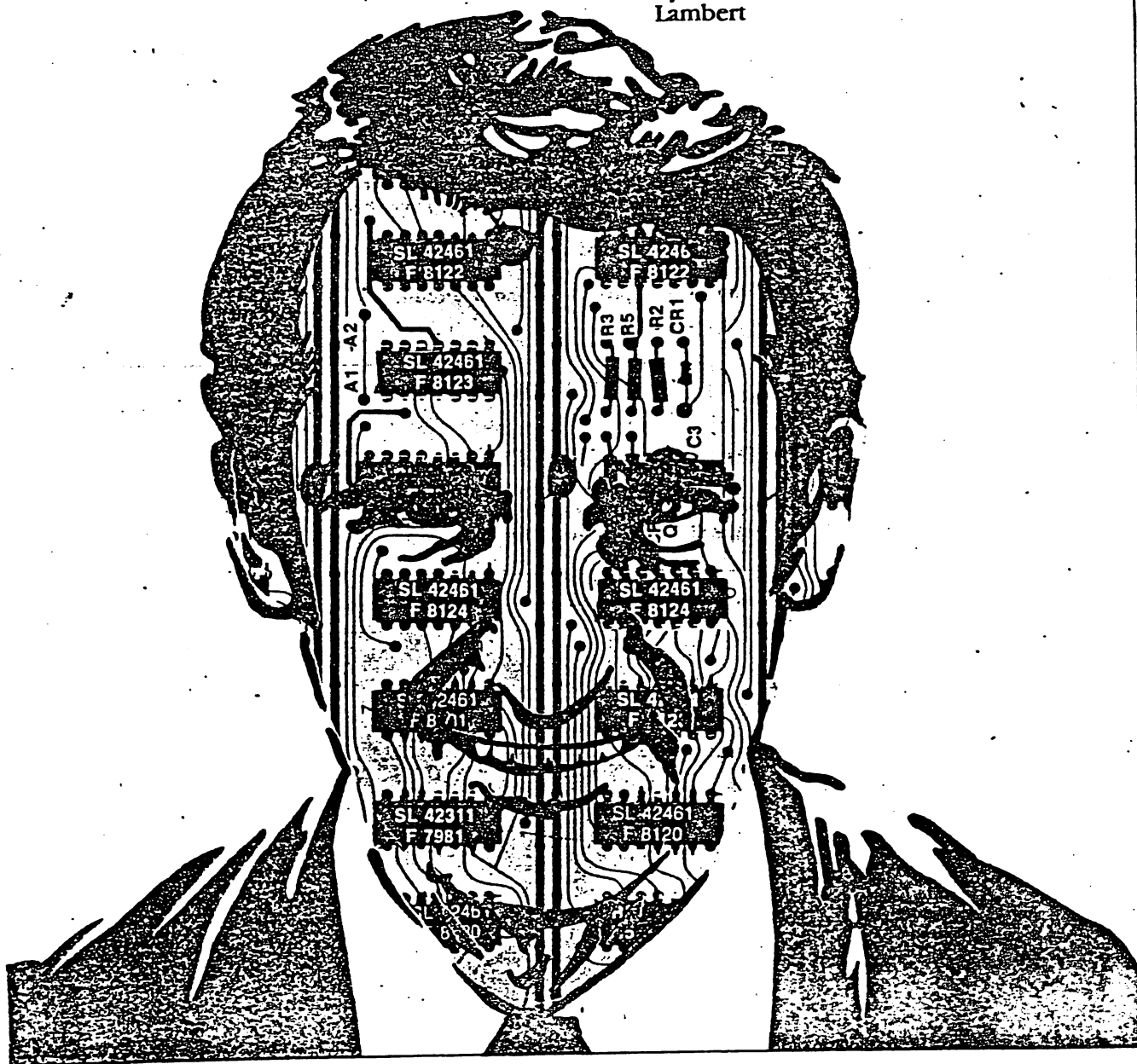
**National Headquarters:  
210 Summit Avenue, Montvale, N.J. 07645**

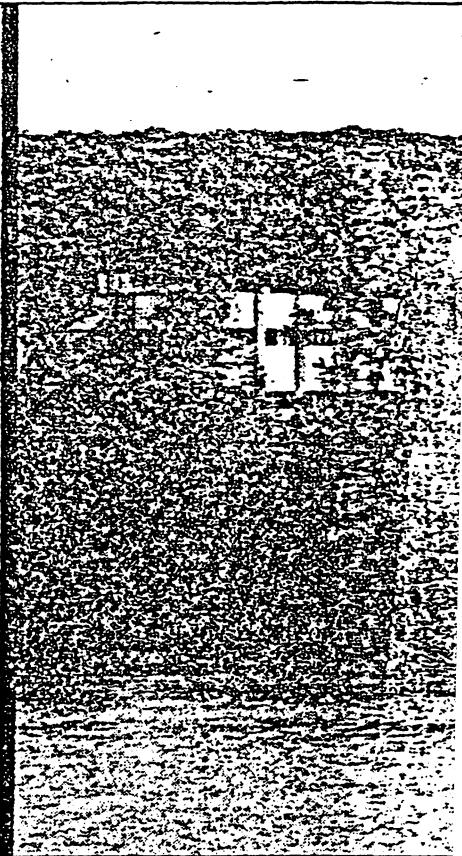
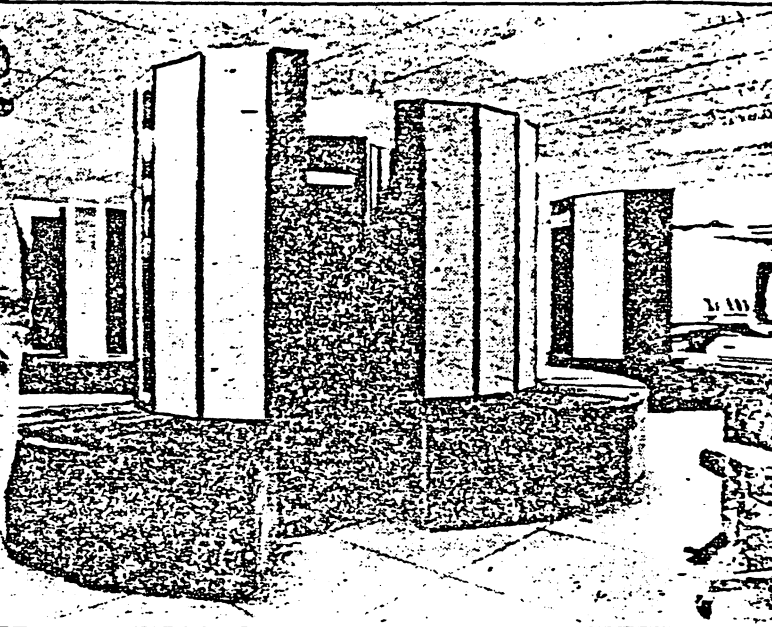
I N S E A R C H O F

# SEYMOUR CRAY

Feared and envied by the Japanese, a pillar of American defense, creator of the fastest, most powerful "thinking" machines the world has ever known, the reclusive "Wizard of Chippewa Falls" sits at the counter of his favorite diner.

By Brian Lambert





Cray, his Cray X-MP, the "world's most expensive loveseat," and the secluded research facility on the Chippewa River.

There are less than 7 supercomputers in operation in the world today. Cray Research Inc. designed, built, and maintains 54 of them.

genius of super-computers can be found in the Twin Cities... if you can find him. Brian Lambert did.

Meet

# SEYMOUR CRAY

## The Hang-Out

**S**EYMOUR SITS at the counter," says the waitress. "Soup today is clam chowder." After spending two wiltingly hot days in Chippewa Falls trying to wring nothing more than a personal anecdote or two out of Seymour Cray's friends and neighbors I was not surprised to hear that "Seymour," as literally everyone calls him, sits at the counter. It's his style. Nor was I surprised that that is as much as the waitress is willing to tell me.

She smiles mysteriously, a little conspiratorially. She's been through this before, I think. I doubt a bribe will get me any further.

Back in Minneapolis, the courteously wary woman at Cray Research Inc. managed not to laugh when I asked if Mr. Cray would consent to an interview. "Why, not even *TIME*..." she had said.

To say Seymour Cray the computer legend talks to no one is only a slight exaggeration. With the exception of a formal interview with William Hoffman, for Cray's alma mater the University of Minnesota's publication *Update*, the man really hasn't stopped to speak with the press since going public in late 1981 to explain to skittish stockholders why he was detaching himself from one of, if not *the*, fastest growing company in America.

He was unburdening himself of the petty distractions of so-called high-powered corporate life, he said, to better devote himself full-time to his next machine, a supercomputer he would once again build in Chippewa Falls.

A single clue is as far as the waitress is willing to go. "I'll have the soup and salad," I say. "Blue cheese. And," smiling back at her, "there's no hurry." Cray may be the unquestioned monarch of an exasperatingly tight-lipped industry, but he is also a creature of habit. And among his most mundane habits is a fondness for this particular restaurant.

He hired his favorite waitress from this place to be his personal secretary. That's his style, too. A regular guy. A little quirky, but otherwise as normal as a bowl of chowder for Friday's lunch. The people of Chippewa Falls, some 800 of whom owe their jobs to Seymour, know a bonafide natural resource when they see one, and they know how to protect it. I would simply have to wait.

## Golfing Buddy

**P**AT DURCH, for example, is one of Seymour's oldest friends. Seymour is 57. Pat is a year older. He's a jolly fellow with a big bloodshot nose that rivals his belly for prominence. He probably makes a terrific Santa Claus. Durch's laugh is really a hearty giggle.

"Oh sure, I'll talk to you," he says rocking on his heels in the foyer of his prosperous construction company which sits next door to one of three Cray Research Inc. buildings in Chippewa Falls' deceptively unimposing industrial park.

"I'll talk. But not about Seymour."

Durch laughs again. This is truly an amusing game. Another writer snuffling around for a tidbit of color, an off-hand story that might illuminate something about his friend of 40 years, Seymour Cray, a man about whom *Fortune* magazine once wrote, "In a field where genius is almost taken for granted, he is a towering figure."

Without resorting to tabloid hyperbole, Durch's friend Seymour is as vital to the economic and physical security of the United States as any single person alive today. It is difficult to overestimate Cray's importance to this country's continued industrial and military superiority. Seymour designs supercomputers, the fastest, most powerful and arguably the most sophisticated "thinking" machines the world has ever known. Machines presently capable of performing up to 700 million calculations *a second*.

Thanks largely to Cray, supercomputers are an industry almost entirely centered in Minneapolis-St. Paul and — would you believe — Chippewa Falls, Wisconsin. The Japanese are feverishly trying to change all that, but they have yet to deliver machine number one.

There are less than 75 supercomputers in operation in the world today. Cray Research Inc. designed, built and maintains 54 of them. Control Data built all but a couple of the rest, and it was on the strength of Seymour Cray's earliest inventions that Control Data became the giant it is today.

Cray Research Inc. is at the vanguard of a fledgling multi-million dollar industry with unimaginable applications and — watch it — evolutionary potential. Some say Seymour Cray himself is the vanguard. While new industrial uses for supercomputer power are devised daily, American defense and intelligence research systems have been heavily dependant on Cray machines for nearly a decade, longer if you consider Seymour's work on the forerunners of today's mammoth, mind-bogglingly fast number crunchers.

Pat Durch says he and Seymour still play golf occasionally. "But not very often lately. He's just so darn busy."

## The Next Generation

**S**INCE UNVEILING a prototype of his latest invention in the fall of 1981, Cray and his team have been working in a laboratory a couple miles away from Durch's office, in a thicket of trees on the east bank of the Chippewa River. Working on a machine

four to twelve times more powerful than granddaddy of supercomputers, the CRAY-1, the first of which was installed in 1976.

The CRAY-2, when it hits the market sometime next year, will be a giant step toward insuring America's preeminence in computer technology for at least another decade.

So when the Japanese announce a 10-year, \$200 million National Superspeed Computer Project, a consortium of Fujitsu, Hitachi, Toshiba, Nippon Electric, Mitsubishi and other nationally-funded Electro-Technical Laboratory, they are for the most part backing Seymour Cray, known affectionately as "The Wizard of Chippewa Falls" or "The J.D. Sager of Central Processing Units." (Cray Research incidentally expects to spend close to \$35 million of its own money on research this year, or 20 percent of its total revenue.)

Cray is no stranger to genuine high praise. Gene Amdahl, the founder of IBM, describes him as "the most outstanding high performance scientific computer-designer

the world." To date, counting the CRAY-2, Seymour Cray has designed and built four generations of the world's fastest and most powerful computers. Two were produced for Control Data during the Sixties. The latest generation, the CRAY-1 series, has given way to 1982's state-of-the-art CRAY X-MP. It is assembled in a building 100 yards from where Dorch and I talk.

Like all of Chippewa Falls, and by extension the Twin Cities, the United States and her western European allies, who are presently the main beneficiaries of Seymour Cray's prodigious technology (two CRAY-1 machines operate in Japan), Pat Dorch figures he owes Seymour a small debt. The least he can do for his old friend is deflect a few silly questions. "He's just like he's always been," Dorch chuckles. "Hasn't changed at all. Same Seymour."

## Class of '43

**L**EAFING THROUGH the 1943 Chippewa Falls High yearbook, *The Monocle*, you acquire fascinating trivia bits: Seymour Cray served as electrician for the Junior Prom, was a member of the Boy's Glee Club and graduated sixth in his class with a 93.18 average. The class legend is a familiar enough chronicle, full of crew-cut Homecoming Kings and perma-waved Queens, football and basketball heroics against arch-rival Eau Claire and allegedly riotous, prank-filled forays into Minneapolis-St. Paul. But the historians of CFHS's class of '43 interrupt the litany of mirth at one point to consider the thin, solemn little fellow with the well-oiled hair whose picture appears at the bottom of the first page of senior photos.

With nearly a tenth of the class overseas fighting WWII, an unidentified classmate wrote, "As Science is becoming more and more important each year, many high school students are needed in this field. Seymour Cray has received the Science Award. He has been very much interested in this work all through his high school days. If anyone were to predict his future I dare say, it would be along the science line."

**Born and raised in Chippewa Falls, Seymour Cray, the son of a former city engineer, lives today in a cottage in the woods alongside Lake Wissota, not far from his lab. Virtually unknown to the average man and woman outside the esoteric, intensely competitive world of semi-conductors, Central Processing Units, disk drives and three-dimensional circuit modules, Seymour Cray is rarely seen even by the 13,000 people of Chippewa Falls, which until seven years ago was a rustic little river-town known best as home to the Leinenkugel Brewery and Chippewa Springs mineral water company.**

## Controlled Boom

**I**CK HAMILTON has the pleasure of serving as mayor of Chippewa Falls, from 1 to 5 each afternoon. His gregarious secretary, Wanda Mason, explains that it's really a full-time job, and everybody in town knows that. Why there was even a non-binding referendum in favor of the idea. But, she says, the city council hasn't quite got behind it yet. So Hamilton takes care of the city's business in his noisily air-conditioned office for a few hours a day and works as a PR man for a local credit union the rest of the time.

An engaging character who plainly enjoys the opportunity to talk up his town, Hamilton concedes, "Oh, it's true. I think many people have no idea what [Cray Research] is contributing to the local economy. But that's because Cray isn't a bunch of headline seekers. Likewise I don't believe people are aware of the sophistication and power of the machines being made here in town. I mean, it boggles the mind. It certainly boggles mine, anyway. I mean, now they're talking about 1.25 billion calculations a second. My god, that's like the national debt! The mind can't conceive ..."

Hamilton can't add much in the way of personal anecdotes about Cray. He says he's talked to him occasionally over the years, but rarely more than small talk or business obligations between Cray Research and the city. But what's obvious is that because of Seymour Cray the local economy is enjoying a controlled boom. High-salaried, intellectual research and development people have fattened the tax base and subtly altered the area's social fabric.

"This has always been a pretty conservative town," says Hamilton, "but over the last few years you sense the change. We're becoming more progressive. More open to new ideas." Hamilton is a happy man.

"Also," he adds, "it's a terrifically clean industry. Very little demand on city services, with the exception of electricity. I believe when the CRAY-2 comes on line, their electrical needs are going to be greater than the present output of the Wissota Hydro plant, which is the largest hydro plant in the state of Wisconsin."

John LaVine bought the *Chippewa Falls Herald-Telegraph* 20 years ago and has probably written more stories about Seymour Cray than anyone else.

"I knew Seymour and his first wife, Maureen. And I've known their three children. But it would be wrong to say we are close friends. I think like most busy people who are trying to do something complicated, he protects his time because he can't get things done if he doesn't. There are a thousand people like you who want to talk to him.

"But he obviously has a special feeling for Chippewa Falls and the area, so he's been gracious enough to talk to us on occasion, but we surely try not to abuse or even near to frequently use that relationship.

"As for the general awareness of the significance of these machines," LaVine shrugs, "I don't know that many people in the country, not just this city, know what the machines really mean in the ultimate sense, to three-dimensionally model weather and such. I

think as a society we've only begun to sort out what they mean to us overall."



'Seymour Cray has received the Science Award. He has been very much interested in this work through high school days. If anyone were to predict his future I dare say it would be along the science line.'

—Chippewa Falls  
1943 Yearbook



## Bigger, Faster, Farther

**C**OSTING AN average of \$11 million each, Cray supercomputers have until recently filled a rather narrow field of industrial uses, primarily seismic, petroleum and weather research. (This excludes for a moment their vast and varied military and intelligence applications.) Because of certain properties far too complex to explain here, Cray machines are ideally suited for digesting, stimulating and analyzing physical phenomena like the infinite, ceaselessly shifting variables involved in weather patterns, geologic formations and fluid dynamics.

Cray's big machines, Central Processing Units (CPUs), operate as the hub or Grand Central Station for a battery of disk drives, which computer technicians refer to as the "front end." As many as 48 disk drives can be attached to a CRAY X-MP, each pumping in its own data, asking its own questions and demanding its own answers.

Cray machines are designed to be, and are the king-pins of any research-center's computer operations. To own one is a badge of major league prestige: Exxon has one. ARCO has one. Chevron has one. The United Kingdom Ministry of Defense has one. Shell has one. The University of Minnesota has one. Digital Productions of Hollywood has one. NASA has two. So does the National Center for Atmospheric

Research. Los Alamos National Laboratories has five and Lawrence Livermore Laboratories, the giant nuclear research facility east of Berkeley, California, has six. It is not readily known how many the Pentagon, the CIA or the National Security Agency own. (But the byzantine 68,000-person NSA admitted to owning at least one. They proudly featured one on the cover of their recruitment brochure.)

With their ability to manage dozens of calculations simultaneously, supercomputers are now undergoing a myriad of exponentially expanding applications. Witness Digital Productions' lease of a CRAY-1S to produce effects for a feature-length Hollywood film called *Starfighters*, to be released next year. As test clips show, the detail and motion quality of the resulting images is startlingly realistic (*Surrealistic* might be a better description). Film technicians are excitedly talking of simulating animate objects so convincing in their movement as to be indiscernible from the real thing.

One wild-eyed producer was recently ranting on about the possibility of writing a Marlon Brando program for the CRAY X-MP to perfectly simulate a Stanley Kowalski-era Brando which would play all the roles the flesh and blood star is too old, too fat or too indifferent to perform himself.

Seymour himself is on record as expressing delight, and some relief that the benign and delightful "scene simulation" capabilities of his machines have finally been realized. Los Alamos and Lawrence Livermore of course are more interested in computer simulations of nuclear explosions and the like. But Cray views that philosophically, telling William Hoffman that the dawning age of supercomputers "seems to me to be the vehicle that led to the [1963] Test Ban Treaty, and as long as we can keep it in a computer no one will get hurt."

But when Ronald Reagan or Caspar Weinberger dream wistfully of an orbiting *Star Wars* anti-ballistic missile system, their trillion

dollar nuke dreams are rooted in the belief that somewhere in the United States, someone — most likely Seymour Cray — will beat out the Japanese (the only serious foreign threat) and produce the next generation of supercomputers, capable of tracking and orchestrating the destruction of thousands of MIRVed ICBMs.

We may take for granted that Reagan and Weinberger have been adequately briefed on what's happening in Chippewa Falls, because for most intents and purposes Seymour Cray has already beaten our Oriental partners to the punch.

Says Terry MacDougal, a member of Seymour's R&D team at Riverside, as the secluded Chippewa River complex is called, "I can't say when, I know how much work we've got to do downstairs, but the CRAY-2 is definitely on the horizon. *When* though is really a marketing decision."

The interview with MacDougal, a pleasant man in his mid-thirties, takes place in an unadorned conference room at the Riverside complex, under the suspicious, disapproving eye of a beefy security man who remarks a half dozen times that it "isn't fair" for me to be asking questions about the Cray style, development process or Seymour's personal idiosyncrasies. Rather I should be talking to PR and Marketing back in Minneapolis. The clear message of course is that I should simply be back in Minneapolis and not worming around their top secret turf.

MacDougal doesn't seem to mind nearly as much, but he knows the security man is monitoring him as closely as me.

As it turns out MacDougal knows how to play the deflection game without supervision — just like the waitress and Pat Durch and folks back at Cray headquarters. What's really exciting about Seymour, he says, is pretty much incomprehensible to the general public, save for the ability to be overwhelmed by the grandeur of the numbers and the fantastic speed.

Otherwise Seymour's a damned-unspectacular fellow. He sits at the counter. He likes scuba diving and wind-surfing, skiing, tennis and golf. But he's about as far removed from a self-conscious celebrity as you can get.

Says MacDougal, "Seymour's easy to work for. He isn't difficult to understand. The beauty of working for Seymour is like the beauty of the design of his machines. It's so damned simple it makes you wonder why you didn't think of it. When he comes up with an idea the only thing you feel bad about is that you didn't come up with it first. He's demanding as far as getting it done, but I like to use this analogy: He's developed the KISS method. Keep It Simple, Stupid. That's his philosophy. And like the computer, there's a lot to it, but each section is really pretty simple.

"Seymour said it before. 'We're packaging engineers. We take a product that's existed for quite sometime and just package it different. That's all.'"

Seymour had once hoped to have the CRAY-2 (soon to be followed by the CRAY-3) on the market this year, while Cray Research seems always to have preferred to play out the demand for its existing machines until at least 1985. Stubborn technical and supply problems combined with aggressive Japanese competition to converge R&D and marketing on the likely mid-1984 date.

## It Floats

**T**HE CRAY X-MP now on the assembly lines in the modest pole building next to Pat Durch's construction company offices is one sleek monster. (Cray Research officials take pains to emphasize that the X-MP was developed by Steve Shyh-shing Chen. Although clearly it is an enhancement of Seymour's original design.)

An eight-foot-high series of shafts packed with 70 miles of wiring is arranged in a semi-circle to facilitate maintenance. (Cray Research is duly proud of its machines' reliability as well as their more potent properties.) The shafts are wrapped at their base by a foot-and-a-half-tall, two-foot-wide cushion-topped settee which houses the power supply.

The design prompts the description of it as "the world's most expensive love seat." Viewed from above, the five-ton monolith slyly forms a stylized "C." Freon cooled, the present Cray machines require as much refrigeration as 25 average-size homes.

By contrast, the entire CRAY-2 stands only 26 inches tall and stretches out a mere 38 inches in length. After you absorb that evolution, it's hard to say what is more startling, the fact that the guts to this little dynamo float in an inert fluorocarbon liquid, the same stuff used for artificial blood, or that the whole thing is eerily, uncannily reminiscent of *Donovan's Brain*.

Remember that creepy early fifties sci-fi thriller? A disembodied noodle was kept sparking in a mad scientist's aquarium and all hell broke loose. That scenario takes an even more hair-raising turn when people like Bill Shaffer, a spokesman for Control Data, speak of turning away from small research teams like Cray favors and relying instead on computers to design succeeding generations of supercomputers.

## The "Thing" of it

**A**LTHOUGH PEOPLE like Dave Frasch, Cray's Chippewa Falls-based corporate secretary, insist stories of Cray's exclusiveness are overblown, the man has gone to extraordinary lengths to rid himself of the responsibilities of managing and mollifying human beings, stockholders in particular. Furthermore, in a distressingly pin-striped, button-down industry, Cray is almost as famous for his aversion to otherwise hallowed corporate traditions.

Annoyance with Control Data's reluctance to immediately market his CDC 8600 computer, thereby reducing his earlier CDC 7600 (generally considered the first supercomputer) to virtual obsolescence, Cray split with the unfolding giant in 1972. A man to whom a necktie is an anathema, and whose intra-office dictum regarding memos is "Call, don't write," Cray formally extricated himself from the people-intensive obligations of his own company in November of 1981, simultaneous with the unveiling of the CRAY-2 prototype.

Seymour would and has clearly remained the company's physical and spiritual leader, but the profit-maximizing priorities of marketing are now decisions made independent of him. With Cray's departure, John Rollwagen, an MIT engineering and Harvard business graduate, formally became Cray Research Inc.'s Chairman, President and Chief Executive Officer, responsibilities he had held for some time anyway.

"I knew when I started," Cray told Don Clark of the *St. Paul Pioneer Press* in an interview at the time, "that when the company got to a certain size, I really wouldn't want to be participating on a daily basis in the management. My interests are really to do the 'thing' part with computers, rather than the 'people' part."

With rare exception that was Cray's last public word on that or any other subject.

## Cray Speaks

**T**HE COUNTER remains empty throughout the first stage of the lunch time rush. Squat, muscular, retired farmers stop and talk heat and crop conditions with their pals still in overalls. Their wives, in a wild panoply of vibrant-colored pant suits move quickly to tables and motion for the waitresses. The local sheriff and a couple deputies take up a table.

Finally, just after noon, Cray arrives. Plaid cotton shirt, well-worn blue Levi cords with the little tag still attached to one of the rear pockets. A man of average size, silvering hair and steady carriage. He looks a little like Hugh

Hefner's country cousin. No one pays him any particular attention. A glass of iced tea arrives as he takes up a seat at the far end of the counter. The clam chowder appears a moment later.

A mechanic in oily blue work shirt with his name stitched above the left breast pocket pats Seymour on the shoulder and slides into the seat next to him. They carry on a relaxed, animated discussion, about what specifically I can't hear, though presumably not CPUs.

After a half-hour Cray gets up to leave and I intercept him by the cash register. "Who are you with?" he asks. His tone is curious, not suspicious or annoyed. We walk out into the heat.

**'In a field where genius is almost taken for granted, he is a towering figure.'**

**—FORTUNE magazine about Seymour Cray**

**To date, counting the CRAY-2, Seymour Cray has designed and built four generations of the world's fastest and most powerful computers.**

The only sound besides the tap, tap, tap of an elderly woman's aluminum walker moving past up the sidewalk is the steady flapping of the American flag. Cray won't stop for long so my questions come quick.

"Do you think American industry is making any common mistakes in the way it goes about technological research and development?"

Cray squints. "I can't really speak for industry. Our industry is a lot of different people. A lot of different ideas. So I don't think there really is anything in common, so it can't all be wrong." He's being coy. He smiles.

"You're thought of as a man who has developed a successful process away from the big corporate labs."

"Well, yeah," says Cray, "but a lot of other people have too. There's nothing unique about the way I do things."

"I guess there'd be some disagreement with that. A lot of people think of you as a pretty unique fellow."

"Well, reputations are sometimes bigger than people."

"What's your attitude toward the military applications of your machines?"

Cray doesn't mind. "I don't think the machines have been that significant thus far in the military. Military weapons are still built pretty much the same way they always have been."

"Are you ever in awe of the machines you build? Of their power? Of what they are capable of doing?"

"Disgusted, yes. In awe, no." He laughs. This of course is the man who once said of his machines, "They certainly aren't supercomputers; they are kind of simple, dumb things."

I ask, "Do you think the outbreak of World War II gave you some sense of urgency about the need for technical evolution?"

"No. I was too young then. So it didn't have that effect on me. I suppose it did in people ten years older though."

He says that and I'm reminded of one of his favorite maxims. "Keep a decade behind," he frequently tells his staff, admonishing them to rely on tried and true components in their repackaging efforts.

Finally, as he edges toward his car, a keys and heater Mitsubishi Champ, "Do you feel protected by your friends and neighbors here in Chippewa Falls?"

"Well, it's where I was born and grew up, so I'm comfortable here, and that's what you need to think." With that Cray gives me an intent look and asks, "Okay?"

"Okay," I say.

It is my experience that most legends are an anti-climax in person. It is their creations which reflect greatness back on them, illuminating in the best instances human simplicity. □