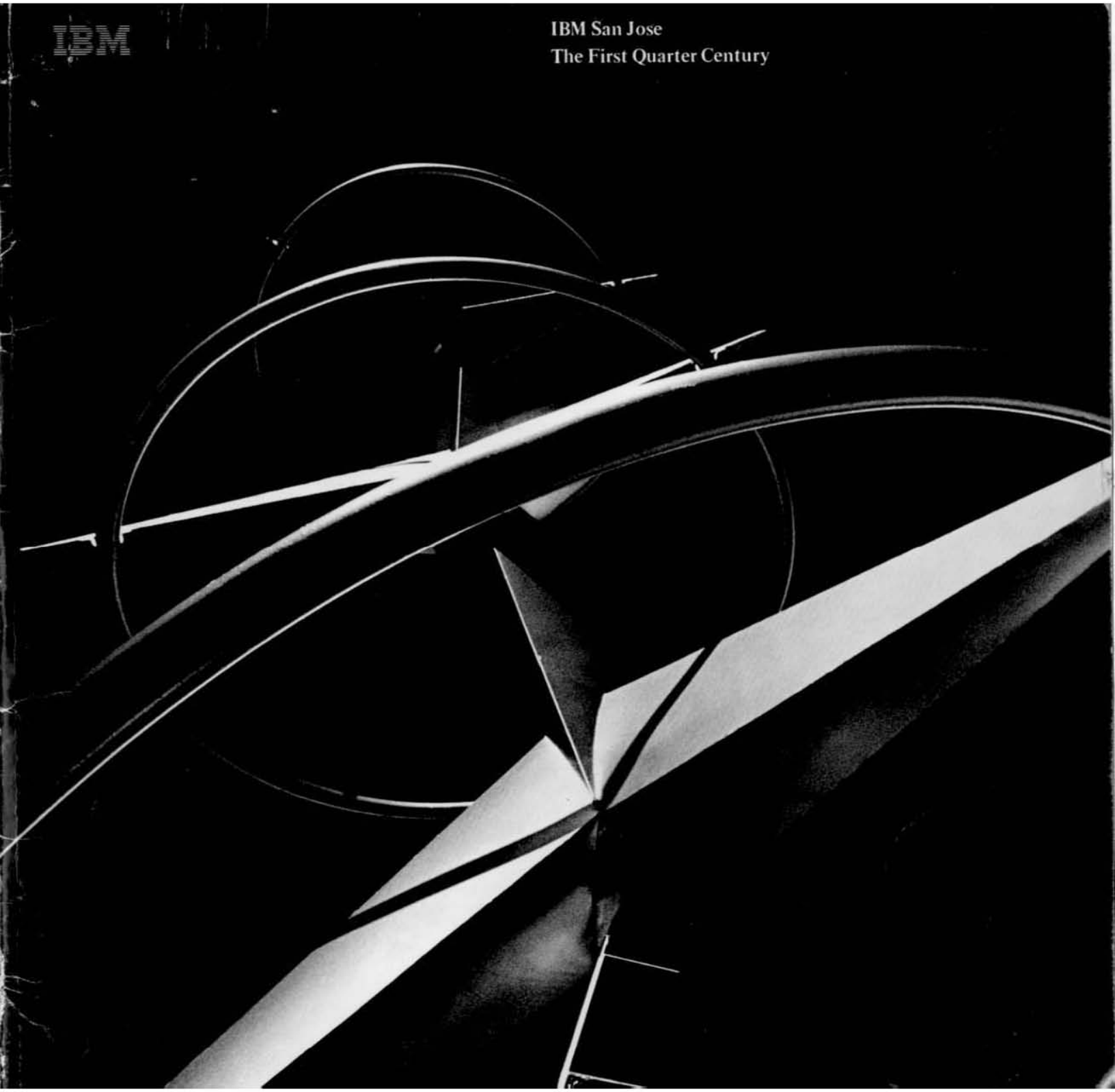
IBM

IBM San Jose
The First Quarter Century



IBM San Jose
The First Quarter Century

by
David W. Kean

Introduction

In 1952, the gifted inventor Rey Johnson, father of the test-scoring machine that for 40 years has spared teachers the tedium of considerable hand grading of exams, was sent from the Endicott IBM laboratory to San Jose to organize a new laboratory which was to undertake some very special research. This volume commemorates in pictures the 25 eventful years that resulted from that assignment.

At that time, the company's 6,000 U. S. customers were using up 16 billion punched cards annually on 100,000 rented machines. But in 1950, a team of IBM engineers had canvassed West Coast prospects to see if there was a demand for computers. There was - for 18 of them apparently - and this stunning development did much to change the course of IBM's business.

Though the computer had been invented in the East, most of its earliest users - the aeronautical industry and government-subsidized "think tanks" - were on the West Coast, with an already substantial reservoir of digital computer engineers in the San Francisco Bay Area.

A talented engineering group in Poughkeepsie put together IBM's first large-scale production computer, the 701 "Defense Calculator," by 1952 in response to the West Coast demands, but the large majority of IBM product designers specialized in electromechanics. When a concentrated recruiting effort on the Coast was unable to persuade electronics engineers to swap California for Endicott or Poughkeepsie, it was decided to move the mountain to Mohammed.

Johnson left Endicott with two assistants and the charge to open up a small laboratory with locally hired talent totalling not more than 50 persons and to engage in computer-related research not being done elsewhere. He knew that there was an implied time limit and that if nothing was developed with commercial potential in a reasonable time, the lab would be shut down.

Johnson was (and is) a clever man with the restless mind of a natural inventor. Under his guidance, after a few unproductive starts, the major focus of the laboratory turned to methods of storing large quantities of information in such a form that any portion of it could be made available to a central processor in a matter of milliseconds. Once the disk medium was settled upon as the proper

approach, and the pathway toward solution of the major technical problems became reasonably distinct, Johnson turned the project over to the great team he had assembled and turned his own attention to other fields.

The outcome was the 305 RAMAC. (Random Access Method of Accounting and Control)

Until the RAMAC - an IBM first - information was fed into computers and the results retrieved through batches of punched cards, magnetic tapes that had to be wound and rewound to find the needed data, or other storage media.

It took Johnson and his group less than six months to eliminate competing technologies and decide that disks were the way to go. The early disks were spin-coated with modified bridge paint that was measured out in paper cups and dispersed onto the disks through nylon stockings.

Two years after the research effort began in San Jose, the first successful transfer of information from cards to disks, and back to cards, took place. In May 1955, disk technology advances were announced, and in September 1956, the 305 RAMAC was announced. Its stack of disks that resembled phonograph records earned the file the sobriquet of "the jukebox memory."

Random access storage is listed among the most important contributions to computer technology. With it, for example, accountants can adjust all affected records each time a transaction occurs, rather than having to let punched cards pile high for batch processing. The San Jose invention helped accelerate the growth of the computer industry, and proved vital to the development of teleprocessing, time-sharing, and data base/data communications.

The random access achievement also ensured the permanence of a major IBM development and manufacturing site at San Jose. By the end of 1956, a plant was completed and laboratories and the DP Education Center begun.

Through the medium of the pictorial record, the following pages attempt to convey something of the excitement of the spectacular story of IBM San Jose's first quarter century.

1952

January

IBM Director of Engineering W. Wallace McDowell asks Reynold B. Johnson to organize and head up a new West Coast "Research and Engineering" laboratory.

Johnson selects as his first assistants James Hood because of his established reputation in laboratory administration and Harold Martin, recently graduated from the California Institute of Technology and already a member of his staff, because of his familiarity with both California and science.

Johnson, Hood and Martin meet with Roger Williams, manager of the Supplies Division plant on 16th Street in San Jose, to select a temporary home for the new laboratory.

February

A lease is signed on this former printing plant building at 99 Notre Dame Avenue. Refurbishing begins and the laboratory is officially in business.

March

This recruiting ad appears in a number of West Coast newspapers.

IBM

Announces

a new laboratory for Engineering Research and Advanced Development in Santa Clara County, California.

The laboratory staff will include scientists and engineers with advanced degrees or outstanding experience in Applied Physics, Electrical and Mechanical Engineering; Bachelors of Science who have exceptional creative or analytical ability in these fields, and precision tool and model makers.

Inquiries may be addressed to:

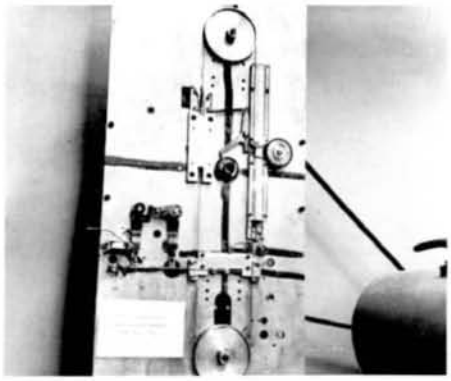
Mr. J. D. Hood
International Business Machines Corporation
Laboratory for Advanced Development
99 Notre Dame
San Jose, California

The response is brisk and Louis D. Stevens is brought out from Poughkeepsie to assist with the interviewing.

The first employees hired from the outside are Hale Zimmerman, mechanical engineer; Gloria Doolittle and Anita Sullivan, secretaries; and William Sprinkle, maintenance.

Jack Poole, administrative assistant, transfers from the card plant.

June



Among the early projects was the "tape actuated binary accounting machine" of which this is a plate model.

The laboratory roster has increased to 27 persons.

September

The interior of the building at 99 Notre Dame. Note the clock, at that time an IBM product.

Arthur Critchlow is assigned to study solutions to the "source recording" problem.

December

Participants in the opening session of the education program at San Jose.

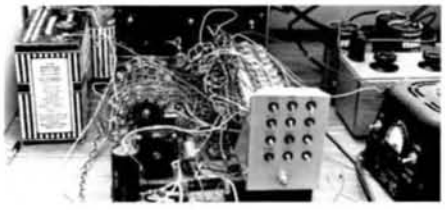
One of the earliest lecturers is Ed Perkins, special industry representative from the San Francisco sales office. Perkins plants the seed of the idea of "automating the tub file."

The source recording project defines the need for a large capacity random access file. Disks discussed for the first time.

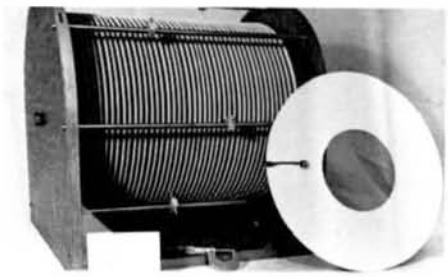
Lou Stevens (center) attends computer conference at Park Sheraton Hotel in New York City. Also present are Walter Buslik (left) and H. W. Nordyke, Jr., both of Poughkeepsie.

1953

January



Active projects at the beginning of the year include the printing voltmeter, left and the electrostatic dielectric memory.



A previously favored magnetic wire array is abandoned in favor of a multiplicity of rotating magnetic disks as the storage medium for the random access file.

February

Critchlow postulates a set of performance specifications for the file.

	2/2/53 Design Objectives	**Final 350**
Disk diameter, inches	16	24
Recording band, inches	4.25	5
Tracks per inch (tpi)	20	20
Tracks per disk side	82	100
Bits per inch, max (bpi)	200	100

Characters (7 bit) per track	200-inside band (64) 400-outside band (18)	500
Characters (7 bit) per disk	80,000	100,000
Number of disks	50	50
Capacity (7 bit characters)	4,000,000	5,000,000
Disk spacing, inches	.313	.4
Rotational period, milliseconds	62.5	50
Seek time (max), seconds	<1	.6

A rather well-equipped machine shop is now available to back up the engineering effort.

Laboratory growth necessitates an addition to the building.

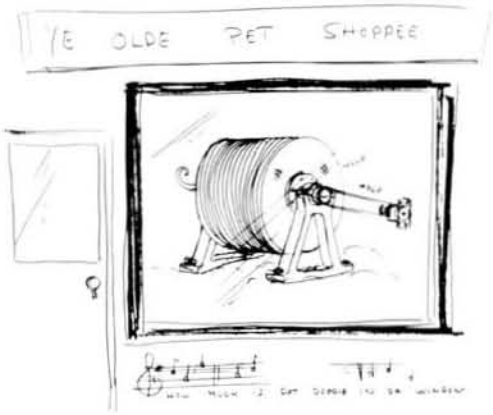
March

Bill Crooks seeks contributions from Al Ewing and Virginia Slamcik (Chadley) in the first laboratory Red Cross drive.

A proposal to the Air Force for a "Material Inventory Flow Device" includes a large random access memory based on a multiplicity of drums, confidence in disks not yet being adequate.

April

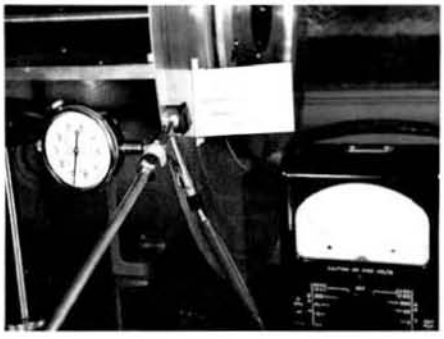
This experimental set-up helped allay fears regarding the feasibility of rotating many disks at high speeds.



The decision to go with disks was not universally acclaimed in the laboratory and this sketch, quoting a popular song of the day, appeared on the lab bulletin board.

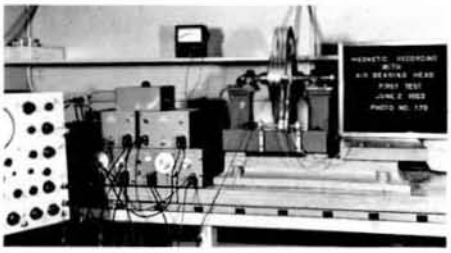
Cancellation of the data recording project frees personnel for work on the random access file. William Goddard is named to head the work. The Air Force proposal is modified to replace the drums with disk files.

May



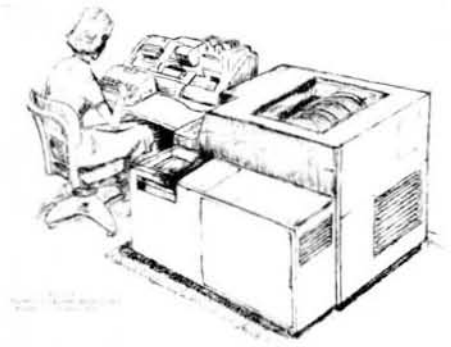
The air bearing head shows great promise as a means of accommodating the inherent "run-out" of thin disks.

June



Successful writing on and reading from a magnetic disk surface is first demonstrated with this equipment.

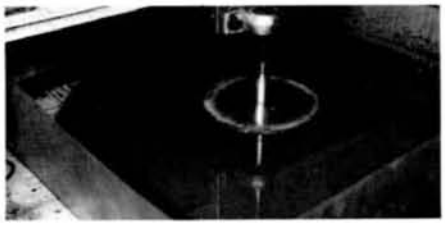
July



This was artist Jim Welch's conception of what the random access file and auxiliary equipment would look like.

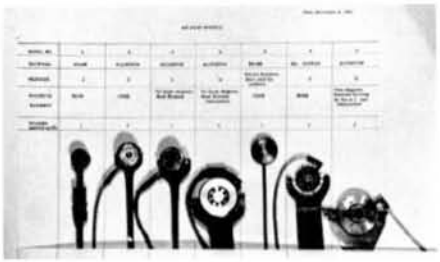
Studies of suitable track-to-track and disk-to-disk access means are initiated.

The IBM sales office at 1036 The Alameda.



October

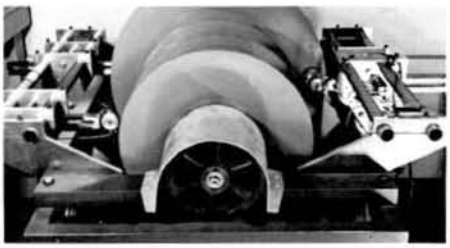
The disks were at first spray coated, but uniform quality was elusive. The pouring technique, using centrifugal force to do the spreading, is a quick success.



November

Lou Stevens is assigned to manage the random access file project.

The illustration shows the early evolution of air heads.



The first operable version of the servo-controlled track-to-track access mechanism is demonstrated.

December

Another major on-going laboratory project, the electronic printer, is transferred to the Endicott laboratory. Dick Weeks and Don Cronquist, under the direction of Jim Beaumont, have brought it to the transferable state.

A team under John W. Haanstra initiates a study of the systems implications of large scale random access, a work that will change the course of the computer industry.

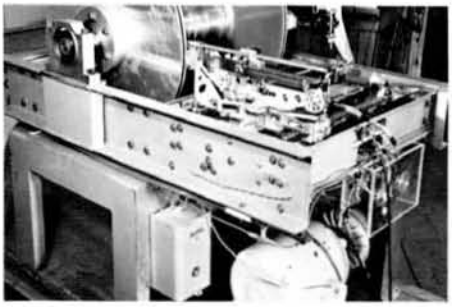
1954

January

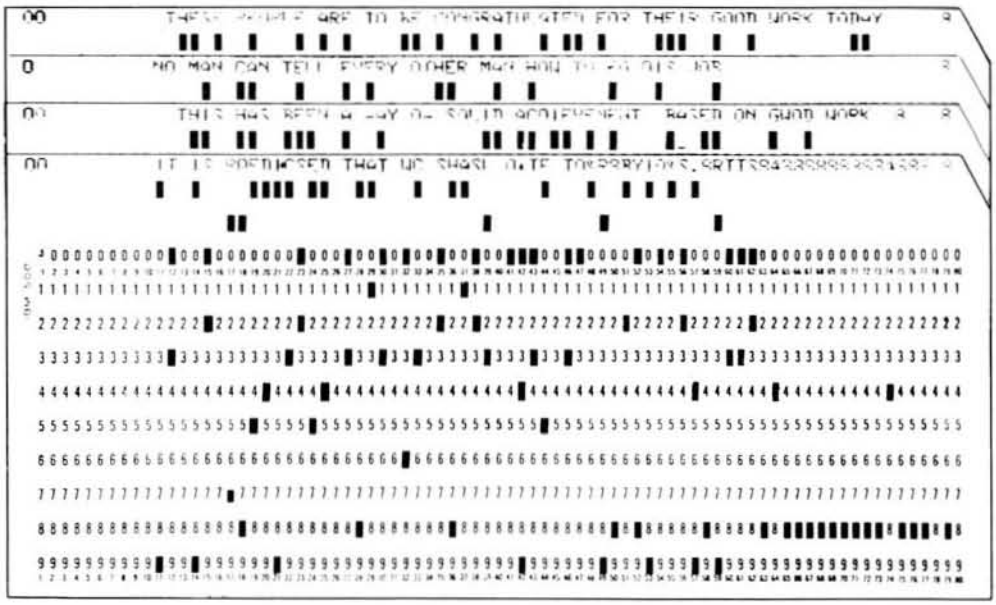
Bill Maron demonstrates the "sentential calculus machine."

February

A servo access system performing both the disk-to-disk and the track-to-track motions in a multiplexing mode is demonstrated. John Lynott was primarily responsible for this idea, which greatly reduced costs and increased reliability.



The "file-to-card" machine consists of a partially assembled disk file test bed, an 026 key punch modified for I/O service and the control electronics (against the wall). This primitive system became operable on February 10. The historic (and philosophic) first printout is shown below.



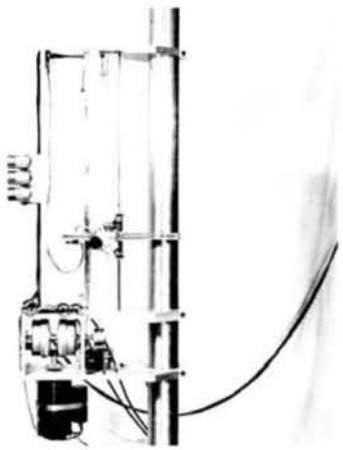
March

A re-evaluation of the random access file design leads to the decision to redesign the entire mechanism for improved reliability and performance.

June

Non-disk related projects are still in evidence. Martin and Goddard are engaged in the design of an improved test scoring machine.

And Critchlow is experimenting with "iron nerves."



July

A basic design decision reorients the disk shaft from horizontal to vertical. Here is the test stand for the new carriage.

November

At an historic meeting at WHQ, the company decides to proceed with the design and construction of a machine based on the random access file attached to a "stick" printer as an initial entry for the new concept. San Jose is to build several models for field test.

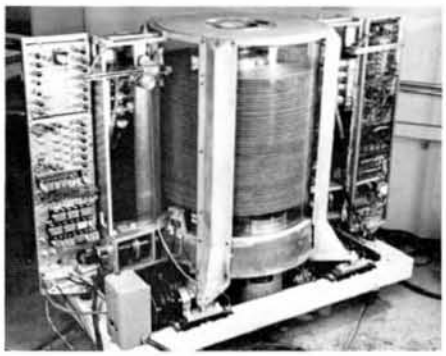
December

Basic system organization of the RAMAC (as it is now called) evolves from a closed door session of several days under L. D. Stevens. Others involved: J. W. Haanstra, W. W. Woodbury, M. L. Lesser, R. L. Haug, T. G. Leary and J. J. Nolan.

1955

January

With the heat now on RAMAC design, Johnson, in order to keep an advance development effort alive, moves with a small group to new leased quarters on Julian Street in San Jose.



The first Random Access File Model II becomes operational

E. K. Friedli comes to San Jose to organize the RAMAC field test program.

February

Even at the height of RAMAC assembly and debugging there was some time set aside for levity. This is the Valentine's Day Dance at Blossom Hill School

March

An assembly line for the construction of RAMAC plugged units is established.

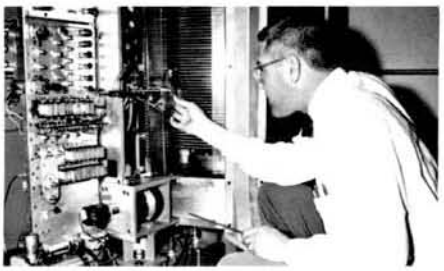
S. H. Bailey is assigned to manage the Product Test facility. Jon Wiseman joins him here.

Jake Bell becomes Customer Engineering's San Jose representative.

April

Assembly and debugging of the prototype RAMAC system go on around the clock. Wes Dickinson and Jim Davis (right) discuss a problem.

Norm Vogel is responsible for testing magnetic heads and components.



Trigg Noyes heads the team that redesigns the file.

May

Progress of the assembly of the prototype RAMAC system to date is shown. Identifiable participants are Greg Tobin, Jim Davis, Len Seeder, Don Johnson, Trigg Noyes, John Lynott and Hal St. Clair.

Disk Storage is publicly announced as an engineering project.

June

This press photo is taken one month after the above.

The corporation decides to build a plant in San Jose for the manufacture of disk files only, the remainder of the RAMAC system to be made elsewhere.

Aquatic merriment at the first IBM Club picnic

July

F. G. Paul comes aboard as "coordinator of special manufacturing" and sets up the first San Jose factory operation in this building on South 10th Street. The 305A RAMACs will be assembled, product tested, final tested in, and shipped from this location.

August

Rey Johnson accepts a certificate of merit from an unidentified representative of Liberty Mutual Insurance Company for 463,160 man hours of operation without a disabling accident. Looking on, from the left, are Bill Crooks, Bill Goddard, Roy Haug, Lou Stevens and Ed Quade.

San Jose IBMers learn in the *Mercury-News* for Sunday, August 26 that the corporation has acquired an option on 190 acres at the corner of Monterey and Cottle Roads and intends to build a plant that "may eventually employ more than 5,000 people."

October

Jim Heywood is assigned to head the design team for the 305 RAMAC production machine.

November

Several new faces on the San Jose administrative scene are shown with Rey Johnson (right). They are, from the left, F. J. Wesley, WHQ coordinator for RAMAC; Ralph Marrs and Sam Roberts, customer engineering education; Bob Lawhead, assistant to Johnson; and Joseph Fernbach, manager of engineering. Wesley had played an influential role in selling the random access idea to corporate management.

December

This general view of the interior of the Julian Street building shows the advance development environment.

1956

February

Gavin A. Cullen comes to San Jose as plant general manager. Reporting to him are Ernie Friedli, product engineering; Phil Taylor, manufacturing engineering; Bud Sheriff, purchasing; Bob Muller, production control; Bill Hall, quality assurance; Paul Richards, plant engineering; and Bob Simmons, personnel. Cullen's headquarters are in leased space on Lenzen Avenue.

The San Jose Research Laboratory is created with Johnson as manager. Many of the advance development personnel at Julian Street join him in the new organization.

The first 305A off the manufacturing line at the South 10th Street facility is shown with Ray Bowdle (left), Ken Davenport and Harry Wisdom.

March

The direct access photomemory project is initiated in the Research Laboratory.

May

Construction begins at the new plant site.

Design of a new building for Research begins. Research personnel constructed this "sun model" which could simulate the lighting effects of the position of the sun for any hour of any day of the year.

June

An historic series of photographs records the shipment of the first 305A RAMAC to the Zellerbach Paper Company in San Francisco.

a. Lou Stevens and John Haanstra give the machine a last check before disassembly begins

b. Perry Perrone (dark suit) looks on as the disk file unit emerges from its old home....

c. ....the console is hoisted into the moving van....

d. ....the file is moved into place at its new home....

e. ....and Zellerbach officials try out the controls....

The Frank Paul family at the IBM Club picnic.

August

IBM employment in San Jose passes 1,000 mark.

San Jose DP Education function established under Byron Luther, who had been the first manager of the sales office here before heading eastward for several years.

September

The IBM 305 RAMAC and the 650 RAMAC are formally announced. Here is how the story appeared in the San Francisco Examiner.

IBM Unveils 4 New Electronic 'Brains'

NEW YORK, Sept. 13 — (AP) — International Business Machines Corporation today unveiled four new electronic machines designed to bring more automation, and less work, to factory and office.

The new products range from an electric typewriter which sets its own tabular spacing by means of electronic inks to gigantic electronic "brains" that automate office accounting routine and report up-to-the-minute figures and facts on factory production.

Biggest of the new devices is the "Ramac," a continuous accounting machine which "memorizes" millions of facts and figures and prints any desired information on a typewritten slip at the push of a button.

GREATEST DAY.

Announcing the machines, IBM President Thomas J. Watson Jr. said **"Today is the greatest new product day in the history of IBM and, I believe, in the history of the office equipment industry. These products provide the most significant advancement toward business control and operation by electronics to be made thus far."**

Continuous accounting, said Watson, will mean that business transactions will be completely processed right after they occur. He pointed out that there will be no delays while data is grouped for batch processing, that people running a business will be able to get the fresh facts they need, at once.

In the "Ramac," data on sales, earnings, inventories, accounts receivable and the like are fed continuously into the machine via perforated punch cards. There the information is automatically classified and stored in a stack of electromagnetic disks arranged like phonograph records in a juke box. The device will be rented for $3,200 a month.

Another continuous accounting machine, the "Ram 650," provides statistical information by remote control. Typewriter operators at remote inquiry stations may "ask" the machine for any of the data in the vast memory. Instants later the answer appears on the typewriter. Prices on the "Ram 650" will be announced at a later date.

NEW TYPEWRITER.

IBM's new electric typewriter features an electronic "reading" device which eliminates tabulating stops when a typist fills in business forms. Vertical lines printed on the form with electrically conductive ink, make the form sensitive to electrical impulses. These lines, in effect, control the typewriter. It will sell for $520.

The company's fourth new product is the automatic production recording system (APR), which extracts vital production data from assembly lines and processes it in a form suitable for quick management action. Monthly rentals for the system will range from $235 to $1,200 or more, with an average around $500.

November

When the hit comedy about computers - "Desk Set" - came to San Francisco, the Laboratory turns out more or less en masse. Here the star, Shirley Booth, is surrounded back stage by enthusiastic IBMers.

December

Among the first plant site buildings to be occupied are the manufacturing building (005) and the cafeteria (011).

An independent Product Development Laboratory is re-established following the corporate reorganization that came out of the Williamsburg Meeting. Lou Stevens is named manager.

1957

January

IBM 604-604-607 production is transferred from Poughkeepsie to San Jose.

February

Disk coating operations in the plant.

Russell Keeney becomes product test manager.

March

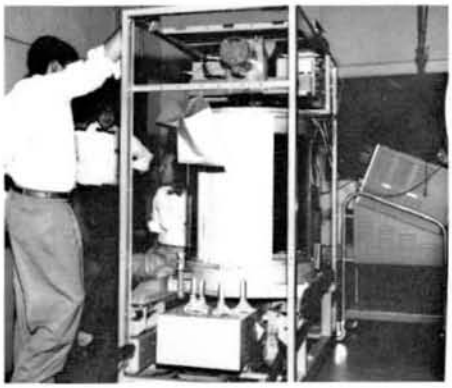
The first 604 from the San Jose manufacturing line is prepared for customer shipment.

305's going together in Building 005. Mel Olsen identifiable in the foreground.

May

Art Swain at the console of the 650 in the first Research and Engineering Computation Laboratory in San Jose set up in rented quarters on Market Street. Charles Hoppel, Roger Simons, William Michaels and Swain form the nucleus of the center.

Clarence Frizzell comes aboard as assistant general manager of the plant.



The first dual access file enters product test.

June

San Jose's first Watson scholars are presented their citations by Ed Quade. They are Harold Huffman (on Quade's left) and Ronald Bergfors. Proud fathers Dwight Huffman and Carl Bergfors flank their sons.

Marshall Freeman demonstrates 305 capability to visitors on Family Day. Don Stephenson is visible in the rear.

July

The Research Laboratory occupies Building 025.

September

The Hydrogyro goes up. This structure by sculptor Robert B. Howard of San Francisco bears the legend "...man...cannot determine if he creates, invents, discovers, or is guided into what he thinks he knows and believes."

November

The first 305 RAMAC from manufacturing (a dual processor working on a single file) goes to United Air Lines in Denver.

December

Haanstra leaves San Jose to become assistant to Ralph Palmer, manager of product development for the Data Processing Division.

1958

January

Product Testing, recently moved from North 10th Street to its new home in Bldg. 005, has grown in three years from six to 60 employees and now has an equivalent number of projects on test. Here manager Russ Keeney discusses a 305 system test with Jerry Houston (seated) while Jim Chrysler sets up an oscilloscope.

The Plant acquires its first data processing equipment for internal use, a tape 650 (a minor heresy in RAMAC-land) which, according to methods manager Henry Kraus, will be used for payroll processing and inventory control.

February

Plant employees inspect the blue, white and gold 35-foot RAMACADE trailer before it begins its nationwide tour. The highly acclaimed traveling business show has already played to more than 10,000 visitors during a four-city West Coast swing.

A RAMAC is shipped off to Brussels where it will be featured at IBM's exhibit at the World's Fair. Albert J. Hrapko of product engineering will be in charge when the fair opens on March 17. To emphasize the storage capacity, the demonstration will involve printing the historical highlights of any selected year since 4 B.C., in any of ten languages. Here Clarence Frizzell, the Belgian attache and Gavin Cullen look over some of the material that will accompany the machine.

March

Famed photographer Ansel Adams is captured by the IBM News camera as he photographs beside the reflecting pool.

Frank G. Paul becomes manager of the Burlington, Vermont plant. James E. Heywood succeeds him as San Jose manager of personnel. Later Heywood was to follow Paul as Burlington plant manager.

May

The big event of the year is the dedication of the Plant on May 27. Among the attendees are (left to right) A. L. Williams, L. H. LaMotte, Mrs. Thomas J. Watson, Sr., H. G. Phillips and E. E. Ford.

The IBM Board of Directors, meeting on the morning of the dedication, authorized the construction of a 43,730 square foot building to house the Product Development Laboratory.

In conjunction with the dedication Research sponsors a conference on the communication of scientific information which attracts a number of internationally recognized scientists. Flanking IBM's Dr. Emanuel Piore are

(left) Dr. Claude Shannon and Dr. Jerome Wiesner, both of the Massachusetts Institute of Technology.

September

Homer R. Gardner (center) becomes the first IBM retiree from San Jose. He started with the maintenance department at 99 Notre Dame. Here he receives best wishes of William Gastelum (seated) and Paul Richards.

October

Band composed of IBMers provides the music for the IBM Club dance. From left: Joe DeBenedetto, Rene Iris, Dave Simkins and Cliff Zipp.

November

W. B. McWhirter, general manager of Supplies Division, announces the purchase of 20 acres in Campbell for the construction of a new punch card manufacturing plant.

December

Robert Franchini (left) is congratulated by manufacturing manager Warren K. Lind upon receiving a $2,375 suggestion award, highest to date at San Jose, for his improvements to the disk coating process.

Construction of the new home for product development (Building 015), authorized by the Board of Directors on dedication day, has made substantial progress.

1959

January

Three special trains bring more than 1,300 Hundred Percent Club members for a San Jose plant inspection tour.

A double capacity (10 million character) IBM 305 Mod. II is announced.

General Manager Gavin A. Cullen, reviewing 1958 progress, notes that 230 RAMAC systems were shipped despite the nationwide economic slowdown.

February

Gavin Cullen (right) congratulates Clarence Frizzell on his appointment as general manager of the Rochester, Minn. plant.

March

James Heywood becomes plant assistant general manager and is replaced as personnel manager by Warren K. Lind. Ralph Wagner is promoted to manager of manufacturing.

April

Managers match wits with RAMAC in a trial run of a new "management decision game" programmed by DP Education Center. On far side of table, from left: John Doubt, W. Badger Robertson, James E. Heywood, Raymond J. Hasse, Robert G. Muller. With backs to camera: Walter G. Scott, Harmon T. Christiana, Warren K. Lind and Gavin A. Cullen.

May

Major corporate reorganization creates new General Products Division, incorporating the San Jose Development Laboratory. Also new is the Advanced Systems Development Division with Rey Johnson becoming manager of its San Jose Laboratory.

It is announced that RAMAC will be featured at the U.S. Cultural Scientific and Technological Exhibition in Moscow in July, where it will answer questions in Russian about life in America. Grant Westbrook of the Product Development Laboratory will represent IBM at the display.

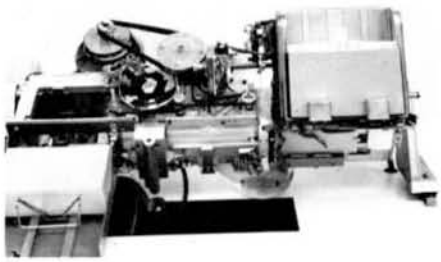
June

Travel fashions are featured at IBM Club fashion show. The models, top row, from left: Anne C. Zotter, Angela M. Gemma, Ruby N. Ingraham, Carol Lake. Center: Caroline Boyd, Donna Cronk, Jan V. Haas. Bottom: Mari F. Walker, Marie Piazza.

July

Gardner Tucker and Rey Johnson as the former takes over as manager of Research. Although Johnson vacates this post, he remains as manager of Advanced Systems Development Laboratory.

The Air Force announces the installation of RAMACs at most of its 31 bases to be used for inventory control. Thus the Laboratory's 1953 work on the Material Inventory Flow Device comes full circle.



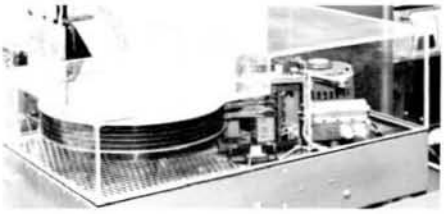
September

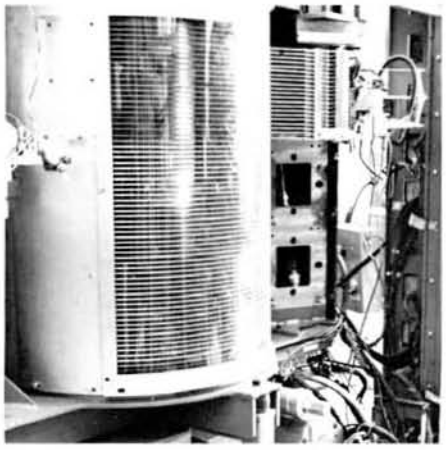
This is how the "serial reader punch" looked in development. It later was announced as the 1442, a component of the IBM 1440 system.

IBM becomes a focus of national attention when the San Jose plant is included in the U.S. itinerary of visiting Russian Premier Nikita S. Khrushchev. Khrushchev, carrying a tray of food, walks with his host Thomas J. Watson, Jr. to a table after serving himself in the cafeteria.

Khrushchev, sporting a visor cap given him earlier in the day by a San Francisco longshoreman, converses with Watson as they stroll about the grounds. Henry Cabot Lodge, U. S. Ambassador to the United Nations, is seen behind the Soviet leader. Many other dignitaries were present including Russian Foreign Minister Andrei Gromyko.

November





Two important disk projects approach readiness for product testing in the Laboratory, the low cost file, left, and the advanced disk file.

"What's on Your Mind?," predecessor to "Speak Up," debuts in IBM San Jose News. First column answers a question about a statement attributed to Walter Winchell to the effect that IBM would fold in 1960. Not likely, says the responder.

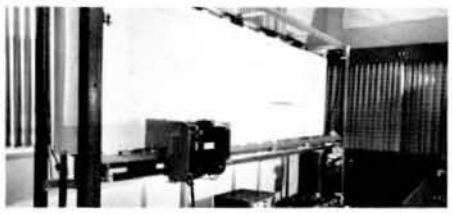
The IBM 609, which is the first San Jose developed product since RAMAC, is demonstrated by Judy Ashley.

Victor R. Witt takes over from Louis D. Stevens as development laboratory manager. Stevens became manager of systems engineering at WHQ.

1960

February

Harold F. Martin, one of the very first pioneers in the 99 Notre Dame Avenue laboratory, departs for an assignment as technical assistant to the director of development for IBM World Trade Corporation.



An unusual development activity at the ASDD Laboratory is the "Chromo Sign" -- a unique Rey Johnson machine that paints billboards by remote control.

Warren K. Lind, since August 1959 assistant general manager here, leaves for similar post in Poughkeepsie, New York. Walter G. Scott takes Lind's job here.

May

Product Test's new semi-echo-free chamber is placed in operation. William E. Rawe prepares equipment for a sound test on a new IBM 609 calculator.

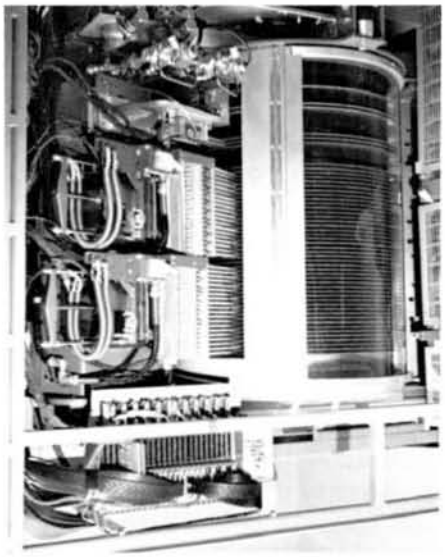
The IBM RAMAC is featured at the Western Joint Computer Conference in San Francisco. The focal point is a display showing disk storage advances, built by Tyson G. Cowan, Donald L. Wartner and David L. Stoddard.

June

Arthur G. Anderson is promoted to senior physicist in the Research Laboratory, where he will head the physical science department.

July

A month after being named acting manager of the product development laboratory, Perry A. Perrone celebrates his 25th year with the company. He is shown here at a surprise luncheon given by friends and fellow workers.



This is the "Stretch File" being assembled in the development laboratory.

The first IBM 1620 system produced in San Jose is shipped to the IBM Programming Center in New York City. Examining the machine from left to right: John D. Kyffin, development laboratory program manager; Wilfred W. Smith, manager of final inspection; and Frank D. Evans of assembly and systems quality control.

His Majesty King Bhumibol of Thailand listens to a description of IBM operations from A. K. Watson, president of WTC, on a visit to IBM San Jose. The King was impressed, but expressed his conviction that the human brain is still man's best tool.

August

San Jose's first production 609 calculator is shipped to New York for a display of solid-state machines at Corporate Headquarters.

In major personnel shifts, David E. Beeman replaces Byron N. Luther as manager of the Education Center, and Wallis D. Bolton becomes manager of the development laboratory.

September

The Supplies Division completes move to its new home in Campbell. High-speed Carroll presses turn out more than 1,000 cards per minute each.

October

The solid-state IBM 1405 disk storage unit, developed and to be built in San Jose, is announced as a new feature of the powerful 1401 and 1410 data processing systems.

November

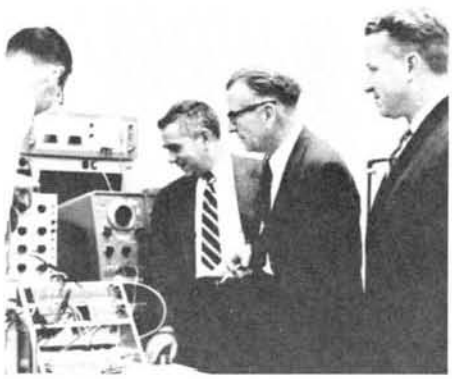
IBM RAMAC production reaches the 1,000 mark. Robert E. Hilchey, manager of RAMAC systems test looks on as William R. Knapp of quality control enters his final "OK" in the system's log. IBM's Toronto and Sindelfingen plants are also assembling RAMAC systems.

December

The IBM 353, the so-called "Stretch File," is announced.

1961

January



Engineer George Santana (left) describes a current project to three distinguished visitors to San Jose: Emanuel R. Piore, IBM vice president for R & D, Mervin J. Kelly, research consultant to the IBM president, and Byron L. Havens, director of product and development engineering on the DP Group staff.

Cuthbert C. Hurd is named director of control systems, a new function based at San Jose to explore the engineering and development of computers to control industrial processes.

February

Forty San Jose inventors receive a total of $46,000 in inaugural awards as IBM announces the Invention Award Plan. Larry Wilson with 78 patents to his credit is the Award leader.

March

IBM Control Systems Laboratory moves into new quarters at 2157 So. Tenth Street. Also this month, the IBM 1710 Control System is announced -- the company's first entry into the dynamic industrial process control field.

Arthur G. Anderson is named manager of the IBM Research Laboratory at San Jose, succeeding Gardner L. Tucker.

April

Louis D. Stevens returns to San Jose as manager of information storage and retrieval for ASDD from a two-year post at CHQ on the staff of the director of product and development engineering.

May

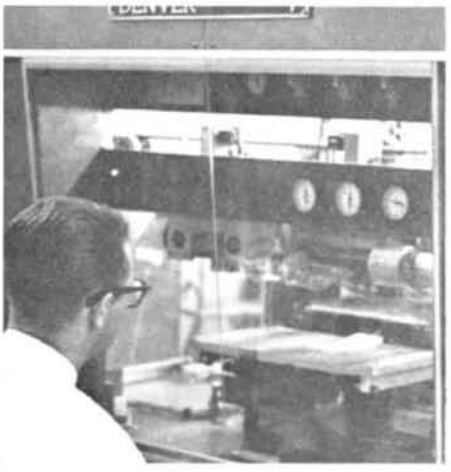
Gordon R. Moodie, left, IBM director of personnel, and Cecil R. (Bud) Tilbury discuss the RAMAC head improvement that made Tilbury the winner of the then highest amount awarded for a single suggestion in the General Products Division -- $7,770.

June

A radically new and efficient disk storage unit, the IBM 1301, was announced and joins the RAMAC family of computer memories built here. Chris P. Coolures checks a 1301 unit in Product Test anechoic chamber.

The IBM San Jose Employees Federal Credit Union has been chartered and organized, and begins operation.

July



Two new automatic "Wire-Wrap" (Gardiner-Denver) machines are installed in building 001 for more efficient wiring of computer back panels. Russell J. Sturm, at the console, checks the machine which operates under the control of punched card instructions.

Marcel Vogel, versatile scientist in the ASDD laboratory, and Father Bernard Hubbard, the famed "Glacier Priest" have pooled talents to catalog and preserve thousands of film records of Father Hubbard's exploratory ventures around the world.

August

A new information retrieval system that can deliver an image of any of millions of stored documents in seconds, is unveiled in the ASDD laboratory. Total capacity of a single document file, hardly larger than a desk, is 990,000 pages. Daisy Galletto is shown here examining a film strip.

The first IBM 1720 Control System is delivered to the American Oil Company at Whiting, Indiana. At left is Harry A. Wisdom, and at right is Eugene E. Kubiak closing the covers for shipment.

September

The IBM 1011 Paper Tape Reader, designed and built at San Jose, receives an Award of Merit in the third annual industrial design awards program at the WESCON meeting in San Francisco. With the machine at WESCON are, from left, Keith E. Swanson, designer Jack W. Stringer, and general manager Gavin A. Cullen.

October

The first IBM 1710 Control System, Model 1, designed and built in San Jose, is destined for Potlatch Forests, Inc., Lewiston, Idaho. The photograph shows the system in building 005 before shipment.

Glen F. Nielson and Victor R. Witt are recipients of the first local awards for "outstanding" inventions. Nielsen's award was for his first (though not his last) patent.

November

Harmon T. Christiana (left), superintendent of building 001 and 002 operations, is the 1962 president of the IBM Quarter Century Club of San Jose. With him are Orland M. Scott, GPD president (center), who spoke at the club's annual meeting, and Charles A. Raim, 1961 club president.

Jon R. Wiseman becomes manager of the Product Testing Laboratory. His key managers are Ralph E. Thomson, Raymond E. Parker and Eugene A. Zimmerman.

Through a grant of $4,775 presented by the IBM Club, Happy Hollow, the popular children's playland at Story and Senter Roads, will soon have a new attraction called the Happy Trail.

December

John W. Haanstra, half of whose 11 years with IBM were spent in RAMAC development, is the new president of the General Products Division.

1962

January

Shirl H. Bailey (left), manager of quality engineering, and Ralph W. Sherman, project engineer in the Development Laboratory, complete 25 years of service and enter the Quarter Century Club.

Andrea Bergman (left) and Wanda Hammers, Development Laboratory secretaries, receive certificates for completing an intensive advanced secretarial training program offered in San Francisco by the Bureau of Business Practice.

Richard E. Cummins, a patent attorney at San Jose since he joined the company in 1956, is promoted to manager of San Jose patent operations, replacing J. B. Taphorn.

Occupation of the Development Laboratory's new 150,000 square foot Building 014 begins. The building nearly triples Laboratory facilities here.

Glen F. Nielsen and Wesley E. Dickinson were among ten IBMers who shared $50,000 in invention awards at a testimonial dinner in New York City. Dickinson is shown receiving his award for the 305 disk access mechanism from Thomas J. Watson, Jr.

April

John A. Bayer, 1405 test technician, volunteers for two years service in the Peace Corps, and is granted a leave of absence. He expects to be assigned to the Somali Republic on the East African coast, where he will teach English in secondary schools.

May

San Jose engineers turn to writing: Laboratory manager Wallis D. Bolton (right, above) is pictured on the cover of *Steel* magazine which carries a feature article by him; Roland Schaffert's article on "Charge Transfer Mechanisms" appeared in the *IBM Journal of Research and Development*.

Lots of fun and good times were the order of the day at Trader Lou's where 7,000 people enjoyed another IBM Family Day.

June

New manager of communications and special systems engineering is Howard A. Mussell who joined IBM as a customer engineer in Chicago in 1940.

The first production model of the IBM 1710 Control System is shipped from San Jose to the Shell Development Company in Emeryville.

August

Roger R. Williams, administrative assistant to the general manager, celebrates his 35th service anniversary with the company. Williams was a trailblazer to the West when he came to San Jose in July 1943 as superintendent of the San Jose card plant, IBM's first West Coast manufacturing facility.

September

A new model of the IBM 1620, with internal speeds up to four times faster than its predecessor, developed by engineers of the Development Laboratory.

October

A versatile new "Shared-File" feature for the IBM 1400 and 1600 series of data processing systems, one of the latest innovations produced by the Special Systems group here, is announced. Designer Kenneth R. Skovmand operates a remote inquiry station of the shared-file dual 1401 system. The magnetic disk storage (center) consists of two 1405 units joined back-to-back.

Heralded as a dramatic technical breakthrough in the RAMAC concept, the IBM 1311 disk storage drive with interchangeable disk packs, is announced.

Introduced as part of the IBM 1440 system, it is predicted that the significance of this new device will extend far beyond the 1440 application. Engineer Joe Sheredy holds one of the magnetic read/write heads for the new drive.

The IBM 1440 data processing system, second major product announcement of the month and hailed along with the 1311 as one of the company's most important, got its start at San Jose four years ago.

One of the major system components, the 1442 card reader-punch, will be manufactured in Rochester, Minn. but was developed in Unit Records Systems here. Larry Wilson (left) is systems manager and Dan Woodward systems market planning manager.

Norman A. Vogel is promoted to manager of the ASDD Laboratory in Mohansic, New York, and Jack D. Kuehler succeeds him as project manager of the unique high-capacity film storage and retrieval system developed here.

November

John W. Haanstra, GPD president, visits the assembly area for the 1311 Disk Storage Drive, which has just been announced. With him as he observes a unit under test are general manager Gavin A. Cullen (left) and project manager Earl B. Weiberg (right).

IBM president A. L. Williams expertly handles the first spadeful at the new Los Gatos home for ASDD as (left to right) R. C. Dyer, C. E. Barkis, R. B. Johnson, G. A. Cullen and J. M. Norton offer encouragement.

December

Four GPD and ASDD inventors received awards for outstanding work. Laboratory managers Wallis D. Bolton (left), GPD, and Reynold B. Johnson (right), ASDD, made the presentations. Hal K. St. Clair (second from left), GPD, was honored for a disk file clocking system. The next three men — Marcel J. Vogel, ASDD, Donald D. Johnson, GPD, and Ralph Flores, GPD — are co-inventors of a disk coating.

A new first-of-its-kind 1620 system was assembled and shipped from San Jose to provide up-to-the-minute stock quotations from four major exchanges to some 400 newspapers served by the Associated Press. The system was developed by Special Systems here.

1963

January

Martin J. Kelly transfers from GPD headquarters at Harrison to San Jose, to become manager of engineering, information storage systems, and resident manager of information storage systems.

J. Paul Hammer is one of five San Joseans to receive distinguished technical achievement citations at the annual awards banquet in New York City. The others are Walter Buslik, Ralph Flores, Donald Johnson, all of the Product Development Laboratory, and Wilbur D. Hayter of Product Testing. Here Hammer accepts a memento of the occasion from IBM president, Albert L. Williams.

At the awards banquet the new post of IBM Fellow was created and it was announced that John W. Backus, best known for his leadership role in the development of computer language FORTRAN, would be one of eight charter Fellows. Backus later was to transfer his scene of operations to the San Jose Research Laboratory.

April

An IBM 1620 Data Processing System, built in San Jose, is applied to a history-making process at the Oklahoma Publishing Company, where it controls newspaper typesetting -- complete with justified lines and hyphenation. Clyde H. Batcheller (right), senior designer in Special Systems, and Dean S. Swenson, final test technician in Special Production, check output on a test run.

In a cooperative venture between IBM and area educational institutions, students from local schools visit and learn from IBM scientists. Here, a group from an East San Jose junior high school sees a demonstration conducted by Robert M. Ross (right), staff chemist in the ASDD Lab.

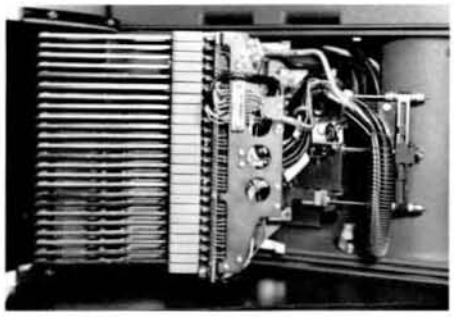
May

The IBM 1311 Disk Storage Drive was honored with a Master Design Award given by *Product Engineering*, a McGraw-Hill publication. In addition, certificates as Masters of Design were awarded to six San Jose engineers: Victor R. Witt, James D. Carothers, James J. Woo, Robert E. Pattison, David L. Noble and Joseph Sheredy.

June

The largest data collection system ever installed by IBM will soon go on-line at the Boeing Company in Seattle. At the core of the system are two control units designed and built by Special Systems here. The control units will organize information streaming in from some 300 IBM 357 Input Stations and channel it to a 1401 for processing. Ray Bowdle was in charge of engineering, assisted by Bud Chandler, John Galatea, Jack Gonzalez, Jim Schriver and many others.

October



A new disk storage unit is announced -- the IBM 1302 -- with 234 million characters of information and retrieval time of less than two-tenths of a second for any record. This new unit is designed for use with the IBM 1410 and eight of the large-scale 7000 series systems.

Fred J. Bertaccini (left) and John D. Jagger, both of the Development Laboratory, won top awards in the Watson Trophy Art Show. Bertaccini's oil, "Snow," was voted most popular by the public; Jagger's watercolor, "Indian Girl", won the judges' verdict.

November

Ed Perkins (right), who was so influential in the early days, is shown here with C. F. Earley and Don Comer still working on new concepts in the laboratory.

The punched card -- first used in the 1890 census -- is now available with rounded corners as well as the traditional square corners.

December

The new ASDD Laboratory on Guadalupe Mines Road in Los Gatos is completed, and the first contingent of 300 personnel occupy the building with Reynold B. Johnson, laboratory manager.

The IBM 1311 disk storage drive, San Jose's newest and fastest-moving product, was featured in a joint plant and laboratory presentation at the Fall Joint Computer Conference held in Las Vegas.

1964

January

Glenn Anderson makes a presentation to the San Jose Awards Board. Left to right, Jacob Bell, T. C. Bailie, unidentified, Robert Martin, Anderson, Ray Parker and Wallis Bolton

Two IBM 1440 systems were shipped from here to Innsbruck, Austria for use in scoring the winter Olympics.

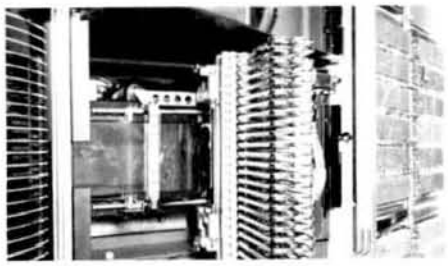
February

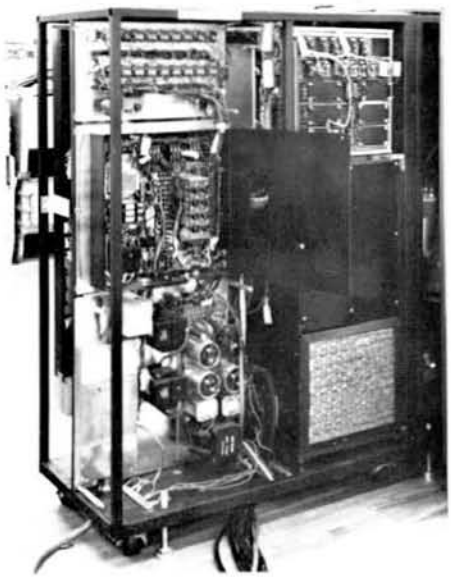
Ira H. Lohman (center) succeeds Wallis D. Bolton (left) as manager of the Product Development Laboratory. Bolton moves to Harrison as divisional manager of Product Testing. The pair is congratulated by H. Tyler Marcy, GPD Vice President - Development.

Otto Kornei (center), internationally recognized pioneer in magnetic recording and electrophotography, receives a patent award from Richard E. Cummins, manager of San Jose Patent Operations. Advanced Technology manager James T. Smith looks on approvingly.

April

Richard Hurley's *Transistor Logic Circuits* is published in a Japanese language edition.



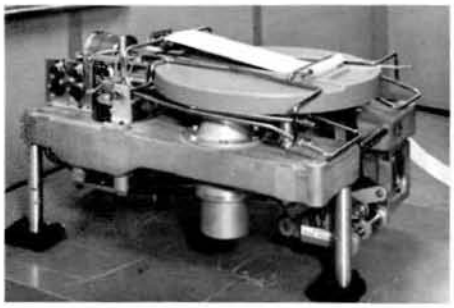


Products to be manufactured in San Jose share the limelight in IBM's epic System/360 announcement. The 2321 data cell drive, whose antecedents date back to the earliest days at San Jose, is shown at upper left. The engineering team was headed by Alan F. Shugart. Wesley H. Peterson was project manager for the new fixed disk 1302 storage unit (detail of access mechanism, upper right). The 2311 disk storage drive (lower left) and its removable pack was engineered under James D. Carothers' leadership. The 2841 control unit, which provides the means for connecting all of the foregoing to models of System/360, was developed by a San Jose team headed by Hal Eden.

June

Quality Assurance inaugurates its new Measurements Standards Laboratory. Robert Thompson is shown comparing weight standards on the precision balance.

Lawrence A. Wilson becomes San Jose's first IBM Fellow.



Walt Buslik's "Ramkit" looks like this in late stages of development in the laboratory.

Robert Morris takes over as Plant General Manager following the death of Gavin H. Cullen.

The Homestead, a facility for customer executives attending training programs at the Education Center, is opened with Emery A. Cook as manager.

October

Responsibility for the IBM 1440 Data Processing System is transferred from Endicott, New York to San Jose. Two principal components, the 1442 card reader-punch and the 1311 disk storage drive, were of San Jose origin.

November

Ralph R. Walker celebrates 35 years with the company. He is manager of product development laboratory operations.

December

International inter-laboratory cooperation culminates in the announcement of System/360, Model 20. The San Jose and Boeblingen (Germany) laboratories both contributed to the product. To ease the process, five San Jose engineers spend 18 months in Boeblingen: E. Rae Wooding, Glen F. Nielsen, John Schmidt, Roger Abernathy and Walter Onwiler. One of the principal I/O devices, fulfilling a long-time dream of Larry Wilson's, is the multi-function card machine, shown here. Don Rex led the development team.

Manufacturing plans for System/360, Model 20 are discussed by (left to right) Bill V. Smith, manufacturing adminstration; Hugh W. Wilson, field engineering; S. Thomas Jenkins, program planning and control; and Glenn I. Anderson, product engineering.

1965

January

Development work on control systems at San Jose reached a milestone with the announcement of the IBM 1800 Data Acquisition and Control System. Representatives of San Jose team responsible for development and manufacture of this system discuss the magnetic disk and the disk cartridge used with the 2310 disk storage drive. From left, Donald E. Brooks, program administrator, Program Planning and Control; Don L. Stephenson, systems manager, Control Systems; and Alan F. Shugart, technical manager, RAMP.

Robert E. Whitney of Quality Control receives the largest single suggestion award in the San Jose plant's history. Mr. Whitney received a total award of $8,640 for his idea to retest and reuse formerly rejected disks. He looks pleased as he receives the award from Robert B. Morris Jr. (right), general manager of the IBM San Jose facility.

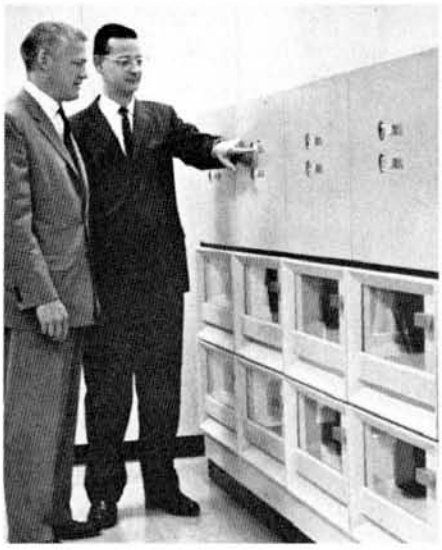
March

The IBM family of computers now includes a new and smaller member -- the IBM 1130 computer system, developed in the San Jose Unit Record area. Karen Legg, Control Systems programmer, demonstrates the ease of changing magnetic disks on the 1130 system while Brian Utley (center) and Joseph George of the Unit Records System Development team look on.

The San Jose random access memory group has scored another first with its development of the 2310 Disk Storage Drive — the first such component capable of being built into any computer. Manfred Dreblow (left), Lawrence Beach, and Marshall Freeman examine the 2310's disk cartridge on which Freeman did the initial development.

A. L. Williams (center), IBM president, observes the final testing procedure for the IBM 2321 Magnetic Strip File during his visit to San Jose. Technician David C. Peddy explains part of the file's operation to Williams and San Jose general manager Robert B. Morris, Jr.

May



The newest and fastest storage unit for IBM System/360 is announced — the IBM 2314 Direct Access Storage Facility. The 2314 is the latest member of the IBM 1311, 2311 interchangeable disk storage unit family, and its eight on-line modules can store 207 million characters of information. James D. Carothers, RAMP, looks on as John J. Harmon demonstrates a module's operating mechanism.

IBM San Jose hosts the annual stockholders meeting, and proudly displays its facilities to a record number of visitors before and after the meeting. Inside the plant, IBM Chairman Thomas J. Watson, Jr., San Jose general manager Robert B. Morris, Jr., and IBM President Albert L. Williams discuss an IBM System/360 Model 20 with stockholders Mrs. and Mr. John W. Moeller..... In the third photo of this group, SDD President John W. Haanstra (right) examines a 2321 drive in the laboratory with Tyson G. Cowan.

June

The IBM 2321 Data Cell Drive receives *Product Engineering* magazine's Master Design Award at the Design Engineering Conference in New York in recognition of its clean lines and outstanding product design.

August

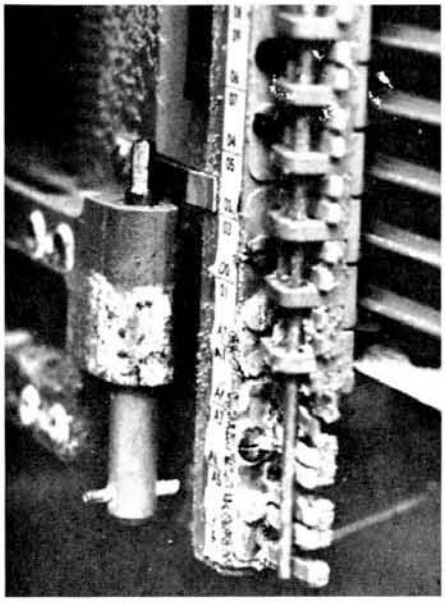
The specially designed custom terminal developed by SDD Custom Systems is key to the signing of a $10 million contract between Household Finance Corporation and IBM for a nation-wide electronic data processing network. Robert H. Smith (left) demonstrates the terminal as Ray R. Bowdle and Jack E. Gonzales recall contributions made by the development team on this project.

September

IBM announces the signing of a contract with the Atomic Energy Commission to build two large-scale computer memory systems for installation at the Lawrence Radiation Laboratories in Berkeley and Livermore. The trillion-bit system (later called the IBM Photodigital Storage System) will use advanced photographic and optical technologies.

October

Teams of disk file specialists meet the challenge to recover customer data in a water and mud soaked IBM 1301 disk file, sent to San Jose from the International Auto Sales Company in New Orleans which was flooded in the aftermath of Hurricane Betsy. Edward Hoefler, 2302 Final Assembly, stacks the carefully cleaned disks prior to data recovery....More than 1,600 manual adjustments were made on the file actuator to assure accurate recovery of customer data. Richard J. Hermann makes adjustments as Clarence R. Laney watches.



December

IBM San Jose's two newest buildings, 006 and 007, which have been under construction since last April, are nearing completion and are being occupied by SMD personnel.

1966

January

SMD and SDD IBMers at San Jose observe printout from the first production model IBM 1800 Data Acquisition and Control System. San Jose general manager Robert B. Morris, Jr. (right) congratulates the 1800 team which includes (from left) George R. DeLappe, quality assurance; Ken R. Higuchi, manufacturing; Gordon M. Wilson, product engineering; and Dan M. Okusako, test engineering. This first system will be used by the San Jose Product Testing Laboratory.

March

The first customer to use the San Jose produced System/360 Model 20 is Aircraft Radio Corporation, a wholly-owned subsidiary of Cessna Aircraft.

The first IBM 1130 computing system built in San Jose is installed at NASA's Huntsville, Ala. facility where engineers and researchers will use it in support of NASA's Saturn launch vehicle lunar program. Joseph W. Parks, assigned to the Marshall Space Flight Center, installs a removable disk cartridge in the new computer.

Much of IBM's newly announced 2303 magnetic drum storage unit, designed for System/360, was developed at San Jose. Three of the men on the project are shown as they discuss some of the unit's capabilities: from left, Kenneth A. Moe, Lothar R. Schicker and Dan S. Cheng.

April

TEMPO, the test technician training program now in use at IBM San Jose, provides newly hired employees rapid training and experience in computer electronics and machine logic, as well as "hands-on" skills to permit early qualification in test and assembly areas. Technician Donald R. Lancaster strips a wire as instructor John C. Huering points out wirewrap procedures for the IBM 1800 system.

The IBM 1500 instructional system, a development of ASDD, Los Gatos in collaboration with several major universities, pioneers many advance computing technologies, including light pens and time sharing by as many as 32 student stations, shown in use here. The system will be manufactured in San Jose.

June

IBM announces the 1350 Photo Image Retrieval System which can store 500,000 microfilm images and find and produce a copy of any one of them in seconds. The announcement follows several years of work on image retrieval systems and techniques at SDD San Jose, and earlier at the Los Gatos ASDD Laboratory. Discussing the image conversion process are three men associated with its development, from left: Willard K. Dick, Jack W. Boone and Robert F. Strebel.

The first IBM 2314 direct access storage facility to come off the production line is shipped. (l to r) Bill Hall, Bob Slater, Al Cerruti and Roland Shaw exchange congratulations.

August

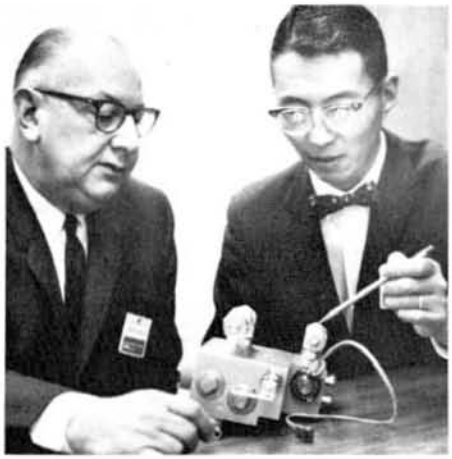
SDD Industrial designers Donald A. Moore (left) and Donald H. Wood stand in front of the IBM 2314 Direct Access Storage Facility and display the WESCON Award of Merit they and consultant Eliot Noyes won for the device's design.

October

Construction starts on a new development laboratory building (026) of 179,500 square feet capacity, located west of Poughkeepsie Road opposite buildings 013 and 014.

The distillation tower at Control System's pilot plant, a plant site landmark for several years, provides a real life test environment to designers of process control systems. Three of the men who made the pilot plant tick are, from the top, Roger Bakke, Percy Cowley and Wayne Walter.

November



IBM San Jose staff engineer Howell C. Lowe (right) reviews design features of blocking valve manifold for IBM 2321 Data Cell Drive with Ralph R. Walker, laboratory operations manager. Lowe won first award honors and $500 in a technical paper contest sponsored by *Hydraulics & Pneumatics* magazine.

An IBM direct access computer memory with a capacity of a trillion bits -- the photodigital storage system developed at San Jose -- is described in a paper presented at the 1966 Fall Joint Computer Conference held in San Francisco. The paper was authored by H. Ray Kerby, manager, photodigital development, SDD San Jose; and Jack D. Kuehler, director, Systems Components Department, SDD HQ, Harrison. Kuehler was formerly manager of Information Storage and Retrieval Development in San Jose.

December

San Jose's imaginative talent for solving problems is demonstrated again when this 44,000 square foot tent was erected to serve as a temporary parts distribution center -- required to satisfy increased production schedules and expanded parts inventory. Delivery trucks pull onto the paved tent floor, formerly a parking lot, to unload out of the weather.

Construction was started last spring on IBM's Advanced Computing Systems facility in Menlo Park. The building is complete except for landscaping and ACS personnel are moving in. Occupancy will be completed in January.

1967

January

C. Dennis Mee is promoted to manager of advanced technology in the SDD Laboratory, succeeding Glenn C. Bacon, who becomes director of general engineering technology, SDD Harrison. In his new position, Mee will report to laboratory manager Ira H. Lohman.

Clarence E. Frizzell returns to San Jose to become general manager of IBM San Jose, succeeding Robert B. Morris, Jr., who has been appointed manager of plant engineering for the Systems Manufacturing Division.

February

SDD's Scientific and Engineering Computation Laboratory installs a new System/360 Model 50, replacing the 7094 and one of its two 1460's. George W. Gallagher (left), facilities planning, and Robert J. Lindsey, computation laboratory operations manager, check the layout of the installation. Three of the system's six 2311 Disk Storage Drives are in the foreground, and its 2321 Data Cell Drive is in center background.

March

This general view of Product Testing's facilities in Building 015 shows the new environmental chamber which can subject equipment under test to temperatures from -50° to +140°F, relative humidities from 5 to 95% and air pressures simulating altitudes from sea level to 12,000 feet.

Voluntary Education in IBM San Jose has started its spring semester with a record enrollment in a curriculum of 39 subjects. A total of 1,661 IBMers enrolled in voluntary classes.

May

San Jose's 1130 computing system has been expanded to offer customers five times more disk storage plus other features in a cooperative effort by San Jose development, product engineering and manufacturing groups. Examining the 2310 disk storage, a significant part of the 1130's expanded capability, are (from left) Gilbert Mays, 1130 final assembly and test; Leonard Witcher, 1130 engineering; and George W. Arnold, 1130 product engineering.

Victor R. Witt has been promoted to SDD director of storage products. He was formerly product manager, storage products. In his new assignment, he will continue to report to H. E. Cooley, vice president of systems components for SDD, and continue to be located in San Jose.

June

The San Jose Programming Center, completing two years of successful formative work, now has responsibility for assemblers for all IBM computer systems and data management for Operating Systems programs. New Programming Center manager C. Thomas Apple (right) looks over the programming work done on the System/360 Model 40 by senior associate programmer A. R. Dixon (seated) and associate programmer John D. Howell.

August

Joan M. Johnston (left) and Nancy R. Fritze have earned the rating of Certified Professional Secretary after successfully completing all six parts of a comprehensive examination administered by the Institute for Certifying Secretaries. Johnston is a secretary to the laboratory controller, and Fritze is secretary to the manager of administrative services.

September

Roger R. Williams, in the thick of IBM and community affairs in San Jose since 1943, retires. He is shown here with his wife, Nina, their daughter, Juanita Roberts, and son, Charles L. Williams, at the dinner in his honor. Roger has become a San Jose legend because of his tireless efforts on behalf of innumerable causes. Son Charles, incidentally, works in the development laboratory.

The first new building for the San Jose SDD Laboratory since 1962 is nearing completion and will be occupied starting next month. Reviewing typical office arrangements in the new building 026 are Raymond M. Zimmerman (left) manager of facilities planning, and Richard A. Taylor, senior associate facilities engineer.

October

A 40-foot air-ride van containing an IBM 1800 process control demonstration unit begins a two-month, 7,000-mile journey from San Jose to 28 cities across the United States. A final inspection is made by (from left) Gordon D. Larson, Howard A. Mussell and E. Rae Wooding, of SDD process control and small scientific systems, and Norman N. Glynn, DPD industry marketing.

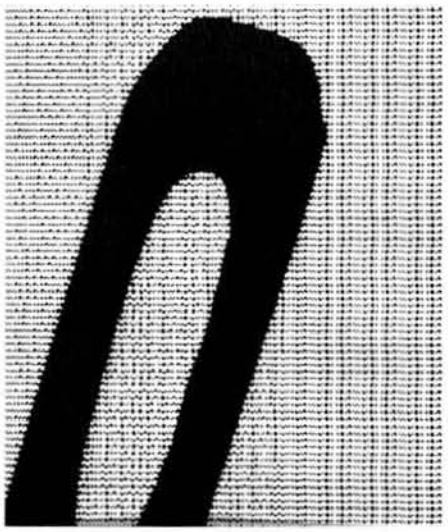
Reaching Denver, the traveling 1800 exhibit visits an oil refinery.

November

The world's largest computer storage system is installed by the Atomic Energy Commission at the University of California's Lawrence Radiation Laboratory in Livermore. The mammoth system, which can store more than one trillion bits of information, has been the priority project of San Jose SDD's Information Storage and

Retrieval department for many months. Advisory engineer Richard Mulvany, one of those instrumental in the development of this system, sets the developer turret cover in place.

The information storage medium is this small photographic "chip".



The photo shows the eye of a needle superimposed on a portion of a "Cypress" chip.

December

The size of the IBM plant site at Monterey and Cottle Roads has increased to 356 acres with the acquisition of 113 acres east and south of IBM property, shown inside the dashed border. The newly acquired strip is about 1,100 feet wide, and extends from Monterey Road to Santa Teresa Boulevard.

1968

January

Victor R. Witt (right), director of storage products, has been given additional responsibility as location manager at San Jose. His key people involved with the new organizational realignments are (from left) Ira H. Lohman, manager of the SDD San Jose Laboratory; Alan F. Shugart, product manager of direct-access storage; and Glenn C. Bacon, manager, education systems.

February

Richard Mulvany, advisory engineer, is awarded IBM San Jose's 500th United States patent based on a patent application obtained through San Jose Patent Operations. The patent is for a high-pressure high-speed ammonia developer for diazo film. An Outstanding Invention Award has already been made to him for the device.

April

Transfer to Boca Raton of process control and small scientific systems is announced by Frank T. Cary, IBM senior vice president and general manager of the Data Processing Group. Among those present at the transfer announcement were (from left) Lawrence A. Wilson, new Boca Raton location manager; Charles E. Branscomb, SDD president; Victor R. Witt, San Jose SDD location manager; E. Rae Wooding, systems manager, PC & SSS; and Ira H. Lohman, San Jose SDD lab manager.

May

More than 20,000 visitors came to IBM San Jose on Employee Open House day May 18 to see dozens of special displays and demonstrations of IBM equipment and operations. Families and guests crowd the computer laboratory in building 026 for souvenir printouts and demonstrations of computer equipment at work....Building 005 direct-access storage products area was popular and attractive, with displays of current computer components.

The biggest suggestion award in San Jose's history, a total of $41,026 for one suggestion, goes to G. Robert Minden and Richard A. Maddox for suggesting that the same covers be used on the 2841 and 2821 machines. The award is also the second highest ever given by the IBM Corporation.

June

John M. Harker (left), manager of advanced storage development, and James D. Carothers, manager of disk storage products, shared a $30,000 cash award at the Corporate Awards Dinner in New York. They received the award for their contributions to the development of the removable disk pack, which has become a basic medium for information storage in computer systems.

San Jose SDD Custom Systems has designed an On-line Real-time Branch Information Transmission System (ORBIT) for the Household Finance Corporation, linking more than 1,200 branch offices to a computer center in HFC's Chicago headquarters.

August

A new feature of the IBM instructional system, the 1506 Audio Unit, is announced, opening new applications for computer assisted instruction.

Since it was first exhibited two years ago, the IBM 2314 Direct Access Storage Facility has become San Jose's most thorough going success story, with sales far exceeding predictions. Outstanding contribution awards for contributions to the product are presented to (from left) Walter E. Bass, Donald I. Frush, Robert J. Hancock, Harold E. Haswell, Ramon W. Martin and Yang-Hu Tong. A seventh award winner, Cecil P. Barnard, is on assignment in England.

November

In a dramatic display of one of the reasons for the success of IBM San Jose's storage products, Laeron Roberts of the North Carolina Department of Motor Vehicles holds two 2321 data cells which he says replaced six rooms-full of filing cabinets the size of the one behind him.

December

Another milestone in San Jose's history was reached this month with the production of the one millionth magnetic head. Kenneth D. Pratt (left) presents the head to Micheal Hall. magnetic head product manager.

1969

January

Outstanding Contribution Awards go to five engineers for their development work on the IBM 1500 Instructional System, a time-shared, multiprogram, multi-access, on-line interpretive programming system. The recipients are (from left) George H. Royer, Rahmat Aziz and C. L. Donelson of Education Systems. The other two are Charles H. Probster, now at SDD Headquarters in Harrison, NY, and Hans Jeans, currently with the ACS Laboratory in Menlo Park.

February

Two new models of the IBM 2314 Direct Access Storage Facility are announced, both offering improved access times. Keith Swanson, engineering manager, and Gunnar Bovre, staff planner, examine the 2314 A-1 which provides five independent drives and a storage capacity of 145.8 million bytes.

The new IBM recreation area adjacent to Building 001 nears completion and will soon be ready for the enjoyment of San Jose IBMers. Operated by the IBM Club, the five-acre area includes two softball diamonds, a basketball and a volleyball court, horseshoe courts, playground and picnic areas and a locker room.

April

Scientists in the SDD lab here have developed an experimental digital light deflector that can change the location of a beam in 35 millionths of a second by a unique method of moving a glass plate in and out of contact with a prism. The device was described in the March issue of the IBM Journal of R & D by Mel E. Rabedeau, a physicist in advanced optical technology. Technician John Groot watches the operation as a beam is deflected.

May

Vital records necessary to the operation of IBM San Jose are stored in a former railroad tunnel in the Santa Cruz Mountains above Felton. The concrete and steel reinforced vault holds valuable data in the form of magnetic tape, microfilm, and hard copy as insurance against disasters that could destroy information it would otherwise take years to replace.

June

Television monitors have been installed in classrooms of SDD Engineering Education in Building 026, allowing employees to take courses in the Stanford University Honors Co-Op Program and the ACE program.

Construction begins on a triangular new home for IBM San Jose Research Division employees. The 245,000-square-foot laboratory has been designed so that its longest side, which runs 700 feet, will face southwest toward the Santa Teresa Hills. Completion is expected late in 1970.

July

The photographer took his camera up to the rooftop of Building 012, the new Administration Building, for this sweeping panoramic view of the valley. On the left are Buildings 013, 014, and 015; and on the right, the view extends across the roof of 026 and on to the Santa Teresa Hills.

August

Another new San Jose product is the IBM 5444 Disk Storage Drive which gives direct-access storage power to IBM's newly announced System/3, a low-cost computer system especially designed for small business applications. Kenneth A. Spice (left), SMD San Jose New Products Administration, and Arthur W. Reagan, SDD San Jose Product Engineering, review features of one of the first models of this new drive. Walter Buslik and Ralph Marrs later received an outstanding invention award for this product.

Storage products made here in San Jose -- 2314 DAS Facilities, 2301 Drum Storage Units, and 2321 Data Cell Drives -- helped the Apollo 11 astronauts be the first men to walk on the moon.

November

Stan Casey of the San Jose Product Test Laboratory has designed a video test system that permits slow motion or stop-action viewing of a mechanical action that takes place in a span of time as short as one microsecond. Casey's equipment, called the Video Motion Sampling System, employs a television camera, a modified console, and some special photography methods to produce the unique features that make it a flexible analysis tool.

December

Old St. Nick "checks his list twice" at the IBM San Jose Data Processing Center to make sure he remembered each of the 6,000 children who attended the IBM Club Children's Christmas Party this year. During his slack season, Santa goes under the name of Frank Dapron and works as a staff programmer in Product Test. His helpers are IBMers Gwen Thomas (left), CMIS Procurement; and Carolyn Slagle, Field Engineering Course Development.

1970

January

The new IBM San Jose Administration Building (012) makes an imposing picture at twilight. The five-story structure of 250,000 square feet is now finished and occupied by administrative functions previously housed in 005 and other buildings.

Developed by SDD San Jose, the fastest auxiliary storage unit in the company's product line -- the IBM 2305 Fixed-Head File -- is announced. The new file employs a total of 768 magnetic heads to achieve its high-speed average access time of 2.5 milliseconds. Discussing the development model are SDDers who worked on the 2305 project, Henry G. Hoehmann (left), mechanical design manager; and Mark M. Burd, technical associate, electrical development.

Walter S. Buslik (left), IBM Fellow; and Ralph E. Marrs, advisory engineer on an advanced product program, receive an Outstanding Invention Award for their invention of a disk file with a fixed and removable disk -- the file ultimately used in the IBM System/3. They began work on the file in 1966 when they saw the need for a low-cost file especially adapted to the requirements of small business applications.

Thirty years with the company were celebrated by IBM San Jose general manager Clarence E. Frizzell and his wife, Gayle, during a surprise luncheon held in his honor in his conference room. Mr. Frizzell joined IBM as a customer engineer at Huntington, West Virginia, on February 20, 1940.

March

William A. Goddard (left), San Jose SDD Laboratory, and John J. Lynott, Los Gatos ASDD Laboratory, share a total Outstanding Invention Award of $100,000 for their patent on the movable-head computer disk storage unit — a patent basic to IBM San Jose's direct-access storage products. Their award represents the second largest amount ever presented by IBM for an invention.

June

The first IBM 2305 fixed head storage facility off the production line is shipped. The magnetic head assembly for the machine requires 90 distinct manufacturing operations and 36 inspection stations. Here Lynn Perry operates computer controlled grinders which perform a precision slotting operation.

July

The IBM 3330 Disk Storage Facility, an important contribution to the just-announced System/370, was developed here. Examining the super-capacity file are Bob Pattison (facing), manager of 3330 drive development with (from left) Harry Skovmand, Florentino Carreno, Mike Hatch and Steve Ferguson.

The 3830 storage control unit uses a new memory card with eight times the element density. Yitzhak Dishon and Gene Handloff, 3830 engineers, display the comparison.

Jack D. Kuehler returns to San Jose to become director of SDD's San Jose and Menlo Park Laboratories, and Victor R. Witt is appointed an IBM Fellow by Chairman Thomas J. Watson, Jr.

September

IBM Fellow Roy Harper receives his eighth level invention award from ASDD laboratory manager Lou Stevens. On a basis of three points for each patent filed and one point for each patent publication, the prolific Harper has accumulated a total of 103 points. Walter S. Buslik and Martin J. Kelly, both of San Jose SDD, are at the fourth invention level and Dan J. Nepela has reached level three.

The largest 1800 computing system ever built at San Jose is shipped to a large electrical power generating station in Canada which is interconnected to the New York and Michigan power pools.

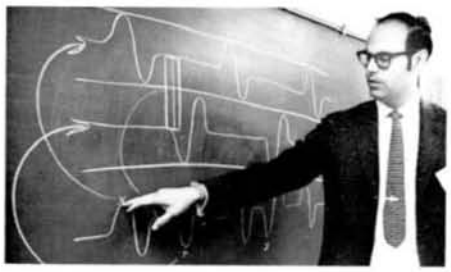
October

The IBM 2319 Disk Storage Facility is announced. Three members of the 2319 team check a development model on its way to Endicott (from left), Grant Westbrook, team leader; Dan Olsen, manager, SDD 2321 Data Cell Drive and designer Bob Tsuruda.

November

The new San Jose Research Laboratory (Building 028) is nearing completion, and initial occupancy of the 245,000 square foot facility is expected in late December. This bird's eye view emphasizes the unusual lines of the new building, looking north over center courtyard toward lobby and computer center.

December



George Santana illustrates the data recording and detecting scheme which earned him an outstanding invention award. The idea makes it possible to increase the density of recording media.

1971

January

IBM San Jose unveils the Automatic Fare Collection System developed here for the Bay Area Rapid Transit (BART) District. This unique system embodies design and technologies new to IBMers -but they accepted the challenge and produced the system to rigid specifications. Photo shows visitors at a recent demonstration of the system.

March

IBM announces a credit card system developed by Custom Systems, SDD San Jose, and the ASDD Los Gatos Lab. The photograph shows the magnetic-striped credit card and the IBM 2730 Transaction Validation Terminal as they will be used in a retail sales transaction to quickly authorize a credit purchase.

San Jose ships the first IBM 2319 B Disk Storage Facility a full month ahead of schedule, and only 2 and 1/2 months after announcement -- a tribute to the diligent effort and close cooperation of various SMD and SDD groups.

April

The SDD Engineering and Scientific Computation Laboratory moves into facilities in the new Research Laboratory (Building 028). Planning a smooth transition for the move are Harry Stewart, programming specialist, and Sally Grosso, senior programming technician.

An unusual combination of San Jose's newest, biggest, and fastest disk storage products occurs when the three devices are assembled in QA's Product Measurement and Analysis area in 006 to undergo special quality tests. Being tested simultaneously by a System/370 Model 155 are the IBM 2319 (foreground), the IBM 3330 (second row) and the IBM 2305 (third unit).

May

Norman C. Loeber, advisory engineer, works as coordinator of an SDD Management Information System, but is also interested in putting the computer to work for the blind as well as the sighted. A member of Lutheran Braille Workers, Inc., he has built Braille presses, designed the first Braille keyboard unit, and is now working on a proposed terminal system to print out the raised dots that would enable blind persons to communicate with an electronic information system.

Frank T. Cary, executive vice president of IBM, visited San Jose and toured SMD, SDD, and the new Research Laboratory facilities. Discussing the latest in storage file products are (from left) Cary, Jack D. Kuehler, director of the SDD San Jose Laboratory; Clarence E. Frizzell, San Jose general manager; and Willard B. Hall, manager of Systems and Storage Products.

July

Fare Transaction Systems reaches a milestone as the first 10 BART machines are moved off the production lines into Product Test. Preparing the units for transport by wrapping with a protective paper covering are technicians Bill Escobedo (left) and Robert Wintle.

August

First customer shipment of the IBM 3330 Disk Storage Facility leaves San Jose on schedule. A line of 3330's stretches out along the length of Building 005 behind key representatives of three divisions that made it happen. From left, Les Adams, representing the lab's control unit group; Wilf Taylor, Field Engineering; Bob Slater, manufacturing; and Woody Glueck, from the lab's drive area.

September

IBM Chairman T. Vincent Learson visited San Jose and toured the plant and laboratory facilities. Shown here with Learson is Bill Hall, manager of manufacturing, discussing San Jose's newest storage product, the 3330.

Arthur G. Anderson, director of technical assessment, DP Group, now acts also as technical ombudsman to any engineer or other technical person in need of assistance, analysis, or evaluation of a product-related idea or innovation. Based in San Jose, Dr. Anderson's primary job is to assess the technical health of the Group divisions and to advise the Group general manager and division presidents on advanced technology matters.

December

During his recent visit to SDD San Jose, SDD president Bob Evans (center) discussed new concepts in storage products under development by IBM Fellows Victor Witt (left) and Walter Buslik. The video recorder they are examining is being used in experiments in non-digital recording.

1972

January

San Jose's Programming Center held its 1972 Kickoff Meeting for all Center employees and representatives from programming product test and programming education. Speakers at the meeting included (left to right) Frank T. Carnella, programming center manager; Ted C. Papes, vice president and assistant general manager of DP Group; and Jack D. Kuehler, laboratory director.

February

New storage products manufacturing unit is formed, which combines SMD support operations of the San Jose and Boulder plants, with headquarters at San Jose. Clarence E. Frizzell is named general manager of the new unit, and James R. Cook becomes plant manager at San Jose.

March

This construction view of the new overpass from Monterey Road shows Building 012 and the Santa Teresa Hills in the background. Construction work is on schedule, which calls for the overpass to open in 1973.

June

A new program is put into effect to recycle most of the paper used at IBM San Jose -- a current rate of 180,000 pounds a month. Plans are under way to install a shredder, baler, and material collector in Building 007. The photo shows Dick Layton in the record storage area where tons of paper await disposal.

The first customer installation of IBM System/370 Model 135 goes to Bertea Corporation at Irvine, California, a manufacturer of flight controls for military and commercial aircraft. A San Jose-built IBM 2319 Disk Storage is wheeled into the glass-enclosed computer room to provide data storage for the powerful computer.

July

In a race against time, a dedicated group of SMDers assembled an entire IBM 1800 system over the weekend and had it ready for air shipment on Monday morning. The emergency request came from IBM's branch office in York, Pa., in behalf of a paper manufacturer whose 1800 system had been knocked out by a raging flood.

SDD Custom Systems, San Jose, has assumed engineering and business responsibility for the IBM 2984 cash dispensing terminal. The terminal, which operates under control of a bank's central computer, reads credit cards and issues currency in demoninations of $5, $10 and $20.

Bob Littlefield (left) and Jim Mulholland test the system just prior to shipment to the customer.

A group of IBM's technical leaders, including six members of the Corporate Technical Committee, visited San Jose for a review of direct-access storage product technology. Kenneth E. Haughton explains a new product feature to Eugene Shapiro, CTC senior staff member; Lewis Branscomb, IBM vice president and chief scientist, and chairman of the CTC; and Ian Gunn, IBM Fellow and CTC member.

August

The new IBM 3333 disk storage and control is announced, extending 3330 technology to users of all System/370 models and the System/360 Model 195. Also announced were a new version of the 3830 Control Unit and four optional integrated storage control features. Terry Hensley (left) loads a 3336 disk pack into a 3333 drive as he and Nils Nilsen prepare to run performance tests.

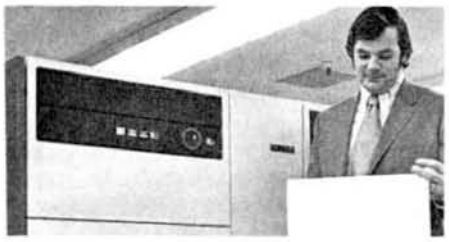
The San Jose Programming Center supplied over 20 different components consisting of more than 300,000 lines of code to the newly announced virtual storage systems.

September

Formation of the new General Products Division with headquarters in San Jose is announced; Arthur G. Anderson is president. The new division encompasses San Jose and Boulder manufacturing and most of San Jose and Boulder development functions, as well as a printer development group at Endicott. GPD is responsible for the development and manufacture of computer tape units, disk files, and printers.

BART is off and running -- a happy day for IBM's Fare Transaction System group. First day riders include Joe Sheredy, Bill McDonnal and Clarence Frizzell.

October



The new IBM 3330 Model 2 is announced -- a single-spindle unit which is compatible with all systems in the System/370 line. Checking detailed documentation is Donald Womer.

November

A new Technical Vitality Program is announced that offers new opportunities for self-development to San Jose GPD, SDD, and Group Product Test professional employees. The new program consists of seminars and sabbaticals, as well as professional and field education programs. Dr. Arthur G. Anderson, GPD president, chats with employees about the new program. Clockwise, from Dr. Anderson's left, are Bill Brown, Bob Rice, Burt Snitz and Ikey Rogers, all of Information Systems.

A giant among storage systems, a new 3330 Disk Storage Facility stretches out along the manufacturing floor prior to the first customer shipment from San Jose. The facility is made up of a 3830 Model 2 Control Unit and two 3333 Disk Storage and Control units (announced in August), plus six 3330 Disk Storage units.

GPD San Jose launches the new professional development school, a one-week program of in-depth presentations and discussions for nonmanagement professional employees. Held at the La Playa Hotel in Carmel, the charter of the program is to further the recognition and development of the professional by providing a forum to examine the nature of his/her role and function in IBM.

1973

January

Two of the earliest IBM 1301 disk files built in San Jose were retired recently when the last 1400-series computer system on plant site was phased out.

The IBM Diskette (also called the floppy disk), developed in San Jose, is a key element of the just announced IBM 3740 Data Entry System.

February

Making key contributions to the new enhancements to the 3330 disk file family were Doug Brown and Don Cameron (left and right foreground), who worked on the microcode; George Aboud (left rear), a system operator who made valuable system time available during the development cycle; and Dale Harper and Bill Erickson, who helped develop the 3333 string switch.

March

IBM announces the 3340 direct-access storage facility which introduces the new concept of data modules -- the most significant innovation in disk file systems since the removable disk was introduced on the IBM 1311 in 1962. Four of the hundreds of San Jose employees who contributed to the new product are (from left) development engineers Tom Patel, Ramon Martin and Dick Oswald with New Products Manufacturing manager Will Stemel.

Close liaison with World Trade laboratories and exchange of personnel insures world-wide application of San Jose products. Working on a unit test in the San Jose Test Laboratory are (from left) Fritz Killian (on loan from Boeblingen), Roger Pratt, Richard Davis, "Sam" Ikeda (on loan from Fujisawa) and Duane Wilson.

Celebrating the announcement of the IBM 3340, Kenneth Haughton, leader of the development effort since its inception in 1969, says the project has provided three and one-half of the most interesting years of his career -- "even if I did age seven". Haughton's IBM career has centered around disk files since he joined the company in 1957.

April

A tribute to IBM San Jose production teamwork is the milestone celebration of the three millionth magnetic head produced in San Jose. Manager Gene Cadden, 3330 Magnetic Head Assembly, gets a piece of the celebration cake from Kay Pezzolo, as Kathy Bauer, Diane Malitz and Joan Crosley enjoy the festivities.

Jim Frame is named SDD director of programming development, language, and data facilities, succeeding Frank Carnella, who was appointed to a new market development staff.

May

IBM Chairman Frank T. Cary visits the San Jose facility following the annual IBM Stockholders' Meeting held April 30 in Seattle. Here Cary sees a 3340 on test with James R. Cook (second from left), GPD San Jose plant manager; Micheal N. Hall, product manager, Magnetic Heads; and Arthur G. Anderson, GPD president.

June

The last leased RAMAC 305 comes home to San Jose. Announced in September 1956, a total of 1,067 RAMAC 305 systems were produced in San Jose before production stopped in 1961. Ray Bowdle, application products manager, and Harry Wisdom, project manager, new storage products, swap RAMAC stories from the early days when they both worked on its development and production.

July

"Challenge of Change" was the theme of the meeting at Flint Auditorium attended by 2,400 technical employees from the San Jose plant site. The meeting assessed the impact of today's rapidly changing world on IBM's products, markets, and employees. John Gardner (left), founder and chairman of Common Cause, talks with Jack Harker, San Jose GPD Laboratory director, before his speech to the group on personal change factors.

The IBM 3333 Disk Storage and Control Unit Model 11 is announced, offering new and dramatically improved additions to San Jose GPD's familiar 3330 disk storage family. Sophie Schonka, magnetic head process, shows how the new 3336 Model 11 disk pack is loaded into the file.

August

Two vital components of the newly announced IBM 3600 Finance Communications System were developed and will be manufactured in San Jose -- the 3614 Consumer Transaction Facility, a self-service banking terminal; and a magnetic stripe reader/encoder for attachment to the 3604 Keyboard Display. Representatives of four areas involved with these developments are (from left) Howard Noel, Design Center; Jerry Longhurst, RAS; Dick Shalita, Terminal Development; and Dwayne Escola, San Jose Test Lab.

October

SDD San Jose programmers were honored for their efforts in developing Virtual Storage Access Method (VSAM) -- the first major improvement in direct-access programming in the past six years. Jerry Conner (left), Doug Tarrant, Jay Grant and Gina Hellman were part of the development support team that linked VSAM into the operating system, wrote and executed functional tests prior to integration of modules into libraries and prepared tapes to ship to the system houses.

As the energy shortage deepens, plant engineering planners estimate that energy conservation programs now in effect will save an estimated 11,630,000 kilowatt-hours of electricity per year -- enough to supply electricity for about 1,800 average-sized homes.

November

IBM San Jose's 3340 disk file is selected as one of the year's 100 most significant new technical products by *Industrial Research* magazine. The award was accepted for IBM by Chris Coolures (pictured here), who was 3340 drive development manager, and Kenneth Haughton, who headed the 3340 development effort.

The first female security officers in the IBM Corporation are Lou Ann Wallace (foreground) and Sharon Ocumpaugh, shown here as they demonstrate use of the fire hose on the plant security fire engine. Wallace and Ocumpaugh are completing the extensive security officer training program which includes instruction in first aid, equipment operation, chemical safety, facility security and alarm systems.

San Jose begins customer shipment of the IBM 3340 direct-access storage facility, announced last March -a result of close cooperative effort between development, testing and manufacturing groups. In Final Test, Jerry Sanders (foreground) and Mac Werner test modules on equipment that simulates customer system conditions.

1974

January

Customer shipments are on schedule for the 3410/11 tape subsystem, a small compact unit that can be used with System/3 Models 10 and 15, and with most System/360 and System/370 computers. Ted Grier performs test functions on a tape subsystem prior to shipment.

February

John R. Opel, IBM senior vice president and group executive for DP Product Group, visits GPD San Jose for a series of meetings on current manufacturing and development activities. In the 3340 assembly area, Mr. Opel shares a laugh with Roland Shaw (right), manager of file products manufacturing, and Herb Lee (left), 3340 assembly manager.

March

The Science Advisory Committee, composed of eminent scientists and engineers from universities and IBM, visits the San Jose Laboratory for a review of future trends in storage technology. Taking part in the discussions are (from left) Jim Eaton, Research, Yorktown Heights, New York; Dennis Mee, manager of Advanced Technology at San Jose and coordinator of the two-day conference; and Frank Talke, Research, San Jose.

April

San Jose completes the first customer shipment of the 3330/3333 Model 11 disk file, developed in the GPD San Jose Laboratory. On the shipping dock with their first new machine are (from left) Terry Crenshaw, Dan Lindseth, Bill Tuma and Lloyd Dobbins.

Paul Rizzo (second left), IBM senior vice president and group executive, DP Product Group, visits San Jose to review current and future GPD and SDD products. Here he watches Sue Madrid perform a coil-winding operation in 3340 magnetic head assembly with (from left) Bob Howard, manager of head technology; plant manager Jim Cook; Mike Hall, manufacturing process technology product manager; and Marv Knox, manager of advanced head manufacturing.

May

Developed in San Jose, a new module called the 3348 Model 70F adds a fixed-head option to the self-contained 3348 data modules to give increased efficiency and flexibility to 3340 disk drives. Beverley Riggins (left) Terry Burns, and Dottie Tappa discuss a design feature of the new module.

More than 500 IBMers from GPD domestic and foreign locations gathered in Scottsdale, Arizona for the first major international meeting of the General Products Division. Arthur G. Anderson, GPD president, welcomed the participants to the meeting with the theme "Outlook -- GPD, Growth, Purpose, and Direction". The two-day meeting featured briefings by top IBM management on vital issues affecting both the division and the corporation.

July

An unusual sight -- a keyboard assembly line in San Jose's manufacturing area -- but another first for this plant as its first communication terminal, the 1651, is shipped. The project was spearheaded by Stan Casey of GPD product test to meet selective IBM internal requirements for terminal units. Scanning test results on the line are Jim Saavedra (left), Paul Rogue and Bob Johnson.

August

GPD president Arthur G. Anderson announces the appointment of Gerry Harries as director of the San Jose laboratory, succeeding Jack Harker. Also announced was the formation of a new organization reporting to Jack Harker as GPD director of technology, which involves the integration of several development and manufacturing groups at San Jose.

September

With the energy crunch upon us, commuter bus service is instituted between IBM and the Almaden area. The apparently happy riders are, from the front of the line, Charlie Werner, Ti Dulyanai, Bob Perkins, Sandy Sanders, Tom Beaulieu, Bob Lee and Bill Desler.

October

GPD announces the disk attachment which allows the 3340 storage facility to be attached to the System/3. Some of the members of the development team are shown grouped around a System/3 in the lab. From left, Bob Sullivan, Phil Chai, Ray Wilsey, Jeff Gasparac, Wayne Hannah, Phil Root and Sam Isaac, marketing planner.

November

IBM San Jose uses a System/7 computer to conserve energy by monitoring and controlling electrical energy consumption on the plant site. Over 100 air-conditioning units in 13 buildings are connected to the system which is located in Building 002.

December

The San Jose plant makes its first customer shipment of the 3614 banking terminal, a product that presented GPD manufacturing with unique challenges. The self-service banking terminal was developed by SDD in Los Gatos with support from GPD San Jose. On the shipping scene are (from left) Bob Agawa, New Products Manufacturing; Joe Marty, Shipping; Barry Rice, 3614 Assembly and Test; Roy Sakamoto, Shipping; Bill Hunter, World Trade from Scotland; and Kaichiro Honma, World Trade from Japan.

1975

January

Clarence Frizzell celebrates 35 years with IBM, most of the years since 1957 having been spent in San Jose.

February

Preliminary construction work is under way on IBM's new West Coast Programming Center near Santa Teresa Blvd. about 4 miles south of San Jose. The facility will occupy about 90 acres of the 1180-acre site located one mile west of Highway 101. The Center will consolidate SDD West Coast programming activities.

IBM introduces to the world the 3800 printing subsystem, developed at San Jose, a dramatic new product that could revolutionize computer output printing. The 3800 is a sophisticated, high-speed, nonimpact printer that combines laser technology, electrophotography, and microprogrammed control to achieve results never before possible. Jack Boone, left, and Dave Gawron examine the print quality of the forms overlay feature.

The weekly 3800 product status meeting helped keep the project on schedule. From the left, Jim Lyon, Larry West, Ove Larrson, Jan Olofsson, Tex Malone, Jack Fries, Bob Matthias and Gerry Glass. Standing, Dick Forbes and Norm Von Marbod.

The IBM 3800 printing subsystem was greeted with enthusiasm and applause by DP salesmen at the announcement and demonstration meeting at the DP Fifth Club Forum in San Francisco. Members of GPD laboratory teams were present to demonstrate and to answer questions from eager salesmen.

May

General Products Division takes over major San Jose programming responsibilities from SDD. James H. Frame, who was SDD director of programming development, joins GPD as director of programming, reporting to Arthur G. Anderson, GPD president.

July

IBM announces the 3344 and 3350 direct access storage devices, a significant step forward in disk storage technology. The 3350 has twice the recording density of the 3330, and nine times that of a 2314. Some of the members of the development team are shown with an engineering model. From left, Jim Lucke, Mike Rudy and Warren Thrasher watch as Jim Krause completes a test set-up.

The 3350 announcement was due to the efforts of many different groups in the development laboratory. One of these was microprogramming, whose members spent many long hours on perplexing problems. Some of the members are (from left) John Fish, John Clark, Lou Mirabeau, Tom DeNatale and Alden Johnson.

August

More than 1,000 people from GPD programming development in Palo Alto and the Pruneyard attended a day-long meeting at the San Jose Center for the Performing Arts, where GPD president Arthur Anderson welcomed the new members of GPD. Included in the program was a slide show of the new Santa Teresa Laboratory now under construction.

IBM San Jose projects a saving of more than five million gallons of water per year with its new water reclamation system. Under the system, approximately 60 per cent of the demineralized water used in disk storage production is being recycled. This reduces the cost of water processing, conserves both water and chemicals, and reduces pollution.

September

This tidy rack of IBM vital records stored on tapes hardly looks like the interior of a deserted railroad tunnel -- but that is where IBM San Jose carefully stores its precious business records. Jerry Huntsman (front) and Steve Ludewig check their file of updated tapes in the tunnel turned vault that also stores business and personnel data in the form of punched cards and microfilm.

October

IBM displayed its 350 Disk Storage Unit, the file that was developed at IBM San Jose in the 1950's and was in integral part of the RAMAC system, at the 24th annual Western Electronic Show and Convention in San Francisco. The display was part of WESCON's first historical exhibit, contrasting the latest in electronics equipment with the forerunners of the modern age.

November

Admiring the newly announced burster-trimmer-stacker for the 3800 printing subsystem are development engineers Chet Spurrier (left) and John Moffitt and microprogrammer Don Bruns.

December

The first major transition of GPD's Campbell plant from data processing card manufacturing to electronic manufacturing took place this month when production started on the new IBM 3614 Consumer Transaction Facility.

Another milestone was reached recently -- the 1,000th U.S. Patent issued to the San Jose site since its establishment as a major IBM facility. Among these one thousand patents are inventions that carried IBM over the threshold from punched-card unit record equipment to current electronic computer systems. Abe Gindi (right) and Don Lang (center) explain their invention -- representing the 1,000th patent -- to Gerry Harries, laboratory director.

1976

January

Data Processing Division president John Akers (second from left) presented a special award to the General Products Division for consistent product excellence and technological leadership. The award, the crystal bowl seen on the table, was accepted by GPD president Art Anderson (center) on behalf of GPD employees. Joining in the presentation ceremony were Jim Manning, (left), GPD vice president, plans and controls; Jim Frame, director, programming development; and Jack Kuehler, GPD vice president, development.

February

The new Santa Teresa Laboratory is taking shape a few miles south of the main plant site, with most of the steel framework now in place. The facility occupies 90 acres of the 1180-acre site, the remainder being left in its natural state for orchards and wildlife.

March

First customer shipments begin for the San Jose developed 3350 direct-access storage device. The first customers to receive the new files were the E. F. Mac Donald Company in Dayton, Ohio, and Northwestern Mutual Life in Milwaukee, Wisconsin.

April

The IBM 3850 mass storage system crosses a 1,000-mile gap between Boulder and San Jose and finds a new home here -- all within a remarkably short period of time for such a complex undertaking. The first 3850 manufactured at San Jose is being installed at Dun & Bradstreet, the financial data giant headquartered in New York City.

Ferd Choss and friend Amber display his homemade ATV (all terrain vehicle) capable of negotiating wooded slopes, rocky landscapes and even water. He also flies and maintains his own airplane. At other times, Ferd is manager of third shift computer operations in Information Systems. He is a polio victim.

The Los Gatos Laboratory becomes a part of GPD in a consolidation move announced by Paul Rizzo, IBM senior vice president and group executive, DP Product Group. Arthur Anderson, GPD president, welcomed members of the Los Gatos Lab into GPD at a special luncheon meeting at the lab.

May

IBM announces the 3803 tape control model 3 -- the first tape product developed and manufactured at San Jose. The 3803-3 will be manufactured in San Jose and Montpellier, France. Operating tape drives attached to the 3803-3 are Gil Woodman (foreground), tape development enginering; Henri Ferlut (rear), World Trade; and Bill Mattish (seated), San Jose Test Lab.

June

First customer shipments have begun of the IBM 3344 direct access storage device. Here Rick Miller, package shipper, prepares one of the new models on its way to a customer.

July

Happy, relaxed, and proud are these three members of the 3800 team that helped make the first customer shipment a cause of celebration: Dave Negrin, test lab manager of printer products; Charles Swall, manager of printer products manufacturing; and Chris Coolures, 3800 engineering program manager.

Culminating a period of unprecedented challenges and accomplishments, San Jose ships the first IBM 3800 printing subsystem to the Central Accounting Office of F. W. Woolworth Company in Milwaukee, Wisconsin. The happy crew in the shipping area includes (from left, clockwise) Steve Ramsey, 3800 final test manager; Barry Wasserberg, final test; John Cardinalli, second shift final test manager; and Carl Wisbar, final test technician.

August

Recipients of the GPD President's award were Ozzie Saracino (left) and Gerald Hicks. Saracino, who also entered the Quarter Century Club, was recognized for his contributions to IBM System/7 while Hicks' award was for management excellence.

September

First customer shipments have begun of the IBM 3803 tape control model 3, the first tape product developed and manufactured at GPD San Jose. Here Alan Murphy, John Roush, Don Abadilla and Jim Reed pose by one of the first models to be shipped. A cable TV company in Atlanta, Georgia was the first customer.

November

Two IBM San Jose "flying ladies" compete in this year's "Powder Puff Derby" whose official name is the All-Woman Transcontinental Air Race. Sandy LeDrew (left), senior advisory planner at GPD Palo Alto, and Marjorie Griffin, manager of information resources at the Los Gatos Lab, flew a single-engine Cessna 172 to complete the race without incident.

December

Terry Lautenbach, president of the Data Processing Division, visits San Jose to review GPD development and manufacturing strategies and tour GPD facilities. He also drove to the Santa Teresa Laboratory to view the new facility with Jim Frame (left), director of GPD programming development.

Construction has begun on a telecommunications earth station located near Building 029 at Los Gatos. After the antenna is added, the station will be capable of transmitting and receiving voice and digital data via satellite, and link West Coast locations with locations in the Mid-Hudson Valley and Westchester County. The other earth station is located at IBM Poughkeepsie.

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