



# DIGEST

## *Around and About*

THE COUNTY'S 1,050 building crafts workers will start drawing bigger pay checks September 1, the customary date for raising crafts salaries.

The Board of Supervisors approved the increases upon recommendation of director of personnel Gordon Nesvig.

Nesvig also announced his department has agreed with the Building Trades council to undertake an in-depth study of the formula under which the County long has set craft rates—namely, taking the basic wages paid by the private construction industry and deducting 11 percent. The Board of Supervisors adopted the formula 18 years ago following much debate over the advantages of County employment compared with building trades work elsewhere.

Nesvig said if a new formula is agreed upon, it will be used in setting craft pay scales beginning September 1, 1969.

Following is a list of certain

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## COMPUTERS IN THE COUNTY

ONCE UPON a time the County's assessment roll was turned out by row upon row of women running adding machines. If the assessor used the same system to handle today's work load, the ladies and their adding machines would fill Dodger stadium, the Coliseum, the Sports Arena and probably the Music Center to boot.

This analogy by Jim Townsend of the CAO's management services division illustrates the pressures that have led the County to adopt first tabulating equipment, then early-day computers and now the new "third generation" computers that are many times faster than their ancestors of only ten years ago.

The sudden growth of relief rolls in the 1930s forced the County to acquire tabulating equipment which used punched cards and the card-sorting machines of that day. In the 1940's the assessor's office, too, converted to tab equipment. Other departments followed suit as their work loads grew.

Meanwhile, in 1949, scientists in both the United States and Britain began demonstrating stored-program electronic computers in their laboratories. The first commercial computer, the ponderous UNIVAC, appeared on the market in 1950. In the years that followed, the rows of vacuum tubes found in the first computers gave way to tiny transistors, and finally to the microtransistors that make possible the present highly compact third-generation computers.

As computer circuits got smaller, they got faster until now a scientific problem that took an hour on a big 1950 machine can be run on the

fastest contemporary computers in less than half a second.

The assessor's office started the trend away from tab and key punch equipment by acquiring a D-1000 computer in 1958. By now approximately 60 percent of the tab equipment in the assessor's office has been retired. The story is the same in the County's welfare operation, which used three times as much tab equipment five years ago as it does today. Many more tab machines are due for retirement in the next two years as electronic computers take over.

### *Impact on jobs*

Arrival of the computers inevitably has had an impact on County employment. It has created several hundred new jobs, notably the for the computers (*see story on page 4*). At the same time, the change-over has eliminated a much larger number of clerical and semi-skilled functions that the computer can do better and faster.

In the process, no permanent County employee has lost his job. He either has been shifted to another County position (often after retraining), or his position has been dropped from the payroll after he retired or quit.

Recurrent and parttime workers, however, have become less necessary, especially in the assessor's office. After the D-1000 was installed in 1958, the need disappeared for the temporary army of clerks hired each "assessment season." And the computer made it possible for assessor Philip Watson in 1962 to eliminate the temporary force of

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# HOSPITAL'S 'INSTANT FILE'

## Around and About

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major classes of craft employees and the higher monthly salaries they will receive starting September 1:

- 112 carpenters, \$825 a month (increase of \$37 a month).
- 18 carpenter working foreman, \$908 a month (up \$41).
- 141 electricians, \$921 (up \$38).
- 26 electro-mechanics, \$921 (up \$38).
- 40 elevator mechanics, \$921 (up \$38).
- 86 plumbers, \$986 (up \$25).
- 76 painters, \$844 (up \$15).
- 16 painting working foremen, \$928 (up \$16).
- 54 sheet metal workers, \$951 (up \$22).
- 50 refrigeration mechanics, \$986 (up \$25).
- 43 steam fitters, \$986 (up \$25).
- 43 utility tractor operators, \$762 (up \$23).
- 36 welders, \$918 (up \$32).
- 17 cement and concrete finishers, \$794 (up \$44).

THE BOARD of Supervisors has delayed action on reorganizing two County departments—probation and the chief medical examiner-coroner. The Board last Tuesday (August 13) postponed voting on the CAO's proposal for the probation department until August 20, after a spokesman for the probation officers' union asked more time to study the plan. The Supervisors also put off until September 3 action on the CAO's plan for extensive changes in the coroner's office. Supervisor Burton Chace said the plan was "good but perhaps it does not go far enough."

A FILING clerk with instant reactions and a prodigious memory has gone to work at County-USC Medical center—newest member of the County's growing family of such miraculous performers.

The new acquisition has the unromantic name of IBM 360/40 computer. Although keeping him on the job costs the County \$28,000 a month, he is expected to save not only money but time and lives.

The computer's most dramatic assignment so far is in the emergency section. Until now, when an emergency patient was brought in, the admitting clerk called the "soundex" file room to learn whether a person of this name and description ever had been a patient in the hospital before. If the file room clerk found the patient's name, the same card carried his "patient file number." This number then was telephoned to the medical records section, where his and some 900,000 other previous patients' file orders were stored on huge open shelves. When found, the patient's file folder was carried to emergency where a doctor was examining him. With luck, the whole file-finding procedure might take 10 to 15 minutes.

Now, with the computer, the medical center has begun a program of gradually discarding the old system. Every patient brought in is now being "filed" in the computer's memory bank. This file eventually may reach 2.4 million names.

Under the new system, the admitting clerk in emergency will sit down at what resembles an electric typewriter with a small video screen on top of it. The device is connected by wires to the computer in another building. The clerk types out any identifying information she has—the patient's name, age, sex, date of birth. Instantly the computer's reply shows on the screen—either no record of this person, or a choice of several former patients having the same name, or perhaps the single name of a person fitting the description, along with his patient file number. The clerk types back a request for the "urgent med-

ical history" of the patient with this file number, and the computer obediently flashes on the screen a condensed summary of previous hospital findings about the patient. This brief medical history also is printed out on a nearby typewriter, so that the examining doctor may rip it off and read it. Time for the whole procedure: as little as 30 seconds.

Nearly a hundred admitting clerks at the medical center have taken training in how to "talk" with the computer. They began using it last Monday (Aug. 12). Gene Thompson, manager of the hospital computer center, said most clerks learned to use the new device with fair proficiency after only two hours of lessons.

Thompson said that more than 3,000 nurses, technicians and hospital administrators also are being indoctrinated as to what the computer can do and are being asked to help develop other ways it can help in hospital operations.

The IBM 360/40 in the past month has taken on other chores including a census each midnight of the patients in each ward; schedules of visits for the 3,000 out-patients who visit the medical center clinics each day; and bills for Medicare and Medi-Cal patients.

Thompson said that by mid-1970 the patient records of the eight other County hospitals will be integrated into the medical center computer, so that the admitting clerks in all hospitals can get instant medical histories from anywhere in the system.

### *Two more coming*

Beginning next year, the County will have two other large computer installations at work.

One will be a Burroughs 3500 tape-disk system crammed with information about County employees. It will be used by the personnel department, the auditor-controller's payroll section, the retirement board, and the CAO's budget division.

The other will be the "courts and law enforcement" computer system

(an IBM 360 tape-disk) for storing information about prisoners, traffic violators and others having brushes with the law. It will serve the courts, sheriff, district attorney, public defender, probation department and county clerk—all of whom now maintain separate and, to some degree, duplicating records. The computer, among other things, will help the sheriff keep track of the 10,000 or so prisoners who are in County jail at a given time. It also will provide a quick check on whether a traffic violator has other citations outstanding against him anywhere in the County. For example, when a driver comes into the Los Angeles violations bureau, 8th and Wall, to pay a traffic ticket, the clerk will punch his driver's license number (that probably will be the means of identification) on a typewriter connected with the computer on the fourth floor of the Hall of Administration. The computer will make a two-second search of his record, then flash back its report on a t-v screen at 8th and Wall.

That big room on the fourth floor of the Hall of Administration, room 417, is scheduled to become the major nerve center for the County's computer systems. It already contains the assessor's two RCA Spectra 70 systems which produced this year's assessment roll. Technicians now are laying cables and conduits in the torn-up remainder of the room in preparation for the new courts-law enforcement and the personnel-payroll computers.

Until recently all of room 417 was being reserved for the assessor and the D-100 computer system his office began using ten years ago. But the bulky D-1000 now has been outdated by the new third-generation computers, whose parts and circuits are a mere fraction as large as the D-1000's. As a result of this miniaturization, all three of the new computer systems can be placed in one room.

Ted Durkee, head of the CAO's management services division, gave *The Digest* this view of the future:

"Computers are a fast-changing field and we're feeling our way. As of now, we foresee the County having six or seven large computer sys-

## How Paychecks Are Born

A COMPUTER can not do everything. But the things it can do, it does very well and very, very fast.

It has an infallible memory. It never forgets or garbles the facts and figures stored in its magnetic insides.

It can find its stored information in a fraction of a second and reproduce a printed copy or cast an image on a video screen.

It can rapidly find and combine different pieces of information.

It can compute figures a million to a billion times faster than a human being.

Despite these abilities, people who work with computers call them morons. This is because the computer can only follow orders. It can work only if a human being has fed

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tems, separate but to some degree compatible with each other.

"There'll be the hospitals system, the courts and law enforcement system, the property assessing and tax collection system, the personnel-payroll-retirement system that the CAO's budget division also will use, and an engineering computer system. At present our three major engineering departments — road, flood control and County engineer— have their own smaller computers but we hope to develop something that will serve them all.

"The registrar-recorder already has a relatively small computer system for his operation."

Durkee said one benefit expected from the personnel-payroll-retirement computer (already being referred to familiarly as PPR) will be to provide a quick reference system for employees with special combinations of skills. For example, if the health department wants to find a nurse who used to teach school and can type, or the CAO is hunting for a Spanish-speaking engineer with a law degree, the computer can riffle through the roster of County employees for possible candidates.

facts and figures into its memory bank, and then has given the computer a set of instructions (a "program") as to what steps to follow in using the facts and figures.

The computer does not think. It obeys—rapidly.

Here, for instance, is how it makes out County employees' paychecks:

A large spool of magnetized tape contains the basic payroll information. This information originally came from County departments to the auditor-controller's office where key punch operators punched it onto cards (much like the utility bills every householder receives). The operator placed these punched cards into the computer's card-reading unit, which scanned the holes and reacted to them by sending magnetic impulses to the tape. These were stored on the tape in the form of tiny magnetic spots almost invisible to the human eye. Each spot on the tape conveys a meaning to the computer—the letters in the employee's name, his rate of pay, amounts of each deduction, and so on.

When the time comes to print the paychecks, the magnetized tape starts feeding its unique group of impulses for each employee into the computer—his name, pay rate and deductions. The computer in a split second calculates his net pay and sends impulses bearing all this information to a nearby printing unit. This unit prints out the individual paychecks at the rate of 170 a minute. To make a typical run of 60,000 County paychecks takes six hours. And after the auditor-controller gets two faster printers early in 1969, the running time can be cut theoretically to about 90 minutes.

Final step is the signing of the paychecks — and luckily for Phil Deranja, head of the auditor-controller's special claims section, he doesn't need to do it by hand. The checks are run through another machine that imprints his signature in colored ink.

# Men Who Talk to Machines

THE GLAMOR job in the computer field is that of programmer. The County started with 15 of them in 1956—a handpicked crew from ten different departments to learn the new science. Today their ranks have swelled to 210 programmers, and there will be more.

The programmer goes to work only after the department head (or whoever the customer is) has determined what he wants done, what he is trying to accomplish. The programmer then writes the steps the computer must follow—first do this, next do that, then combine steps one and two, and so on for a series of instructions that may run into the hundreds or even thousands.

Devising these instructions is a slow, painstaking process. An intricate job, for instance, like programming the County payroll took a team of programmers in the auditor-controller's office nearly five months.

When the programmer has worked out his instructions, he gives them to a punch card operator who transcribes them onto punched cards. The computer can't read the programmer's squiggled notes, it can only read the holes in the cards. The card-punching goes rapidly. In a job of average difficulty that has taken the programmer months to prepare, the operator can punch out the 2,000 or so cards required in a day.

The punched cards, fed into the computer's memory unit, provide the instructions that the computer thereafter can follow, one after the other, with split-second speed.

The County's present staff of programmers came mostly from among employees having college degrees. They generally were chosen after taking aptitude tests that showed an ability to think logically and give minute attention to detail. Nowadays, opportunities are increasing for non-college graduates. Among the last nine programmers hired by the County, only three had degrees. Several programmers have moved up from tab equipment operations,

as the tab machines are phased out. One programmer formerly was a courts cashier.

Experts in the field point out that success in writing programs depends more on understanding the task to be done than on mastery of programming technique. Stanford university professor John McCarthy said:

"As a skill, computer programming is probably more difficult than driving a car but less difficult than flying an airplane. It is more difficult than arithmetic but less difficult than writing good English . . . Programming is far easier to learn than a foreign language or algebra. . . To program the trajectory of a rocket, for example, requires a few weeks' study of programming and a few years' study of physics."

## Question & Answer

*"I am confused about vacations. I came to work for the County on September 11 last year. I am told that beginning last month (July 1968) the County adopted a new system for figuring vacation credits. Some people in my department have tried to explain it to me, but they don't all agree in their explanations."*

Yes, a new system for calculating vacations went into effect July 1. It says that you or anyone else hired after January 1, 1967, is entitled to two weeks vacation one year after starting to work. In your case that would be after September 11, 1968. But you use that date only for this, your first year.

For your second year and the years thereafter, your "vacation anniversary date" becomes the first of the month closest to the date you began working. For you, that would be September 1 of each year. Had you gone to work a week later on September 18, your vacation anniversary date would be October 1 each year.

Thus, you have *two weeks* vacation coming as of next September 11. And you have another *two weeks* coming September 1, 1969.

## COMPUTERS

*Continued from page 1*

600 deputies who each spring went door to door assessing household furnishings; instead this personal property tax was computed automatically as a percentage of the real property tax.

Other departments, including the auditor-controller and the registrar-recorder, have been able to shrink the number of clerical positions after converting to computer methods.

Presently, a major conversion is under way in DPSS, where the calculating of aid grants to needy mothers with dependent children (AFDC) is being computerized.

So far this function has been transferred to computers in 14 of the 19 DPSS districts. The change has released for other duties 413 employees, most of them intermediate clerks. To prepare for this, the employees involved elected last year a ten-member committee to help plan transfers.

Five DPSS districts still are in the process of conversion: Florence, Metro Family Service, Southeast One, Compton and South Central. It is estimated more than 200 employees will be displaced by the time the conversion is complete next February. An elected employees committee is expected to be formed in October to help plan relocation procedures.

County of Los Angeles

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