

SOURCE DATA  
AUTOMATION  
SYSTEMS

DECEMBER 1963

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GENERAL SERVICES ADMINISTRATION  
NATIONAL ARCHIVES AND RECORDS SERVICE  
OFFICE OF RECORDS MANAGEMENT

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**RECORDS MANAGEMENT HANDBOOKS** are developed  
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# SDA system 1

PLANT AND INSECT PEST  
CONTROL  
Department of Agriculture

OBJECTIVES OF PROCESS. The objectives of the process are to provide the Secretary of Agriculture, Congress as required, and others in the Department of Agriculture data on the survey, detection, control, and eradication of pest plants and insects; expenditures for personnel, materials, equipment, contracts, and related items; manpower use and requirements including employment, transfers, and re-assignments; and work accomplished.

THE PROCESS. The supervisor of each work crew in the field daily summarizes the work accomplished. He punches the summary and other data in Port-a-Punch tab cards. He sends the cards to the Data Processing Division, Agricultural Research Service, Washington, D. C. The Division produces various reports from the cards for use in administering the program and for analyses. The reports are distributed in Central Office and to the several echelons in the field organization.

EQUIPMENT. The equipment used is IBM Port-a-Punch Boards, conventional electric accounting machines, and an IBM 650 Computer already available.

RESULTS. The system had these results:

Eliminated almost 200 forms.

Reduced from 42 days to 9 the time between the action in the field and the report.

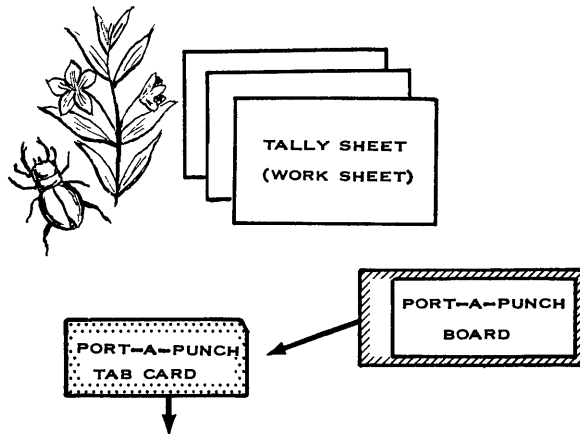
Provided for the simultaneous distribution of reports to each echelon in the field organization.

Eliminated the need for field organizations to produce their own reports.

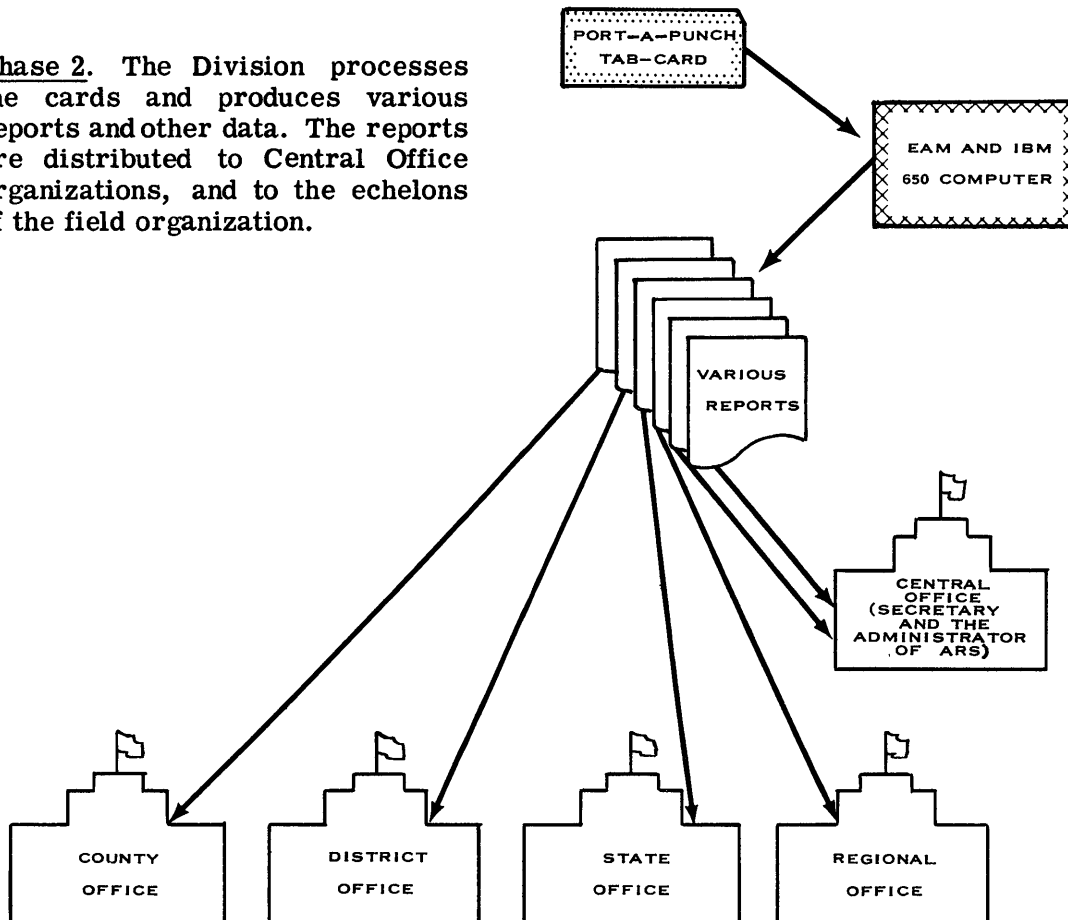
SOURCE OF MORE INFORMATION. More information is available from the Data Processing Division, Agricultural Research Service, Department of Agriculture, Washington, D. C.

## DIAGRAM - PLANT AND INSECT PEST CONTROL

Phase 1. Crew supervisors in the field maintain hand written tally sheets for work done on each job during the day. The supervisors then summarize and punch the data in Port-a-Punch tab cards and send the cards to the Data Processing Division, Agricultural Research Service, Washington, D. C.



Phase 2. The Division processes the cards and produces various reports and other data. The reports are distributed to Central Office organizations, and to the echelons of the field organization.



# SDA system 2

CATTLE REGISTRATION  
Department of Agriculture

**OBJECTIVE OF PROCESS.** The objective of the process is to provide a system for tracing to point of origin any cattle found on inspection to be diseased or to have been in contact with cattle discovered to be diseased. This is a pilot project in the State of Connecticut.

**THE PROCESS.** Cattle owners tag their cattle with serially numbered ear tags and forward registration information to the State agricultural office. The State office types the registration papers for each animal and as a by-product punches a paper tape with the same information and sends the tape to the Data Processing Division, Agricultural Research Service, Washington, D. C. The Division converts the paper tape to tab cards and maintains an up-to-date registration and ownership record for each animal. Changes in ownership are recorded and processed in the same manner as just outlined.

When an animal is inspected and found to be diseased, the ear tag number, and disease diagnosis code are reported to the Division. The Division locates the registration records by machine and notifies inspectors to examine the herds of origin.

**EQUIPMENT.** Remington Rand Syncrotape Typewriters and conventional electric accounting machines are used.

**RESULTS.** The system has these results:

Reduces the time to trace the origin of diseased cattle from several months to four or five days.

Reduces the cost of tracing each animal from an average of \$1900 to an average of \$14.

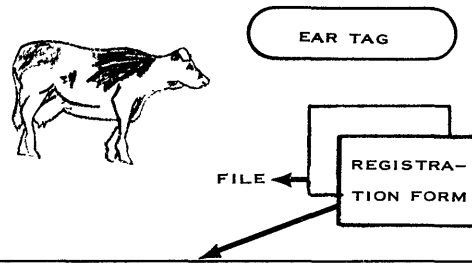
Permits savings in the millions of dollars a year.

According to informed judgment, permits the elimination of the present premise-to-premise testing of cattle.

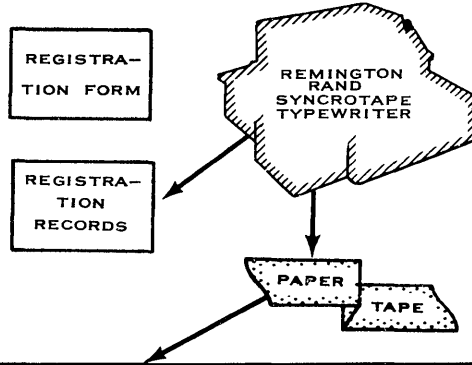
**SOURCE OF MORE INFORMATION.** More information is available from the Data Processing Division, Agricultural Research Service, Department of Agriculture, Washington, D. C.

## DIAGRAM - CATTLE REGISTRATION

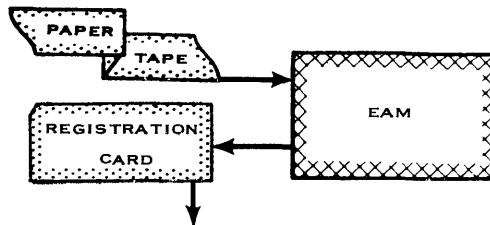
Phase 1. The owner of each animal affixes a serially numbered ear tag to each animal and provides registration information to the State agricultural office.



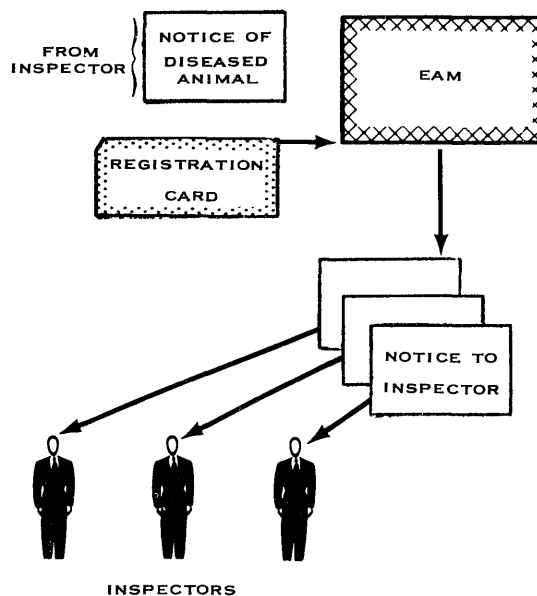
Phase 2. The State agricultural office types registration papers for the animal and as a by-product punches a paper tape with the same information and sends the tape to the Data Processing Division, Agricultural Research Service, Washington, D. C.



Phase 3. The Data Processing Division converts the tape to tab cards and maintains registration and ownership records for each animal.



Phase 4. The Data Processing Division receives a notice from an inspector of a diseased animal and traces the origin of the animal by processing tab cards showing registration and ownership. The Division then sends instructions to inspectors who examine the herds of origin of the diseased animal.





# SDA system 3

MEAT INSPECTION  
Department of Agriculture

OBJECTIVES OF PROCESS. The objectives of the process are to produce for the Department of Agriculture daily reports of animals slaughtered, products produced by type, and animals retained because of disease, by 1,500 meat packing plants subject to Federal inspection. The reports are for five regional offices and the Central Office of the Department. The reports are used for program planning and management, annual budgeting, long range forecasting, and the allocation and periodic redistribution of man-power and funds in accord with changes in production and inspections required. About 100 different reports are produced each week.

THE PROCESS. Inspected establishments and 250 officials in charge of inspections send reports to a Central Office facility in Chicago. The Chicago facility types hard copy reports and as a by-product punches the report data in paper tape. The Chicago facility then sends the source documents and paper tape to the Data Processing Division, Agricultural Research Service, Washington, D. C.

The Data Processing Division computes, consolidates, and distributes the reports to five regional offices and Central Office organizations.

EQUIPMENT. The equipment used is National Cash Register Tape Typewriters and conventional electric accounting machines.

RESULTS. The system had these results:

Eliminated 100 field clerks and 40 central office clerks.

Eliminated reports work previously done by many intermediate offices and in effect accomplished the direct transmission of data from the point of origin to the point of computation and compilation.

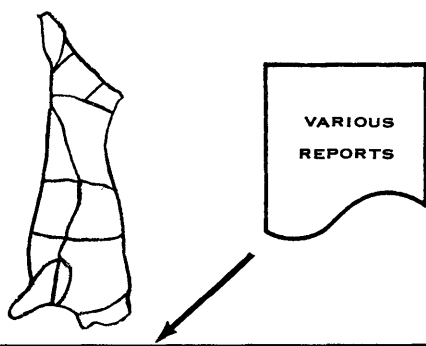
Reduced reporting delays from a minimum of 30 days to 1 day.

Virtually eliminated duplication, overlap, and errors in reporting and transcription, and packers' resistance to reporting systems.

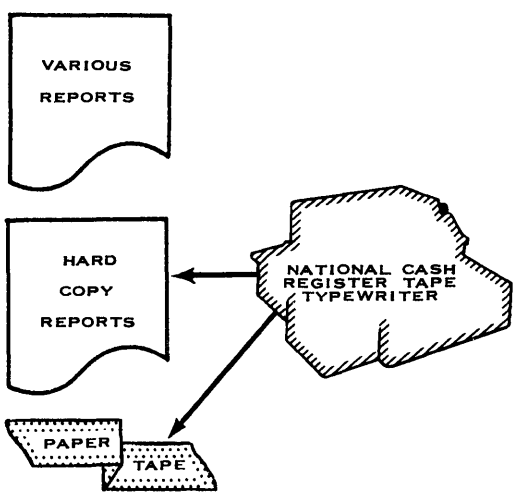
SOURCE OF MORE INFORMATION. More information is available from the Data Processing Division, Agricultural Research Service, Department of Agriculture, Washington, D. C.

## DIAGRAM - MEAT INSPECTION

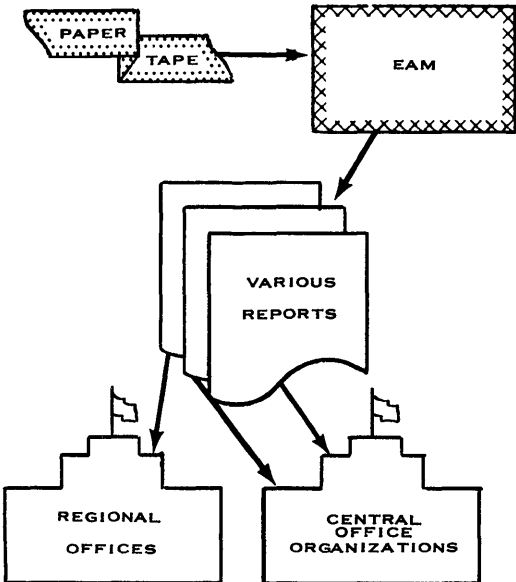
**Phase 1.** By-passing intermediate offices, inspected establishments send to a Department of Agriculture Central Office facility located in Chicago, manually produced reports of animals slaughtered, products produced, and animals retained because of disease.



**Phase 2.** The Chicago facility types hard copy reports of the raw data and as a by-product punches the same data in paper tape. It sends the tape to the Data Processing Division, Agricultural Research Service, Washington, D. C.



**Phase 3.** The Data Processing Division produces punched tab cards from the paper tape and computes, compiles, and distributes the reports to regional offices and to concerned Central Office organizations of the Department of Agriculture.



# SDA system 4

COURT CASES STATUS  
Department of Justice

**OBJECTIVE OF PROCESS.** The objective of the process is to keep a monthly status record on each case handled by the 91 U.S. Attorneys' offices and the specified legal sections of the Department of Justice. From this record, also, various statistics and financial information are compiled, such as cases opened, closed, or pending; and payments made by parties to cases.

**THE PROCESS.** The Department uses Mark-Sense tab cards to get the reports on the status of court cases handled in each U.S. Attorney's office. The U.S. Attorneys' offices mark the action codes on the tab cards which later are key punched automatically by the Statistical Machine Services Section, Administrative Division, Department of Justice, Washington, D.C. The tab cards then are used to reproduce additional tab cards and various control records and statistical reports for Central Office and field office use.

**EQUIPMENT.** IBM Electrographic Pencils and conventional electric accounting machines are used.

**RESULTS.** The system had these results:

Eliminated pencil and typed lists of new cases, tally sheets, and change of status slips in U.S. Attorneys' offices.

Eliminated manual key punching of change of status information on pending cases.

Eliminated peak workloads in U.S. Attorneys' offices and central office due to manual operations.

Eliminated the need for two key punch employees and two key punch machines.

Made available on a daily basis up-to-date statistics on workload.

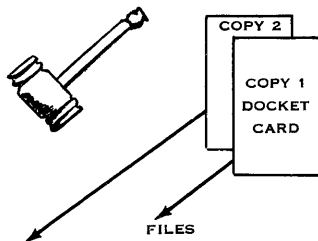
Permitted the absorbing of extra work, including 100,000 tab cards a year for new work, without added staff.

Relieved the U.S. Attorneys' offices of some clerical work.

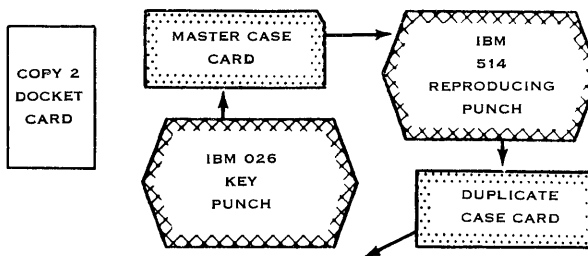
**SOURCE OF MORE INFORMATION.** More information is available from the Statistical Machine Services Section, Administrative Division, Department of Justice, Washington, D.C.

## DIAGRAM - COURT CASES STATUS

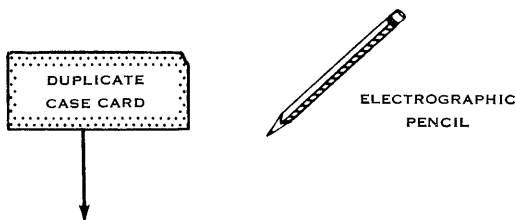
Phase 1. The U.S. Attorneys' offices complete case docket cards in two copies and send one copy to the Department of Justice, Washington, D.C.



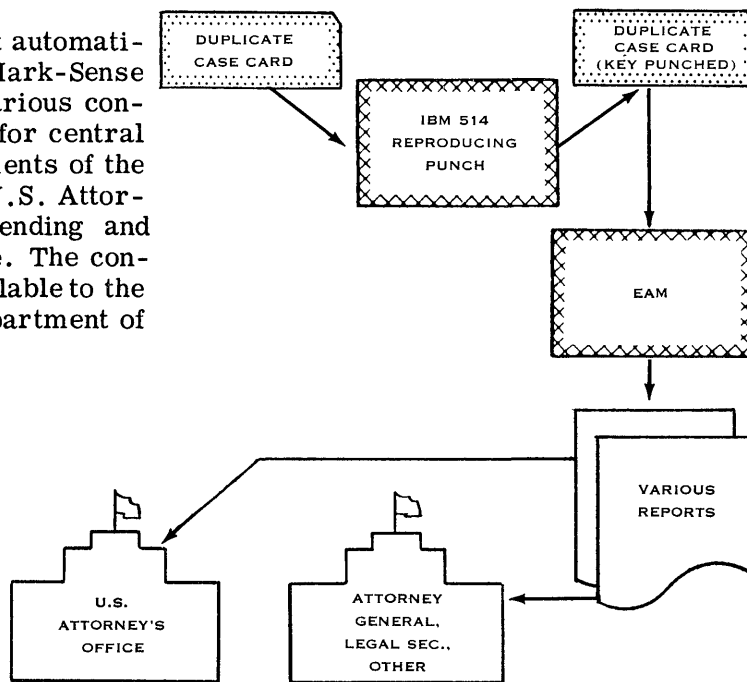
Phase 2. The Department key punches a master card for each case and reproduces automatically a duplicate set of Mark-Sense tab cards and sends them to the U.S. Attorneys' offices.



Phase 3. The U.S. Attorneys' offices mark-sense the action codes on tab cards and return them to the Department of Justice, Washington, D.C.



Phase 4. The Department automatically key punches the Mark-Sense tab cards. It produces various control records and reports for central office and field use. Segments of the reports are sent to each U.S. Attorney's office showing pending and closed cases for the office. The consolidated reports are available to the legal sections of the Department of Justice.



# SDA system 5

AIRMAIL DISPATCH ACCOUNTING,  
INTERNATIONAL  
Post Office Department

OBJECTIVES OF PROCESS. The objectives of the process are to provide the Post Office Department with data on the volume of international airmail and obligations; to pay carriers; and to make settlements with foreign countries for this service.

THE PROCESS. Dispatching offices (airport mail facilities) at international airports complete forms for dispatches of international airmail. The offices forward the forms daily to seven of the international airmail facilities designated to process them.

The designated airport mail facilities process the forms and produce airmail journals in duplicate. As a by-product they produce punched paper tape containing the information on the forms. They forward the paper tape to the International Accounts Branch, Post Office Department, Washington, D.C., which delivers it to the Data Processing Section.

The Data Processing Section converts the paper tape to tab cards. By machine, it produces the reports, and determines the payments and receipts due.

EQUIPMENT. The equipment used is Burroughs Series F.5000 Dual Printer Accounting Machines with A520 Tape Perforators and conventional electric accounting machines.

RESULTS. With no change in costs, the system had these results:

Permits payment to carriers and foreign countries in about 30 days after a period of service or receipt of accounts - reducing time lag by 45 days.

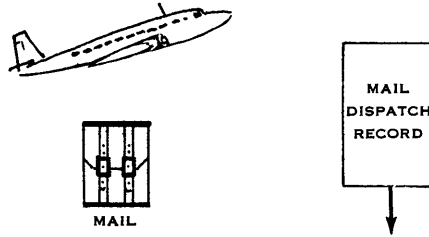
Permits recording accurate airmail obligation figures in the period to which they apply.

Permits providing promptly the statistics for management, budget, and operating purposes.

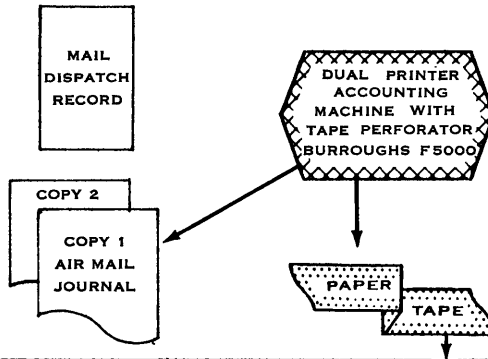
SOURCE OF MORE INFORMATION. More information is available from the Bureau of Finance, Post Office Department, Washington, D.C.

## DIAGRAM - AIRMAIL DISPATCH ACCOUNTING, INTERNATIONAL

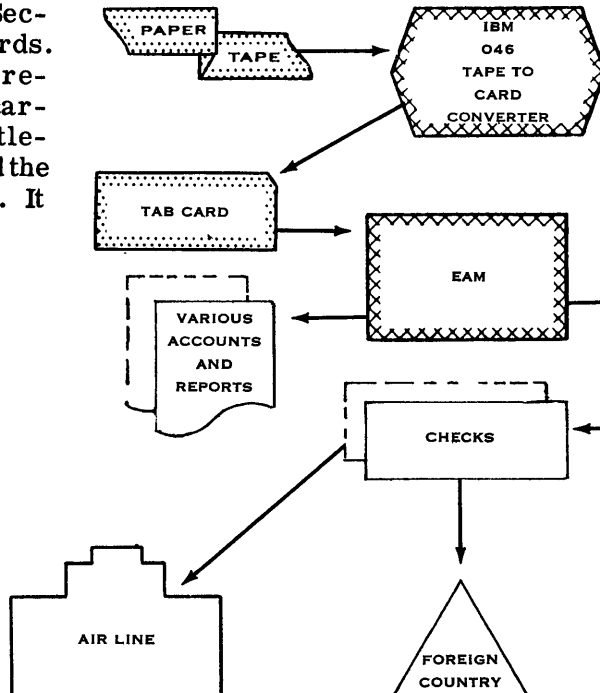
Phase 1. The dispatching office (Airport mail facility) at the international airport completes manually forms for dispatches of international airmail and sends them daily to airmail facilities designated to process them.



Phase 2. The designated facility processes the forms and produces an airmail journal in duplicate and as a byproduct a punched paper tape containing the data on the forms. It forwards the paper tape to the International Accounts Branch, Post Office Department, Washington, D.C., which delivers them to the Data Processing Section.



Phase 3. The Data Processing Section converts the tape to tab cards. It machine produces management reports, computes payments due carriers, produces records for settlements with foreign countries, and the checks required for payments. It sends the checks to payees.



# SDA system 6

TIME, ATTENDANCE, AND PAY-  
ROLL FOR EMPLOYEES  
Post Office Department

OBJECTIVE OF PROCESS. The objective of the process are to produce time and attendance records required for payroll and other purposes for all post office employees.

THE PROCESS. The regional offices of the Post Office Department key punch identification data and other data for postal employees in tab cards (time cards) and send the cards to the post offices. The post offices distribute the cards to the employees who record by time clock the time worked. The post offices collect the cards every two weeks and return them to the regional offices.

The regional offices punch the time clock information in the tab cards. They associate the time cards with salary rate and cumulative data (earnings, leave balances, deductions) cards and process them to provide payroll and leave data.

EQUIPMENT. Conventional electric accounting machines and IBM 650 Computers are used.

RESULTS. The system had these results:

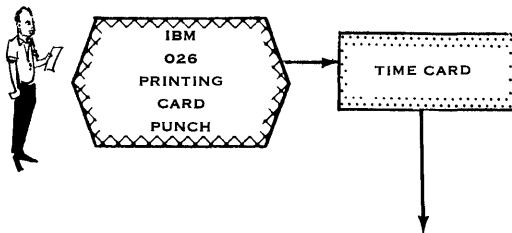
Reduced from 2,000 to 500 the number of payroll employees.

Provided a net annual saving of about 5 million dollars.

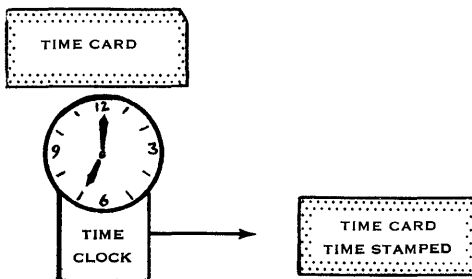
SOURCE OF MORE INFORMATION. More information is available from the Bureau of Finance, Post Office Department, Washington, D.C.

DIAGRAM - TIME, ATTENDANCE, AND PAY ROLL FOR EMPLOYEES

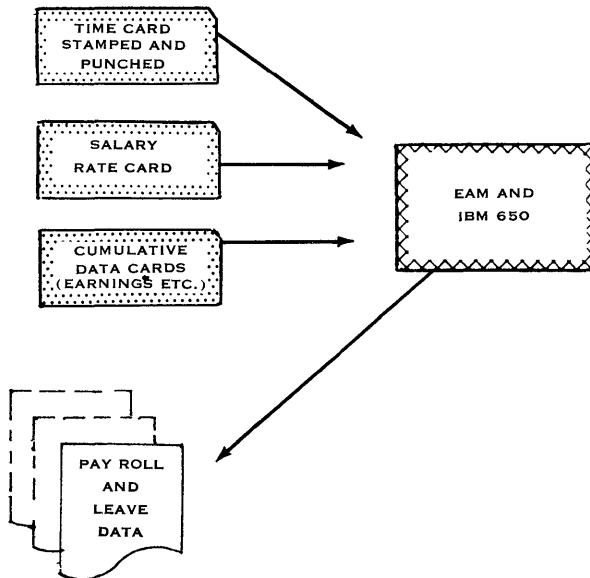
Phase 1. Each regional office, Post Office Department, key punches employee and other identification data in tab cards (time cards) for postal employees and sends them to each post office.



Phase 2. Each post office distributes the tab cards to the employees. The employees record by time clock the time worked. Every two weeks the post office collects the tab cards and sends them to the regional office.



Phase 3. The regional office key punches the time clock information in the tab cards. It then associates the time tab cards with salary rate and with cumulative data (earnings, leave balances, deductions) cards and processes them to provide pay roll and leave data.





# SDA system 7

PROPERTY REQUISITION AND  
DELIVERY  
Post Office Department

OBJECTIVES OF PROCESS. The objectives of the process are to provide for requisitioning, buying, and delivering property such as post office boxes direct from the vendor to post offices.

THE PROCESS. Each post office manually prepares and sends to the Post Office Department requisitions for property to be supplied through purchase.

The Department prepares a purchase order, key punches tab cards for the obligation, and pays for the item on evidence of shipment. When payment is made, the Department manually key punches a tab card for each item or group of items and sends the tab cards to the appropriate regional office of the Post Office Department.

Each regional office reproduces an interpreted set of tab cards from the set of detail tab cards received. It sends the interpreted tab cards and a listing of the information on the cards to the post office if it is in the first class. It sends only a listing if the post office is in the second or third class. The regional office retains the detailed tab cards for its detailed property records.

EQUIPMENT. Conventional electric accounting machines and IBM 650 Computers are used.

RESULTS. The system had these results:

Produced adequate property records for the first time.

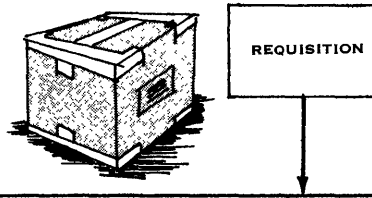
Eliminated the need to employ additional personnel to produce and keep property records at each post office.

Tests showed that the centralized process (which is part of a mechanized property records system) is less expensive than a process decentralized to the post offices.

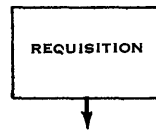
SOURCE OF MORE INFORMATION. More information is available from the Bureau of Finance, Post Office Department, Washington, D.C.

## DIAGRAM - PROPERTY REQUISITION AND DELIVERY

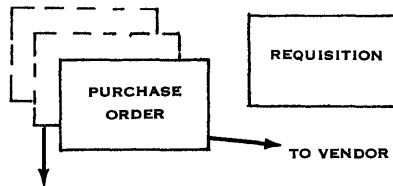
Phase 1. Each post office manually prepares a requisition for property for delivery direct from the vendor to the Post Office. It sends the requisition to the regional office of the Post Office Department for the area.



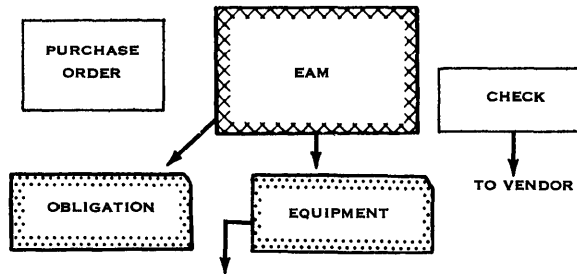
Phase 2. The Regional Office sends the requisition to the Bureau of Facilities, Post Office Department, Washington, D.C.



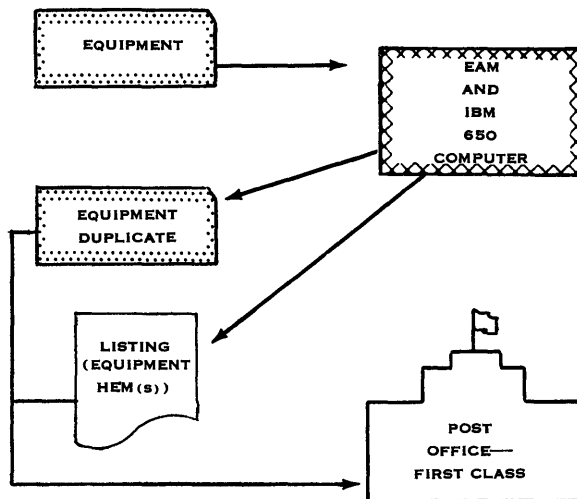
Phase 3. The Bureau of Facilities manually prepares copies of a purchase order and includes in the distribution a copy to the vendor and a copy to the Division of Accounting.



Phase 4. The Division of Accounting key punches tab cards for the obligation involved and makes payments on evidence of shipment. It then key punches tab cards for each item or group of items of property shipped and sends the cards to the regional office.



Phase 5. The Regional Office reproduces an interpreted set from the set of detail cards received. It sends the interpreted tab cards and a listing of the information on the cards to the Post Office if it is in the first class. It sends only a listing if the Post Office is in the second or third class. The Regional Office retains the detailed tab cards for its detailed property records.



# SDA system 8

STAMP REQUISITION, CONTROL  
AND BILLING  
Post Office Department

OBJECTIVES OF PROCESS. The objectives of the process are to requisition, control, and verify billings for stamps provided by the Bureau of Engraving and Printing, Treasury Department, to first and second class post offices.

THE PROCESS. The Bureau of Engraving and Printing, Washington, D.C., punches tab cards with identifying information and requisition numbers and mails them to post offices. The post offices write on the tab cards the number and denomination of stamps needed and return them to the Bureau of Engraving and Printing which key punches the information in the tab cards.

The Bureau of Engraving and Printing reproduces a set of cards for its own use and sends the original requisition cards to the regional offices of the Post Office Department; the requested stamps to the post offices; and summary cards to the Division of Accounting, Post Office Department. Regional offices use the duplicate set of detail cards to control the stamps for which the post offices must account. The Division of Accounting uses the summary cards to verify billings from the Bureau of Engraving and Printing.

EQUIPMENT. Conventional electric accounting machines are used.

RESULTS. The system had these results:

Reduced costs of this operation to the Government by \$120,000 a year.

Permitted delivery of stamps to post offices more quickly and with much less handling than before the installation.

SOURCE OF MORE INFORMATION. More information is available from the Bureau of Finance, Post Office Department, Washington, D.C.

## DIAGRAM - STAMP REQUISITION, CONTROL, AND BILLING

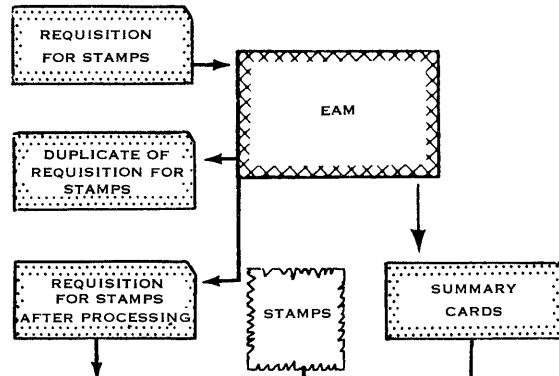
Phase 1. The Bureau of Engraving and Printing, Treasury Department, Washington, D.C., key punches a tab card with post office identifying data and requisition numbers and sends it to the post office.



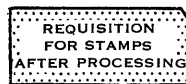
Phase 2. Each post office hand enters on the tab card the numbers and denominations of stamps needed and returns the card to the Bureau of Engraving and Printing.



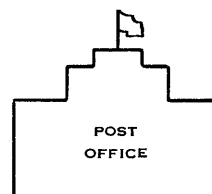
Phase 3. The Bureau of Engraving and Printing key punches in the tab cards the hand entries. It then reproduces a set of cards for its own use and sends the original requisition tab cards to the regional offices of the Post Office Department; the requested stamps to post offices; and summary of tab cards to the Division of Accounting, Post Office Department.



Phase 4. The regional offices use the requisition tab cards to control stamps for which each post office must account.



Phase 5. The Division of Accounting uses the summary cards to verify billings from the Bureau of Engraving and Printing.



# SDA system 9

AIRMAIL SERVICE ACCOUNTING  
Post Office Department

OBJECTIVES OF PROCESS. The objectives of the process are to record, report, and pay for airmail services.

THE PROCESS. Each postal facility at an airport records manually on a four-part form data for dispatches of mail. It sends one copy by way of the post office to the regional office of the Post Office Department for the area, sends two copies to airlines, and retains one copy.

The regional office punches in tab cards the data on the form and reproduces a set of cards which it sends to the airline handling the mail redorded.

The airline manipulates the tab cards with its own tab cards and produces various records, including a listing of postal charges, which it sends to the regional office.

The regional office manipulates the original card with other tab cards containing rate information and produces final information for paying the airline. It compares the airline listing with its own computations. When they are in agreement makes payment to the airline.

EQUIPMENT. Conventional electric accounting machines and IBM 650 Computers are used.

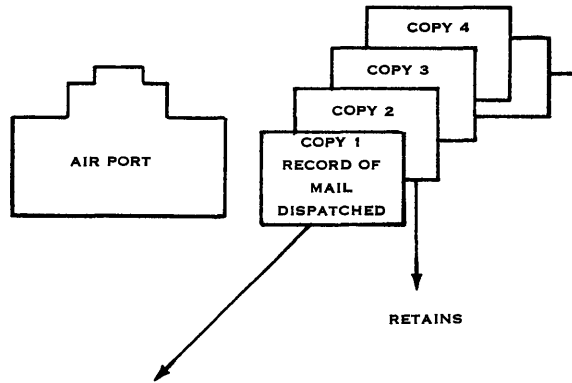
RESULTS. The system reduced from 2 years to 28 days the time between the receipt of service and the making of payments.

SOURCE OF MORE INFORMATION. More information is available from the Bureau of Finance, Post Office Department, Washington, D.C.

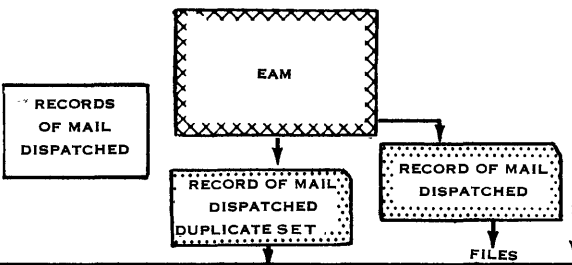
NOTE: The same conditions led to automating accounting and reporting railway mail service.

## DIAGRAM - AIRMAIL SERVICE ACCOUNTING

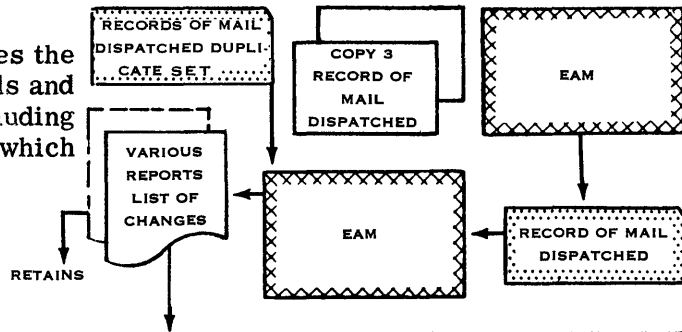
Phase 1. The postal facility at the airport hand-enters on a four-part form data on dispatches of mail. It sends one copy by way of the post office to the regional office, Post Office Department, for the area; sends two copies to the airline providing the service; and retains one copy.



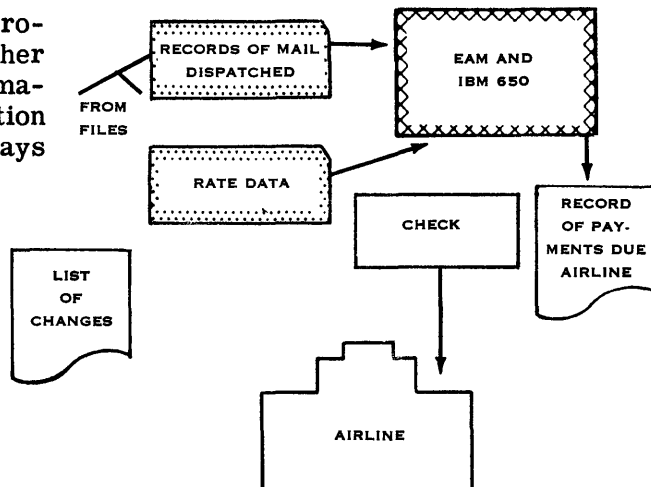
Phase 2. The regional office punches in tab cards the data hand entered on the form and reproduces a set of the tab cards and sends the set to the airline.



Phase 3. The airline processes the tab cards with its own tab cards and produces various records, including a listing of postal charges, which it sends to the regional office.



Phase 4. The regional office processes the original card with other tab cards containing rate information and produces final information for paying the airline. It then pays the airline.



# SDA system 10

ALLOTMENT PAYMENTS  
Department of the Air Force

**OBJECTIVES OF PROCESS.** The objectives of the process are to prepare and to mail allotment checks for members of the Air Force.

**THE PROCESS.** The Air Force Accounting and Finance Center (AFAFC), on an RCA 501 Computer, computes allotments and prepares a tape containing "key line" (financial data and payee address) information. On high-speed printers, it prepares heat-transfer master copies containing the information in the tape. By heat impression it transfers the data to tab cards which are blank checks.

**EQUIPMENT.** The RCA 501 Computer, A/M 950 Stylus Printer, A/M 830 Transfer Printer, Farrington (IMR) 9SP4 Scanner Punch, and conventional electric accounting machines are used.

**RESULTS.** The system had these results:

Increased protection against fraud.

Eliminated the use of obsolete equipment which was becoming difficult to maintain.

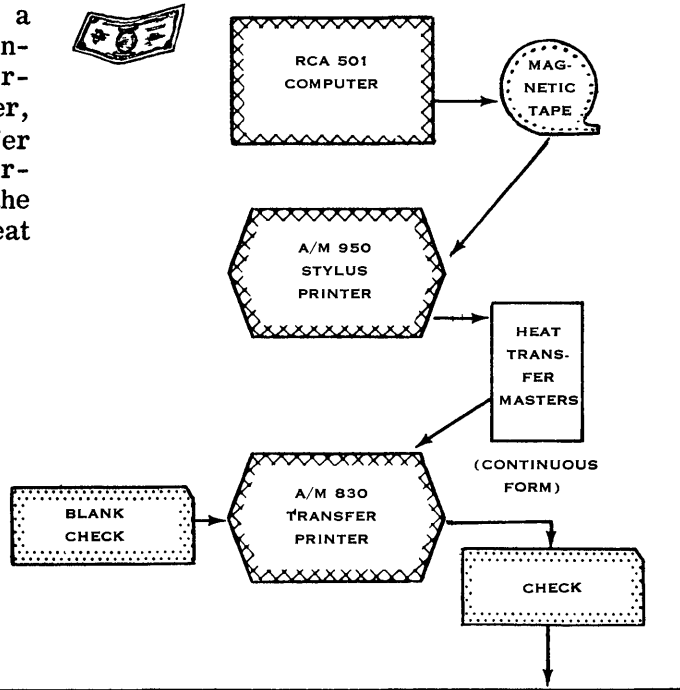
Increased quality and fund controls.

Reduced the time required to produce allotment checks.

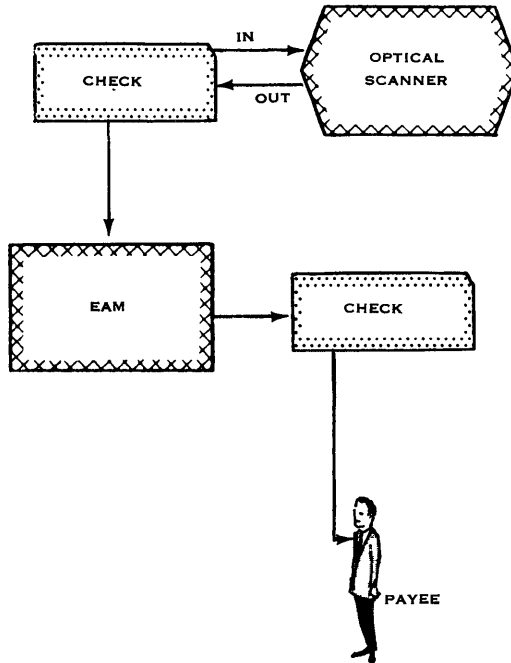
**SOURCE OF MORE INFORMATION.** More information is available from the Directorate of Data Systems and Statistics, Department of the Air Force, Washington, D.C.

## DIAGRAM - ALLOTMENT PAYMENTS

Phase 1. Air Force Accounting and Finance Center (AFAFC), computes allotments and prepares a tape containing "key line" or financial data and payee address information. On a high-speed printer, AFAFC prepares heat-transfer master copies containing the information in the tape; and transfers the data to blank check tab cards by heat impression.



Phase 2. AFAFC feeds the tab cards through an optical scanner which reads the key line data, tests for accuracy, and punches the data in the same tab cards. Through conventional electric accounting machines, AFAFC sorts the tab cards which it mails to payees in window envelopes.





# SDA system 11

MORTGAGE INSURANCE  
ACCOUNTS AND TRANSACTIONS  
Housing and Home Finance Agency

**OBJECTIVES OF PROCESS.** The objectives of the process are to record transactions and carry out accounting procedures on Federal Housing Administration (FHA) individual mortgage insurance cases including: status, fees due, fees paid, refunds, and delinquent accounts. It produces workload data and various other reports. The activity involves 75 field offices, 17 programs, 5 million tab cards a year, 900,000 applications a year, and from 3 to 11 transactions for each application.

**THE PROCESS.** The field offices forward manually completed mortgage insurance applications to the Comptroller's Division, FHA. The Division manually key punches identifying data in master cards for the applications. For each application the Division reproduces the same information in eight tab cards and sends them to field offices with four unpunched tab cards for use as needed.

The field offices hand enter action information on the tab cards, they return them to the Division. The Division manually key punches in the tab cards the hand-entered information and from the cards carry out all accounting work and produce workload, status, control, and other reports.

**EQUIPMENT.** In this system conventional electric accounting machines and an IBM 1401 Processing Unit (Computer) are used and eventually the IBM 7070 Computer will be used.

**RESULTS.** On the basis of pilot tests the system has these results:

Reduces reporting work in field offices by 200 man-years, to be available for the increasing workload of the agency.

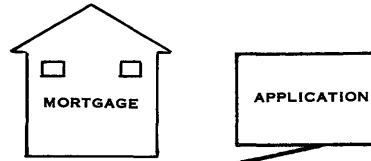
Saves in excess of half a million dollars a year.

Increases accuracy, particularly of case numbers. Correct case numbers permit quick detection and correction of errors vital to the operation of the program.

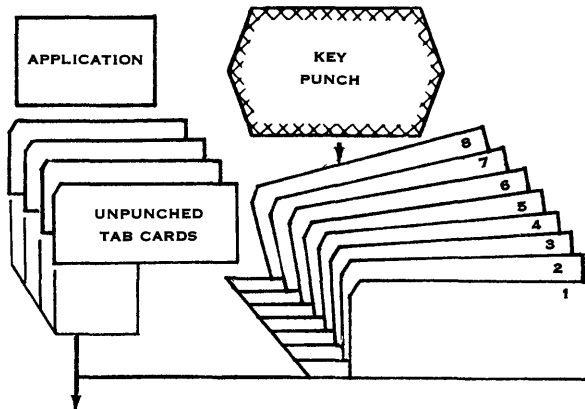
**SOURCE OF MORE INFORMATION.** More information is available from the Comptroller's Division, Federal Housing Administration, Housing and Home Finance Agency, Washington, D.C.

## DIAGRAM - MORTGAGE INSURANCE ACCOUNTS AND TRANSACTIONS

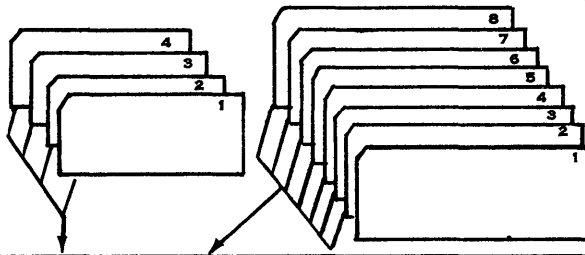
Phase 1. The field office sends manually completed mortgage insurance application to Comptroller's Division, Federal Housing Administration, HHFA, Washington, D. C.



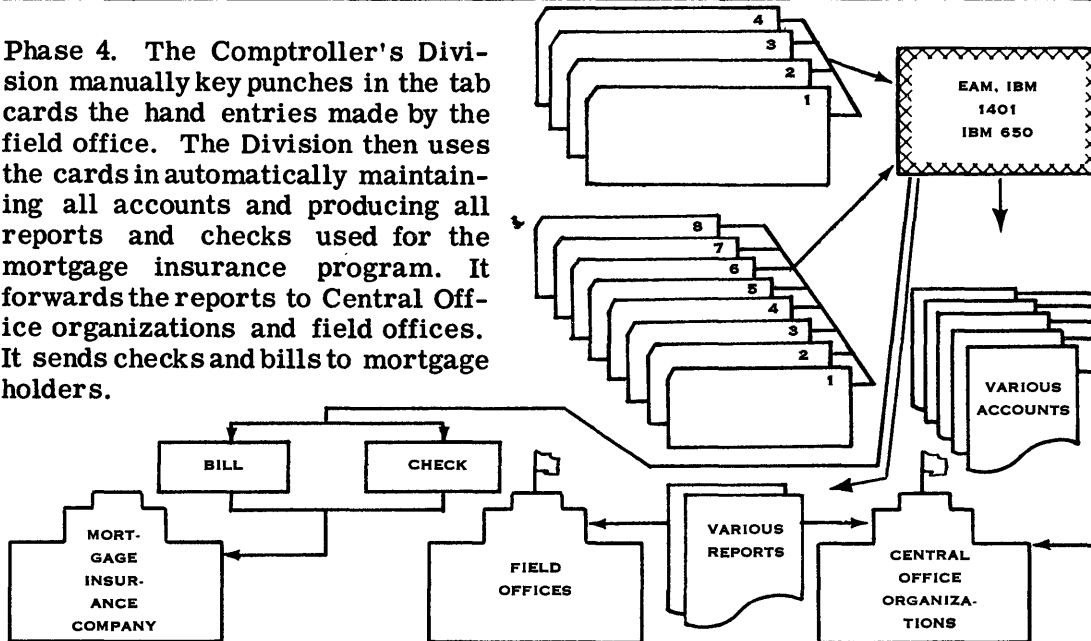
Phase 2. The Comptroller's Division manually key punches identifying and other data in a master tab card for the application and from it reproduces eight tab cards for eight possible actions which the field office may take. It sends the eight cards along with four unpunched tab cards (for recording actions as needed in a few cases) to the field office.



Phase 3. As the field office manually records actions on the tab cards it returns them to the Comptroller's Division.



Phase 4. The Comptroller's Division manually key punches in the tab cards the hand entries made by the field office. The Division then uses the cards in automatically maintaining all accounts and producing all reports and checks used for the mortgage insurance program. It forwards the reports to Central Office organizations and field offices. It sends checks and bills to mortgage holders.



# SDA system 12

MORTGAGE PURCHASE, SERVICE,  
AND SALE  
Housing and Home Finance Agency

**OBJECTIVE OF PROCESS.** The objective of the process is to provide information to the central and field offices of the Federal National Mortgage Association, HHFA, on purchasing, servicing, and selling mortgages. This involves 600,000 mortgages.

**THE PROCESS.** Each of five field offices of the Federal National Mortgage Association manually key punches detail cards for mortgage transactions. It then produces summary tab cards by type of loan and forwards them to the Field Office at Philadelphia.

The Field Office at Philadelphia processes the summary tab cards, and prints out reports in the form of IBM runs which it sends to Central Office.

Central Office puts headings on the IBM run reports, has plates made of the reports, and has the final reports reproduced in several copies for its own and field office use.

**EQUIPMENT.** Conventional electric accounting machines are used.

**RESULTS.** The system had these results:

Reduced by one week the time required to produce the reports.

Eliminated the problem of employing typists for statistical typing.

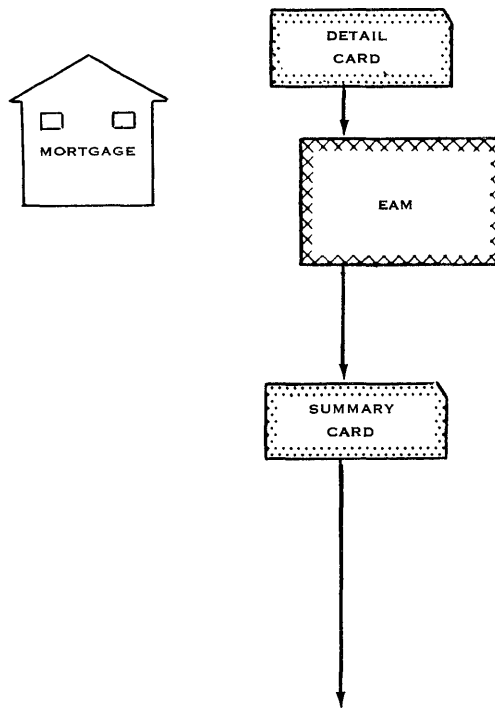
Reduced proof reading to get accurate reports.

Simplified the reporting system and reduced its cost.

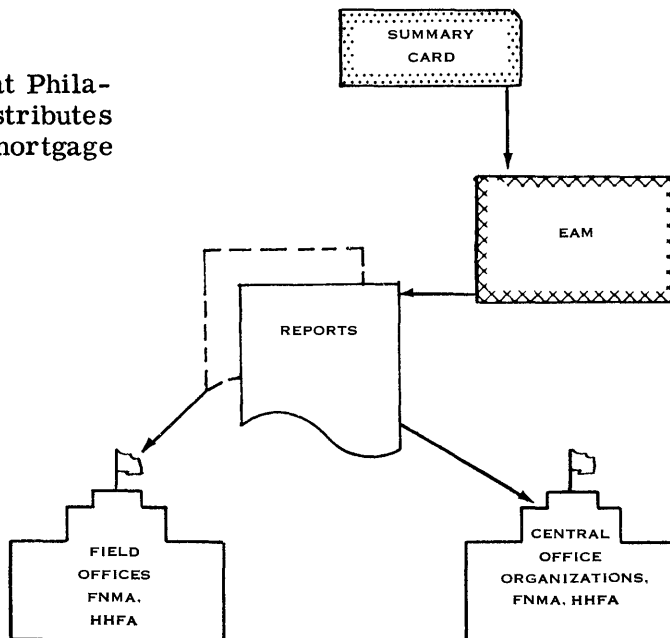
**SOURCE OF MORE INFORMATION.** More information is available from the Comptroller's Division, Federal Housing Administration, Housing and Home Finance Agency, Washington, D.C.

# DIAGRAM - MORTGAGE PURCHASE, SERVICE, AND SALE

Phase 1. Each field office of Federal National Mortgage Association, HHFA, produces summary tab cards from manually key punched detail tab cards to record work done in purchasing, servicing, and selling mortgages. The field office sends the summary tab cards to the field office, Philadelphia.



Phase 2. The field office at Philadelphia, produces and distributes reports required by the mortgage program.



# SDA system 13

LABOR AND MATERIALS  
RECORDS  
Department of the Interior

OBJECTIVE OF PROCESS. The objective of the process is to record time worked and materials used in machine shop operations of the U.S. Geological Survey.

THE PROCESS. Each machine shop prepunches a supply of cards for the materials used in shop work and for each job. The job card follows the job through the shop. Each employee has a prepunched tab card containing employee identification data.

The employee, at the time he starts a job, inserts his employee card and the tab card for the job into a CDC 180 Data Collector which punches the employee data and time in paper tape. Similarly the employee repeats the process when he stops working on a job.

When the employee gets the materials for the job he (1) picks up a prepunched tab card for the materials; (2) inserts his employee tab card in the CDC 180 Data Collector which reads it and punches the data in paper tape; and (3) in the CDC 180 Data Collector dials the quantity of material and inserts the materials card. The CDC 180 Data Collector punches the data in the same paper tape previously punched with employee identification data.

The Branch of Computation (1) receives and processes the paper tape in the Burroughs 220 Computer; and (2) produces various reports and listings which it distributes to the machine shops and other organizations in the U.S. Geological Survey.

EQUIPMENT. Control Data Corporation's (CDC) 180 Data Collector, conventional electric accounting machines, and Burroughs 220 Computers are used.

RESULTS. The system had these results:

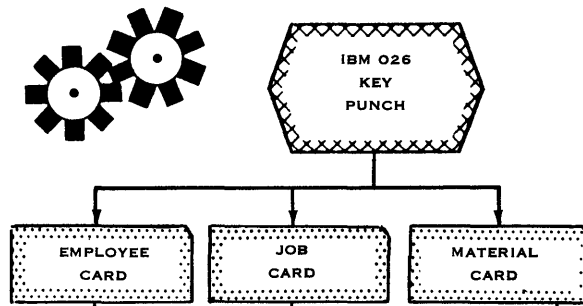
Provided for more accurate data.

Eliminated manual recording of labor and materials used.

SOURCE OF MORE INFORMATION. More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

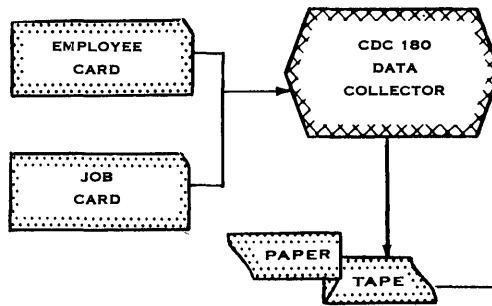
## DIAGRAM - LABOR AND MATERIALS RECORDS

Phase 1. Each machine shop prepunches a supply of tab cards for each material and a tab card for each job. The job tab card follows the job through the shop. Each employee has a prepunched tab card containing employee identification data.

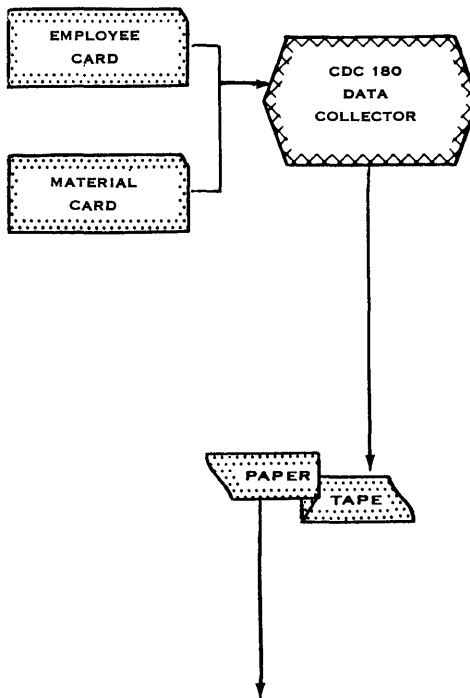


### Phase 2.

Part A. When starting a job, the employee inserts his employee card and the tab card for the job into a CDC 180 Data Collector which punches the employee data and starting time in paper tape. (The employee repeats the process when he stops working on the job. Not diagrammed).



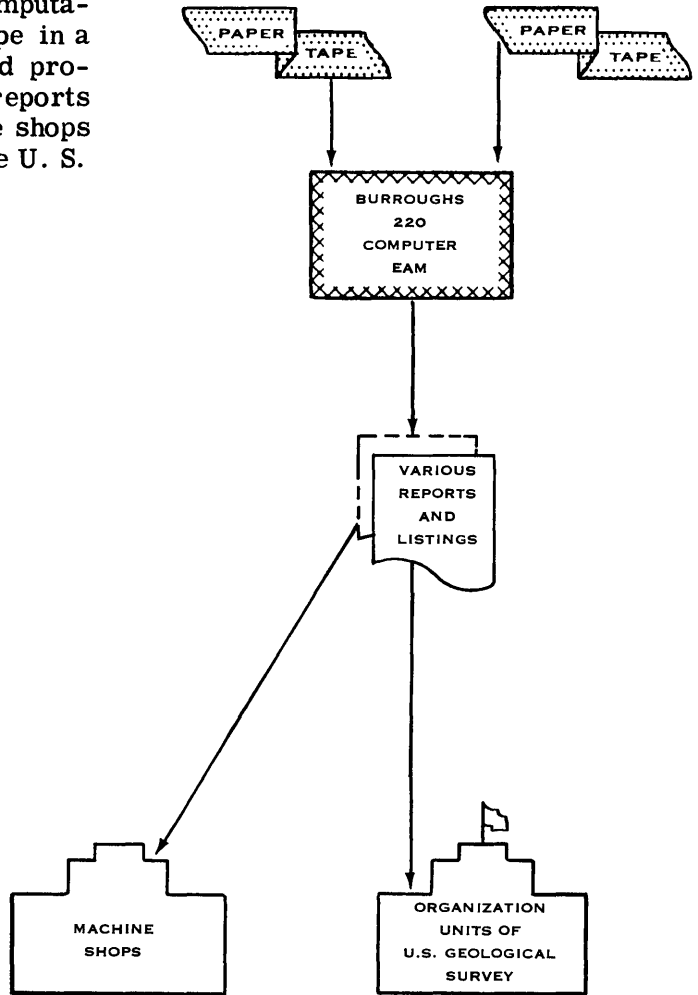
Part B. When getting material for the job the employee inserts his employee tab card in the CDC 180 Data Collector which punches the data in paper tape. The employee dials in the quantity of material and inserts the material tab card into the CDC 180 Data Collector which punches the Data in the same paper tape in which the employee data has just been punched. The machine shop periodically sends the paper tape to the Branch of Computation, Central Office of U. S. Geological Survey.



(Continued)

DIAGRAM - LABOR AND MATERIALS RECORDS (CONTINUED)

Phase 3. The Branch of Computation processes the paper tape in a Burroughs 220 Computer and produces various listings and reports which it distributes to machine shops and other organizations in the U. S. Geological Survey.







# SDA system 14

PROPERTY INVENTORY  
Department of the Interior

**OBJECTIVE OF PROCESS**, The objective of the process is to maintain records of stock items in warehouses of the U.S. Geological Survey.

**THE PROCESS**. The Branch of Computation, which maintains a stock catalog produced from tab cards, prepunches stock item tab cards in quantity and sends them to the warehouses.

Each warehouse places a supply of the tab cards for each stock item in the appropriate stock bins.

Warehouse personnel write the quantity and requisition number on the stock item tab cards. Then they manually key punch the data in the stock item tab cards and send the tab cards periodically to the Branch of Computation of Central Office.

Branch of Computation updates the property inventory records and distributes inventory listings to the warehouses and other organization units of U.S. Geological Survey. They are used for stock level control, reordering, and warehouse management.

**EQUIPMENT**. Conventional electric accounting machines are used.

**RESULTS**. The system had these results:

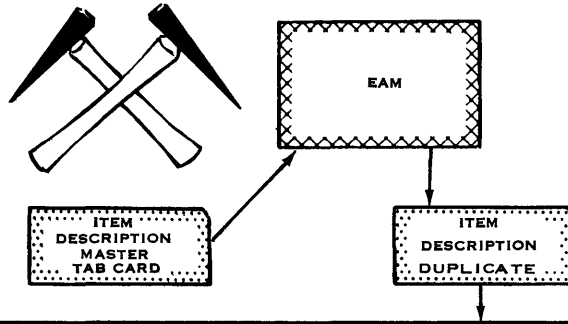
Provided for more accurate records, better control of stock levels, and reduction of stock shortages.

Permitted better planning for peak seasonal withdrawals from the warehouse.

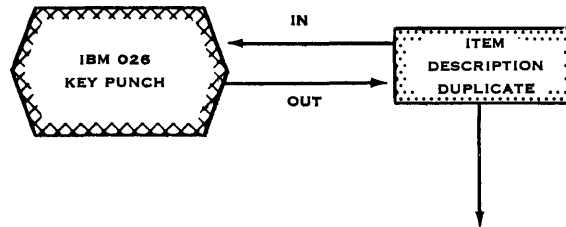
**SOURCE OF MORE INFORMATION**. More Information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - PROPERTY INVENTORY

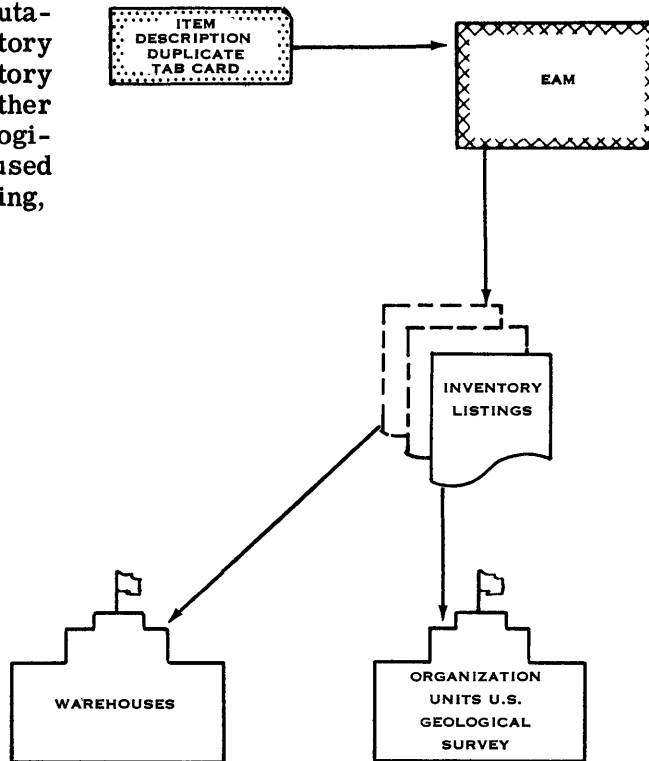
Phase 1. The Branch of Computation prepunches tab cards automatically for stock items from master tab cards used in maintaining a stock catalog. It sends the tab cards for stock items to the warehouses of U. S. Geological Survey.



Phase 2. Each warehouse hand enters and key punches a stock item tab card with the requisition number and the quantity of the item withdrawn. It sends the tab card periodically to the Branch of Computation.



Phase 3. The Branch of Computation updates the perpetual inventory records and distributes inventory listings to the warehouses and other organization units in U. S. Geological Survey. The reports are used for stock level control, reordering, and warehouse management.



# SDA system 15

SEISMIC PHENOMENA ANALYSIS  
Department of the Interior

**OBJECTIVE OF PROCESS.** The objective of the process is to analyze seismic phenomena for geophysical research, investigations, and special projects, which is the responsibility of the U.S. Geological Survey.

**THE PROCESS.** Crustal Studies Group of Geologic Division traces the seismic record which is a single line graph of ground movement using the binocular microscope of the Fischer and Porter Company Chart Reader. The Chart Reader encodes the position of the microscope into punched paper tape. The Division sends the paper tape to the Branch of Computation in Central Office.

The Branch of Computation processes the paper tape in a Burroughs 220 computer and produces reports which it sends to the Crustal Studies Group.

**EQUIPMENT.** Fischer and Porter Chart Reader (made especially for Geological Survey), Friden Motorized Tape Punch, conventional electric accounting machines, Burroughs 220 Computer.

**RESULTS.** The system had these results:

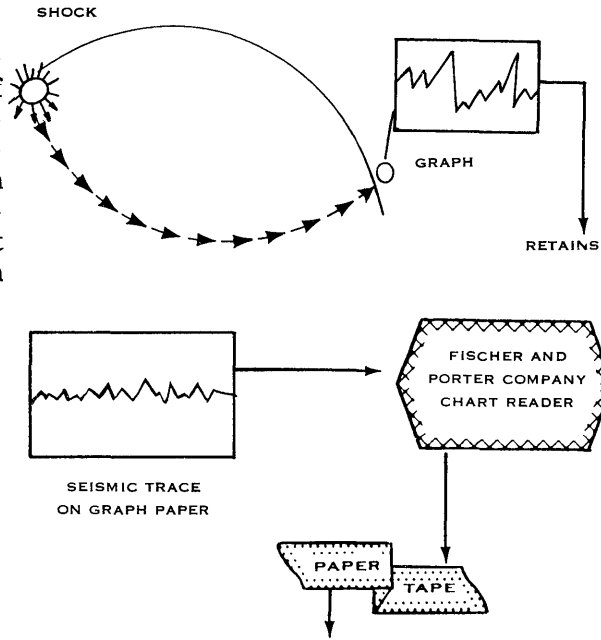
Provided for faster processing, greater precision, increased accuracy, improvement of the data.

Permitted Geophysicists to spend nearly all of their time on technical work rather than routine computations.

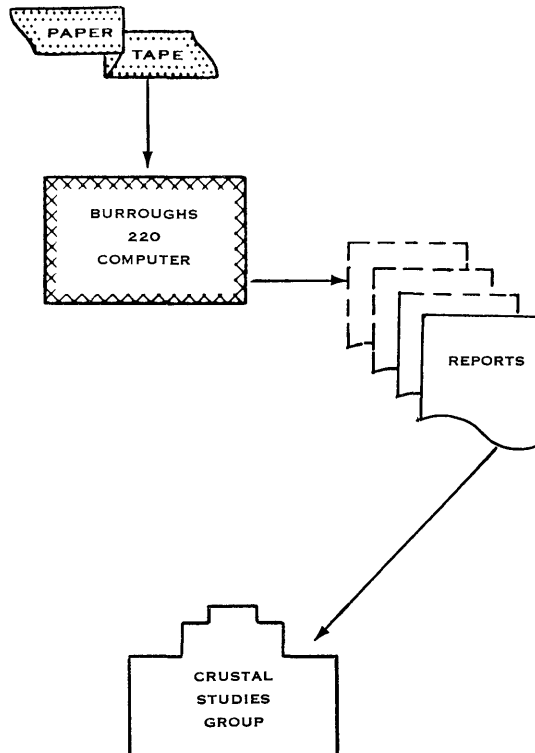
**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

# DIAGRAM - SEISMIC PHENOMENA ANALYSIS

Phase 1. Crustal Studies Group, Geologic Division, traces the seismic record which is a line graph of ground movement using the Binocular Microscope of Fischer and Porter Company Chart Reader which encodes the position of the microscope into punched paper tape. It sends the paper tape to the Branch of Computation, Central Office, U. S. Geological Survey.



Phase 2. Branch of Computation processes the paper tape in a Burroughs 220 Computer and produces reports which it sends to the Crustal Studies Group.



# SDA system 16

PROPERTY INVENTORY  
Department of the Interior

OBJECTIVE OF PROCESS. The objective of the process is to make the annual inventory of materials and equipment in U.S. Geological Survey warehouses.

THE PROCESS. From tab cards used for other purposes the Branch of Computation automatically prepunches Port-a-Punch tab cards for the persons taking the inventory.

The persons taking the inventory

- (1) Count each group of items.
- (2) Punch the quantity directly into Port-a-Punch tab cards.
- (3) Send the tab cards to the Branch of Computation.

The Branch of Computation produces the inventory listings and distributes them to various organization units in the U.S. Geological Survey.

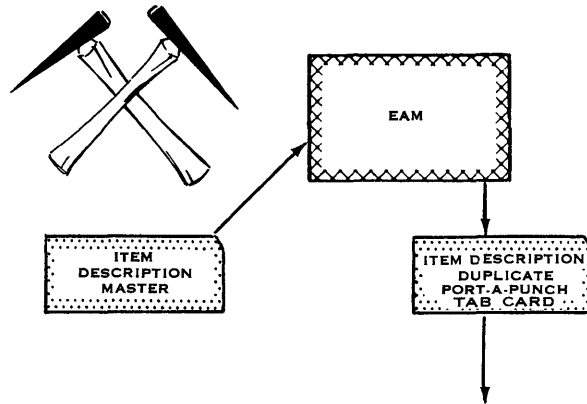
EQUIPMENT. Conventional electric accounting machines are used.

RESULTS. The system provided for quicker, more accurate, and cheaper production of inventory records than the previous system.

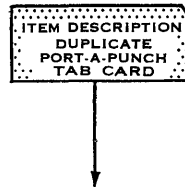
SOURCE OF MORE INFORMATION. More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - PROPERTY INVENTORY

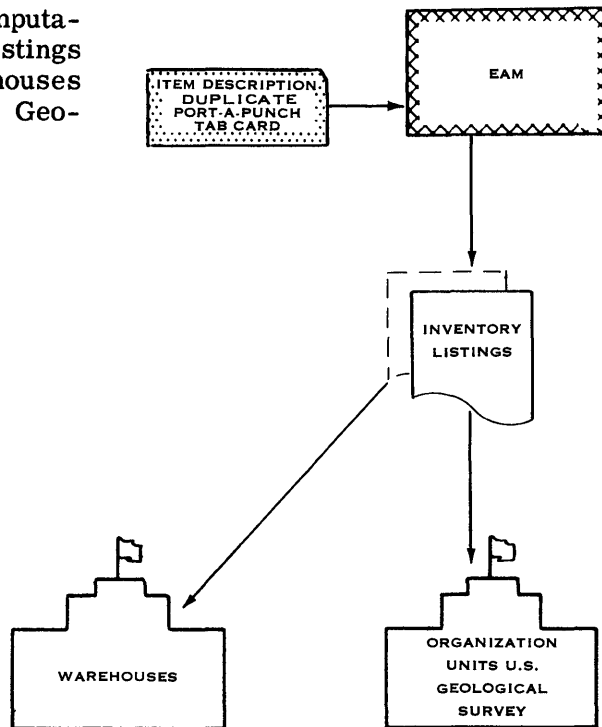
Phase 1. From tab cards used for other purposes the Branch of Computation automatically prepunches Port-a-Punch tab cards for the stock items in the warehouses and supplies them to persons taking inventory.



Phase 2. Each person taking inventory uses an improvised stylus (opened paper clip) and punches into the item description tab card the quantity of the item on hand. He sends the tab card to the Branch of Computation.



Phase 3. The Branch of Computation produces the inventory listings and distributes them to warehouses and various units in the U. S. Geological Survey.



# SDA system 17

WATER DISCHARGE AND LEVEL  
RECORDING  
Department of the Interior

**OBJECTIVES AND PROCESS.** The objectives of the process are to prepare records and make computations about water discharge and levels at streams in 7,000 stream gauging stations. These are responsibilities of the U.S. Geological Survey.

**THE PROCESS.** The water stage is recorded automatically on Analog to Digital Recorders (ADR) at stream sites at 15, 30, or 60 minute intervals depending on various factors.

The Field staff picks up the records once a month and sends them to the Water Resources Division, Central Office.

The Water Resources Division

- (1) Translates (automatically punches) the 16 channel paper tape data into 7 channel paper tape.
- (2) Processes the 7 channel paper tape in the Burroughs 220 Computer and produces reports for publication.

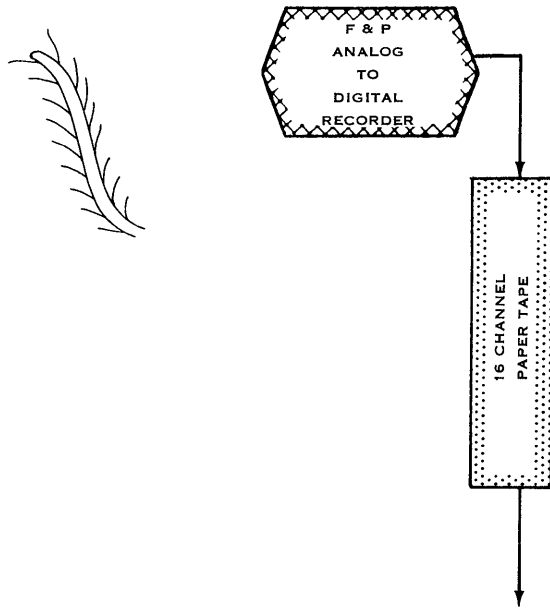
**EQUIPMENT.** The equipment used is the Fischer and Porter (F&P) Analog to Digital Recorder (ADR); Fischer and Porter (F&P) Translator (translates code from 16 channel paper tape to 7 channel paper tape); and Burroughs 220 Computer.

**RESULTS.** The system is undergoing extended field trials. The field trials indicate that the system will provide reports faster and at less expense than the former manual method.

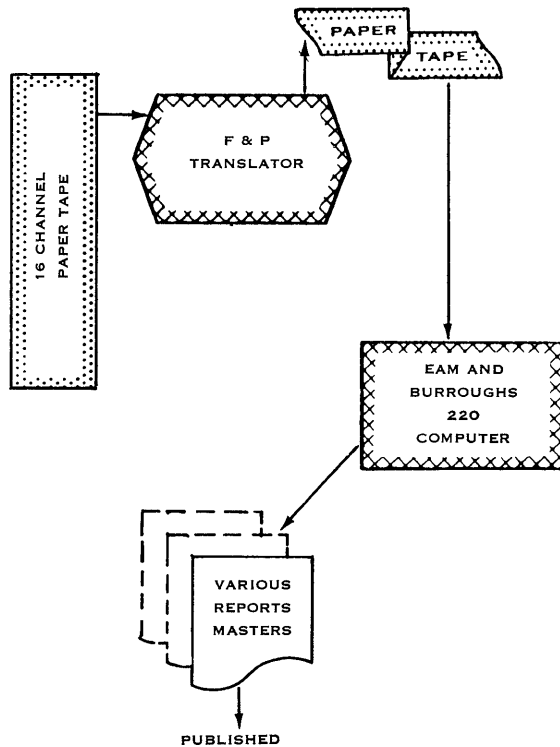
**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

# DIAGRAM - WATER DISCHARGE AND LEVEL RECORDING

Phase 1. At stream sites the water stage is recorded on an F&P Analog to Digital Recorder (ADR) in a 16 channel tape. Once a month field staff sends the 16 channel paper tape to the Water Resources Division, Central Office.



Phase 2. The Water Resources Division translates (automatically punches) the 16 channel paper tape data into 7 channel paper tape. It processes the paper tape and produces reports for publication.





# SDA system 18

BIBLIOGRAPHIES AND INDEXES  
Department of the Interior

OBJECTIVES OF PROCESS. The objectives of the process are to produce bibliographies and indexes for use by scientists and engineers. These are activities of the U.S. Geological Survey.

THE PROCESS. The Geologic Division (1) receives, edits, and prepares bibliographic and index entries on edge punched cards; (2) manually files the edge punched cards (which have copies of the punched data affixed on them); (3) at the end of each calendar year (or data collection period) produces a punched paper tape from the edge punched cards; and (4) refiles the edge punched cards and forwards the tape to the Publications Division.

The Publications Division(1) reads the paper tape through the Friden Justewriter to produce hard copy for photo offset reproduction; and (2) sends the hard copy to the Government Printing Office for printing.

At the end of each five-year period the Geologic and the Publications Divisions produce a cumulative bibliography and index. This is done in about the same manner as described for annual publications. The primary addition to the process is the manual insertion of the edge punched cards into the Justewriter at appropriate intervals while it is reading updated paper tape for prior years. The tape produced by this process contains the entries in order for the five-year period.

EQUIPMENT. The Friden Justewriter with edge punched card attachment is used.

RESULTS. The system had these results:

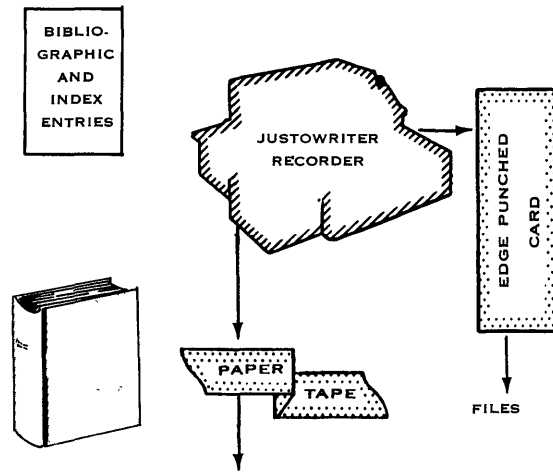
Reduced overall costs for printing, compiling, editing, and proofing the bibliographies.

Reduced the time which elapsed between the cut off date for accepting entries and the publication of the bibliographies and indexes.

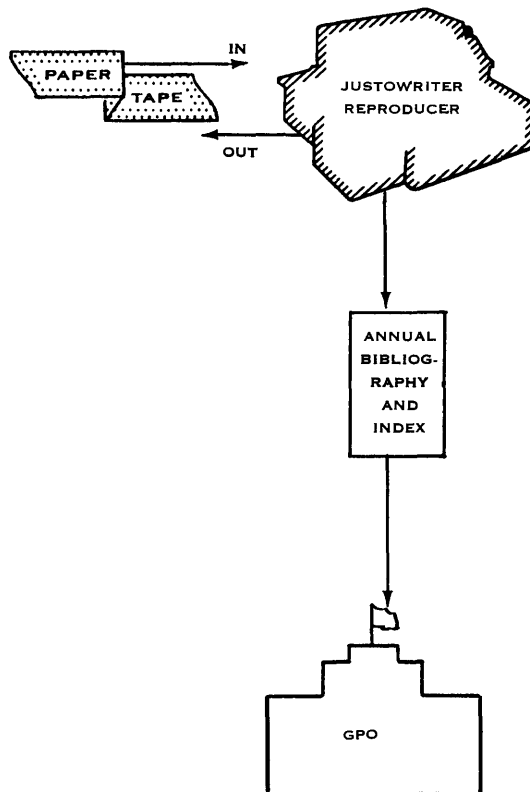
SOURCE OF MORE INFORMATION. More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - BIBLIOGRAPHIES AND INDEXES

Phase 1. The Geologic Division routinely receives, edits, and prepares bibliographic and index entries on edge punched cards. It, annually, or periodically, produces from the cards a punched paper tape containing the data and sends the tape to the Publications Division.



Phase 2. The Publications Division produces from the tape on a Friden Justewriter hard copy for reproduction of the annual bibliography and index. It sends the hard copy to the Government Printing Office for reproduction.



Note. At the end of each five-year period the Geologic Division and Publications Division produce a cumulative bibliography and index. This is done in about the same manner as described for the annual publications. The primary addition to the process is the manual insertion of the edge punched cards into the Justewriter at appropriate intervals while it is reading updated paper tape for prior years. The tape produced by this process contains the entries in order for the five year period.

# SDA system 19

PATENTS ALLOWANCE AND  
ISSUANCE  
Department of Commerce

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare documents required for issuing patents by the Patent Office.

**THE PROCESS.** The Issue and Gazette Branch of Patent Office types a notice of patent allowance and simultaneously produces punched paper tape and edge punch cards.

The appropriate edge punch card is stored in the patent application file wrapper until the fee for the patent is received for the issuance of the patent. The edge punch card is then used to produce the final fee receipt and index record documents (index to patent) which, also, serve as printers copy for preparing the weekly index of all patents issued for the week.

Punched paper tape is produced both with the manual typing of the notice of allowance and the partly automatic typing of the final fee receipt and index document. The tape is used for producing two sets of tab cards.

One set of the tab cards is used for a temporary index to cases awaiting final issuance. The other set of tab cards becomes a permanent record of the issued patents.

**EQUIPMENT.** The equipment used is conventional electric accounting machines, and the Friden Flexowriter Recorder-Reproducer with a Standard Register Company line finder and auxiliary equipment, punch for paper tape and edge punch cards, and reader for paper tape and edge punch cards.

**RESULTS.** This system had these results:

Permitted the Issue and Gazette Branch, without new staff, to absorb the workload of typing notices of allowance formerly prepared by the individual patent examining divisions.

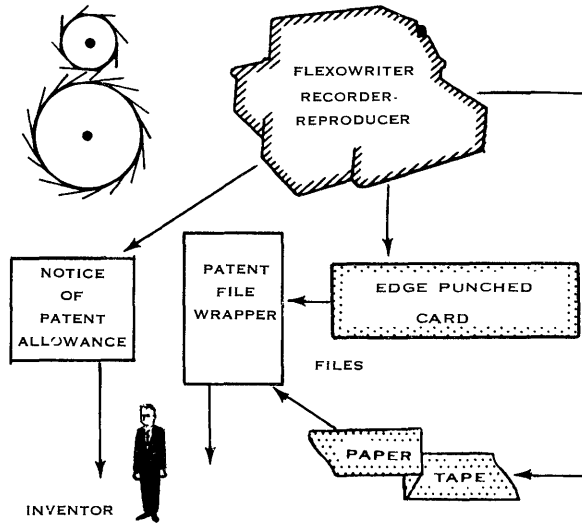
Eliminated manual key punching and key verifying data in tab cards.

Eliminated manually retyping and proofreading repeated information on documents produced at intervals in the procedure.

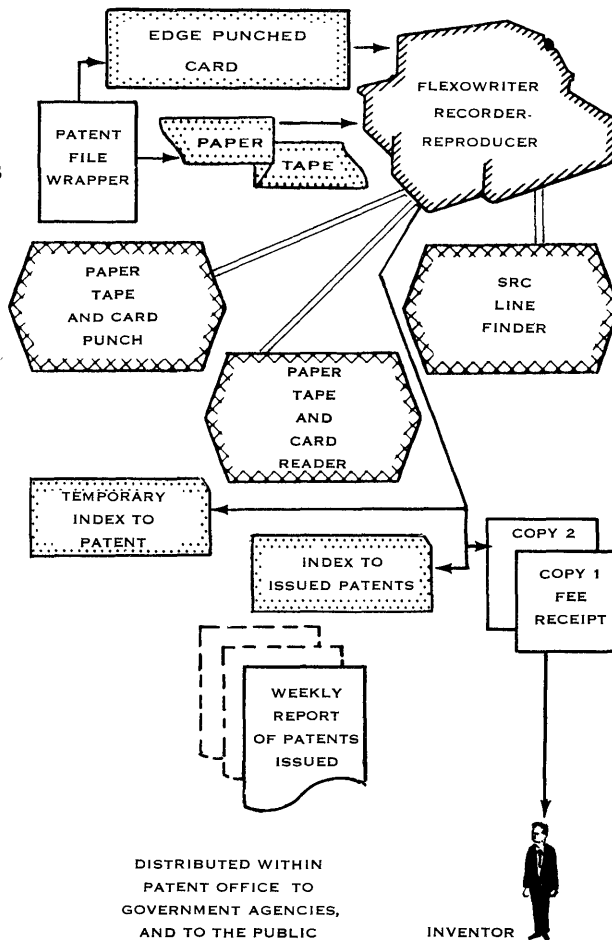
**SOURCE OF MORE INFORMATION.** More information is available from the Organization and Methods Division, Patent Office, Department of Commerce, Washington, D.C.

## DIAGRAM - PATENTS ALLOWANCE AND ISSUANCE

Phase 1. The Issue and Gazette Branch of the Patent Office types a notice of patent allowance and produces as by-products an edge punch card and punched paper tape. It stores the edge punch card and punched paper tape in the patent file wrapper until the fee is received.



Phase 2. When the fee is received, the Issue and Gazette Branch uses the edge punch card to produce the final fee receipt and index to the patent which also serves as printer's copy for preparing the weekly index to all patents issued for the week. It uses the punched paper tape to produce two sets of tab cards. It uses one set of tab cards as a temporary index to patents awaiting issuance and one set as a permanent record of issued patents.



# SDA system 20

PERSONNEL ACTION  
DOCUMENTS  
Department of Commerce

OBJECTIVES OF PROCESS. The objectives of the process are to produce personnel action documents and prepare statistical reports from the documents. This is a system in the Patent Office.

THE PROCESS. The Personnel Division, Patent Office, from information on Standard Form 52, types personnel actions on a Flexowriter to produce Standard Form 50.

As the typing is done, two by-products are produced. (1) edge punch cards with static information about the employee, and (2) punched paper tape.

The card is filed in a pocket in the folder for the employee. It is used later to prepare the "next" action SF 50 on the employee, such as a later re-assignment.

The tape is used to transmit information to the Data Processing Branch which converts it to tab cards. From the tab cards it produces statistical reports for the Patent Office, Civil Service Commission, and other organizations, as required.

EQUIPMENT. Equipment used is the Friden programatic Flexowriter, Recorder-Reproducer, and auxiliary equipment: tape punch for paper tape and edge punch cards; reader for paper tape and edge punch cards for typing hard copy; and conventional electric accounting machines.

RESULTS. The system had these results:

Enabled one clerk with overtime to handle easily the periodic peak workloads which formerly required from three to five clerks.

Made distribution of work easier and faster.

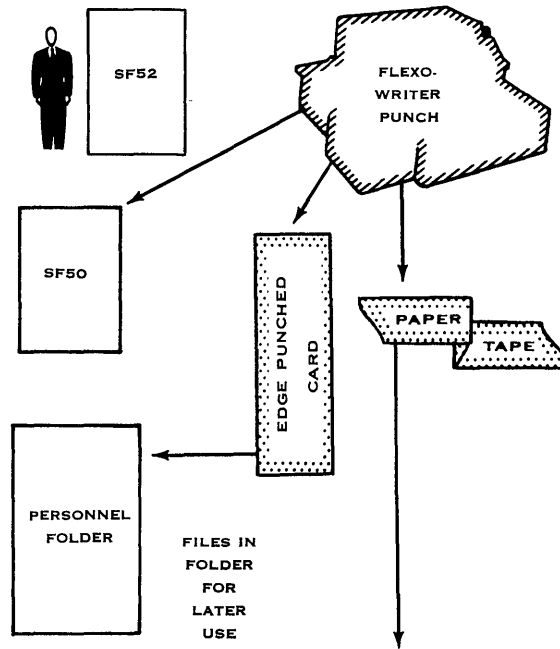
There are fewer proofreadings. Clerks are more careful in initial typing and automatic key-punching. Errors are much more difficult to correct. It is necessary to correct not only hard copy but paper tapes and edge punch cards as well.

SOURCE OF MORE INFORMATION. More information is available from the Organization and Methods Division, Patent Office, Department of Commerce, Washington, D.C.

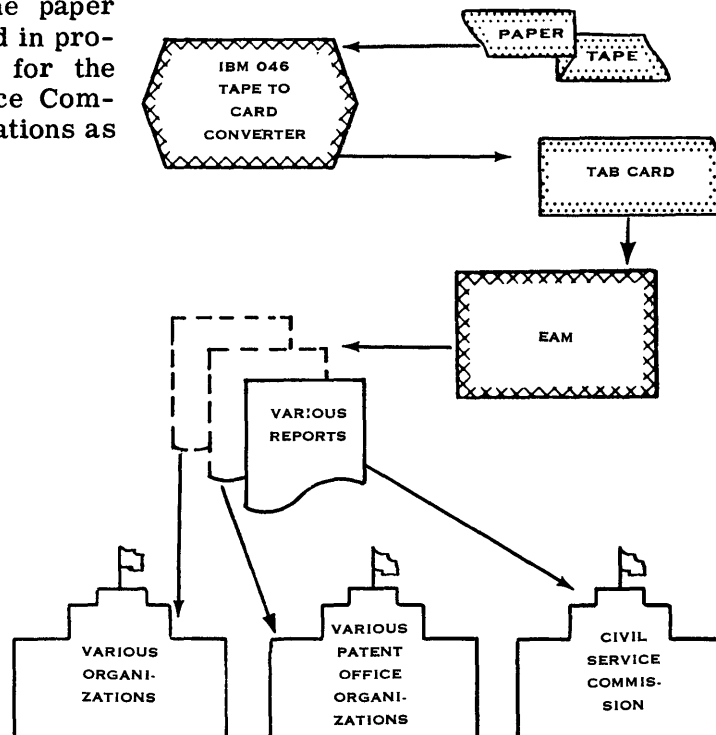
## DIAGRAM - PERSONNEL ACTION DOCUMENTS

First personnel action.

Phase 1. Personnel Division of Patent Office, from information on SF 52 automatically types personnel actions on Flexowriter and as by-products produces: (a) an edge punch card with the usual static information about the employee which is filed in a pocket in the employee's folder and is used later to prepare the "next" action on the employee, such as a later re-assignment; and (b) a punched paper tape used to transmit information to the Data Processing Branch, Patent Office.



Phase 2. Data Processing Branch of Patent Office, from the paper tape, punches tab cards used in producing statistical reports for the Patent Office, Civil Service Commission, and other organizations as required.

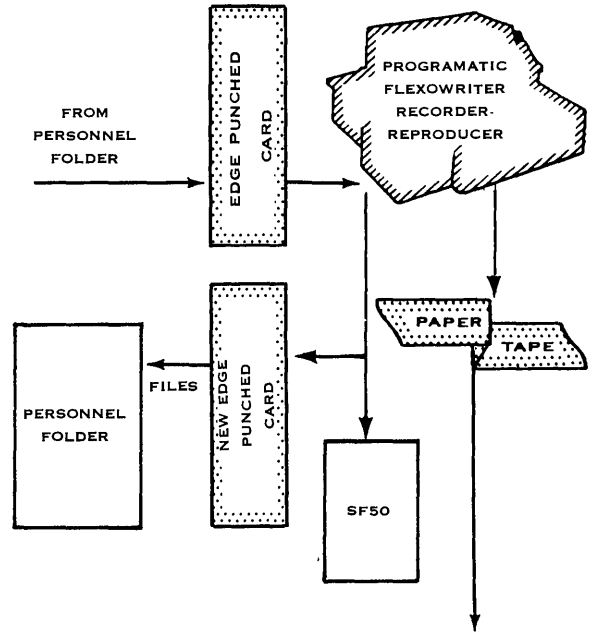


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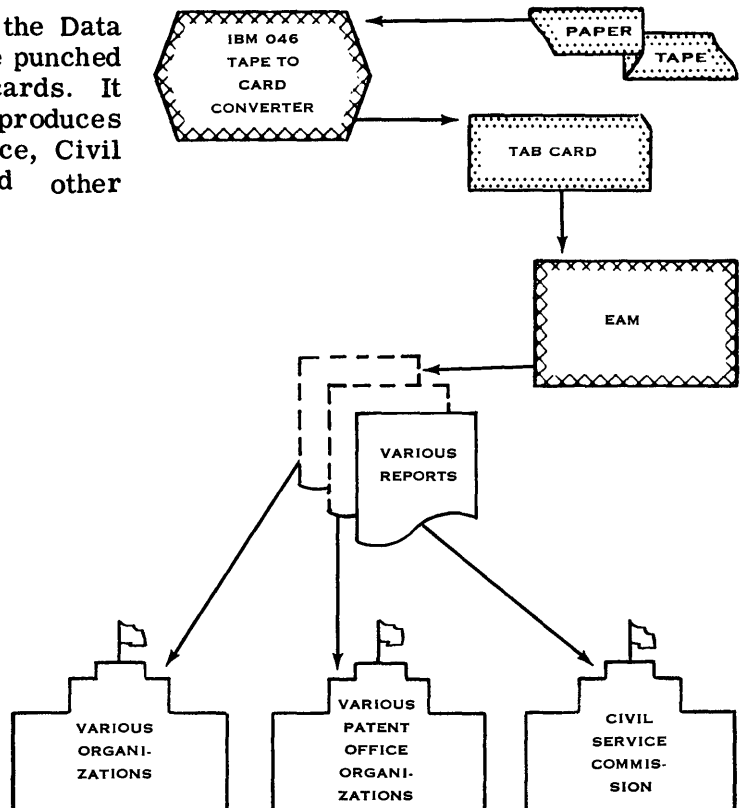
DIAGRAM - PERSONNEL ACTION DOCUMENTS (CONTINUED)

Second personnel action.

Phase 3. Personnel Division withdraws the edge punched card (phase 1) from the personnel folder and automatically produces on a Flexowriter Punch-Reader an SF 50, punched paper tape, and up-to-date information in a new edge punched card filed in the personnel folder for use in recording the next or third personnel action. It sends the paper tape to the Data Processing Branch.



Phase 4. As in Phase 2, the Data Processing Branch uses the punched paper tape to produce tab cards. It processes the tab cards and produces reports for the Patent Office, Civil Service Commission, and other organizations as required.







# SDA system 21

PATENT APPLICATIONS  
Department of Commerce

OBJECTIVES OF PROCESS. The objectives of the process are to prepare documents and folders for new patent applications. These are activities of the Patent Office.

THE PROCESS. The Application Branch types identifying data on the file folder for the patent application. As this is done, two by-product tapes are produced. These tapes later are used at different typing stations to produce automatically two separate groups of forms. These records are used for maintaining dockets on applications, for references on the status of pending applications, and for providing a receipt to the applicant.

EQUIPMENT. The Friden Flexowriter Recorder-Reproducer, and the Friden Flexowriter Recorder-Reproducer with Standard Register Company line finder are used.

RESULTS. The system had these results:

Reduced man-power requirements by three man years.

Eliminated two of three proofreadings required to insure that data are correct.

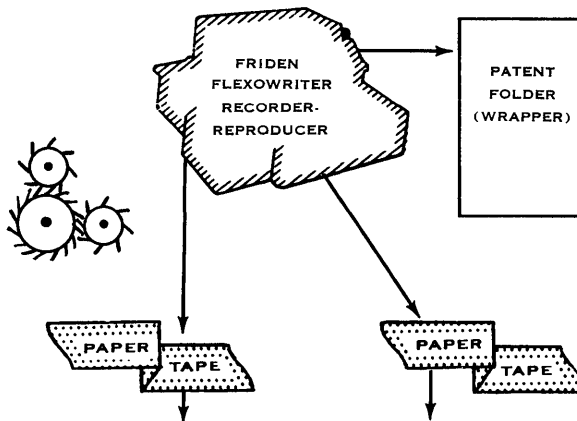
Eliminated two of three typings of the same information.

Expedited the operation.

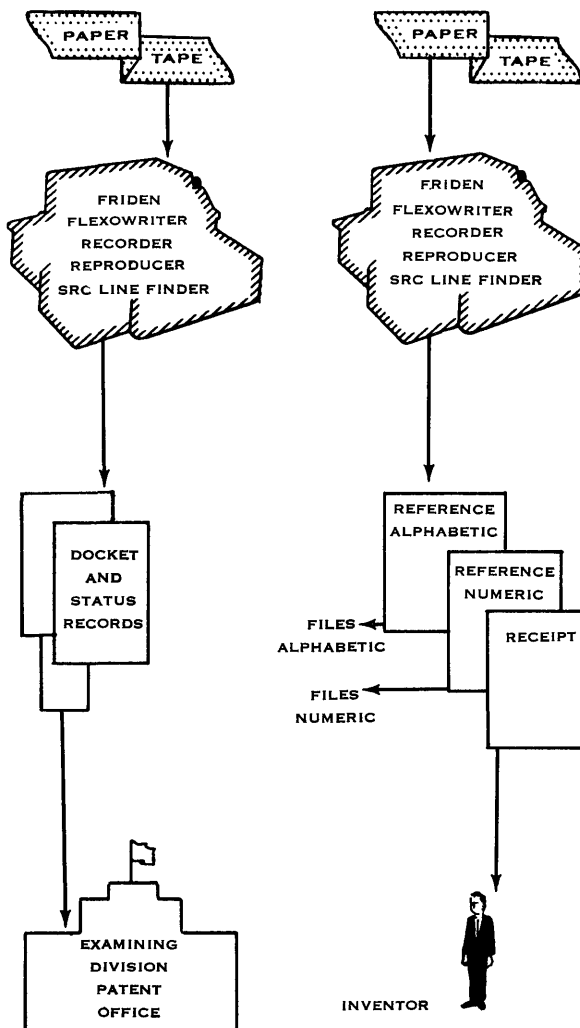
SOURCE OF MORE INFORMATION. More information is available from the Organization and Methods Division, Patent Office, Department of Commerce, Washington, D.C.

## DIAGRAM - PATENT APPLICATIONS

Phase 1. The Application Branch of the Patent Office types a file folder for the patent and punches two by-product paper tapes.



Phase 2. Typing stations use the two tapes to produce automatically two separate groups of forms. These forms are used to maintain docket, status of actions, and reference files; and to serve as receipts for the applicant.



# SDA system 22

TELETYPE COMMUNICATIONS  
Department of the Air Force

**OBJECTIVE OF PROCESS.** The objective of the process is to transmit messages by teletype through the use of paper tape produced by an optical scanner. This is an experiment being conducted by the Department of the Air Force at Griffiss Air Force Base, Rome, New York.

**THE PROCESS.** The sender prepares the messages with a typewriter which has the Farrington Selfchek type font. The messages are fed through a scanner which punches paper tape. At the same time routing information from a magnetic drum storage unit in the scanner is punched in the tape for each message. The paper tape operates the teletype transmitter which transmits the message to a teletype receiver.

**EQUIPMENT.** The Farrington Optical Scanner 1P5P and teletype transmitter and receiver are used.

**RESULTS.** Without increasing normal costs this system had these results:

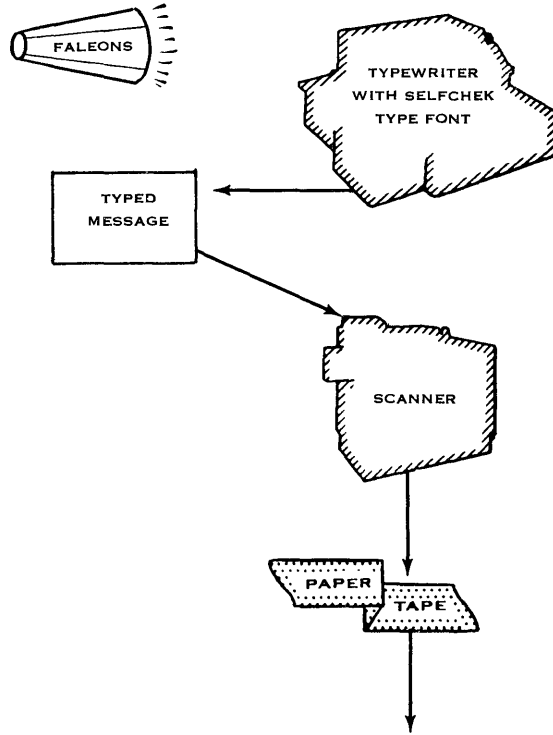
Permitted the use of conventional typewriters with special type fonts provided. If existing typewriters are used, the type fonts would be changed to Farrington Selfchek type at additional cost.

Permitted accumulation of messages on tape which can be transmitted at a constant maximum speed.

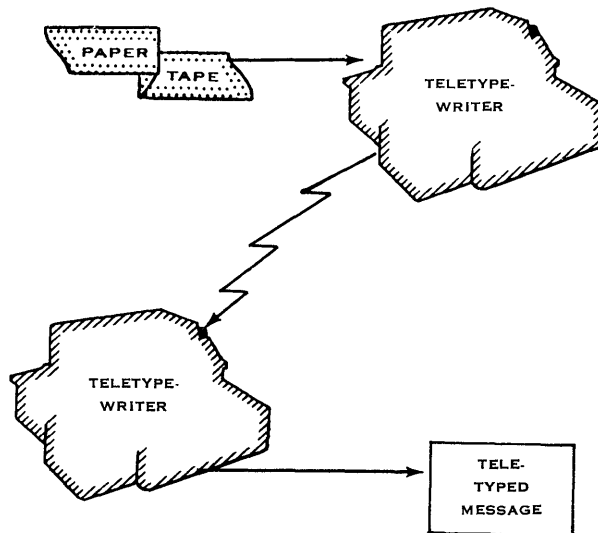
**SOURCE OF MORE INFORMATION.** More information is available from the Directorate of Data and Statistics, Department of the Air Force, Washington, D.C.

## DIAGRAM - TELETYPE COMMUNICATIONS

Phase 1. The sender types the message with a typewriter equipped with the Farrington Selfchek type font; and feeds the messages through an optical scanner which punches the message in paper tape. From its magnetic drum storage unit the scanner punches in the tape the message routing information.



Phase 2. The sender feeds the paper tape into a teletype transmitter. The teletype transmitter sends the message to the teletype receiver according to the routing information in the paper tape.



# SDA system 23

TIME AND ATTENDANCE  
REPORTS  
Department of the Interior

**OBJECTIVE OF PROCESS.** The objective of the process is to record time and attendance of personnel. This is a part of an integrated personal services accounting system in the U.S. Geological Survey.

**THE PROCESS.** The Branch of Computation prepunches time and attendance tab cards with identifying and other data and distributes them to timekeepers.

Timekeepers hand enter data on the tab cards and return them to the Branch of Computation.

The Branch of Computation

- (1) Punches the entries into the tab cards.
- (2) Processes the data with other information to a single master magnetic tape.
- (3) From the tape, it produces all reports for leave; carries out all payroll activities; and provides reports for budget preparation, accounting and personnel records.

**EQUIPMENT.** Equipment used is conventional electric accounting machines and Burroughs 220 Computer.

**RESULTS.** The system had these results:

Improved accuracy and timeliness of reports.

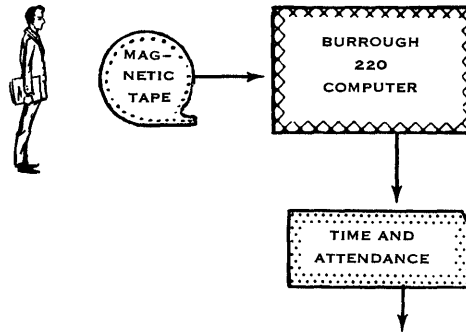
Provided for more efficient operation and use of source data.

Reduced the multiplicity of input data on the same subject.

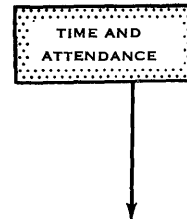
**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - TIME AND ATTENDANCE REPORTS

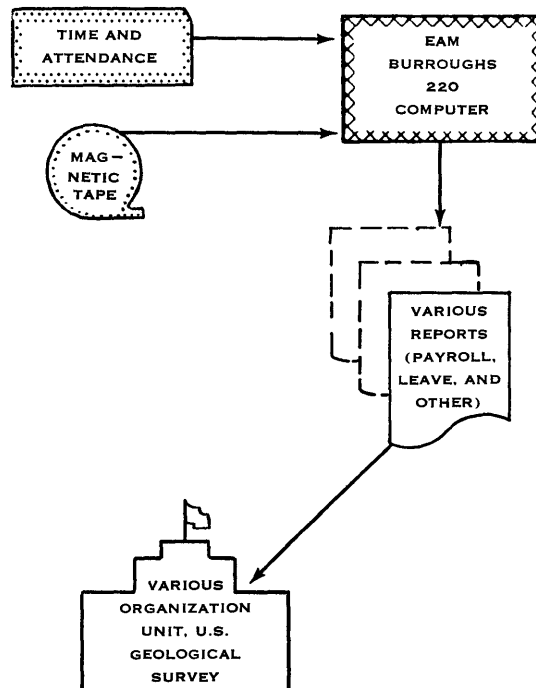
Phase 1. Branch of Computation, U. S. Geological Survey, prepunches time and attendance tab cards with identifying and other personnel data and distributes them to time keepers. These tab cards are by-products of the payroll operation.



Phase 2. Timekeepers hand enter time and attendance data on the tab cards and return them to the Branch of Computation.



Phase 3. Branch of Computation manually key punches in the tab cards the timekeepers' hand entries; updates a magnetic tape with this tab card and with other data; produces all reports for leave, budget preparation, accounting, and personnel; and carries out all payroll activities.



# SDA system 24

LABOR AND MACHINE TIME  
RECORDING  
Department of the Interior

OBJECTIVES OF THE PROCESS. The objectives of the process are to record the time employees use in completing data processing jobs and the time each machine is used for each job. This is a system in the U.S. Geological Survey.

THE PROCESS. The Branch of Computation gang-punches a supply of cards identifying each data processing machine.

At the beginning of each separate machine operation for each job the employee

- (1) Selects a card from the supply.
- (2) Dials in the job number and man number in the IBM 8200 Time-Data Punch.
- (3) Drops the tab card into the IBM 8200 which punches into the card the date, starting time, job number, and man number.
- (4) Completes the job operation on the data processing machine and drops the tab card into the IBM 8200 which key punches the stop time.
- (5) Stacks the tab card on the IBM 8200.

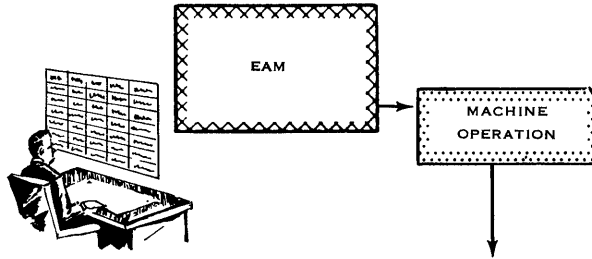
EQUIPMENT. IBM 8200 Time-Data Punch, conventional electric accounting machines, and Burroughs 220 Computer are used.

RESULTS. The system eliminated manually produced logs and manual key punching of log entries.

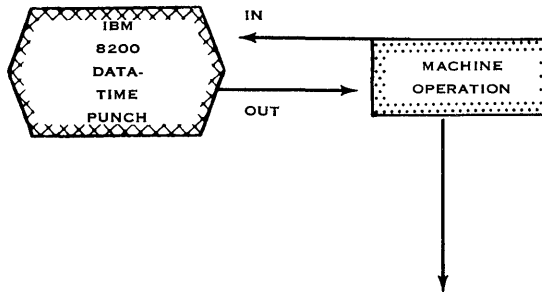
SOURCE OF MORE INFORMATION. More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - LABOR AND MACHINE TIME RECORDING

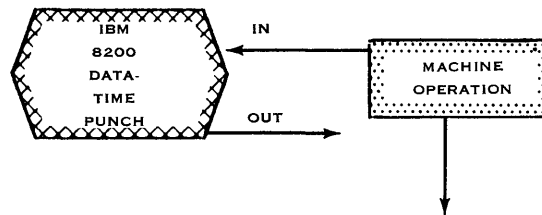
Phase 1. The Branch of Computation, U. S. Geological Survey, reproduces from masters a supply of tab cards identifying each machine and stacks them on each machine.



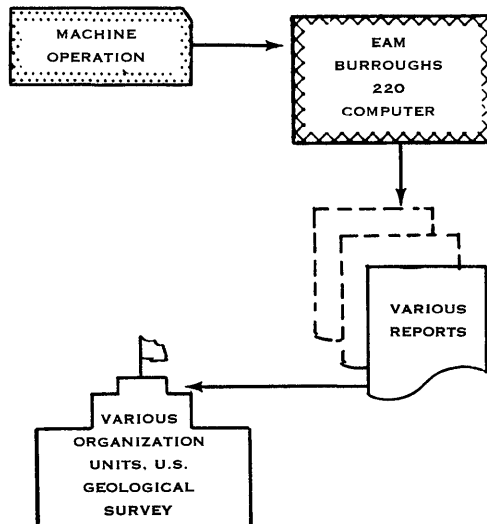
Phase 2. The Branch of Computation employee, at the beginning of each separate machine operation for each job, dials the job number and employee number and drops the pre-punched tab card (for the machine used) in the IBM 8200 Time-Data Punch. The IBM 8200 punches in the tab card the date, starting time, job number, and employee number.



Phase 3. The Branch of Computation at completion of each operation, drops the tab card for the job into the IBM 8200 which key punches the stopping time; and stacks the tab card on the machine.



Phase 4. The Branch of Computation collects the tab cards daily and each month produces reports showing costs and other data required in charging users for services and for various management purposes.





# SDA system 25

EVAPORATION LOSSES FROM  
RESERVOIRS AND LAKES,  
COMPUTATION  
Department of the Interior

**OBJECTIVE OF PROCESS.** The objective of the process is to compute evaporation losses from reservoirs and lakes. This is a system in the U.S. Geological Survey.

**THE PROCESS.** Multi-channel (many-lined) graphical recordings and punched paper tape are produced simultaneously by equipment used in picking up radiant energy and temperature values at various geographic locations. These data are recorded from variations in voltage in the sensors in the equipment used.

Field staff periodically send to their field office the punched paper tape and graphical charts.

Each field office (1) visually and manually verifies the graphical results; (2) validates (by tape editor) and respools the paper tape; and (3) sends the paper tape along with additional data to the Branch of Computation in Central Office.

The Branch of Computation (1) punches the additional data from the field office into a short leader paper tape; (2) processes the paper tape in the computer; and (3) produces and returns the desired report to the field office.

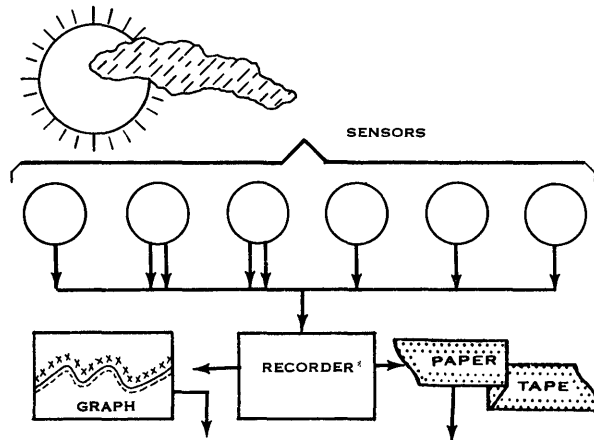
**EQUIPMENT.** Equipment used is Radiation Sensors; Thermocouples; Fischer and Porter Company Analog to Digital Encoder; Minneapolis Honeywell Multi-Channel Recording Potentiometer; Programmer. Timer (made by Geological Survey Laboratories); Friden Motorized Tape Punch; Tape Editor (made by Geological Survey Laboratories); Burroughs High Speed Paper Tape Reader; Burroughs 220 Computer; IBM 407 Accounting Machine; and Friden Programmatic Flexowriter.

**RESULTS.** The system provides for better and fuller use of technical staff by freeing them of routine computations.

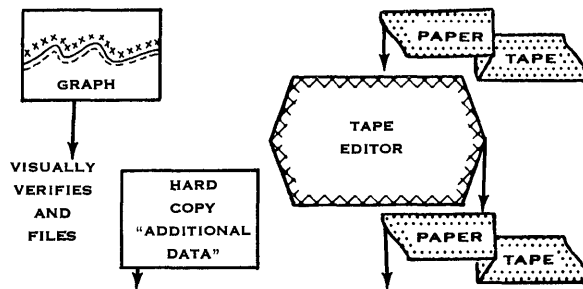
**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Executive Officer, Geological Survey, Department of the Interior, Washington, D.C.

## DIAGRAM - EVAPORATION LOSSES FROM RESERVOIRS AND LAKES, COMPUTATION

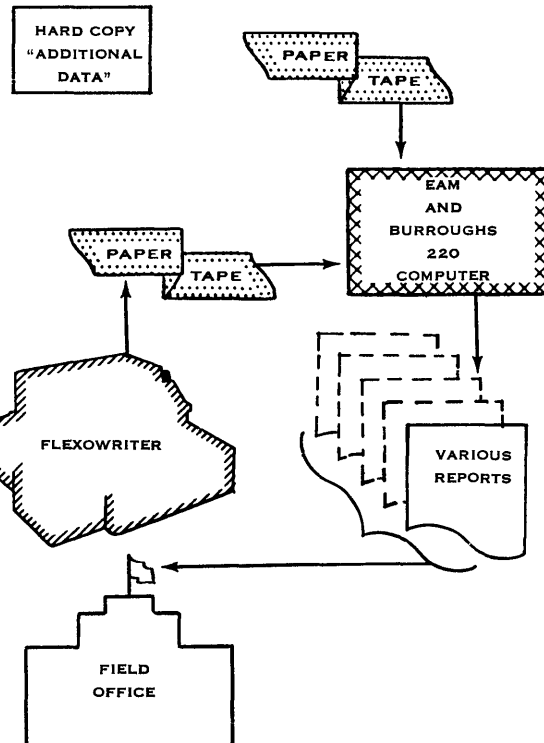
Phase 1. At various geographic locations multi-line graphs and punched paper tape are produced simultaneously from variations produced in the six sensors of the equipment used in picking up radiant energy and temperature values. Field staff periodically send to their field offices the line graphs and punched paper tapes.



Phase 2. Each field office visually and manually verifies the graphical results; validates by tape editor and respools the paper tape; and sends the paper tape along with additional data to the Branch of Computation, U. S. Geological Survey.



Phase 3. The Branch of Computation punches the additional data from the field offices into short leader paper tapes; processes the paper tapes; and produces and returns the desired reports to the field offices.



**\*RECORDER COMPRISES:**  
 Minneapolis-Honeywell,  
 Multi-Channel Recording  
 Potentiometer; Fischer  
 & Porter Co., Analog-to-  
 Digital Encoder Programmer  
 Timer; Friden Motorized  
 Tape Punch.

# SDA system 26

PERSONNEL ACTION  
DOCUMENTATION  
Department of Health, Education,  
and Welfare

**OBJECTIVES OF PROCESS.** The objectives of the process are to record and report personnel actions in the National Institutes of Health (NIH) and to establish and maintain a comprehensive personnel reporting system.

**THE PROCESS.** The operating organization manually prepares Standard Form (SF) 52 and sends it to the Personnel Management Branch, NIH.

The Personnel Management Branch, NIH, from the SF 52 and the personnel file of the employee manually prepares a code sheet. The Personnel Management Branch types a Standard Form 50. (On an accession the SF 50 is manually typed on a flexowriter and a by-product tape is produced containing the same information. On a subsequent action the large part of the SF 50 is produced from the paper tape made earlier for the accession.

While typing the SF 50, the Personnel Management Branch produces paper tapes. It places in the employee file tape which has information for producing the next SF 50. It sends other tape to the Computation and Data Processing Branch to establish or update the master record on magnetic tape.

The Computation and Data Processing Branch produces various reports required for personnel management. It sends them to the Program Evaluation and Reports Section which reproduces and distributes them to organizations with NIH and to other agencies such as the Civil Service Commission.

As a by-product of the process, telephone locator strips are produced and the NIH telephone directory automatically is updated.

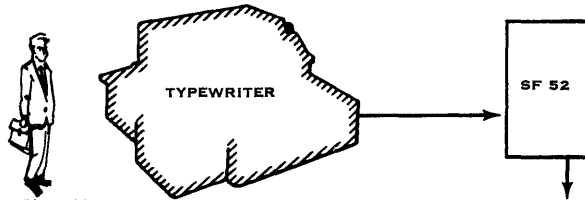
**EQUIPMENT.** The Friden Programatic Flexowriter with auxiliary punch and selectadata attachments, conventional electric accounting machines, and Honeywell 800 Computer are used.

**RESULTS.** This system provides more timely, comprehensive, and reliable data than the preceding system.

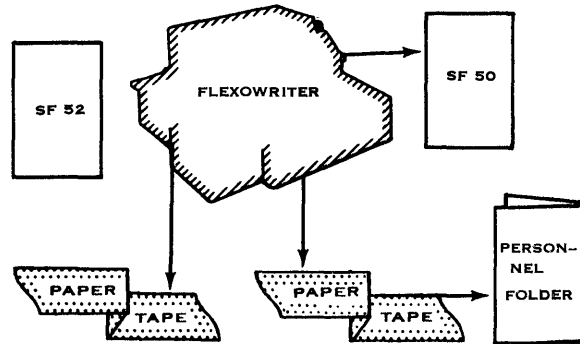
**SOURCE OF MORE INFORMATION.** More information is available from the Personnel Management Branch, National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare, Washington, D.C.

## DIAGRAM - PERSONNEL ACTION DOCUMENTATION

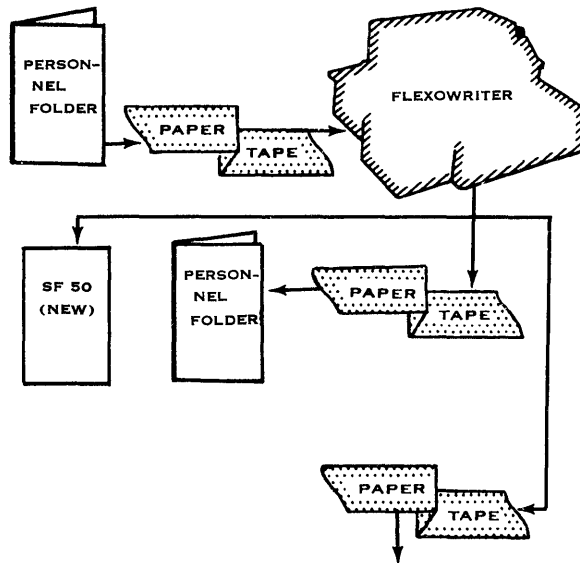
Phase 1. Each operating organization manually prepares SF 52 and sends it to the Personnel Management Branch, NIH.



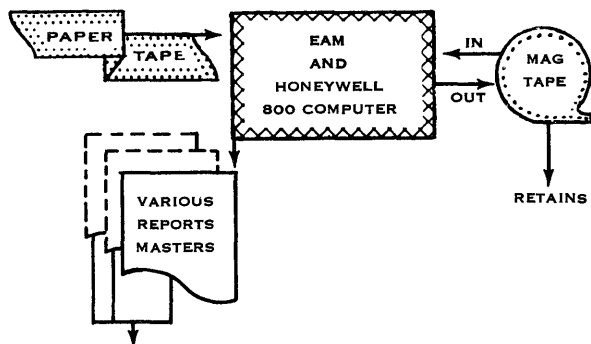
Phase 2. The Personnel Management Branch, NIH, manually types on a Flexowriter an SF 50 upon accession of an employee and as by-products produces two punched paper tapes. It files one tape in the personnel jacket of the employee. It sends the second paper tape to the Computation and Data Processing Branch to establish the master record.



Phase 3. When a subsequent personnel action for the employee occurs, the Personnel Management Branch, largely from the paper tape, produces a new SF 50, an updated paper tape which is filed in the personnel folder and is used in producing the next SF 50, and a paper tape which is sent to the Computation and Data Processing Branch. (Note: A paper tape is produced to update the telephone directory by machine methods. Thirteen locator strips are produced automatically and sent to 13 organization units in NIH for use until the updated telephone directory for NIH is issued. Not diagrammed).



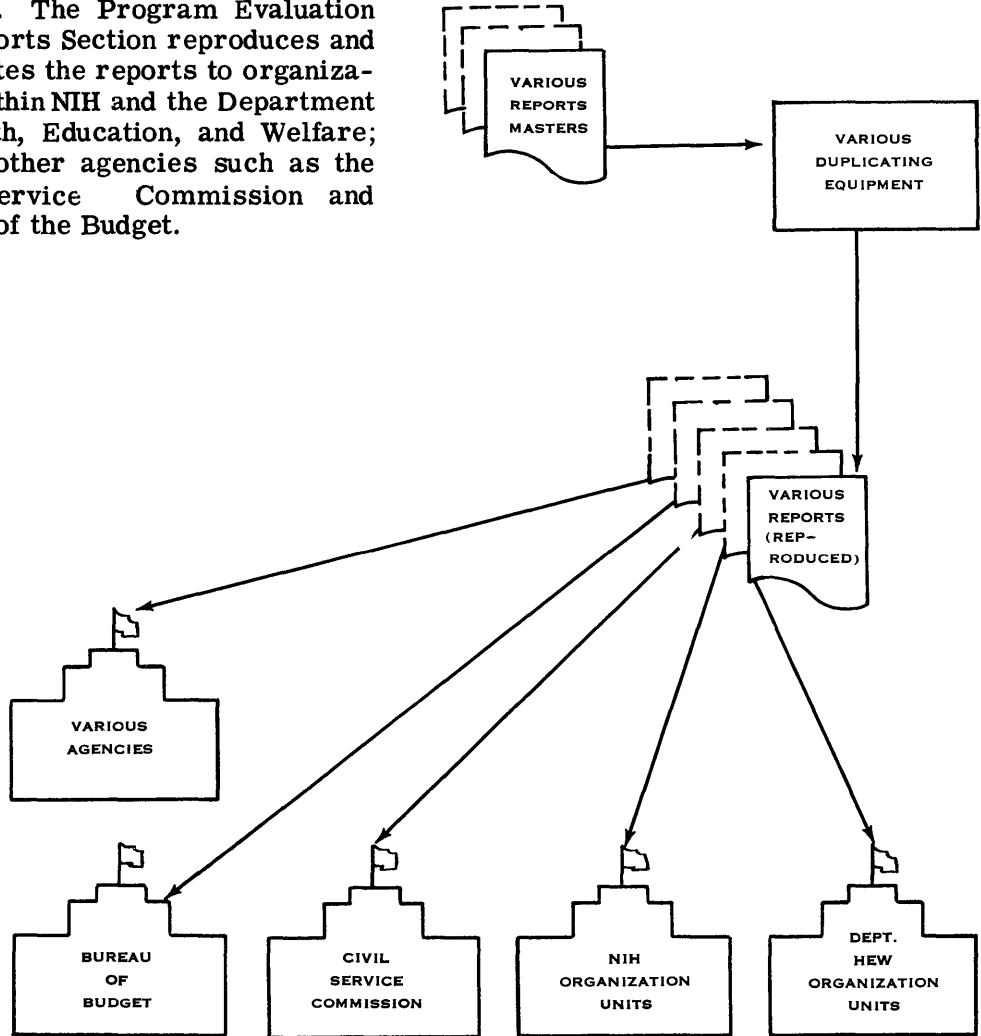
Phase 4. The Computation and Data Processing Branch updates its master magnetic tape for personnel and produces various reports which it sends to the Program Evaluation and Reports Sections, NIH.



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DIAGRAM - PERSONNEL ACTION DOCUMENTATION (CONTINUED)

Phase 5. The Program Evaluation and Reports Section reproduces and distributes the reports to organizations within NIH and the Department of Health, Education, and Welfare; and to other agencies such as the Civil Service Commission and Bureau of the Budget.





# SDA system 27

ORDERS AND RECEIPTS OF  
SUPPLIES  
Department of Health, Education,  
and Welfare

OBJECTIVE OF PROCESS. The objective of the process is to prepare records required in ordering and receiving supplies and equipment at the National Institutes of Health (NIH).

THE PROCESS. The Stock Control Subunit of Supply Management Branch, (1) with the permanent edge punch card for the item and the permanent punched program tape, produces the order and a by-product punched paper tape required to update the inventory records, (2) refiles the edge punch card and program tape, and (3) sends the order to the Procurement Section of Supply Management Branch and the punched paper tape to the Computation and Data Processing Branch.

The Computation and Data Processing Branch (1) converts the paper tape to tab cards, (2) automatically produces weekly reports and a new set of tab cards showing details of the order, and (3) sends the tab cards and weekly reports to the Stock Control Subunit.

The Stock Control Subunit (1) checks the order shown on the tab card against the receiving report and (2) returns to the Computation and Data Processing Branch all tab cards which agree with the receiving reports and destroys the other tab cards. (When receiving reports do not agree with the orders, the Stock Control Subunit prepares a punched paper tape with the correct receiving data and sends the tape to the Computation and Data Processing Branch.)

The Computation and Data Processing Branch uses the returned duplicate tab cards to update inventory listings and reports.

EQUIPMENT. Equipment used is the Friden Programatic Flexowriter with a paper tape punch and reader attachments, Visirecord filing tray units for edge punched cards, conventional electric accounting machines, and an IBM 650 Computer.

RESULTS. This system:

Permitted faster and more efficient processing of orders.

Permitted doing more work with the same staff.

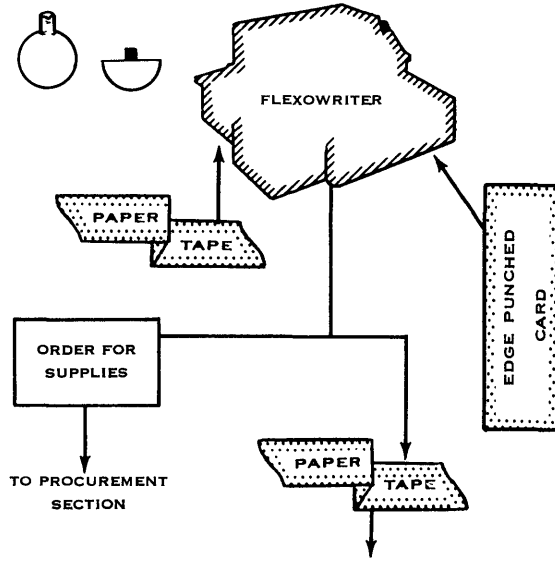
Reduced errors.

Reduced proofreading required.

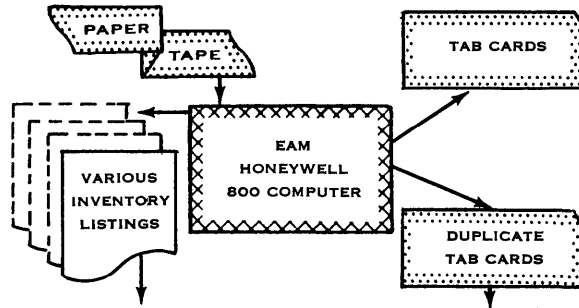
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## DIAGRAM - ORDERS AND RECEIPTS OF SUPPLIES

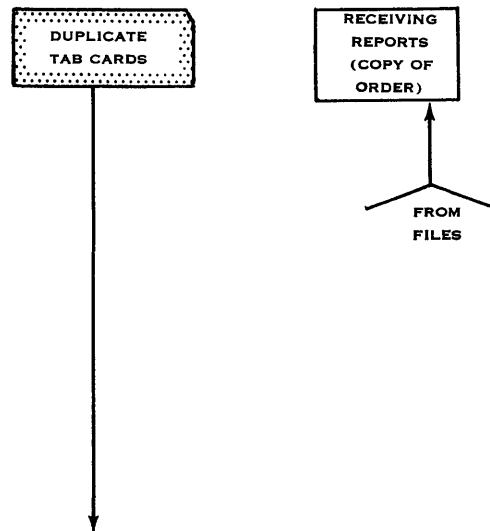
Phase 1. The Stock Control Subunit of Supply Management Branch prepares an order for supplies by using an edge punch card for the item, a paper tape for the program, and by keying in variable data on a Flexowriter. As a by-product it produces a punched paper tape with data required to update the inventory records. It refiles the edge punch card and program tapes. It sends the order to the Procurement Section of Supply Management Branch and the punched paper tape to the Computation and Data Processing Branch, NIH.



Phase 2. The Computation and Data Processing Branch converts the paper tape to tab cards, automatically produces a new set of tab cards (showing details of the orders), and updates inventory listings. It sends the new set of tab cards and listings to the Stock Control Subunit.



Phase 3. The Stock Control Subunit checks the order shown on the tab cards against the receiving reports and returns to the Computation and Data Processing Branch the tab cards which agree. It destroys the tab cards which do not agree with the receiving reports. (Note. When the receiving reports do not agree with the orders, the Stock Control Subunit prepares a correct punched paper tape for the receiving data and sends the tape to the Computation and Data Processing Branch which punches tab cards used in correcting data and in the regular processing program. Not diagrammed.)

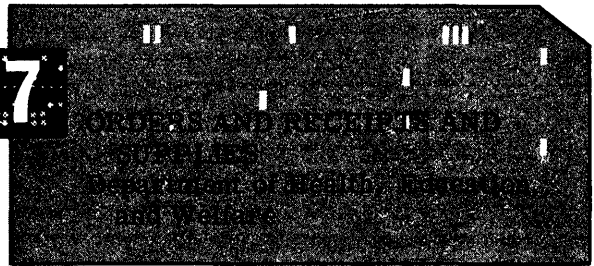


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# SDA system 27

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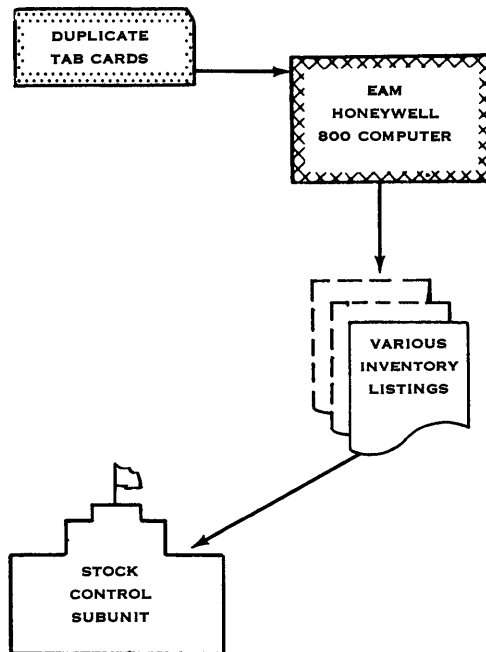


SOURCE OF MORE INFORMATION. More information is available from the Supply Management Branch, National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare, Washington, D.C.

**NOTES:** This is a part of a system which provides for the use of the same source data by the Financial Management Branch and the Supply Management Branch in supply services, payments, and charges.

## DIAGRAM - ORDERS AND RECEIPTS OF SUPPLIES (CONTINUED)

Phase 4. The Computation and Data Processing Branch uses the tab cards which agree with receiving reports in updating inventory listings and reports.



# SDA system 28

SUPPLY ISSUANCE  
Department of Health, Education,  
and Welfare

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare records required in issuing supplies and in reviewing the availability of the supplies prior to forwarding requisitions to the stock room. This is a system in the National Institutes of Health (NIH).

**THE PROCESS.** The various organizations units of NIH manually prepare requisitions and forward them to the Stock Control Subunit of Supply Management Branch.

#### The Stock Control Subunit

- (1) On an add-punch, punches a paper tape for each requisition.
- (2) Produces a hard copy adding machine tape which it uses in visually checking the accuracy of requisition and item numbers punched in the paper tape.
- (3) Forwards the paper tape to the Computation and Data Processing Branch.

#### The Computation and Data Processing Branch

- (1) Converts the tape to cards.
- (2) Updates the inventory record on magnetic tape.
- (3) Produces various printed reports, showing by exception the requisitions which require further action.
- (4) Sends the reports to the Stock Control Subunit for action. (The Computation and Data Processing Branch also forwards to the Stock Control Subunit a tab card for any back ordered item. The tab card is used later for updating the master record when the back order is released.)

**EQUIPMENT.** Friden Add-Punch, conventional electric accounting machines, and IBM 650 Computer are used.

**RESULTS.** The system had these results:

Provided greater accuracy in inventory records.

Permitted added workload without increasing staff.

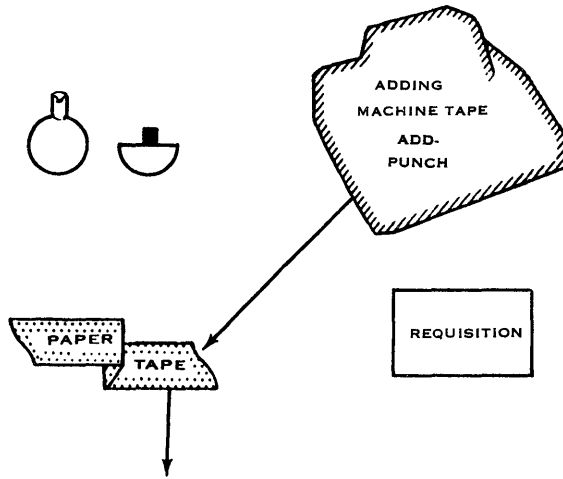
Speeded service.

Decreased decisions required by storekeeping personnel. (The computer, for example, reports any abnormal factors such as unusual or incorrect units of issue of chemicals.)

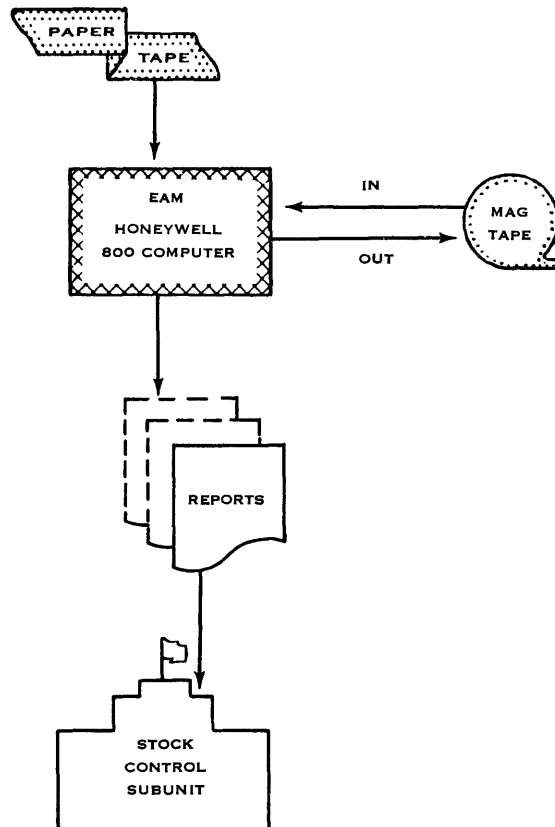
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## DIAGRAM - SUPPLY ISSUANCE

Phase 1. The Stock Control Subunit receives requisitions from operating organizations in NIH. On an add-punch it produces a paper tape for each requisition and a hard copy adding machine tape used in checking the accuracy of the punched requisition and item numbers. It forwards the paper tape to the Computation and Data Processing Branch.



Phase 2. The Computation and Data Processing Branch converts the paper tape to tab cards, updates inventory records on magnetic tape, produces various printed reports showing by exception the requisitions requiring more action and, sends the reports to the Stock Control Subunit.



# SDA system 28

(Continued)

SUPPLY ISSUANCE  
Department of Health, Education,  
and Welfare

SOURCE OF MORE INFORMATION. More information is available from the Supply Management Branch, National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare, Washington, D.C.

NOTE: This process is a part of a system which provides for the use of the same source data required by the Financial Management Branch and the Supply Management Branch in supply services, payments, and charges.



# SDA system 29

SHIPPING DOCUMENTS, STOCK,  
AND LOT RECORD CARDS  
PREPARATION  
Department of the Army

**OBJECTIVE OF PROCESS.** The objective of this process is to prepare shipping documents.

**THE PROCESS.** Clerks type invoice-shipping documents on multilith masters. After shipment is made, the shipping documents are passed to stock control clerks responsible for keeping applicable category stock and lot record cards.

The stock control clerks assign voucher numbers to the shipping documents. They then withdraw stock and lot record cards in the same order as the items appear on the shipping documents. Entries not adaptable to the machine calculations are withdrawn at this point.

An operator receives and inserts each shipping document and record card in the IBM Electronic Typing Calculator. The forms are placed side by side and positioned so that machine calculations will fall in the next vacant line on the record card. The operator punches in data such as weight, unit price, and number of pieces to be shipped. The machine then translates unit data to total data. Total data is entered automatically on the right side of each shipping document and on the next empty line on each record card.

**EQUIPMENT.** Equipment used is the IBM 632 Electronic Typing Calculator. This machine consists of three units cabled together: (1) standard IBM electric typewriter, (2) keyboard, and (3) calculating mechanism.

**RESULTS.** The system had these results:

Reduced processing time for each line item from 5.82 minutes to 2.64 minutes.

Permitted release of one GS-4 position.

Reduced errors. Formerly all computations were entered manually with transposition errors occurring in posting entries to record cards.

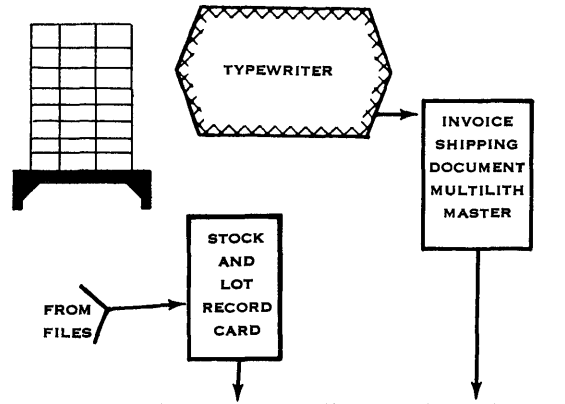
Made shipping documents more legible and presentable.

Permitted a uniform standard of production for withdrawals regardless of capabilities of clerks.

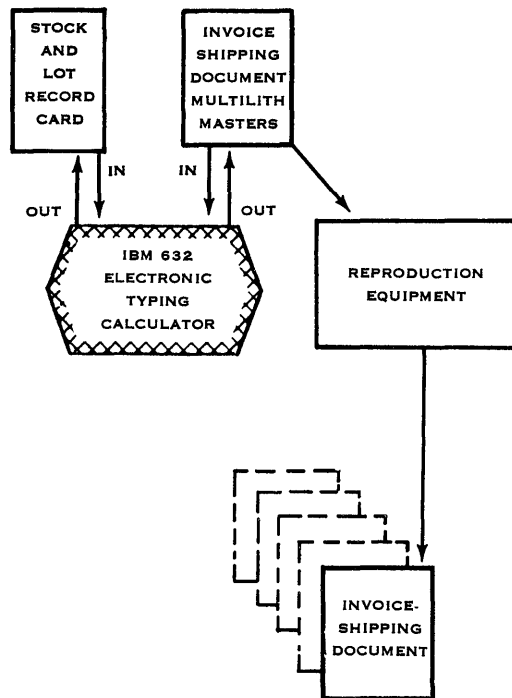
**SOURCE OF MORE INFORMATION.** More information is available from the Philadelphia Quartermaster Center, U.S. Army, 2800 S. 20th Street, Philadelphia, Pennsylvania.

## DIAGRAM - SHIPPING DOCUMENTS, STOCK, AND LOT RECORD CARDS PREPARATION

Phase 1. The shipping activity types invoice-shipping documents on a multilith master, ships items ordered, and assembles stock and lot record cards in the same order as the items appear on the order.



Phase 2. The shipping activity simultaneously types various entries on the invoice - shipping document and the stock and lot record cards such as weight, unit price, and number of pieces to be shipped; calculates and enters totals on both documents; and reproduces copies of invoice-shipping documents as required.





# SDA system 30

INPATIENT HOSPITAL RECORDS  
Department of the Navy

OBJECTIVE OF PROCESS. The objective of the process is to record information about hospital patients.

THE PROCESS. The admission office produces a basic data tab card mechanically and automatically as a by-product of typing the admission record form. The tab card is updated as events occur to produce census reports, admissions and discharges reports, Central Office tab cards, and statistical reports for the medical records librarian.

EQUIPMENT. The Friden Programatic Flexowriter with a cable-connected key punch unit is used.

RESULTS. This system had these results:

Eliminated recopying recurring data.

Eliminated transcription errors.

Centralized "heading" of forms.

Reduced manual preparation of forms and listings.

Reduced delay time in census report preparation from three days to one half day.

Reduced preparation effort of feeder information on reports.

Provided more complete statistics.

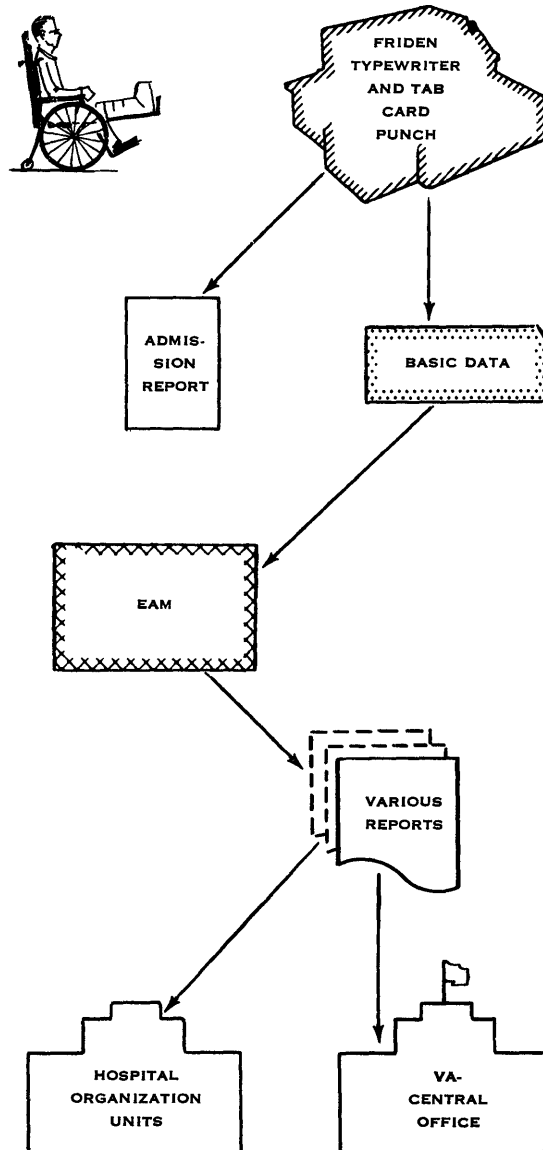
Reduced the effort required to prepare reports and make postings, by one and a half man-years.

SOURCE OF MORE INFORMATION. More information is available from the U.S. Naval Hospital, St. Albans, N.Y.

## DIAGRAM - INPATIENT HOSPITAL RECORDS

Phase 1. The hospital admission office types the admission record form and as a by-product automatically key punches a basic data tab card. As events occur, it updates the tab card which is used to produce various reports for organization units of the hospital and for Central Office.

Tab cards are used, also, to develop hospital statistics needed locally in planning and research and needed by Central Office for incorporation in national statistics.



# SDA system 31

WORK AND TIME REPORTING  
Department of the Navy

OBJECTIVE OF PROCESS. The objective of the process is to provide the Supervising Inspector of Naval Material and Office of Naval Material with feeder data for the preparation of Navy-wide summary reports on personnel time distribution and types of work performed.

THE PROCESS. The Personnel Accounting Machine Installation (PAMI) furnishes all local reporting offices with a prepunched, preprinted, interpreted tab card for each line item on the report. Each reporting office manually posts on the card the data for the reporting period and returns it to PAMI. PAMI key punches data on the same tab card, runs the report, and distributes copies to addressees. A new set of cards is prepared and distributed for the next report. The old set of cards goes to Central Office for further processing.

EQUIPMENT. Conventional electric accounting machines already available are used.

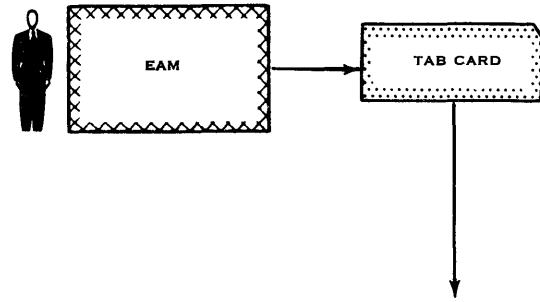
RESULTS. This system had these results:

- Eliminated memorandum style reporting.
  - Eliminated transcription errors.
  - Eliminated manual summarization of feeder reports.
  - Eliminated duplicate record keeping.
  - Eliminated subsidiary summarization.
  - Permitted the use of existing sources for data.
  - Provided rapid and accurate feed back of information.
  - Reduced reporting time.
- On a department-wide basis, reduced by 10 man-years the staff time for the work.

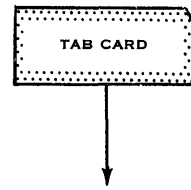
SOURCE OF MORE INFORMATION. More information is available from the Office of the Supervising Inspector of Naval Material, Northeastern, Headquarters of the Commandant, Third Naval District, Federal Office Building, 90 Church Street, New York 7, N. Y.

## DIAGRAM - WORK AND TIME REPORTING

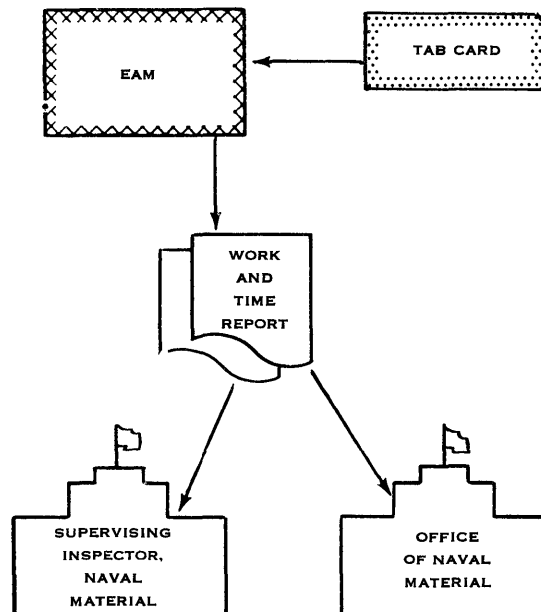
Phase 1. The Personnel Accounting Machine Installation (PAMI) distributes to local reporting offices a prepunched, preprinted, interpreted tab card for each line item on the Navy-wide work and time report. (Note. The tab cards are punched automatically from tab cards used for the previous report.)



Phase 2. Each reporting office manually enters work and time data on the tab cards and return them to PAMI.



Phase 3. PAMI manually key punches in the tab cards the hand entries, processes the tab cards, and produces and distributes the report to the Supervising Inspector of Naval Material and Office of Naval Material. (Note. Other echelons which receive the reports are not identified or diagrammed.)



# SDA system 32<sup>e</sup>

AMMUNITION ISSUANCE AND  
STORAGE  
Department of the Navy

**OBJECTIVES OF PROCESS.** The objectives of the process are to provide control and documentation in issuing ammunition to the fleet and in accepting ammunition returned from the fleet; and to provide daily reports and data for Central Office, Department of the Navy.

**THE PROCESS.** The Depot prepares edge punch cards for every type of ammunition it stocks. It prepares the issuance and storage documents needed on Flexowriters using the edge punch cards and manual typing. It prepares daily reports using by-product tapes produced by the Flexowriters. From the reports it manually key punches tab cards. It sends the tab cards and reports to Central Office, Department of the Navy.

**EQUIPMENT.** Flexowriters and conventional electric accounting machines already available are used.

**RESULTS.** The system had these results:

Eliminated the typing and retyping of constant information.

Eliminated clerical errors in processing constant data and reduced the possibility of errors in processing variable data.

Eliminated multiple and unnecessary posting to various stock and inventory records.

Reduced personnel requirements.

Reduced cost for equipment.

Simplified procedures and speeded paperwork processing.

Provided a foundation for further automation.

Provided the basis for the possible use of an internal wire transmission network.

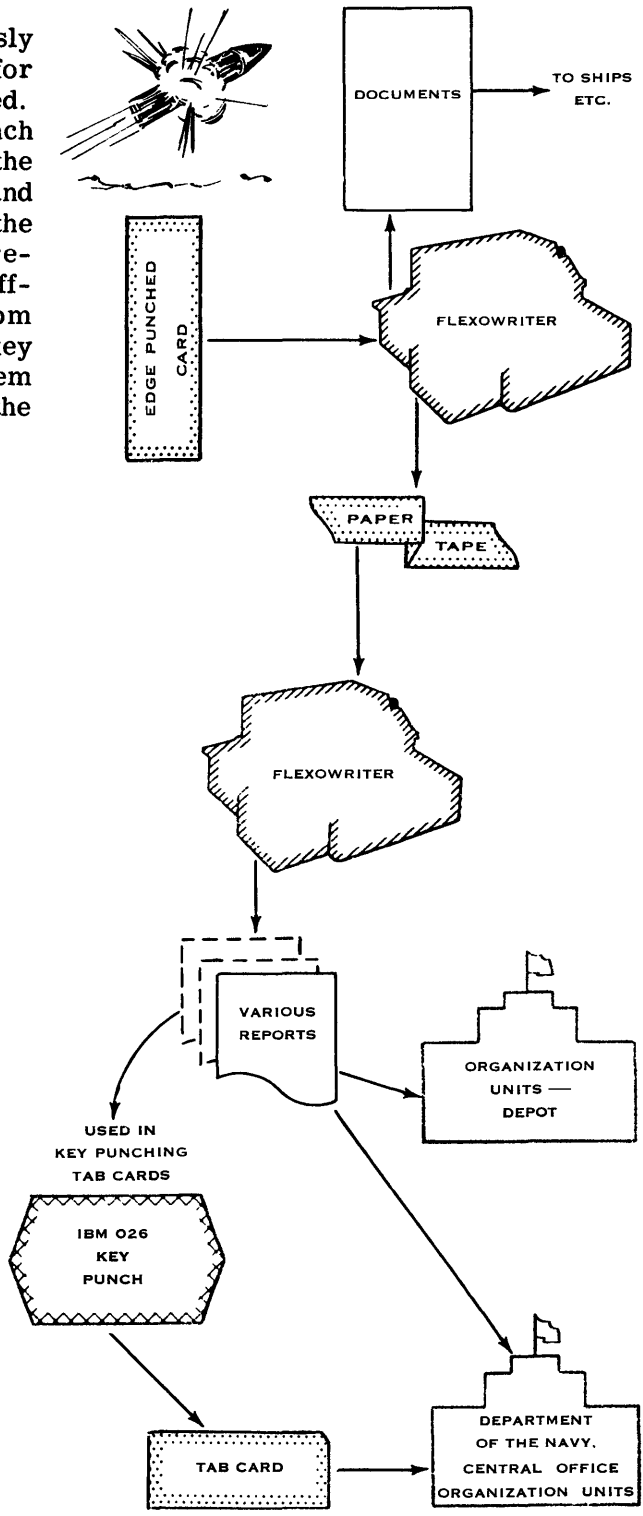
Centralized clerical functions providing better control over paperwork processing.

Removed the clerical function from the duties of non-clerical personnel.

**SOURCE OF MORE INFORMATION.** More information is available from the U.S. Naval Ammunition Depot, Earle, New Jersey.

## DIAGRAM - AMMUNITION ISSUANCE AND STORAGE

The Ammunition Depot previously has prepared edge punch cards for each type of ammunition stocked. It prepares from the edge punch cards, with some manual typing, the issuance and storage documents and a by-product paper tape. It uses the paper tape to produce various reports for the Depot and Central Office, Department of the Navy. From these reports, also, it manually key punches tab cards and sends them to Central Office, Department of the Navy.



# SDA system 33

PERSONNEL ACTIONS  
Department of the Navy

**OBJECTIVE OF PROCESS.** The objective of the process is to record personnel actions on Standard Forms 50.

**THE PROCESS.** The Master of each vessel provides a crewing list giving his staff requirements. The Personnel Office, using previously prepared edge punch cards giving vessel data and punched paper tapes giving position and personal data, processes continuous feed Standard Forms 50 through a flexowriter. A minimum of manual entries are made. The Personnel Office updates the personal data paper tape as needed.

**EQUIPMENT.** Flexowriters are used.

**RESULTS.** The system had these results:

Eliminated peaks in workload.

Eliminated transcription errors.

Eliminated time-consuming verifications.

Permitted processing actions on time.

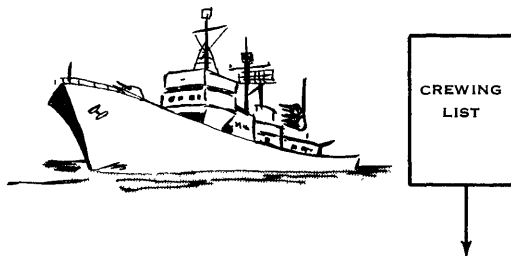
Provided crews to vessels on time.

Provided for accurate vessel, position, and personal data.

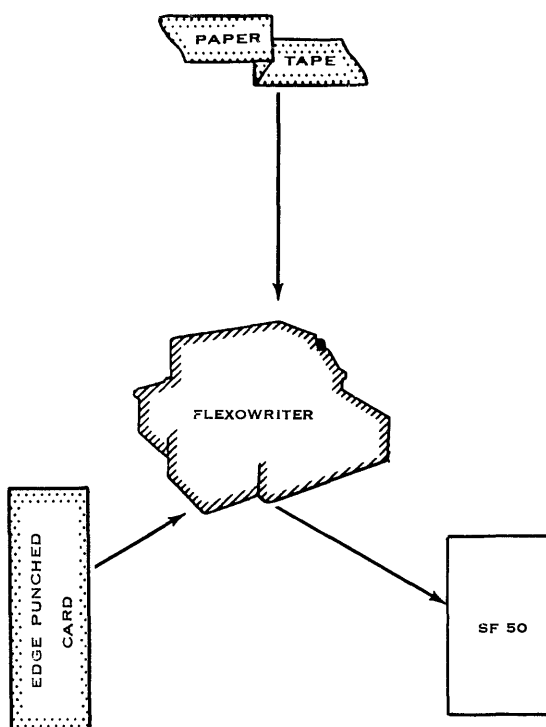
**SOURCE OF MORE INFORMATION.** More information is available from the Military Sea Transport Service, Brooklyn Army Terminal, New York City.

## DIAGRAM - PERSONNEL ACTIONS

Phase 1. The master of each vessel provides a crewing list showing his staff requirements and sends it to the Personnel Office.



Phase 2. The Personnel Office, using previously prepared edge punch cards containing vessel data and punched paper tape giving position and personal data, prepares Standard Forms 50 for crew members reporting aboard or discharged.





# SDA system 34

ENLISTMENT CONTRACT  
Department of the Navy

OBJECTIVE OF PROCESS. The objective of the process is to produce an individual enlistment contract for each U. S. Navy recruit.

THE PROCESS. The branch recruiting stations forward basis personnel data on the recruit to the local headquarters. The local headquarters prepunches a master tape with the constant information concerning the type of enlistment and combines it with the personnel data manually and automatically on an enlistment worksheet. It produces a punched paper tape of all information, as a by-product of the worksheet. It uses the by-product tape to prepare automatically the enlistment contract. It produces a selective by-product tape from this process and sends it to Central Office for preparation of tab cards. Central Office records magnetic tape from the tab cards. It processes the magnetic tape for various purposes.

EQUIPMENT. Flexowriters, conventional electric accounting machines, and computers are used.

RESULTS. The system had these results:

Reduced the time required to fill out the enlistment papers to less than half that required under the old method.

Reduced proofreading to a fraction of that formerly required.

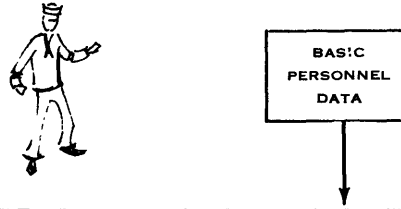
Reduced errors to less than half that formerly experienced.

Eliminated extracting and key punching data at Central Office.

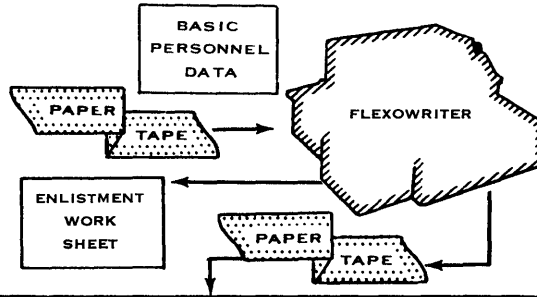
SOURCE OF MORE INFORMATION. More information is available from the Naval Recruiting Stations, Department of the Navy.

## DIAGRAM - ENLISTMENT CONTRACT

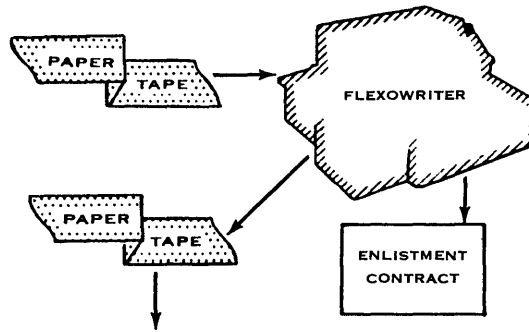
Phase 1. Each branch recruiting station forwards basic personnel data on the recruit to the local headquarters.



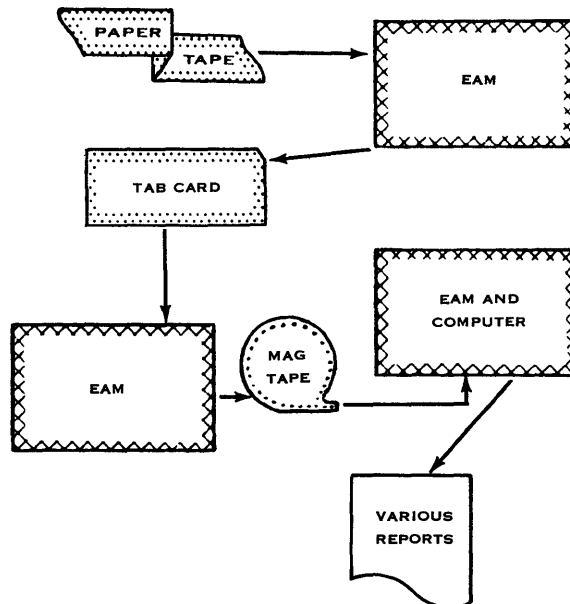
Phase 2. Each local headquarters, using a prepunched master tape and manual typing prepares an enlistment worksheet, and produces a complete punched paper tape of the information as a by-product.



Phase 3. Each local headquarters uses the by-product tape to prepare automatically the enlistment contract and to punch selected data in a by-product tape which it sends to Central Office.



Phase 4. Central Office, using the punched paper tape, automatically punches tab cards. It uses the tab cards to produce magnetic tape for further processing.



# SDA system 35

SHOP ORDERS  
Department of the Army

**OBJECTIVES OF PROCESS.** The objectives of the process are to provide shop orders for production operations throughout the manufacturing processes in the Rock Island Arsenal, and to establish a readily accessible shop order file for use in preparing shop re-orders.

**THE PROCESS.** A shop Program Planner writes a shop order draft and forwards it to a typing pool (Flexowriter Unit). The typing pool produces an edge punch card, a multilith master shop order, a punched paper tape for the possible recurrence of the same shop order, and a punched paper tape for use in preparing pattern job tab cards.

The typing pool multiliths needed copies of shop orders, produces pattern job tab cards, and files the shop order multilith master and paper tape for use in preparing recurring shop orders.

When the same shop order recurs, the punched paper tape and shop order multilith master are used to produce much of the data which had been manually typed.

**EQUIPMENT.** The equipment used is Friden Programatic Flexowriters; Auxiliary Tape Punch, Model ATP; Selectadata, Model STR-AD; Flexowriter (double case); and IBM 047 Tape to Card Punch.

**RESULTS.** This system had these results:

Increased the shop order output per man-day and reduced the backlog of orders to be prepared.

Eliminated several key punching and key verifying operations.

Increased the accuracy of key punch input data controlled by the initiator.

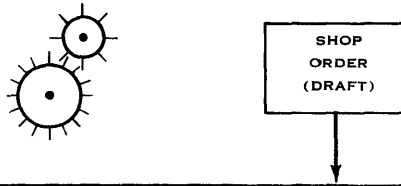
Provided savings of \$25,249.

**SOURCE OF MORE INFORMATION.** More information is available from the Rock Island Arsenal, Rock Island, Illinois.

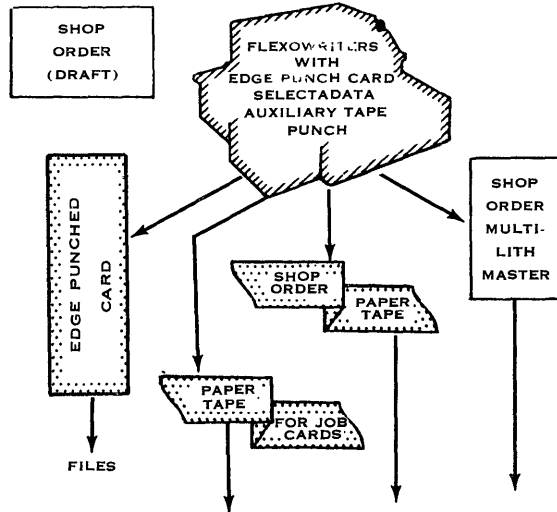
**NOTE:** Net savings for the first year of operations based on twenty month amortization is estimated at \$12,469.

## DIAGRAM - SHOP ORDERS

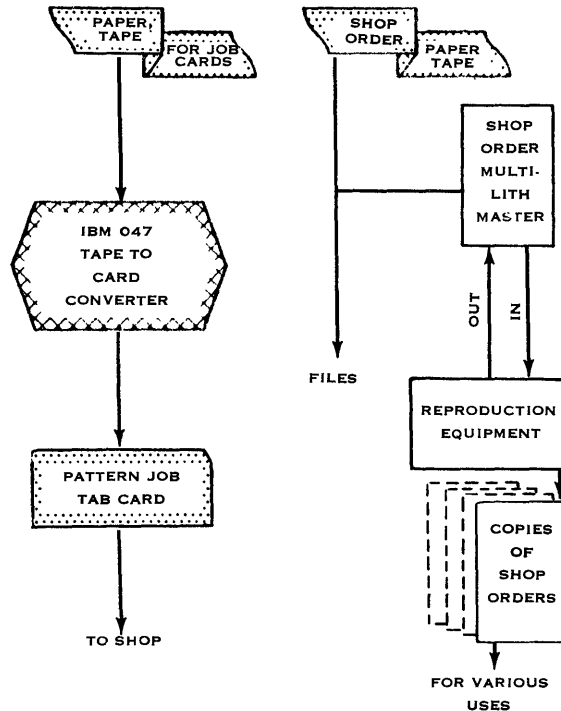
Phase 1. A Shop Program Planner writes a shop order draft for new orders or an updated master shop order for reorders and forwards it to typing pool (Flexowriter Unit).



Phase 2. The typing pool produces an edge punch card, a multilith master shop order, a punched paper tape for the possible recurrence of the same shop order, and a punched paper tape for use in preparing pattern job cards.



Phase 3. The typing pool multiliths needed copies of shop orders, produces pattern job tab cards, and files the shop order multilith master and paper tape for use in preparing recurring shop orders. (When the same shop order recurs, the punched paper tape and shop order multilith master are used to produce much of the data which previously had been manually typed. Not diagrammed.)



# SDA system 36

ITEM DESCRIPTIONS AND  
NUMBERS  
Armed Forces Supply Support  
Center, Department of Defense

**OBJECTIVES OF PROCESS.** The objectives of the process are to record item descriptions; assign Federal stock numbers to the items; disseminate the item descriptions and numbers to suppliers and to interested organization units of the Department of the Navy; and provide data for work measurement, management statistics, and management controls of items descriptions and numbers in process.

**THE PROCESS.** The Electronic Supply Office (ESO) circles code numbers on a guide which describes every characteristic needed to identify the item. Using a description tape, it keys the circled codes into a Flexowriter producing automatically (1) a printed item description, (2) a paper tape with just the codes and filled-in entries punched, and (3) a paper tape with selected data for management statistics and controls.

It converts to tape recorder magnetic tape the paper tape with the codes and filled-in data. It transmits the data by long distance telephone line to the Armed Forces Supply Support Center (AFSSC). ESO receives on magnetic tape by the same transmission system the item clearance and Federal stock number from AFSSC. It converts the magnetic tape data to paper tape. This paper tape with program tapes produces directly or through tab cards the Federal stock numbers, item descriptions, and commercial and military reference numbers for (1) dissemination to components and contractors, (2) entry in the ESO part of the Federal Catalog Data file, and (3) entry in files used to prepare the Navy Stock List. As a by-product, management statistics and controls automatically are produced.

**EQUIPMENT.** ESO uses a Flexowriter and auxiliary tape punch; Selectadata; IBM 047 Paper Tape to Card Converter; Teledata; AT&T Recorder Carrier; and IBM 063 Card to Tape Converter. AFSSC uses a magnetic tape receiver and an IBM 705 Computer system.

**RESULTS.** This system had these results:

Reduced from 44 days to 20 days the time used to process item descriptions and numbers.

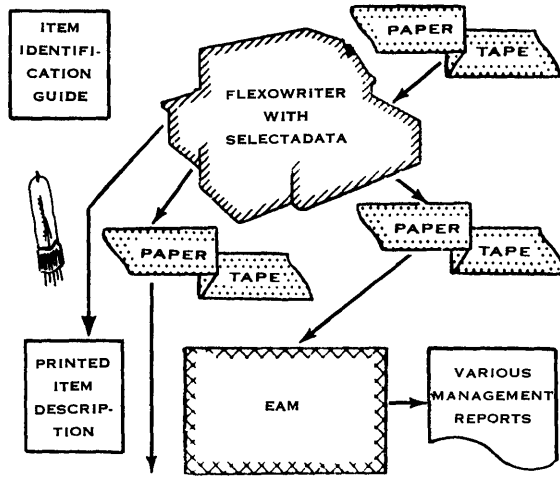
Reduced from 20 days to 4 days the time needed to record item descriptions and produce media for transmitting data from ESO to AFSSC.

Reduced the number of man-hours required for the new process as compared with the old.

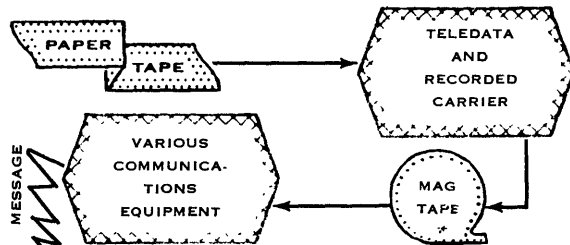
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DIAGRAM - ITEM DESCRIPTIONS AND NUMBERS

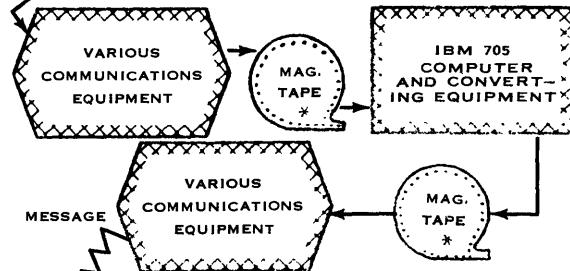
Phase 1. Electronic Supply Office (ESO) prepares an item description by typing on a Flexowriter with Selectadata; the manually circled codes and hand-entered numbers from a code sheet; using a program paper tape to print out the descriptions indicated by the codes; and typing various fill-ins and control data. At the same time it produces a punched paper tape on an auxiliary punch with the item description codes and a punched paper tape with selected data for management statistics and controls.



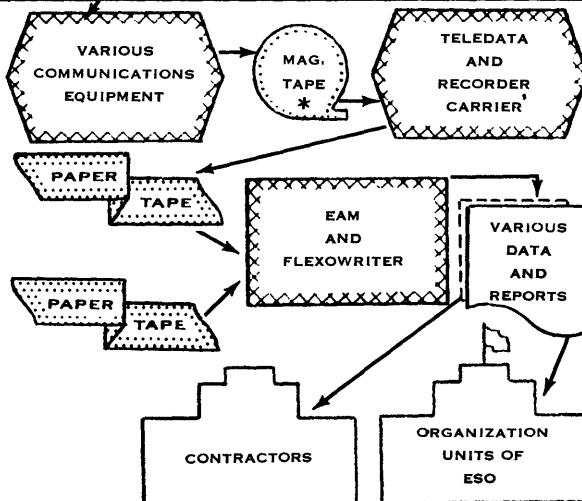
Phase 2. ESO converts to tape recorder magnetic tape the data in the paper tape which has the recorded codes and fill-in information; transmits the magnetic tape data by telephone line to Armed Forces Supply Support Center (AFSSC).



Phase 3. AFSSC, by magnetic tape data over telephone line, sends to ESO the item clearance and Federal Stock number.



Phase 4. ESO converts data from magnetic tape to punched paper tape. It uses the paper tape with program paper tapes to produce Federal Stock numbers, item descriptions, and commercial and military reference numbers for dissemination to components and contractors, for entry in the ESO part of the Federal Catalog Data file, and for entry in the file used to prepare the Navy Stock List. As a by product, management statistics and controls automatically are produced.



\*Tape Recorder Tape

# SDA system 36

(Continued)

ITEM DESCRIPTIONS AND  
NUMBERS  
Armed Forces Supply Support  
Center, Department of Defense

Provided for easier interchange of data among inventory managers, contractors, and users through the use of source data in machine language.

Provided for further improvements in supply management by increasing the machine manipulation of the source data.

SOURCE OF MORE INFORMATION. More information is available from the Armed Forces Supply Support Center, Munitions Building, Constitution Avenue and 18th Street, NW., Washington, D.C.





# SDA system 37

EMPLOYEE SERVICE AND  
BENEFITS  
Railroad Retirement Board

**OBJECTIVE OF PROCESS.** The objective of the process is to provide seven regional offices of the Railroad Retirement Board with records of service months and creditable compensation for employees subject to the Railroad Retirement and Railroad Unemployment Insurance Act. The records are used in processing claims.

**THE PROCESS.** When railroad employees apply to the regional offices of the Railroad Retirement Board or to claim agents for unemployment compensation, the regional offices request a record of service and compensation from the Bureau of Wage and Service Records, Railroad Retirement Board, Chicago, Illinois.

The regional offices send their requests by General Services Administration teletype system to the GSA Teletype Relay Station in Chicago. The GSA Teletype Relay Station sends the message by teletype to the Railroad Retirement Board.

The Railroad Retirement Board teletype receiver is equipped with a Type 14 Printer-Perforator and a motor driven tape winder. This teletype receiver records messages in printed form and in paper tape. The Railroad Retirement Board converts the tape to cards. It processes the cards through an IBM 7070 Computer which in turn prepares a magnetic tape. It processes the magnetic tape through the IBM 1400 system which prepares tab cards with the information requested by regional offices. It sends the cards to the requesting regional office.

**EQUIPMENT.** Machines used are teletype transmitters; a Type 14 Printer-Perforator with motor driven tape winder connected to the teletype receiver; conventional electric accounting machines; and an IBM 7070 Computer. All equipment was already available except the Type 14 Printer-Perforator with motor driven tape winder.

**RESULTS.** The system had these results:

Reduced by 80% the time formerly required manually to punch and verify 200,000 cards a year.

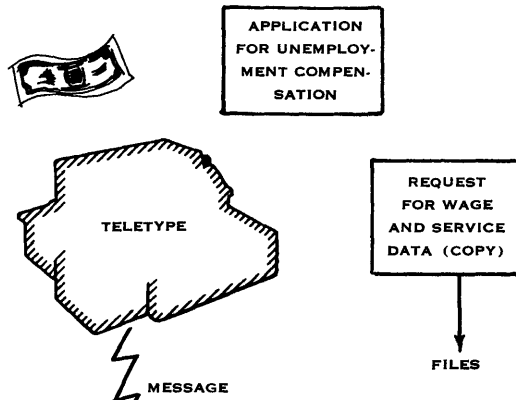
Eliminated key punch errors.

Reduced the amount of time required to process requests for service and compensation information.

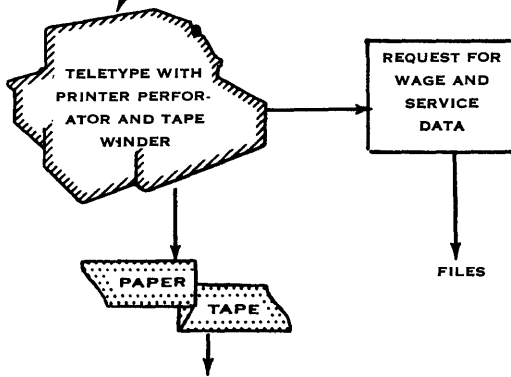
**SOURCE OF MORE INFORMATION.** More information is available from the Railroad Retirement Board, Chicago, Illinois.

## DIAGRAM - EMPLOYEE SERVICE AND BENEFITS

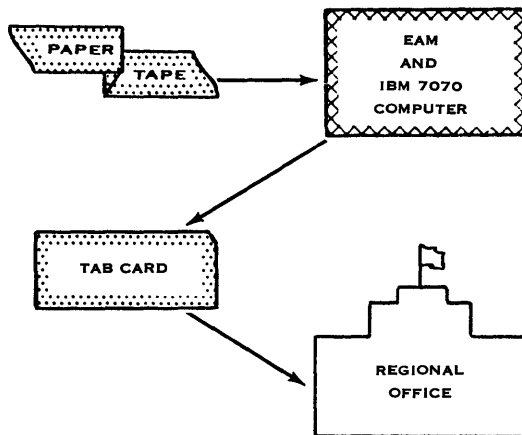
Phase 1. Each regional office, or claims agent of the Railroad Retirement Board (RRB) receives applications for unemployment compensation and requests records of service and compensation from the Bureau of Wage and Service Records, RRB, at Chicago by teletype.



Phase 2. The Bureau of Wage and Service Records, receives the request on a teletype receiver equipped with a type 14 Printer - Perforator and motor driven tape winder which records messages in printed form and on punched paper tape.



Phase 3. The Bureau of Wage and Service Records produces tab cards containing the information requested by the regional offices and forwards the tab cards to the regional offices.



# SDA system 38

OPERATIONAL REPORT  
Department of the Army

**OBJECTIVE OF PROCESS.** The objective of the process is to provide the Surgeon's Office of Fifth Army in charge of the Fifth Army hospitals and dispensaries a system for collecting medical data and for expediting the submission of statistical reports.

**THE PROCESS.** The hospital or dispensary administrative clerk code-punches a Medical Statistics Card for each outpatient visit to the hospital or dispensary by a member of the military service or his dependents, or by a Government civilian employee. The clerk code-punches blocks 1, 2, and 3, on the card. The doctor or nurse in attendance completes the card by punching the appropriate code in block 4.

The clerk collects all completed cards at the end of the workday and places them in a chronological file. He forwards all cards at the end of the month to the Base data processing unit. The data processing unit machine produces an Accounting Report and forwards it to the Surgeon's Office, Fifth Army Headquarters. The Fifth Army Headquarters summarizes the 15 reports (one from each installation) and submits the summary outpatient report to higher headquarters on DD Form 444.

**EQUIPMENT.** Machines used are Port-a-Punch Boards for each hospital and dispensary, and conventional electric accounting machines available at the Army bases.

**RESULTS.** The system had these results:

Provided hospitals and dispensaries with up-to-date outpatient visit statistics and information on medical illnesses and epidemic signs on short notice.

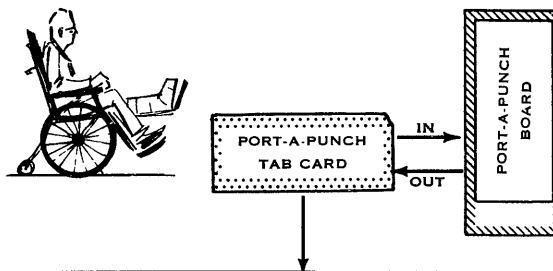
Enabled hospitals and dispensaries to send their monthly outpatient statistical reports to Fifth Army Headquarters on the first day, rather than the fifth day of the month. This provided information four days earlier than was possible under the previous system. It, also, enabled Fifth Army Headquarters to submit the summary report to the Department of the Army Washington, D.C., by the eighth of the month deadline.

Saved clerical time and reduced the number of report errors.

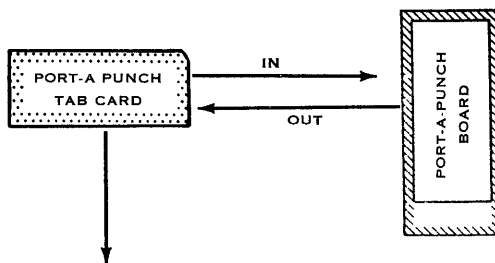
**SOURCE OF MORE INFORMATION.** More information is available from the Fifth Army Headquarters, Chicago, Illinois.

## DIAGRAM - OUT PATIENT TREATMENT

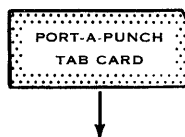
Phase 1. Each hospital or dispensary administrative clerk's office punches the appropriate code in a port-a-punch tab card for each out-patient visit and forwards it to the medical service activity.



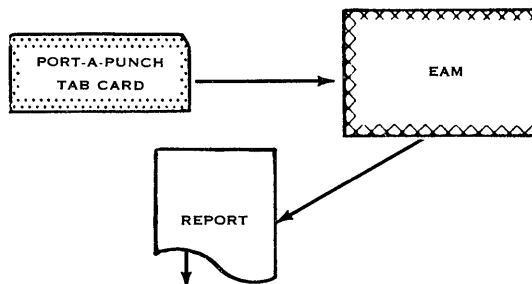
Phase 2. The medical service activity doctor or nurse punches the appropriate code in the specified field of the port-a-punch tab card and accumulates the cards for collection by the administrative clerk's office.



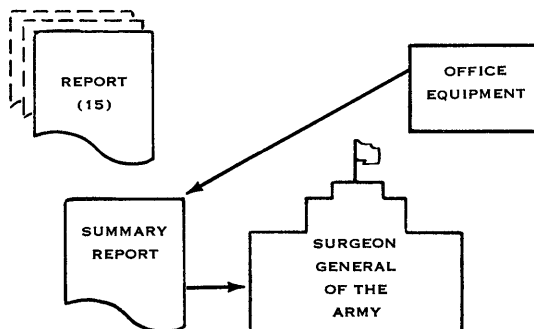
Phase 3. The administrative clerk's office collects port-a-punch tab cards and forwards them monthly to the Base data processing unit.



Phase 4. The Base data processing unit prepares a report which it forwards to the Surgeon's Office, Fifth Army Headquarters.



Phase 5. The Fifth Army Headquarters summarizes the report with 14 others and submits the summary out-patient report to the Surgeon General of the Army.



# SDA system 39

AWARDS TO VETERANS AND  
BENEFICIARIES  
Veterans Administration

**OBJECTIVES OF PROCESS.** The objectives of the process are to handle awards to veterans and veterans' beneficiaries and to provide disability and compensation payments.

**THE PROCESS.** An adjudicator receives and reviews the claim. If it is complete, he gives it to a rating board, which determines the award, and dictates its decision to a telephone stenographic pool. The stenographic pool types the rating decision on a Flexowriter, also, obtaining a punched paper tape with selected data.

After signature by all board members, the decision and tape are returned to the Adjudication Division which prepares an award or disallowance. The award or disallowance and rating decision and its by-product paper tape are sent to a Flexowriter Group.

From the paper tape obtained as a by-product of typing the rating decision, the Flexowriter Group types the award letter. It obtains a second paper tape as a by-product of typing the award letter. This tape contains data from the rating decision and the award letter. It sends the award letter and all material to the Adjudication Division where the letter is signed and mailed to the veteran. The Division sends the merged paper tape daily to the Data Processing Center.

The Data Processing Center converts the paper tape data to tab cards, which it uses to produce magnetic tape for all subsequent computations. Each month, it prepares a magnetic tape with the payee's name, address, and the amount due and sends it to the Treasury Department for preparation of checks.

**EQUIPMENT.** Machines used are Flexowriters, conventional electric accounting machines, IBM 1401 and IBM 705 Model III Computers. Some of the Flexowriters and electric accounting machines were already available.

**RESULTS.** This system had these results:

Reduced the time required to process a claim. A claim can be processed within three days after the date of the award.

Increased the accuracy of check preparation.

Decreased the overall cost of claim and payment processing by consolidation of machine accounting sections.

**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Assistant Administrator, Management Services, Veterans Administration. Vermont and H Street, NW., Washington, D.C.

## DIAGRAM - AWARDS TO VETERANS AND BENEFICIARIES

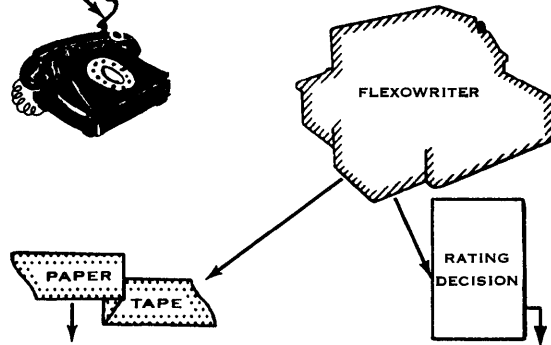
Phase 1. An adjudicator receives and reviews the claim for an award or benefit. If it is complete, he gives it to a rating board.



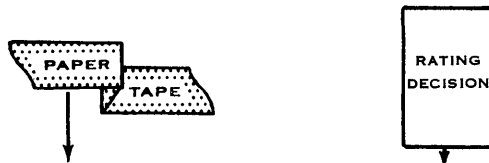
Phase 2. The rating board determines the award and dictates its decision to a telephone stenographic pool.



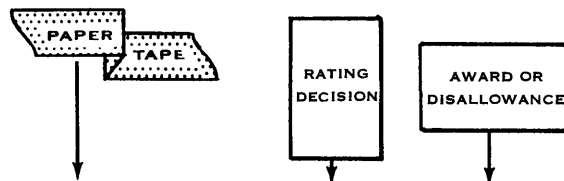
Phase 3. The stenographic pool types the rating decision on Flexowriter which also punches a paper tape with selected data.



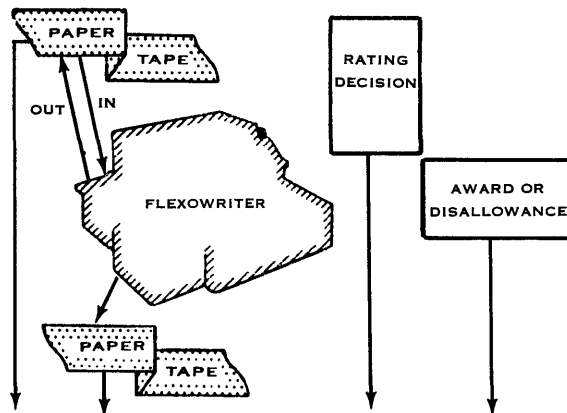
Phase 4. After signature by all rating board members, the board sends the decision and tape to the Adjudication Division.



Phase 5. The Adjudication Division prepares the award or disallowance and with the rating decision and its by-product paper tape sends it to a Flexowriter Group.



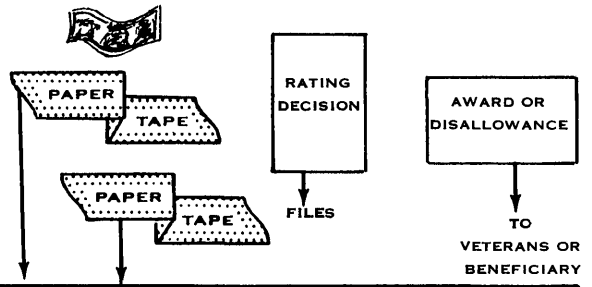
Phase 6. The Flexowriter Group types the award letter and obtains a second punched paper tape which contains data from the rating decision and the award letter. It sends the award letter and all material to the Adjudication Division.



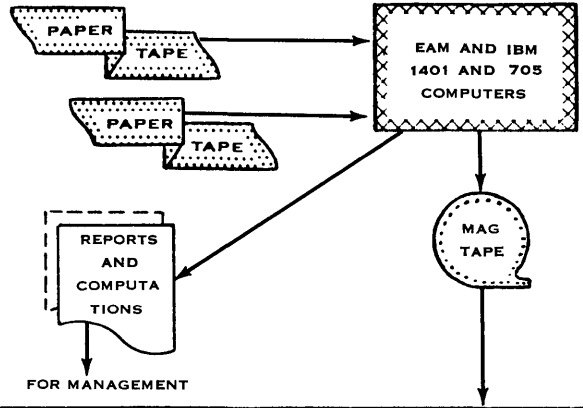
(Continued)

**DIAGRAM - AWARDS TO VETERANS AND BENEFICIARIES (CONTINUED)**

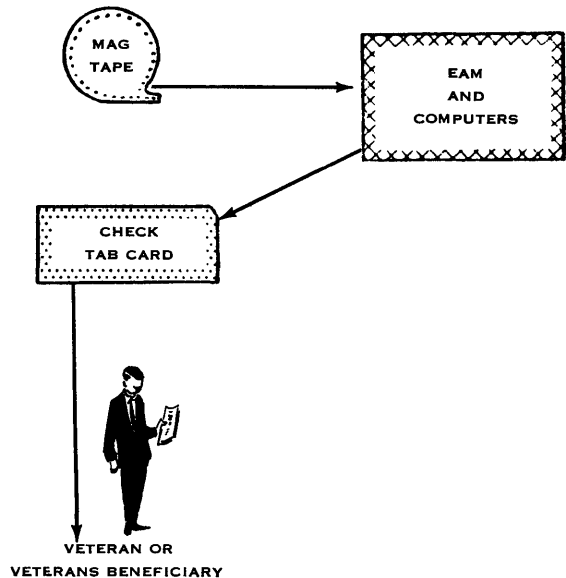
Phase 7. The Adjudication Division signs and mails the award letter to the veteran and sends the merged paper tape daily to the Data Processing Center.



Phase 8. The Data Processing Center converts the tape data to tab cards and the tab cards to magnetic tape for all subsequent computations. Monthly it prepares a magnetic tape listing the payee's name, address, and amount due and sends it to Department of the Treasury.



Phase 9. The Department of the Treasury uses the magnetic tape in preparing the payment checks.







# SDA system 40

REPRODUCTION SERVICE  
ORDERS AND ACCOUNTS  
General Services Administration

OBJECTIVES OF PROCESS. The objectives of the process are to provide operating units a request form for fast copy reproduction; to provide the Reproduction Unit a job order; to provide the Accounting Branch, Comptroller, unit chiefs, and management a timely report of charges for services; and to provide a basis for funds control and budget estimates.

THE PROCESS. Each requesting unit writes on the back of detail transaction cards previously punched to show appropriation symbol and operating unit, the services desired. The cards are mark sensed and forwarded by the Reproduction Unit at the end of the month to the data processing unit. The data processing unit produces an Account Listing Sheet showing total monthly charges by requesting unit. The information is immediately available to requesting unit chiefs, the Funds Control Unit, Budget Officer, and management.

EQUIPMENT. IBM Electrographic Pencils and conventional electric accounting machines already available are used.

RESULTS. The system had these results:

Saved 200 man-hours of typing time each month.

Reduced in-shop time from as much as 10 days to less than 1 day.

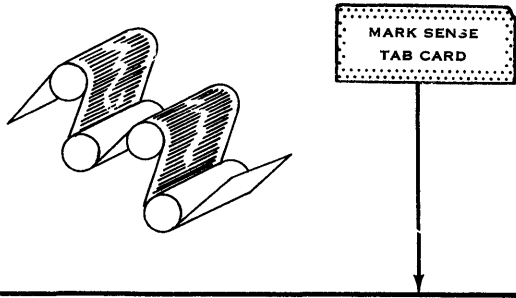
Provided an invoice of charges the first day of the month.

Permitted machine accounting for fund control purposes.

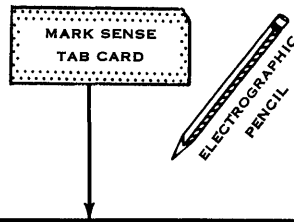
SOURCE OF MORE INFORMATION. More information is available from Region 6, General Services Administration, 2306 E. Bannister Street, Kansas City 31, Missouri.

# DIAGRAM - REPRODUCTION SERVICE ORDERS AND ACCOUNTS

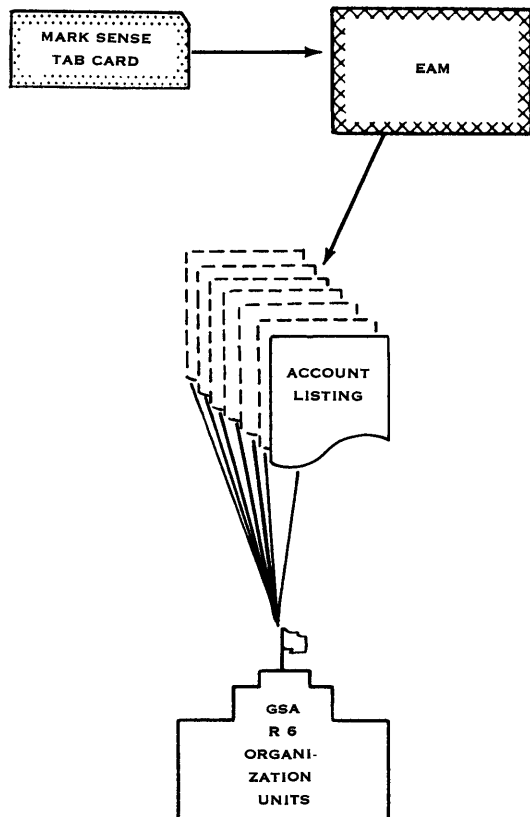
Phase 1. Each requesting office writes on detail transaction cards (previously punched to show appropriation symbol and operating unit) the services desired.



Phase 2. The reproduction unit mark senses the total charges on the tab cards.



Phase 3. The data processing unit punches costs in the tab cards and sorts them by using office. It prepares and distributes an account listing for the month by electric accounting machines. It distributes copies of the account listing to the accounting section and major regional office organization units.



# SDA system 41

**OBJECTIVES OF PROCESS.** The objectives of the process are to update the records of the personnel of the Air Force reserves, and to prepare orders and reports. The process involves over 500,000 Air Force reservists requiring 8,000 to 10,000 transactions a day.

**THE PROCESS.** The U.S. Air Force (USAF) headquarters or other sources request the Air Reserve Records Center (ARRC) to change a reservist's records. The ARRC types on a Flexowriter the personnel action forms or other needed forms. As a by-product it punches the data in a paper tape. If a mat is needed, it produces one for reproduction. It uses the paper tape through electrical accounting machines and a computer to update the reservist's records kept on magnetic tape. It sends the hard copies of the actions to the reservist, organization of assignment, and other interested agencies.

**EQUIPMENT.** Machines used are the Friden Programatic Flexowriter with the paper tape punch attachment, conventional electric accounting machines, and RCA 501 Computer.

**RESULTS.** The system had these results:

Reduced the production time for recall orders from 50 days to 5 days.

Reduced the error rate substantially.

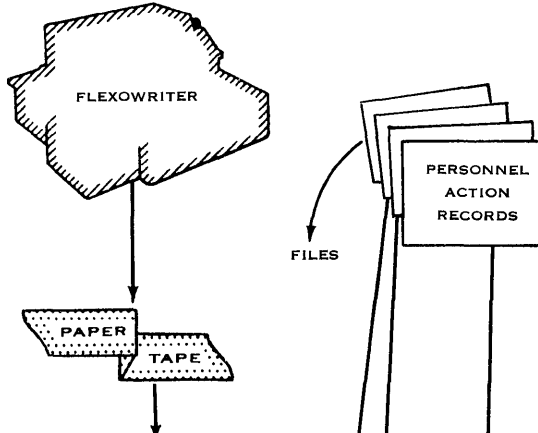
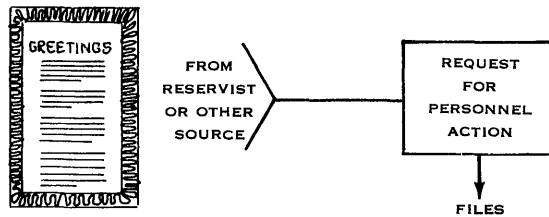
Permitted keeping the files current within 7 days as compared with the former lag time of as much as 60 days.

Eliminated four positions in the order processing system alone.

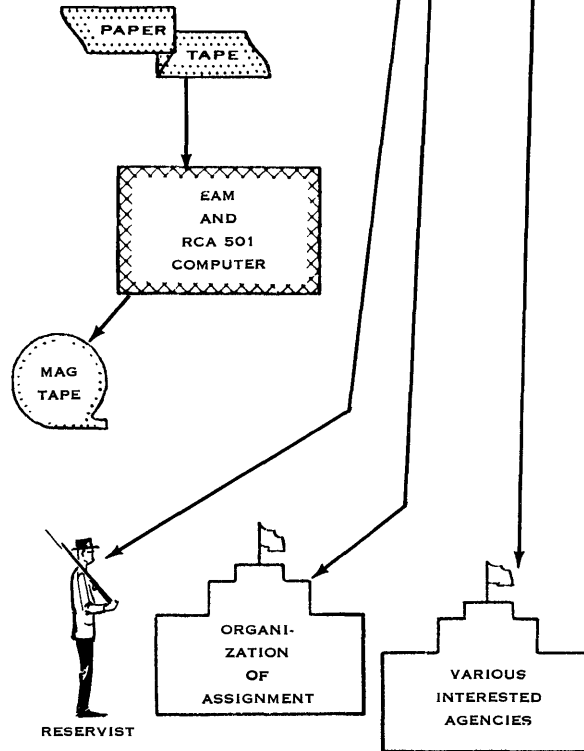
**SOURCE OF MORE INFORMATION.** More information is available from the Directorate of Data Processing and Statistics, Department of the Air Force, Washington, D.C.

## DIAGRAM - PERSONNEL RECORDS - ORDERS AND UPDATING

Phase 1. The U. S. Air Force (USAF) headquarters or other sources request the Air Reserve Records Center (ARRC) to change a reservist's record. ARRC types on a Flexowriter the personnel action or other needed forms. As a by-product, it punches the data in a paper tape. It cuts a mat for reproduction if needed. It sends the hard copies and reproductions to the reservist, organization of assignment, and other interested agencies.



Phase 2. The ARRC uses the punched paper tape to update the reservist's records kept on magnetic tape.



# SDA system 42

ITEM RECORDING, CONTRACT  
General Services Administration

**OBJECTIVE OF PROCESS.** The objective of the process is to provide uniform item descriptions on purchase orders submitted to the National Buying Contract suppliers. The suppliers, General Services Administration (GSA) quality control inspectors, and Warehouse Receiving Section, GSA, use the item descriptions in the buying process. This system is being installed.

**THE PROCESS.** The National Buying Division of General Services Administration awards contracts for supplies and equipment. It prepares a punched paper tape for each item in the contract giving the item description and price. These tapes are by-products of the invitation to bid and contracts produced on Flexowriters. It sends to each regional office, GSA, a reproduction of the item tapes.

Each regional office prepares purchase orders for the items covered by the contracts. It automatically types the description and price for each item by processing the appropriate tapes in a Flexowriter.

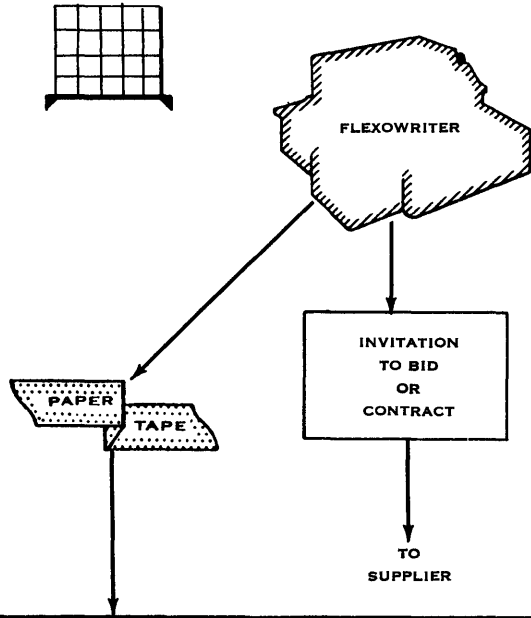
**EQUIPMENT.** Friden Flexowriters are used.

**RESULTS.** The system provides for a much better man-hour production in typing purchase orders than the superseded process.

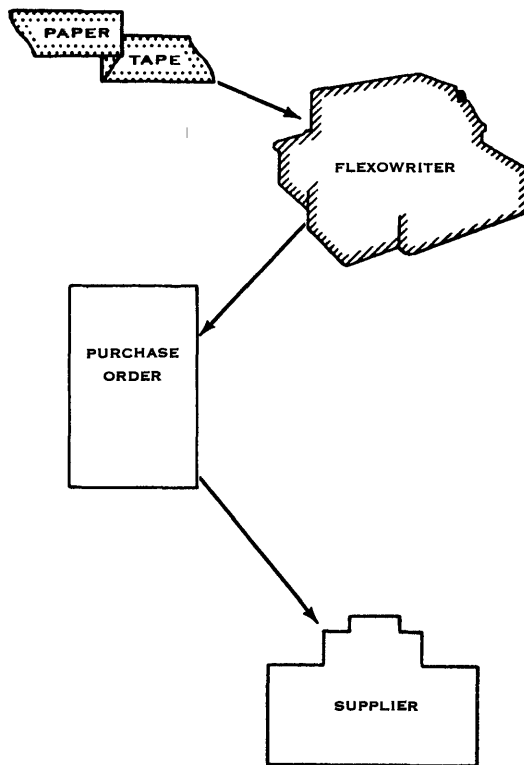
**SOURCE OF MORE INFORMATION.** More information is available from Region 8, General Services Administration, Denver Federal Center 25, Colorado.

## DIAGRAM - ITEM RECORDING, CONTRACT

Phase 1. The National Buying Division of General Services Administration (GSA) awards contracts for supplies and equipment. It prepares a punched paper tape for each item description and price. These tapes are by-products of the invitations to bid and contracts produced by Flexowriters. It sends to each regional office, GSA, a reproduction of the item tapes.



Phase 2. Each regional office prepares purchase orders for the items covered by the contract. It automatically types the description and price for each item by processing the appropriate tapes in Flexowriters. (Note. Copies of the Purchase Order are used for various purposes by regional offices. Not diagrammed.)



# SDA system 43

BUDGET CONTROL  
Federal Aviation Agency

**OBJECTIVE OF PROCESS.** The objective of the process is to provide Federal Aviation Agency management, regional offices, and Central Office with monthly accounting reports.

**THE PROCESS.** All documents including purchase orders, bills of lading, transportation requests, travel orders, leases, and utility contracts are coded to branch and object class, correlated, and placed under lot controls. These are posted to allotment ledger forms with a National Cash Register (NCR) 31 Multiple Duty Accounting Machine. A paper tape with the numeric data is punched by an NCR recorder attachment. The tape is forwarded to an IBM service bureau which produces six monthly and two quarterly reports.

**EQUIPMENT.** Machines used are the NCR Class 31 Bookkeeping Machine with NCR numeric tape recorder attachment and conventional electric accounting machines.

**RESULTS.** The system had these results:

Eliminate 3,000 to 4,000 ledgers in E.A.N.F. (Establishment of Air Navigation Facilities) accounts.

Reduced the time to produce the final reports by three days a month.

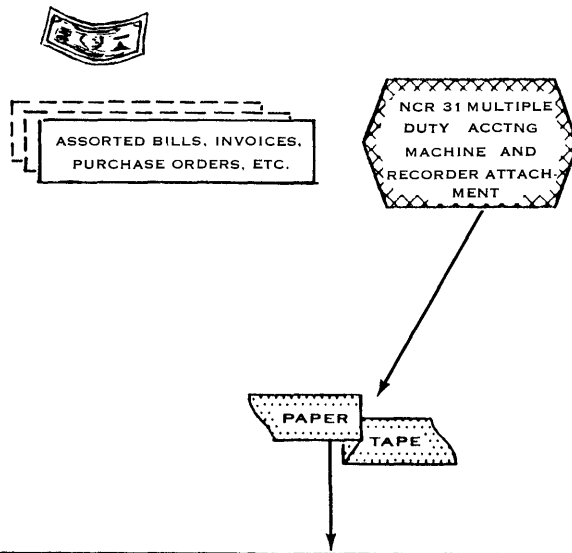
Allowed for greater flexibility through the use of the monthly tab card set.

Made copies of all reports available at the same time - previously, completion of reports was intermittent and irregular.

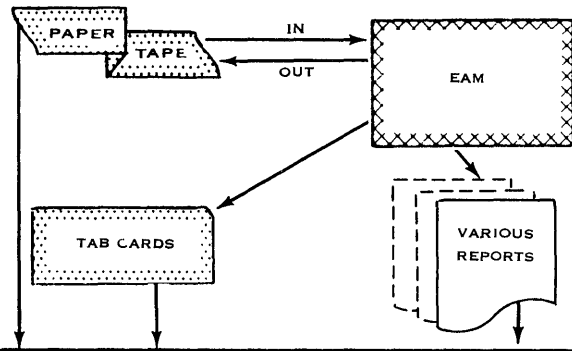
**SOURCE OF MORE INFORMATION.** More information is available from the Management Analysis Branch, Federal Aviation Agency, Washington, D.C.

## DIAGRAM - BUDGET CONTROL

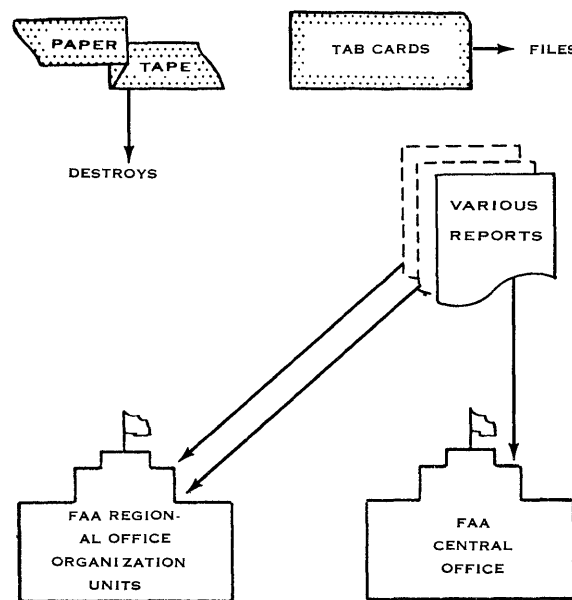
Phase 1. The Accounting Division of each regional office, Federal Aviation Agency, receives, groups, codes, correlates, and places under lot controls, all documents, purchase orders, bills of lading, transportation requests, travel orders, leases, utility contracts, and similar papers. It posts these processed documents to allotment ledger forms using a NCR 31 Multiple Duty Accounting Machine. Simultaneously it punches a paper tape on an NCR recorder attachment. It proofs and forwards the punched tape to an IBM service bureau.



Phase 2. The IBM service bureau converts the paper tape to tab cards and produces various reports and other data. It sends the reports, tape, and tab cards to the regional office, FAA.



Phase 3. The regional office, FAA, destroys the tape, indexes and stores the tab cards, and distributes the reports to appropriate FAA Central Office and regional office organization units.





# SDA system 44

HOUSEHOLD GOODS SHIPMENTS  
Department of the Navy

OBJECTIVES OF PROCESS. The objectives of the process are to produce any one of nine combinations of documents needed for regular shipments of household goods and to produce special documents for miscellaneous shipments. This system is used by the Naval Supply Center, Oakland, California.

THE PROCESS. Variable information is entered on a Household Goods Information Sheet. A paper tape containing the variable information is punched by Flexowriter.

One of nine edge punch card sequences is inserted in the Flexowriter reader. The variable information paper tape is inserted in the Friden Auxiliary Reading Unit. The operator inserts the appropriate form. The machine types the form and stops only when it is completed. The operator then inserts the next form if needed.

When the variable information paper tape is punched, an auxiliary punch unit simultaneously punches a paper tape with tonnage and quality control information. This tape is sent to the installation data processing facility. There, a tape to card converter produces two tab cards for use by other sections responsible for tonnage and quality control.

EQUIPMENT. The equipment used is Friden Programatic Flexowriters, Model SPD; Friden Auxiliary Reading Units, Model STRA; and Friden Auxiliary Punching Units, Model ATP.

RESULTS. The system had these results:

Produced as a by-product the tonnage and quality control information formerly manually recorded and tabulated.

Permitted recording at a speed of 100 words a minute which is greater than could be done manually.

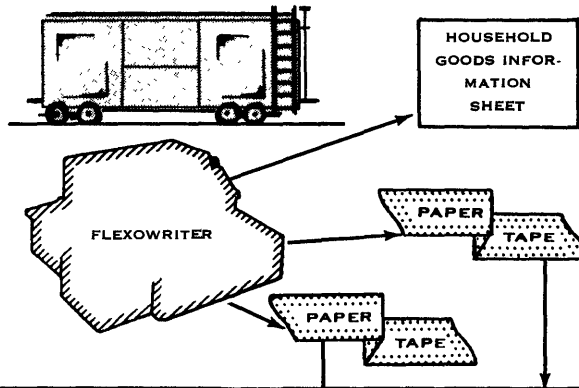
Increased accuracy.

Reduced the number of clerk typists used in the process from seven to three.

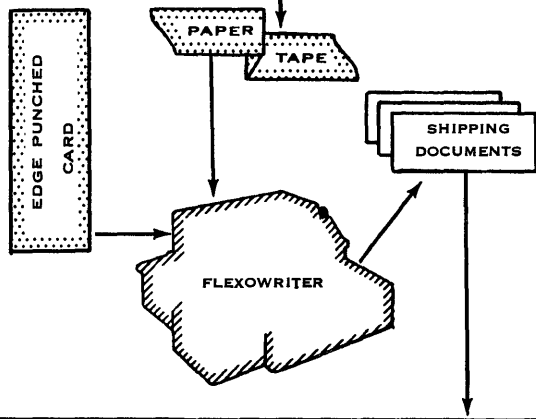
SOURCE OF MORE INFORMATION. More information is available from the Naval Supply Center, Oakland, California.

## DIAGRAM - HOUSEHOLD GOODS SHIPMENTS

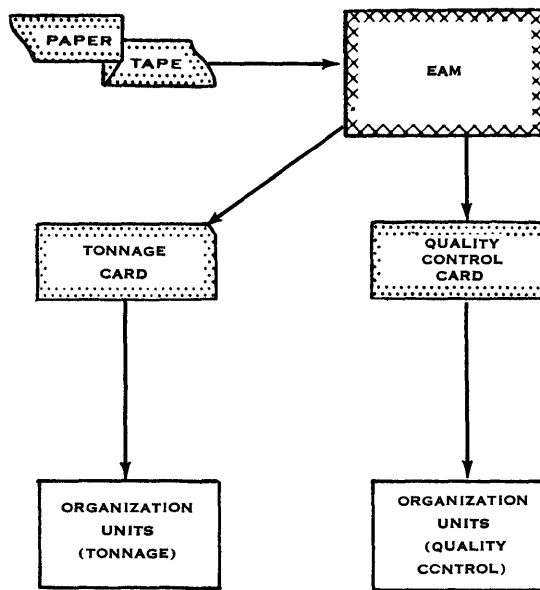
Phase 1. The Naval Supply Center enters variable information on the Household Goods Information Sheet and produces a punched paper tape containing the variable data. At the same time it automatically punches on an auxiliary punch unit a paper tape with tonnage and quality control information.



Phase 2. The Naval Supply Center, using one of nine edge punch card sequences and the paper tape with variable data, completes the forms needed for the shipment of the household goods.



Phase 3. The data processing facility of Naval Supply Center processes the paper tape (for tonnage and quality control information) to produce automatically two tab cards for use by other organization units of the center responsible for tonnage and for quality control.



# SDA system 45

CHECK TABULATED LISTING  
U. S. TREASURY  
Veterans Administration

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare a tabulated listing of all U. S. Treasury checks as cashed by the agent cashier at the Veteran's hospital for hospitalized personnel and beneficiaries, domiciliary members, and other agency employees. This system is in operation at the Veterans Administration Center, Sawtelle, California.

**THE PROCESS.** When cashed, checks are processed by electrical accounting machines. A tabulated listing and the total of the amount of all checks processed during the month are produced. The tabulated listing is attached to Form RO 984 and submitted to the regional disbursing officer to obtain reimbursement for checks cashed.

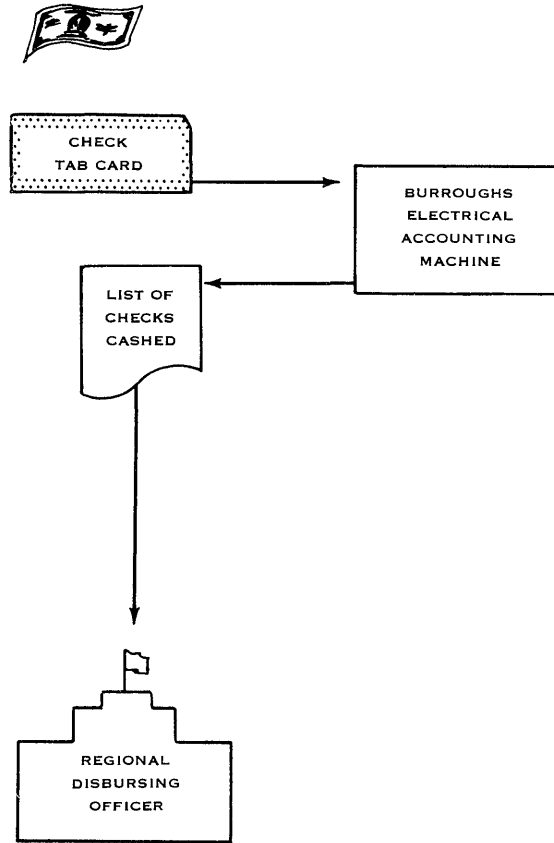
**EQUIPMENT.** A Burroughs Electrical Accounting Machine is used.

**RESULTS.** The system reduced annual man-hours from 550 to 24 and annual costs from \$1,512.00 to \$66.00 for the operation..

**SOURCE OF MORE INFORMATION.** More information is available from the Office of the Assistant Administrator, Management Services, Veterans Administration, Vermont and H Street, N.W., Washington, D.C.

# DIAGRAM - CHECKS TABULATED LISTING, U.S. TREASURY

The Veterans Administration Center cashes U.S. Treasury checks in tab card form for specified classes of veterans and for employees. It automatically lists and totals the checks, to obtain reimbursement from the regional disbursing officer.



# SDA system 46

PROPERTY, REPORTING EXCESS  
Department of the Air Force

OBJECTIVES OF PROCESS. The objectives of the process are to provide monthly a tabulated descriptive listing of declared excess property at all stations in the San Bernardino Air Materiel Area Command (AFAMAC). This listing is distributed nationally to all components of the Department of Defense and to the General Services Administration for distribution to all civilian agencies. This procedure is used by all Air Force Air Materiel Area Commands.

THE PROCESS. Organizational components of each air materiel area submits to the AFAMAC monthly excess property reports on AF Form 1310. The data are punched in paper tape by Flexowriter. The paper tapes are applied to an A/M 6700 Graphotype which embosses descriptive type metal plates.

The plates are placed in standard frames and punched with item and other data by A/M 7100 key punch. A proofing strip is produced on an A/M 9193 Addressograph. The two top lines of the strip are cut and inserted into the plate frame for identification. A final listing is printed by Addressograph on Standard Form 120 in varying numbers of copies for ultimate distribution to appropriate government agencies.

EQUIPMENT. Friden Flexowriter A-695, Graphotype, Addressograph-Multi-graph A/M 6700, and A/M 9193 Addressograph are used.

RESULTS. The system had these results:

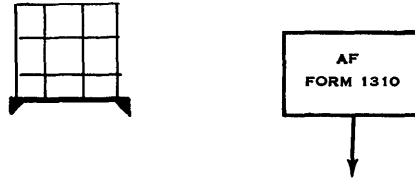
Eliminated considerable typing and manual operations.

Reduced the time to produce reports from 20 days to 5 days.

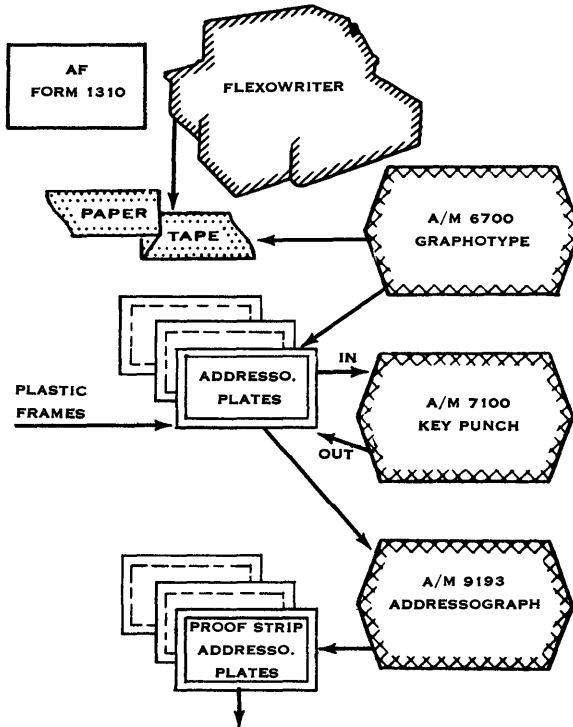
SOURCE OF MORE INFORMATION. More information is available from the Directorate of Data and Statistics, Department of the Air Force, Washington, D.C.

## DIAGRAM - PROPERTY, REPORTING EXCESS

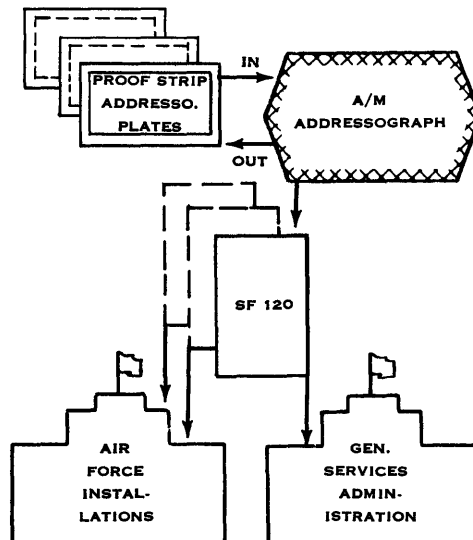
Phase 1. Organization units of the Air Material Area Command (AMAC) submit monthly reports of excess property on Air Force Form 1310.



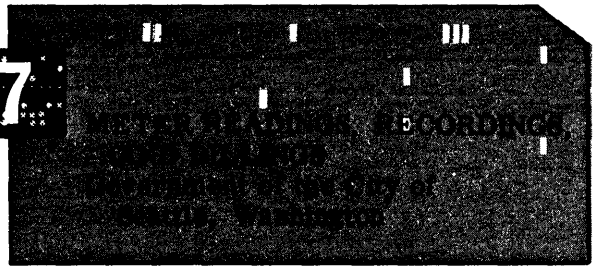
Phase 2. AMAC, using Flexowriters, punches paper tape from the reports. It applies the paper tape to an Addressograph-Multigraph (A/M) 6700 Graphotype and produces metal plates embossed with the data from the tapes. It places the item plates in standard frames and punches various item and other data in the plates. It produces a proofing strip through an A/M 9193 Addressograph, cuts the two top lines of the strips, and inserts them into the plate frames for identification.



Phase 3. AMAC processes the plates in an A/M Addressograph to produce a final listing on SF 120 in varying numbers of copies for ultimate distribution to all appropriate government agencies.



# SDA system 47



**OBJECTIVES OF PROCESS.** The objectives of the process are to record meter readings, and to bill and maintain accounts for the use of electricity.

**THE PROCESS.** The meter reader reads the meter which shows the electricity used by the customer.

With an IBM electrographic pencil the meter reader marks the appropriate columns and numbers on a mark sense tab card for each reading. He turns the tab card in to the utility activity of the City of Seattle.

The utility activity processes the mark sense tab cards, maintains accounts, and bills for the electricity used.

**EQUIPMENT.** IBM Electrographic Pencils and conventional electric accounting machines are used.

**RESULTS.** The system had these results:

Eliminated the key punch operations which saved 32 man-hours of key punching time each day.

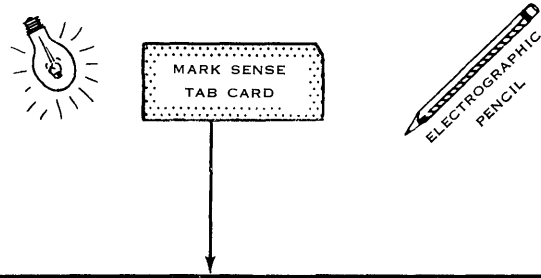
Eliminated errors due to illegible figures, subtraction, and transcription.

Permitted reading meters in any sequence.

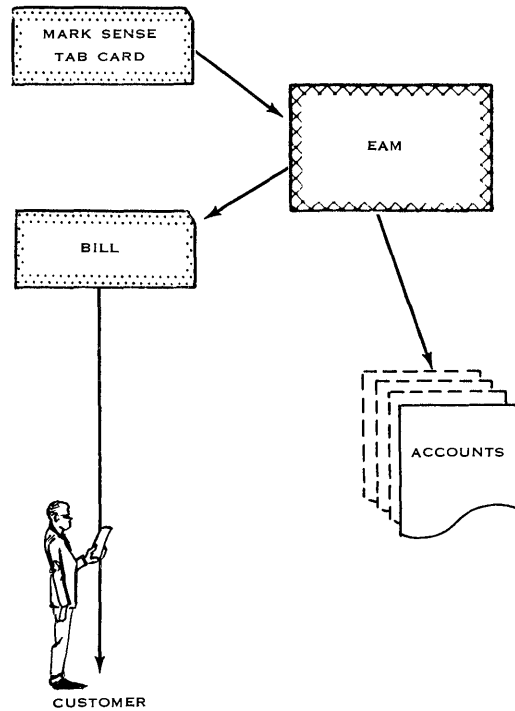
**SOURCE OF MORE INFORMATION.** More information is available from the Government of the City of Seattle, Seattle, Washington.

# DIAGRAM - METER READINGS, RECORDINGS, AND BILLINGS

Phase 1. Each meter reader reads the meter showing the electricity used. He marks the appropriate columns and numbers in the mark sense tab card and turns it in to the utility activity of the City of Seattle.



Phase 2. The utility activity processes the mark sense tab cards, maintains accounts, and bills for the electricity used.





# SDA system 48

TIME, ATTENDANCE, PERFORMANCE AND LABOR COST; AND MACHINE USE, AND ORDER CONTROL

Boeing Airplane Co.,  
Seattle, Washington

**OBJECTIVE OF PROCESS.** The objective of the process is to collect data for reporting employee attendance and performance, labor cost distribution, machine use, and order control.

**THE PROCESS.** Stromberg Transactors are in areas convenient to shop employees. Each transactor will read simultaneously the employee's badge and from one to two additional cards of various widths.

The employee reporting to work automatically records his attendance by inserting his employee badge in a transactor.

Within thirty minutes after reporting his attendance each employee inserts in a transactor his badge, work assignment 80-column tab card, and a 22-column tab card which contains costs and other required financial data. If the employee changes jobs during the day, he repeats the process.

The data are transmitted to Stromberg Compilers, punched in paper tape, and converted to tab cards from which printed documents eventually are prepared.

When the employee leaves work for the day, he inserts his badge into a transactor which records the stopping time.

**EQUIPMENT.** Stromberg Transactors and Compilers with IBM 046 and 047 Tape to Card Converters are used.

**RESULTS.** The system had these results:

Provided annual savings of \$240,000 after the third year.

Increased accuracy.

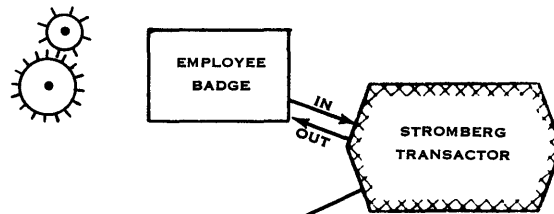
Speeded data accumulation and management action reports.

Improved management control over (a) work in process, (b) material, (c) manpower use, and (d) machine use.

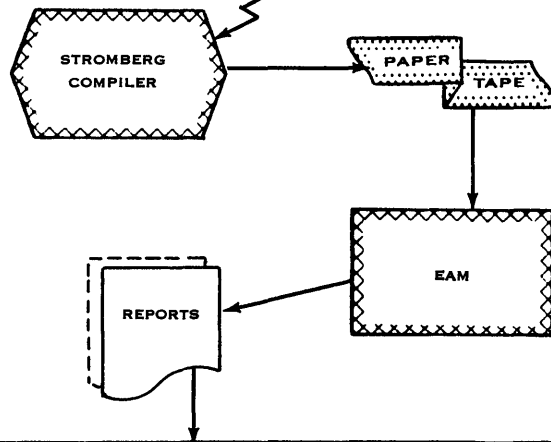
**SOURCE OF MORE INFORMATION.** More information is available from the Boeing Airplane Co., Seattle, Washington.

**DIAGRAM - TIME ATTENDANCE, PERFORMANCE, AND LABOR COST; AND MACHINE USE, AND ORDER CONTROL**

Phase 1. Each employee upon reporting for work inserts his employee badge in the Stromberg Transactor which transmits the data including the time of reporting to a central point which has a Stromberg Compiler.



Phase 2. The central point, by Stromberg Compiler, punches the data in paper tape which is converted to tab cards. It processes the tab cards and prepares printed documents for distribution to various organization units of the company.



(Note: The same process essentially is used in recording jobs on which the employee works. The addition to the procedure is that the employee inserts in the Stromberg Transactor his badge, work assignment 80-column tab card, and a 22-column tab card containing cost and other financial data. Not diagrammed.)



# SDA system 49

**OBJECTIVES OF PROCESS.** The objectives of the process are to prepare cost estimates, bills of material, and stub requisitions.

**THE PROCESS.** After a work request or project order has been processed by the production planners, a draft cost estimate and bill of materials form is furnished the data processing unit. From this draft, the final cost estimate, the bill of materials form, and a punched paper tape simultaneously are prepared on the Flexowriter.

The punched paper tape is processed through the Flexowriter tape reader to prepare stub requisition forms and at the same time operate the IBM 026 Card Punch. This operation produces automatically the stub requisitions and tab cards for various uses.

**EQUIPMENT.** The Flexowriter with tape reader and IBM 026 Card Punch are used.

**RESULTS.** The system had these results:

Eliminated one typing position.

Eliminated hand posting of purchase record cards and forms.

Permitted processing the work 40 percent faster than formerly.

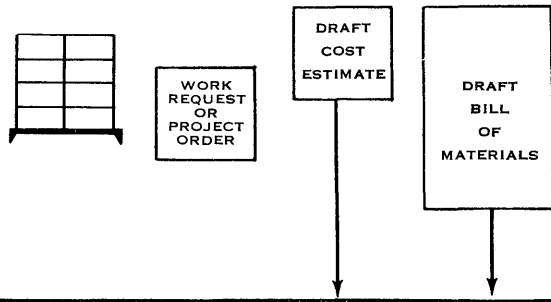
Eliminated an expensive ozalid reproduction process and reduced the ozalid machine time by two hours a day.

Eliminated manual processing of receipt, control, and expediting records.

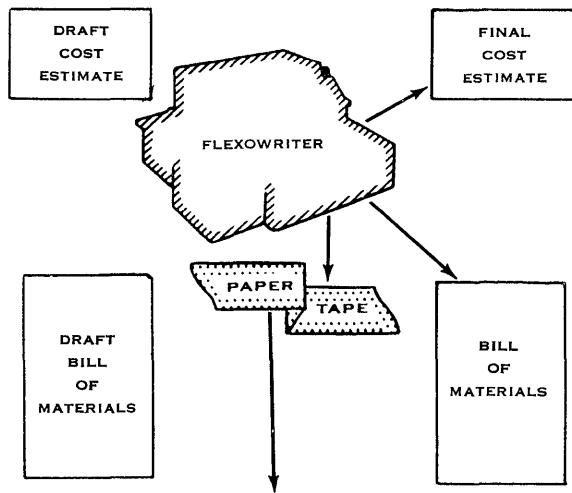
**SOURCE OF MORE INFORMATION.** More information is available from the Naval Torpedo Station, Keyport, Washington.

**DIAGRAM - COST ESTIMATES, BILLS OF MATERIALS,  
AND STUB REQUISITION PREPARATION**

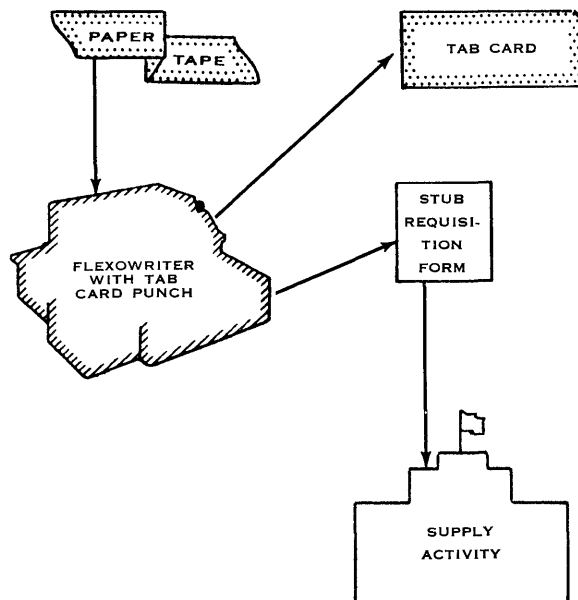
Phase 1. After the production planners process a work request or a project order, they provide a draft cost estimate and bill of materials form to the Automatic Data Processing (ADP) unit of the Naval Torpedo Station.



Phase 2. The ADP unit prepares simultaneously on Flexowriters a final cost estimate, bill of materials form, and a punched paper tape for further processing.



Phase 3. The ADP unit prepares, from the punched paper tape, the stub requisition forms and tab cards for various computations.



# SDA system 50

ORIGIN-DESTINATION SURVEYS  
OF AIRLINE PASSENGER  
TRAFFIC  
Civil Aeronautics Board

OBJECTIVES OF PROCESS. The objectives of the process are to provide data for acting upon applications for airline routes. It is used, also in measuring adequacy of service and in determining air passenger rates. It is used by the Civil Aeronautics Board (CAB), airlines, government agencies, consultants, and other organizations and individuals in airline route work, market analysis, and scheduling.

THE PROCESS. Each United States domestic and international certificated route carrier periodically submits to CAB information on the origin, destination, and routing of passenger trips selected from samplings of airline tickets. The Data are in tab cards.

The Research and Statistics Division, CAB, manually controls, audits, and sends the tab cards to the Data Processing Center of CAB.

The Center machine edits, sorts, consolidates, and summarizes the cards and produces various tabulations. It produces reports for international traffic data. Currently it sends to the National Bureau of Standards the tab cards for domestic traffic for processing and production of reports.

The CAB holds copies of the tabulations and reports from the Data Processing Center and the National Bureau of Standards for government, industry, and public use.

The CAB makes available to the Air Transport Association of America (ATA) copies of the finished tabulations. The ATA prints and sells copies of the reports.

EQUIPMENT. The CAB uses conventional electric accounting machines but is installing an IBM 1401 Computer System. The National Bureau of Standards uses an IBM 7090 Computer. The airlines use conventional electric accounting machines and other electronic data processing equipment.

RESULTS. The system had these results:

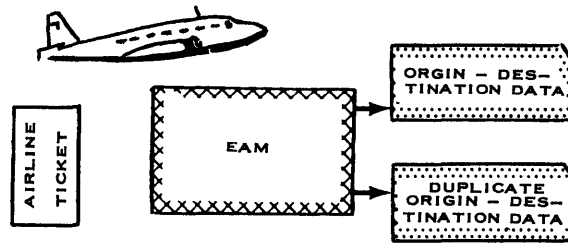
Reduced from a year and a half to three months the time between the receipt of data by CAB from the airlines and the printing of the reports. This has been accomplished in spite of the great increase in airline growth and activity.

Permitted increasing the number of reports from four to twelve and the inclusion of much more information.

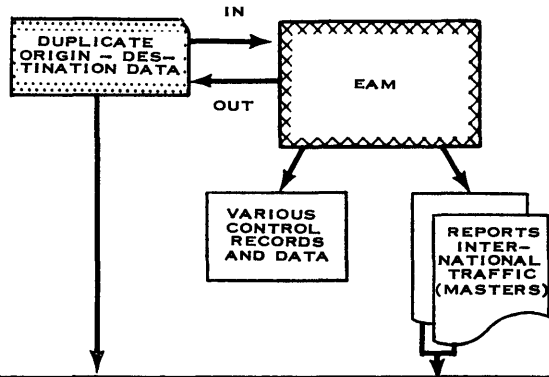
SOURCE OF MORE INFORMATION. More information is available from the Office of Carrier Accounts and Statistics, Civil Aeronautics Board, Universal Building, Washington, D. C.

**DIAGRAM - ORIGIN-DESTINATION SURVEYS OF AIRLINE PASSENGER TRAFFIC**

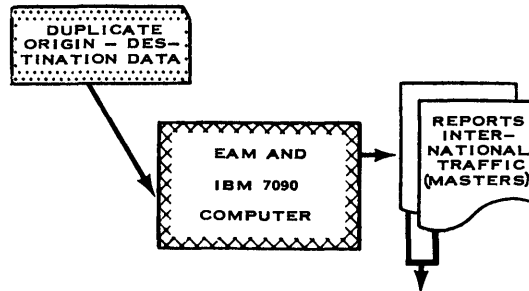
**Phase 1.** Each airline key punches origin and destination data in tab cards and sends to CAB a reproduced set and listing of data in the tab cards.



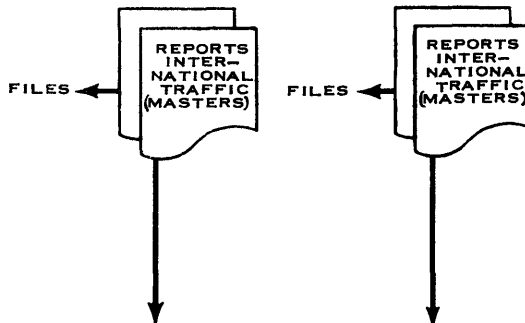
**Phase 2.** CAB processes the tab cards and produces reports on international airline passenger origin, destination, and routing. It sends to the National Bureau of Standards the tab cards for domestic surveys.



**Phase 3.** The National Bureau of Standards processes the tab cards and produces various reports which it sends to CAB.



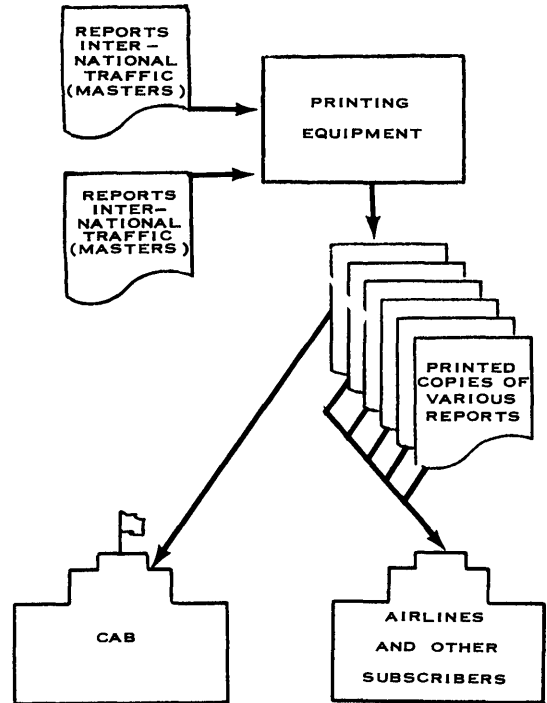
**Phase 4.** CAB reviews and puts into final form for printing the reports of domestic and of international passenger traffic surveys. It holds copies of the tabulations available for government, industry, and public use. It makes available to the Air Transport Association of America a copy of the finished tabulations.



(Continued)

DIAGRAM - ORIGIN-DESTINATION SURVEYS OF AIRLINE PASSENGER TRAFFIC (CONTINUED)

Phase 5. ATA prints the reports and distributes a supply to CAB and to regular subscribers such as the airlines and others interested in origin and destination data.







# SDA system 51

ALLOTMENT ACCOUNTING  
United States Information Agency

**OBJECTIVE OF PROCESS.** The objective of the process is to keep allotment accounts for the program and staff offices of the United States Information Agency (USIA). This includes recording allotment, commitment, obligation, and disbursement transactions to the Allotment Accounting System.

**THE PROCESS.** Each unit prepares and sends to the Allotment Accounting Office a transaction document.

The Allotment Accounting Office records on a bookkeeping machine the data from the document received. Simultaneously it punches the data in a paper tape which usually contains up to 250 entries. It sends the punched paper tape to the Central Data Processing Branch of USIA.

The Data Processing Branch converts the data from the paper tape to tab cards. It processes the tab cards and produces monthly, quarterly, and annual allotment reports. These reports are for the operating units, Allotment Accounting Office, and other offices of USIA.

**EQUIPMENT.** The equipment used is a Burroughs Accounting and Data Recording Machine and conventional electric accounting machines.

**RESULTS.** The system had these results:

Eliminated manually key punching and verifying tab cards.

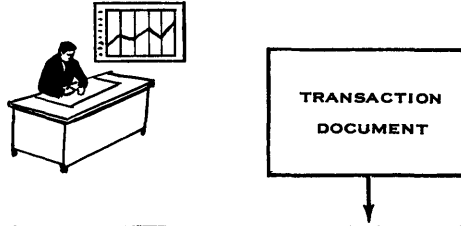
Reduced errors in key punching tab cards.

Provided for accurate and timely reporting.

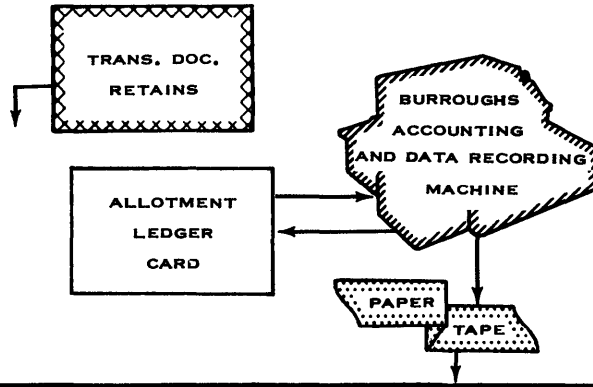
**SOURCE OF MORE INFORMATION.** More information is available from the Systems and Procedures Staff, Finance Division, Office of Administration, United States Information Agency, Washington 25, D. C.

## DIAGRAM - ALLOTMENT ACCOUNTING

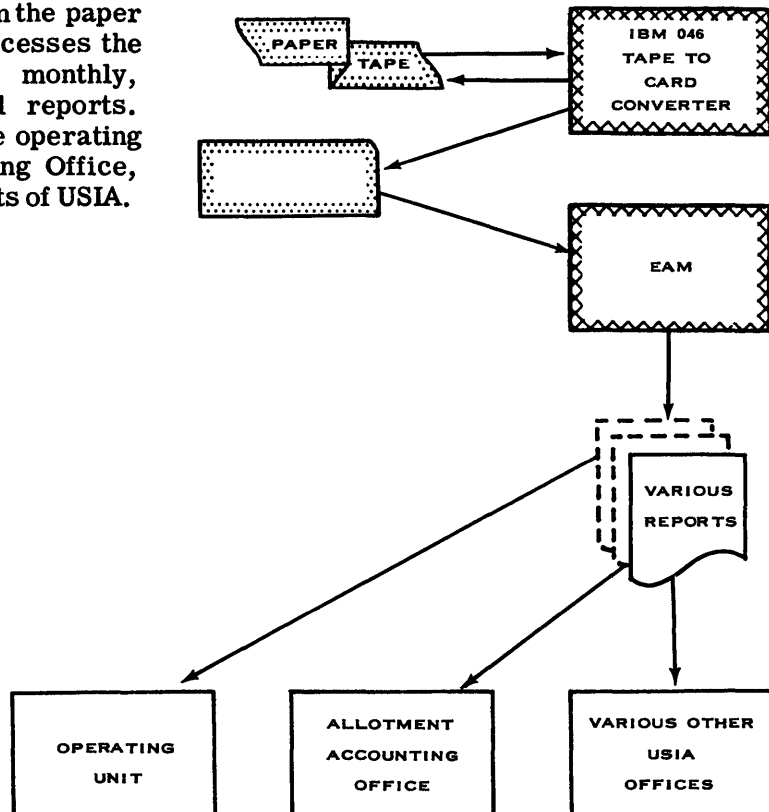
**Phase 1.** The operating unit prepares and forwards the transaction document or an obligation document.



**Phase 2.** The Allotment Accounting Office records on a bookkeeping machine the data from the transaction or obligation document and simultaneously punches the data in paper tape.



**Phase 3.** The Data Processing Office converts the data from the paper tape to tab cards. It processes the tab cards and produces monthly, quarterly, and annual reports. These reports are for the operating unit, Allotment Accounting Office, and other organization units of USIA.



# SDA system 52

CATALOGING PRINTED MATERIAL  
Department of Agriculture

**OBJECTIVES OF PROCESS.** The objectives of the process are to catalog and list forms and special printed material. These are for the 3,000 field offices and the Central Office of the Agricultural Stabilization and Conservation Service (ASCS), Department of Agriculture. The lists and catalogs are used in stocking and ordering forms and special printed materials.

**THE PROCESS.** The Printing and Distribution Branch, Administrative Services Division, ASCS, receives information on new and superseded forms and special printed materials. It manually punches on a Synchro-Tape Typewriter, an edge punch card for each new item, and files the card in a master set. It removes from the set the cards for the superseded items, and files them with the cards for all superseded items for the year.

Approximately each quarter, the Printing and Distribution Branch, automatically types a catalog of all current items. It has the catalog reproduced by photo-off-set and printing processes, and distributes copies to all field offices and to Central Office organizations of ASCS.

The Printing and Distribution Branch uses the edge punch cards, also, to produce automatically (a) a weekly list of new, revised, and obsolete ASCS forms; (b) an annual list of all obsolete forms and printed materials; (c) special lists of forms available for use by specific divisions of ASCS; and (d) special lists needed to ask divisions of ASCS whether to continue stocking forms which they have not used for some time.

**EQUIPMENT.** Equipment used is a Remington-Rand Synchro-Tape Typewriter.

**RESULTS.** The system had these results:

Eliminated many proofreadings of detailed numeric and alphabetic data after the first typing.

Eliminated the need to type manually 500 pages of detailed listings each year.

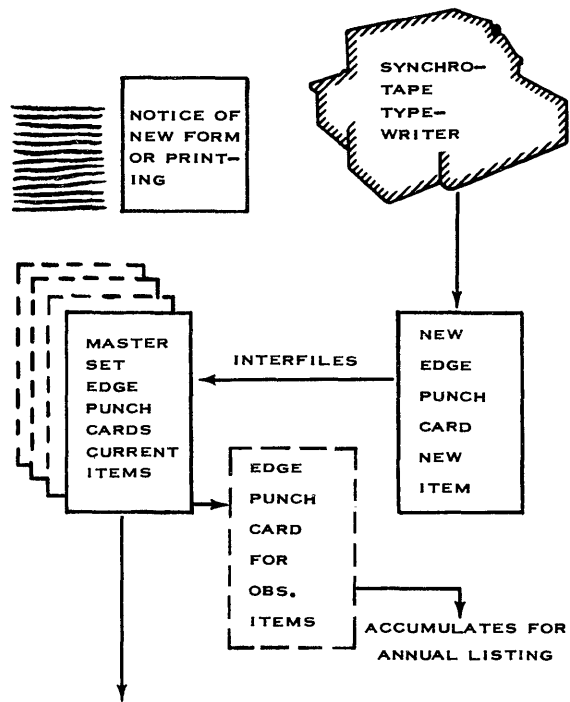
Reduced by 60 percent the time required to type the item lists and catalogs.

Made it unnecessary to duplicate inventory control cards or, as an alternative, to interrupt inventory posting to get data for the item lists and catalogs.

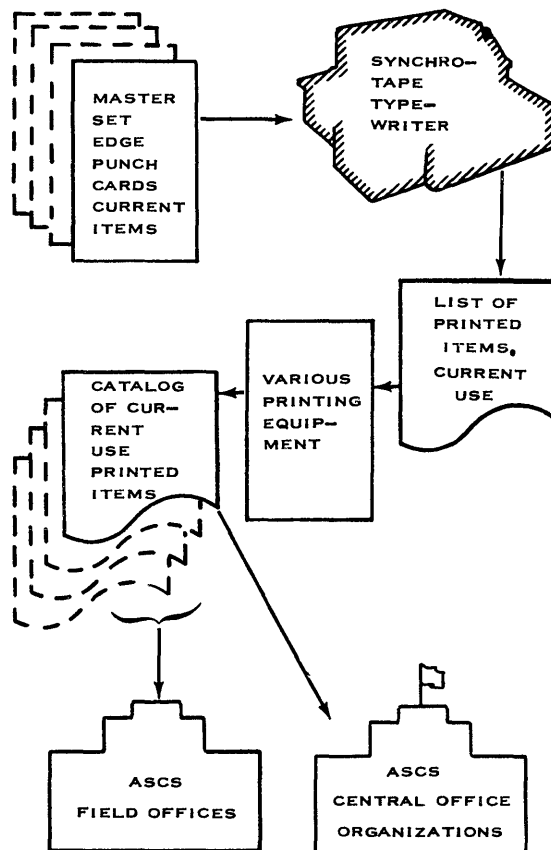
Reduced from three weeks to three days the time interval required to produce and mail copies of the quarterly catalog.

## DIAGRAM - CATALOGING PRINTED MATERIAL

Phase 1. The Printing and Distribution Branch, Administrative Services Division, ASCS, receives from various sources information on new and superseded forms and other printed material. It manually punches an edge punch card for each new item and files the card in a master set. The Branch removes from the master set previously punched cards for superseded items.



Phase 2. Approximately each quarter, the Printing and Distribution Branch processes the master set of edge punch cards and automatically types a list of all current items. It uses the list to have printed an adequate number of copies for all ASCS field and central offices. The list is the catalog for ordering printed materials and forms and serves other purposes.



Note. The edge punch cards for the catalog are used to produce automatically (a) a weekly list of new, revised, and obsolete ASCS forms; (b) an annual list of all forms and other printed materials which have become obsolete during the year; (c) special lists of forms available for use by specific Divisions of ASCS; and (d) special lists needed to ask specific Divisions of ASCS whether to continue stocking forms which they have not used for some time.

# SDA system 52

CATALOGING PRINTED MATERIAL  
Department of Agriculture  
(Continued)

Eliminated frequent complaints regarding the lack of information on the status of forms and the numerous suggestions for improvements.

SOURCE OF MORE INFORMATION. More information is available from the Administrative Services Division, Agricultural Stabilization and Conservation Service, Department of Agriculture, Washington 25, D. C.



# SDA system 53

COTTON LOAN ACCOUNTING  
Department of Agriculture

**OBJECTIVES OF PROCESS.** The objective of the process is to maintain Financial Records on Department of Agriculture price support loans made to cotton producers. This is a pilot project to determine the feasibility of using optical scanners, instead of manually operated key punches, in this and other programs.

**THE PROCESS.** Several hundred lending agents located throughout the cotton producing area make loans to farmers. Copies of these transactions are forwarded to the New Orleans Commodity Office, Agricultural Stabilization and Conservation Service. The office retypes the incoming information in a stylized format on special typewriters. These documents are fed into an optical scanner which produces magnetic tape for direct use on electronic data processing equipment.

**EQUIPMENT.** The equipment used is several manufacturers' electric typewriters with Farrington type fonts, a Farrington 1P4M Page Optical Scanner, and IBM-1401 and IBM 705-III Data Processing Systems.

**RESULTS.** The system had these results:

Eliminated key punching and key verifying.

Eliminated card-to-tape conversion and editing routines.

Eliminated EAM sorting operations.

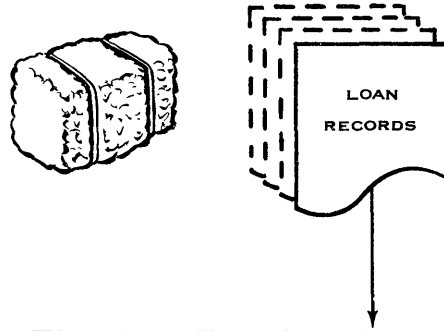
Increased productivity of input data by over 100%.

Increased accuracy of input data by 30%.

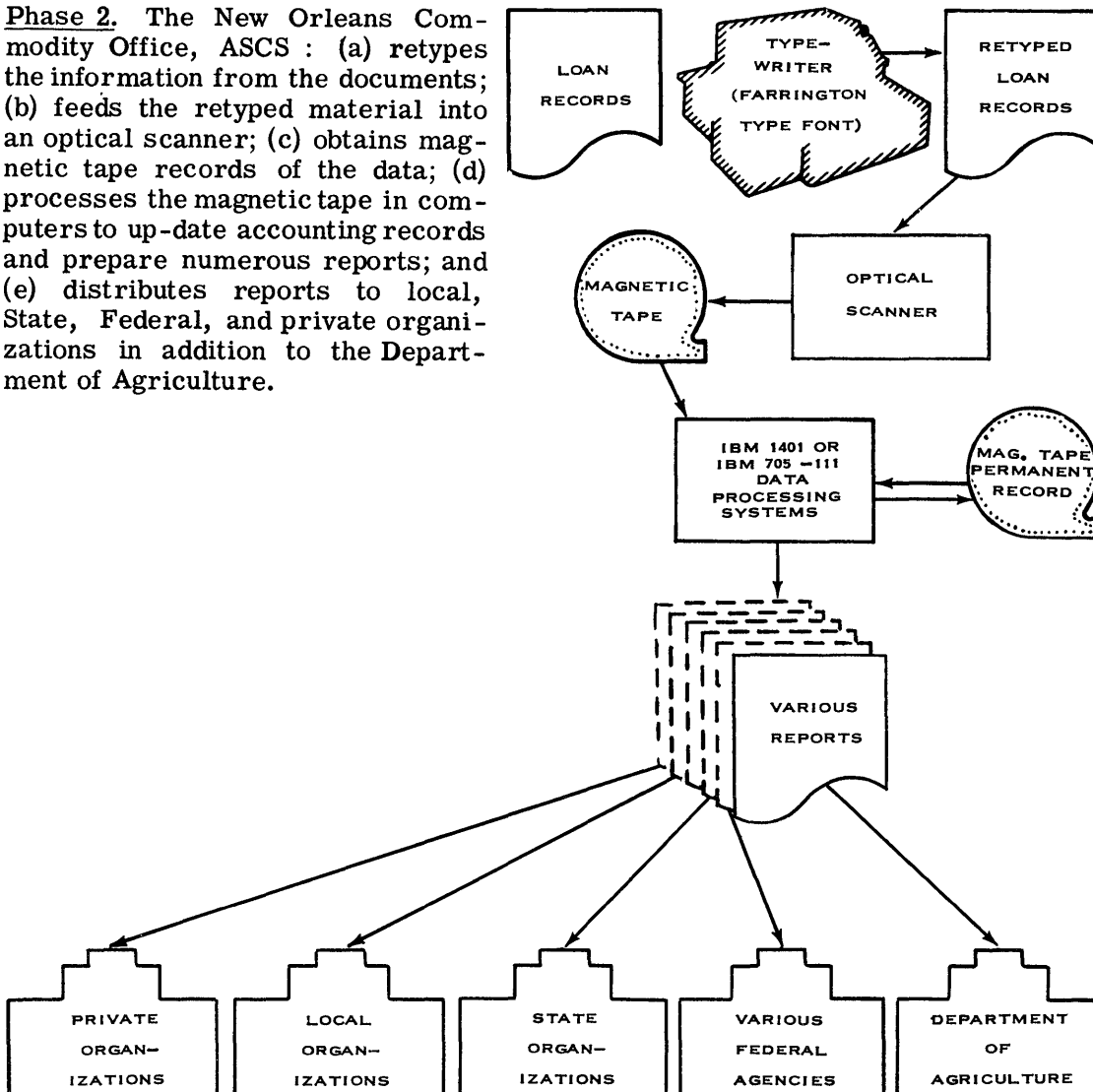
**SOURCE OF MORE INFORMATION.** Further information is available from the Operations Analysis Staff, ASCS, Department of Agriculture, Washington, D. C.

## DIAGRAM - COTTON LOAN ACCOUNTING

Phase 1. The lending agent makes the loan and pays the cotton farmer for his crop and forwards appropriate records to the New Orleans Commodity Office, ASCS.



Phase 2. The New Orleans Commodity Office, ASCS : (a) retypes the information from the documents; (b) feeds the retyped material into an optical scanner; (c) obtains magnetic tape records of the data; (d) processes the magnetic tape in computers to up-date accounting records and prepare numerous reports; and (e) distributes reports to local, State, Federal, and private organizations in addition to the Department of Agriculture.





# SDA system 54

PAYMENTS TO VENDORS  
Department of the Navy

**OBJECTIVE OF PROCESS.** The objective of the process is to pay vendors and contractors for goods and services. The system is in operation in the Navy Regional Finance Office, Brooklyn, New York, and is being extended to other Navy Finance Offices.

**THE PROCESS.** The Navy Regional Finance Office receives invoices from vendors and contractors. It establishes lots of 25 single invoices or multiplies thereof. It prepares simultaneously, by machine, the Public Vouchers (SF 1034); the check issue tab cards; accounting tab cards; and register sheets. By machine, it then balances the lots of checks, prepares tab card checks, and lists them. After mechanically signing the checks, it mails them to the vendors and contractors, and carries out the normal fiscal procedures required by the Department of the Treasury.

**EQUIPMENT.** The equipment used is an IBM 632 Electronic Typing Calculator with an IBM 026 Printing Card Punch.

**RESULTS.** The system had these results:

Improved work flow

Permitted faster payment.

Improved the legibility of the documents.

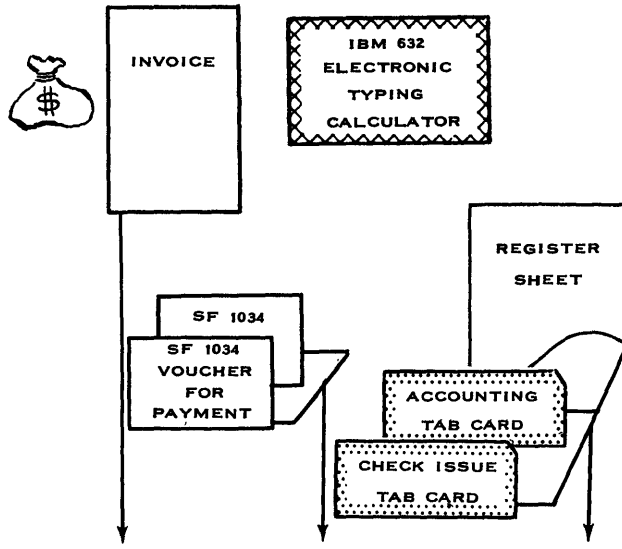
Improved the accuracy of the work.

Reduced the number of man-hours required for the work.

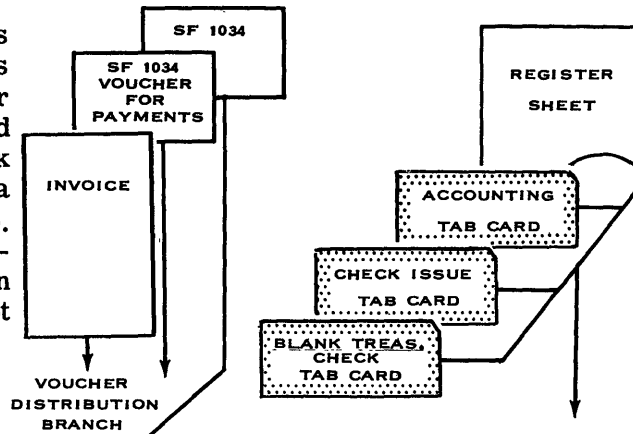
**SOURCE OF MORE INFORMATION.** More information is available from the Navy Regional Finance Office, 3rd Avenue and 29th Street, Brooklyn 32, New York.

## DIAGRAM - PAYMENTS TO VENDORS

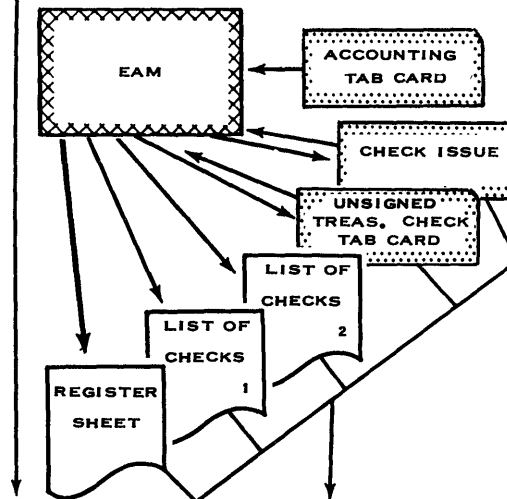
**Phase 1.** The Voucher Typing and Calculating Section receives invoices from the Accounting Control Section; establishes lots of 25 single invoices or multiples to equal 25 vouchers; and assigns check numbers and DO voucher numbers to each lot of invoices. It prepares simultaneously, by machine, Forms SF 1034 (Public Voucher For Payment); check issue tab cards; accounting tab cards; and register sheets.



**Phase 2.** The Fiscal Branch stamps the SF 1034 "Paid;" and forwards the accounting tab cards, register sheets, check issue tab cards, and a corresponding number of blank Treasury check cards. It retains a copy of the SF1034 and the invoice. (Reviews by Accounting Control Section and the Examination Division which precede Phase 2 are not diagrammed.)

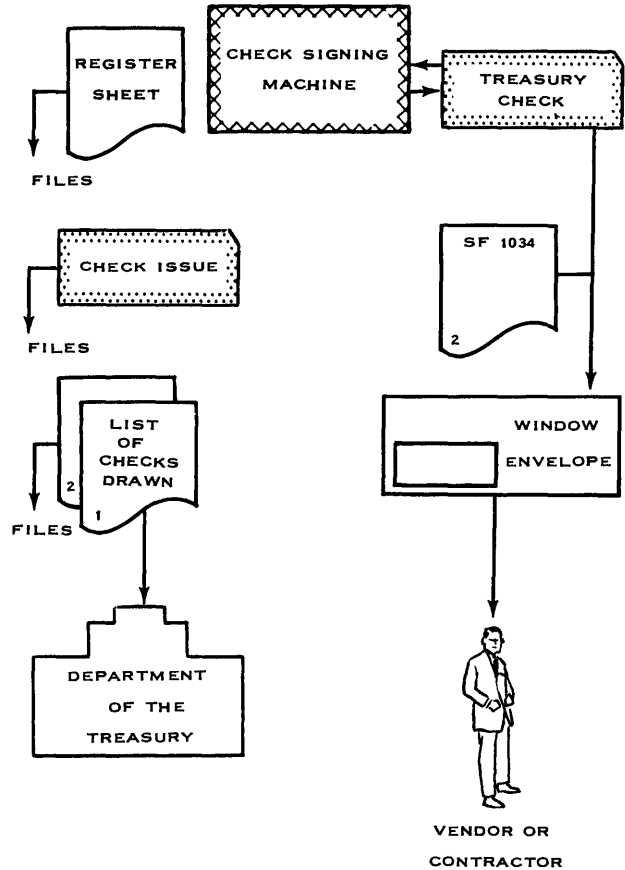


**Phase 3.** The Machine Branch balances each lot, prepares the Treasury tab card checks, and lists the checks. It forwards the check issue tab cards, unsigned Treasury tab card checks, and the list of checks drawn. It retains the accounting tab cards.



## DIAGRAM - PAYMENTS TO VENDORS

Phase 4. The Fiscal Branch signs the checks by machine and mails them with matching Forms SF 1034 to the vendors and contractors. It files the check issue tab cards, forwards to the Department of the Treasury Copy 1 of the list of checks drawn, and files Copy 2 of the list of checks drawn.





# SDA system 55

TRAINING ORDERS  
Department of the Navy

**OBJECTIVE OF PROCESS.** The objective of the process is to produce training orders for Naval Reserve personnel.

**THE PROCESS.** At the Naval installation an operator prepares on a Flexowriter, each Form Nav. Pers. 3080, Active Duty for Training Orders, by: (a) typing the variable data; (b) inserting a tab card containing constant information for the reservist; and (c) inserting a punched paper tape containing program information and constant data on each of the most common duty stations. During the operation a key punch, cable-connected to the Flexowriter, produces automatically a tab card containing data required for financial accounting.

**EQUIPMENT.** The equipment used is Model SPD Friden Systems Programatic Flexowriter with an IBM Tab Card Reader; Model STR-D Friden Selectodata Tape Reader with a Manual Data Selector; Model TCPC Friden Tab Card Punch Unit; and Model 026 IBM Card Punch.

**RESULTS.** The system had these results:

Increased speed in preparing Active Duty for Training Orders.

Reduced errors in transcribing information.

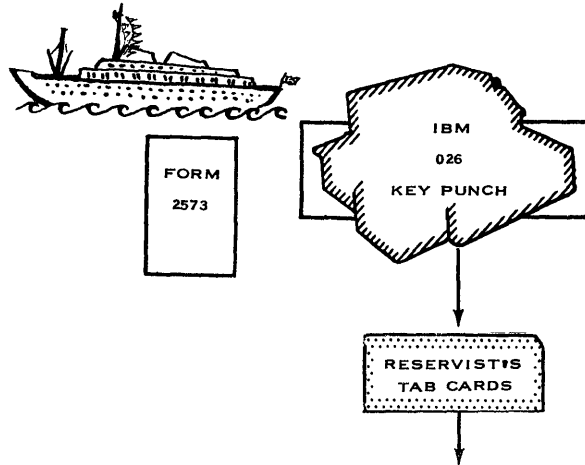
Leveled peak and slack work periods.

Provided for automatic preparation of obligation data required by the Comptroller, cruise lists, and various reports as byproducts of the mechanized operation.

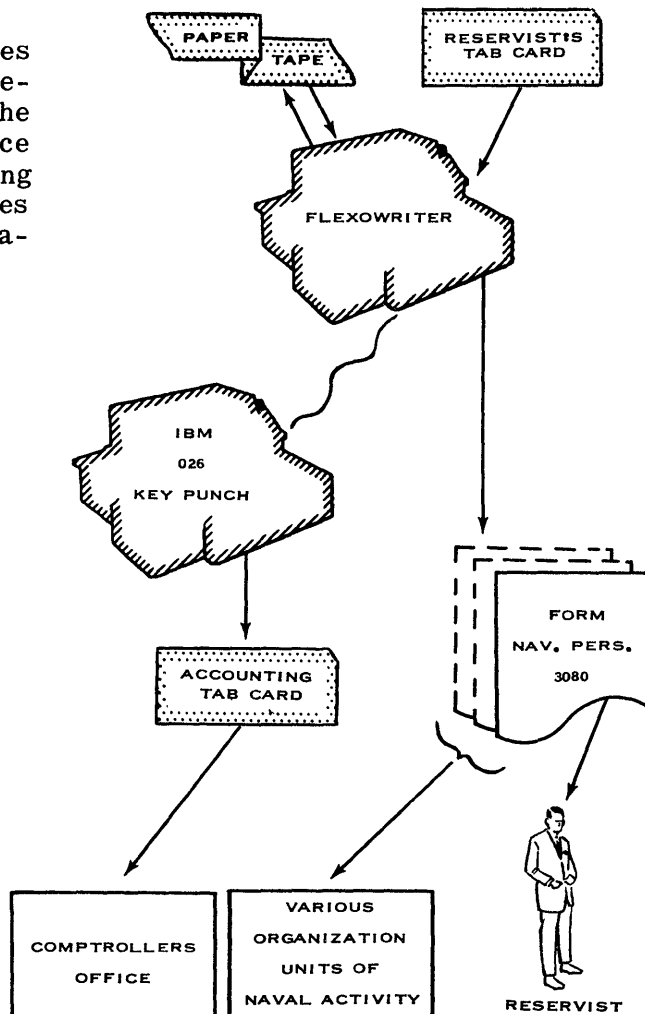
**SOURCE OF MORE INFORMATION.** More information is available from the Commandant, Third Naval District, 90 Church Street, New York, New York.

## DIAGRAM - NAVAL RESERVE TRAINING ORDERS

Phase 1. The Naval installation receives from the Naval Reservist a completed Form 2573, Application for Training Duty Orders. From the Form 2573, it key punches tab cards with the constant information for the reservist.



Phase 2. The Naval installation uses the Reservist's tab card and a previously punched paper tape for the assigned duty station to produce Form 3080, Active Duty for Training Orders. Simultaneously, it punches tab cards with accounting information for the Comptroller's office.



# SDA system 56

PURCHASE DOCUMENTS  
Department of the Army

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare purchase documents and various reports and registers.

**THE PROCESS.** Various offices prepare work orders, abstracts of contractual instrument, and other documents. Most of these offices prepare punched paper tape as a byproduct of preparing each document on a flexowriter. In these cases, the tapes are transmitted to New York Procurement District via Teledata.

Where the Teledata is used, the New York Procurement District inserts the tapes into flexowriters to produce the work orders. The tapes are used to punch tab cards. The cards are processed to produce automatically the purchase documents and a variety of registers, reports, and fiscal documents.

**EQUIPMENT.** The equipment used is Friden flexowriter, conventional electric accounting machines, and Friden Teledata.

**RESULTS.** The system had these results:

Provided for faster submission of the purchase authority to the New York Procurement District.

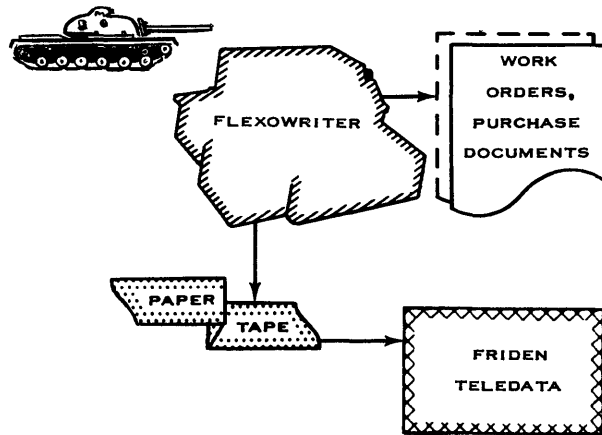
Expedited the preparation of purchase documents.

Provided purchase data in punched paper tape and tab cards which could be processed in equipment already used by the New York Procurement District.

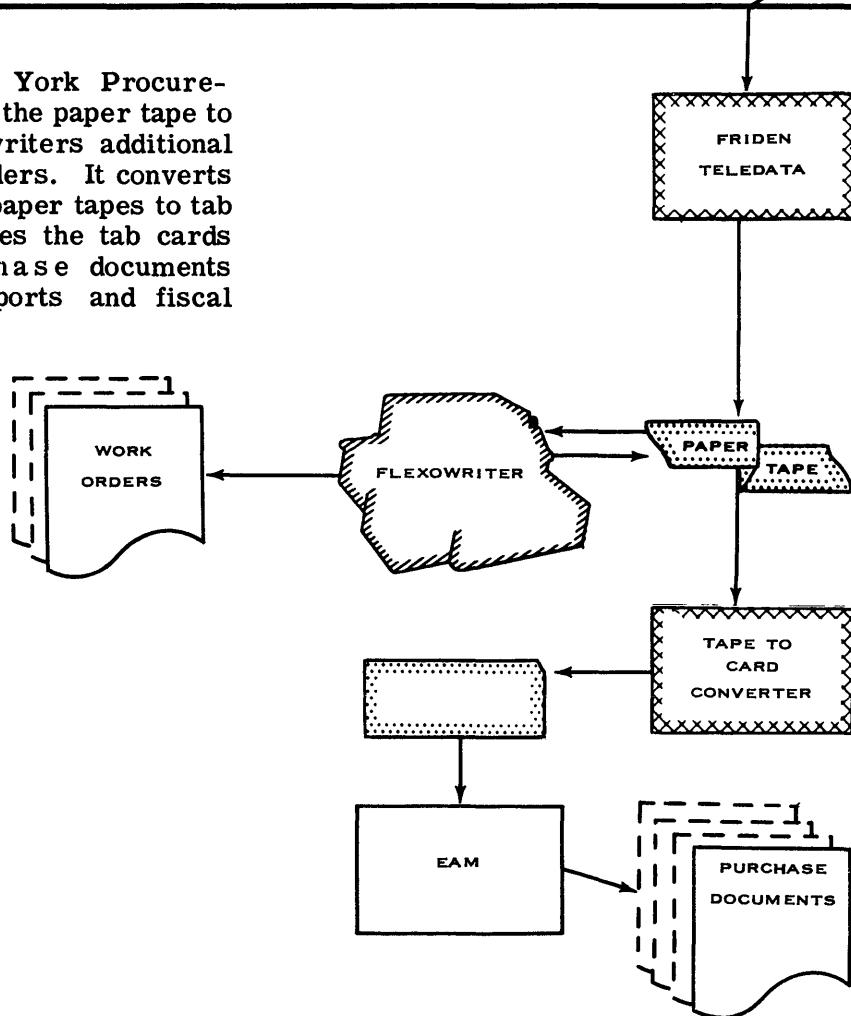
**SOURCE OF MORE INFORMATION.** More information is available from the New York Procurement District, Department of the Army, 770 Broadway, New York, New York.

## DIAGRAM - PURCHASE DOCUMENTS

**Phase 1.** Offices prepare on Flexowriters, work orders, and abstracts of contractual instrument and other purchase documents. They transmit by Teledata the byproduct punched paper tape data to the New York Procurement District, Department of the Army.



**Phase 2.** The New York Procurement District uses the paper tape to produce on Flexowriters additional copies of work orders. It converts the data from the paper tapes to tab cards. It processes the tab cards to produce purchase documents and various reports and fiscal documents.





# SDA system 57

REQUISITION DOCUMENTS  
Department of the Army

**OBJECTIVE OF PROCESS.** The objective of the process is to produce the Single Line Item Release/Receipt Document (DOD 1348-1) from requests received from overseas commands. This is a part of the MILSTRIP system of the Department of the Army.

**THE PROCESS.** Overseas commands transmit to the New York District, Army Corps of Engineers, by Data Transceiver, using tab cards, requests for supplies.

The New York District, Army Corps of Engineers, processes on a Flexowriter the supply request tab card along with a punched paper tape for the command submitting the request and produces a seven-part requisition form (DOD 1348-1). It retains one copy and sends six copies to the purchasing section for supply action. It reproduces the supply request tab cards. It files one set of tab cards by the required supply delivery date and the other by requisition number in the master set of tab card requests for supplies.

**EQUIPMENT.** The equipment used is Friden flexowriters, IBM Data Transceivers, and conventional electric accounting machines.

**RESULTS.** The system had the following results:

Eliminated typing constant information on DOD 1348-1 and permitted part of this form to be prepared automatically on Flexowriters.

Eliminated the need for the supplier to prepare a separate shipping document.

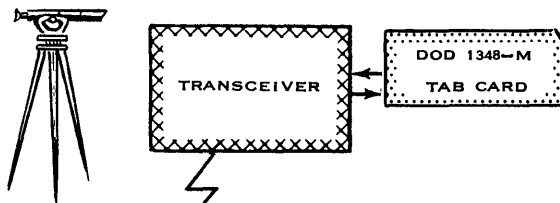
Speeded processing supply requisitions.

Reduced errors in transcriptions.

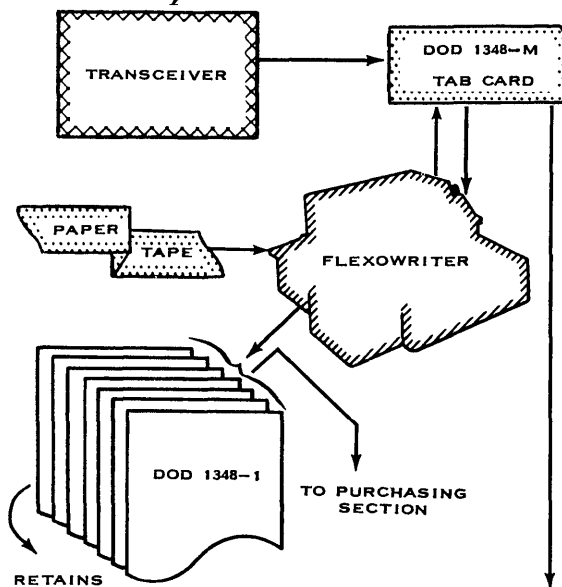
**SOURCE OF MORE INFORMATION** More information is available from the New York District, Army Corps of Engineers, 111 E. 16th Street, New York City.

## DIAGRAM - REQUISITION DOCUMENTS

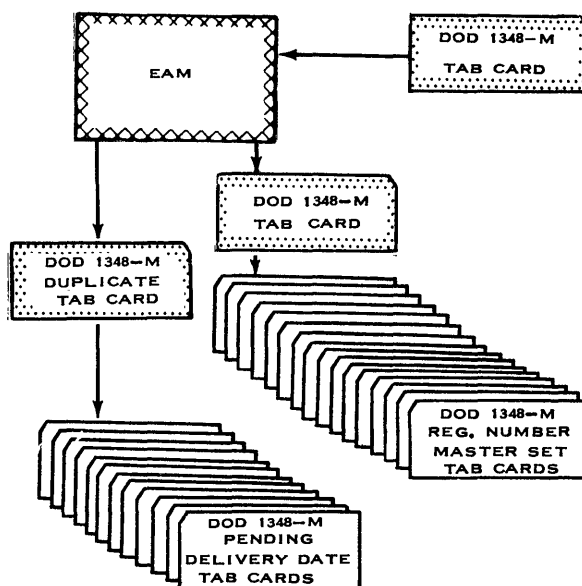
Phase 1. Overseas commands transmit by Data Transceiver, to the New York District, Army Corps of Engineers, tab card requests for supplies, DOD 1348-M.



Phase 2. The New York District, Army Corps of Engineers, processes the supply request tab cards along with a punched paper tape for the command sending the request and produces a seven-part requisition Form (DOD 1348-1). It keeps one copy and sends six copies to the purchasing section for supply action.



Phase 3. The New York District, Army Corps of Engineers, reproduces the tabcard requests for supplies, DOD 1348-M. It files one set by the required supply delivery date and the other by requisition number in the master set of tab card requests for supplies.



# SDA system 58

REPORTING CONSTRUCTION  
STATUS  
Department of the Navy

OBJECTIVE OF PROCESS. The objective of the process is to produce Construction Status Report (DPWO 11103/1).

THE PROCESS. When a new construction project is begun, each Officer-in-Charge of Construction and Resident Officer-in-Charge of Construction provides project information to the District Public Works Office, Third Naval District.

From the project information, the District Public Works Office prepares project reports and punches the report data in paper tape. It uses the tape in producing the subsequent monthly project reports.

Each Officer-in-Charge of Construction or Resident Officer-in-Charge of Construction receives copies of the project report. It pencils changes for the month on one copy, and returns the changed copy to the District Public Works Office.

The District Public Works Office uses a Flexowriter to prepare the new monthly report. It manually types the changed information and processes the previously prepared punched paper tape to type automatically the unchanged data. Simultaneously, it produces a hard copy project report and a new punched paper tape containing the same data as the project report.

EQUIPMENT. The equipment used is a Friden Programatic Flexowriter.

RESULTS. The system had these results:

Reduced the time required to prepare source data for the report.

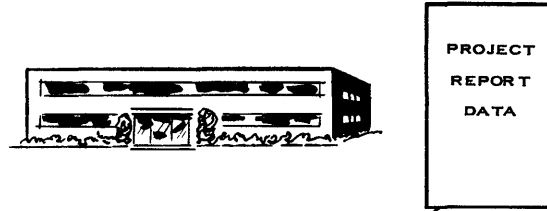
Speeded the submission of reports, making them more useful for planning and other purposes.

Reduced the errors attributable to transcribing the same information each month.

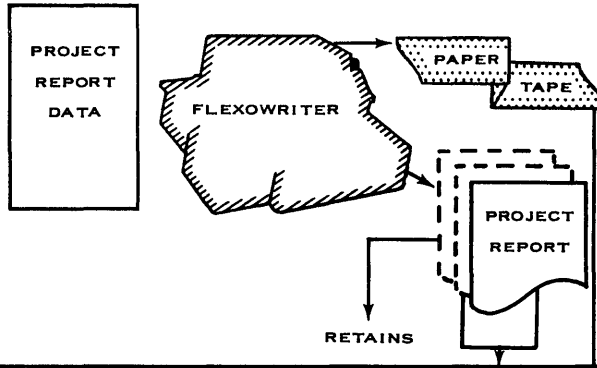
SOURCE OF MORE INFORMATION. More information is available from the District Public Works Office, Third Naval District, 90 Church Street, New York, New York.

## DIAGRAM - REPORTING CONSTRUCTION STATUS

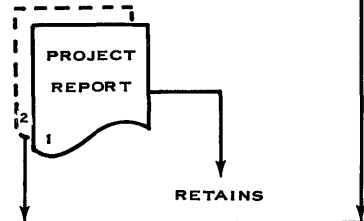
**Phase 1.** At the beginning of a new construction project, each Officer-in-Charge and Resident Officer-in-Charge of Construction provides project information to the District Public Works Office, Third Naval District.



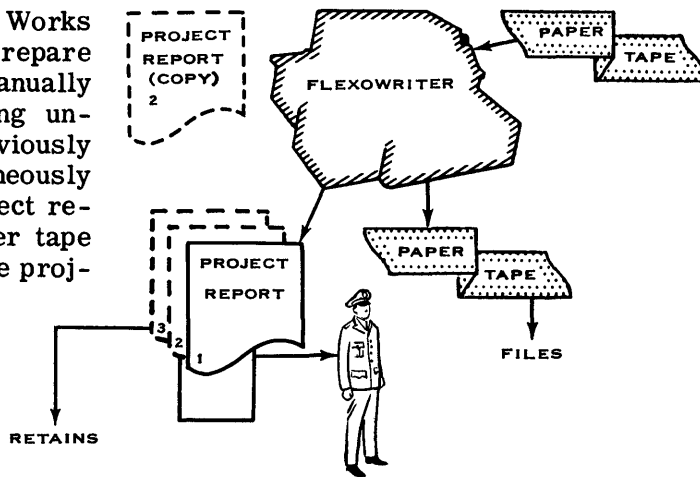
**Phase 2.** The District Public Works Office prepares project reports and punches the report data in paper tape for later use.



**Phase 3.** Each Officer-in-Charge of Construction or Resident Officer-in-Charge of Construction receives copies of the project report, pencils changes on one copy, and returns the changed copy to the District Public Works Office.



**Phase 4.** The District Public Works Office uses a Flexowriter to prepare the new monthly report--manually typing new data and recording unchanged data from the previously prepared paper tape. Simultaneously it produces a hard copy project report and a new punched paper tape containing the same data as the project report.



OFFICER-IN-CHARGE OF CONSTRUCTION OR  
RESIDENT-OFFICER-IN-CHARGE OF CONSTRUCTION

# SDA system 59

VOUCHERS AND ACCOUNT  
DOCUMENTS  
Department of the Navy

**OBJECTIVE OF THE PROCESS.** The objective of the process is to obtain by-product accounting documents at the same time that public vouchers are prepared.

**THE PROCESS.** The Navy Regional Finance Office receives an invoice from a vendor. The Office prepares a Public Voucher on an IBM 632 Electronic Typing Calculator, cable-connected to an IBM 026 Printing Card Punch. Simultaneously it produces a check issue tab card, an accounting tab card in the format of Nav. Compt. Form 632, and a register sheet. The register sheet is prepared on the right side of the split platen of the typewriter.

After various reviews, the Navy Regional Finance Office processes the accumulated check issue and other tab cards. It automatically produces a check for the vendor, a check listing for fiscal use, and various reports.

**EQUIPMENT.** The equipment used is an IBM 632 Electronic Typing Calculator consisting of an electric typewriter with plastic program tape, a keyboard containing an adding machine keyboard plus functional control keys and switches, an electronic calculator containing a limited amount of magnetic core storage units, and an IBM 026 Printing Card Punch; and conventional electric accounting machines.

**RESULTS.** The system had these results:

Provided a more uniform and neater Public Voucher.

Improved accuracy.

Provided faster payment through simultaneous preparation of vouchers and checks.

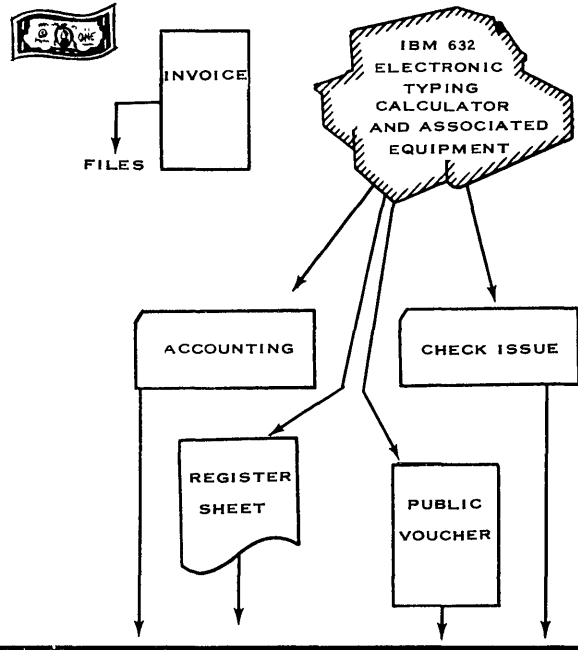
Improved workflow through combining steps formerly performed in different sections.

Saved personnel and equipment.

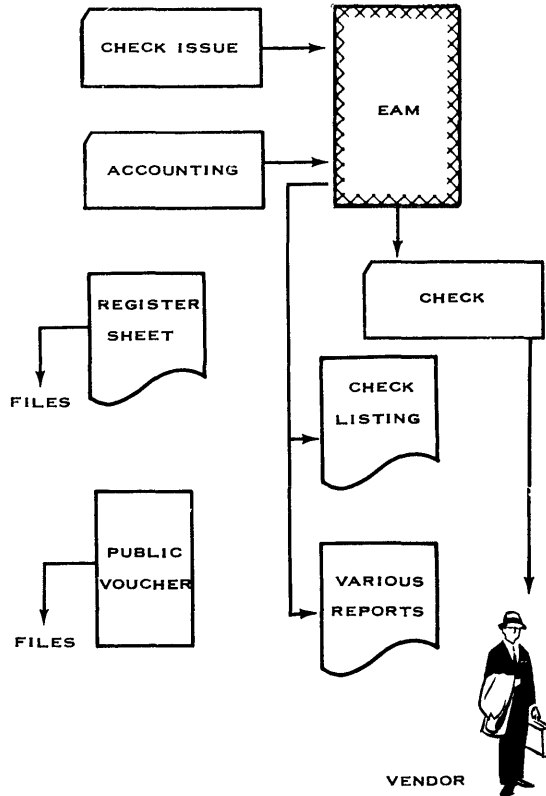
**SOURCE OF MORE INFORMATION.** More information is available from the Navy Regional Finance Office, 29th Street and 3rd Avenue, Brooklyn, New York.

## DIAGRAM - VOUCHERS AND ACCOUNT DOCUMENTS

Phase 1. The Navy Regional Finance Office receives an invoice from a vendor. The Office prepares a public voucher and simultaneously produces a check issue tab card and a register sheet.



Phase 2. After various reviews, the Navy Regional Finance Office processes the check issue tab card (accumulated with others) and automatically produces a check for the vendor, a list of checks, and various reports.



# SDA system 60

PASSPORTS  
Department of State

**OBJECTIVES OF PROCESS.** The objectives of the process are to obtain clearances for passport applicants and prepare passports. It is a system used by the New York Passport Office, Department of State.

**THE PROCESS.** Upon receipt of a new passport application, the New York Passport Office types a five-part continuous control card and simultaneously produces a punched paper tape. It uses the tape in teletyping a clearance request to Washington and later in automatically typing the passport.

When the New York Passport Office receives the clearance, it processes the passport information tape and a date of issue tape in a Flexowriter, automatically typing the passport.

**EQUIPMENT.** The equipment used is two Friden Flexowriters one of which is equipped with a duplex reading head.

**RESULTS.** The system had these results:

Increased the number of passports prepared by one operator from 400 to 600 a day.

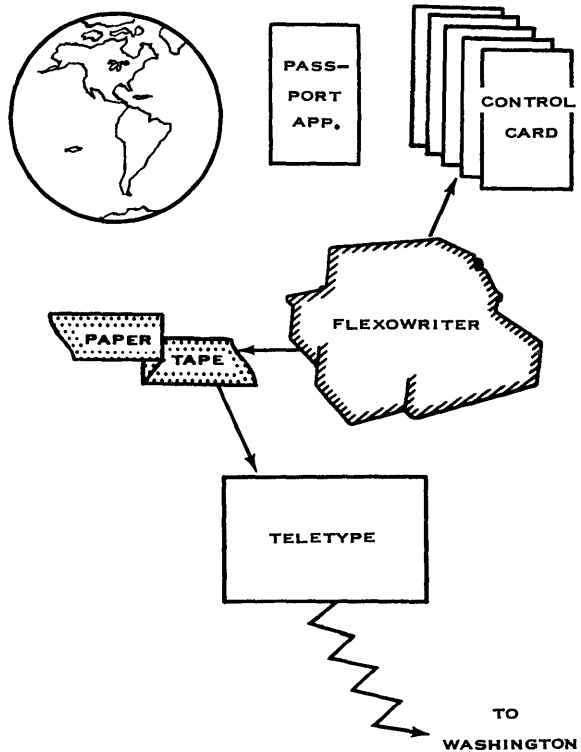
Permitted one operator to prepare 600 passports a day, and simultaneously to prepare 600 passports for affixing photographs, legends, and seals.

Reduced the percentage of spoiled passports.

**SOURCE OF MORE INFORMATION.** More information is available from the New York Passpost Office, 630 Fifth Avenue, New York, New York.

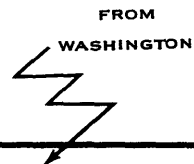
## DIAGRAM - PASSPORTS

Phase 1. The New York Passport Office receives a passport application, types on a Flexowriter a five-part control card, and simultaneously produces a punched paper tape containing information for the passport. It uses the tape automatically to teletype a clearance request to Washington.

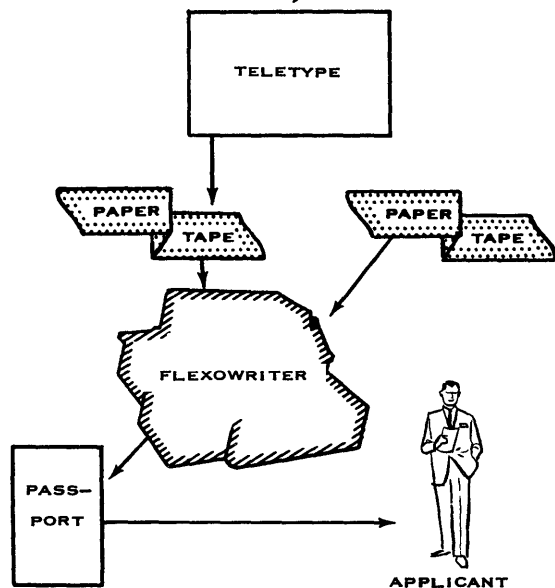


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Phase 2. (Clearance procedure not diagrammed.)



Phase 3. The New York Passport Office receives the requested clearance. It then processes the passport tape and a datatape in a Flexowriter, automatically typing the passport.





# SDA system 61

**OBJECTIVES OF PROCESS.** The objectives of the process are to accumulate and report man-hours, workload, and cost data against the various administrative and technical operations within the printing plant, and to account for leave time, training time, and other nonwork time. From these data, monthly and recurring reports of the printing plant operation are prepared.

**THE PROCESS.** A standard 80-column tab card, pre-scored with 40 Port-a-Punch columns, has been developed to report employee information and complete printing plant job information. Each employee punches cards each day showing man-hours expended on each work area or nonwork area, including leave time. Cards are given to the plant foreman daily for review.

The foreman punches cards for each completed job. These cards show work units produced in the various plant operations and the total charges for the work. They also identify the customer agency and show whether the work was by contract. Both the employee card and job card are accumulated on a weekly basis and then forwarded to the machine room.

A standard 80-column tab card is reproduced automatically from the Port-a-Punch card to provide a more durable card for machine processing. At the end of each month, the cards are machine processed and the following listings are made: (1) Monthly Performance Analysis, (2) Monthly Dollar Volume, and (3) Redistribution Charges.

The listings are forwarded to the plant foreman. Data from the listings are transferred to the required report forms. (The possibility of substituting the listings for the report is now being explored.)

**EQUIPMENT.** The equipment used is IBM Port-a-Punch Boards (or plastic stylus and sponge) and conventional electric accounting machines.

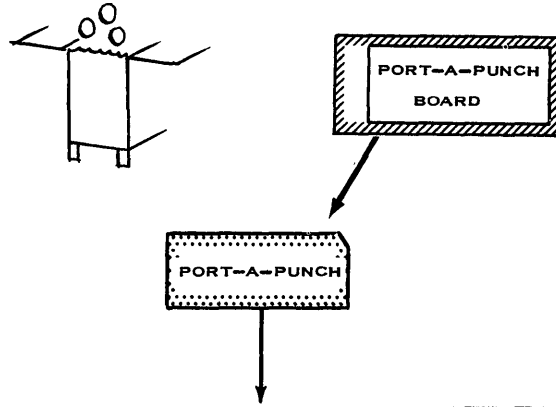
**RESULTS.** December 1962 is the first month accounts have been kept with this system. The following are anticipated results:

Eliminate the manual maintenance of a time report and of eight work reports by each plant employee per month. It is estimated that 2,700 man-hours per year will be made available for other work in the printing plant.

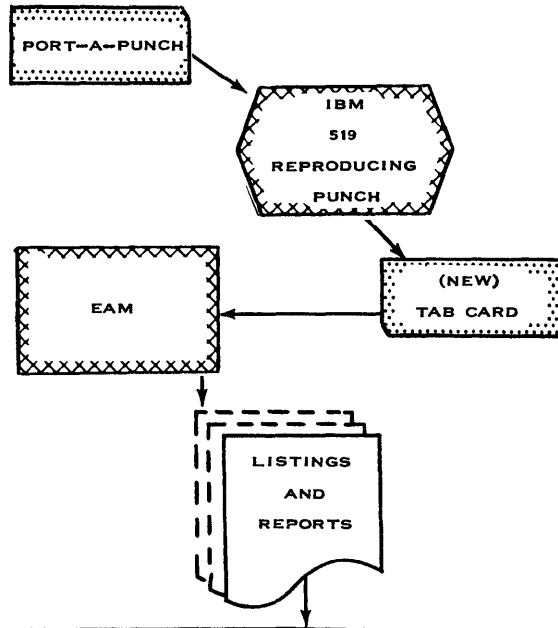
Eliminate the maintenance of detailed statistics for monthly work and production reports.

## DIAGRAM - WORK AND TIME REPORTING

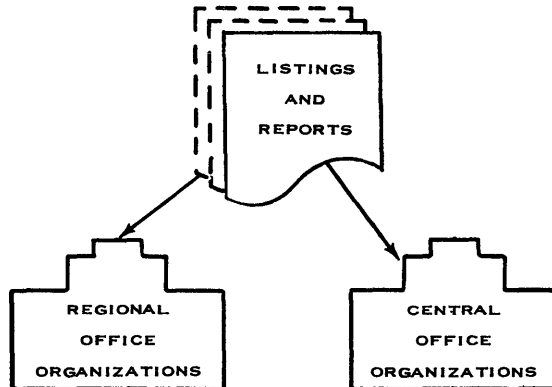
Phase 1. All printing plant employees punch time and work area information in IBM Port-a-Punch tab cards; and forward the cards to the plant foreman daily for review. The foreman punches the cards for each completed job, showing the units produced in various plant operations, charges, etc; and forwards the tab cards to the machine room at the end of the week.



Phase 2. The machine room reproduces weekly from each Port-a-Punch tab card a standard 80-column tab card. At the end of the month it further processes the tab cards and produces and furnishes listings to the plant foreman.



Phase 3. The plant foreman prepares various central office reports and billing documents for payment of redistribution costs.



# SDA system 61

WORK AND TIME REPORTING  
General Services Administration  
(Continued)

Eliminate the maintenance of a redistribution charges register requiring two man-days per month.

Produce, as a by-product at no additional cost, desirable statistics for studies of personnel use, productive versus nonproductive time, and volume of business for each agency served.

SOURCE OF MORE INFORMATION. More information is available from the Systems and Procedures Division, Assistant Regional Administrator for Finance and Administration, General Services Administration, Room 751, 1776 Peachtree Street, N. W., Atlanta 9, Georgia.



# SDA system 62

WATER POLLUTION STUDY  
Department of Health, Education,  
and Welfare

**OBJECTIVE OF PROCESS.** The objective of the process is to compute the salt content of the Arkansas-Red River and its tributaries at 65 locations.

**THE PROCESS.** The U. S. Geological Survey continuously charts water levels at various river stations by using water level recorders. From the recorded charts the U. S. Geological Survey computes at each point the flow of water downstream per cubic foot per second. The Geological Survey compiles a report of this information and a copy is forwarded to the Public Health Service. Clerks in the regional office using the reports, punch into Port-a-Punch tab cards the month, day, hour, and flow per cubic foot per second. These tab cards have been prepunched to denote station number.

Public Health Service field personnel collect specific conductivity readings of the river at each station with a continuous Electrical Conductance Recorder. This instrument records the hour and specific conductivity on a paper chart. The charts are picked up each week by Public Health Service personnel. They are marked and corrected in the field by engineers and forwarded to the regional office. At the regional office, clerks use Mark-Sense tab cards to mark-sense accuracy class, month, day, hour, and specific conductivity of the river. These Mark-Sense tab cards have been prepunched to denote river station numbers.

The two sets of tab cards are forwarded to the Sanitary Engineering Center, PHS, Cincinnati, Ohio, for computing. Using these data with correlation factors fed into the computer, the following summaries are determined: volumes of water of various qualities in the river; frequencies of various water qualities; concentration of mineral constituents in the water, i. e. chlorides, sulphates, and total dissolved solids; and the tons of constituents in the water.

**EQUIPMENT.** IBM Port-a-Punch Boards, IBM Electrographic Pencils, conventional electric accounting machines, and a Honeywell 400 Computer are used.

**RESULTS.** The system had these results:

Eliminated manual key punching and key verifying data in tab cards.

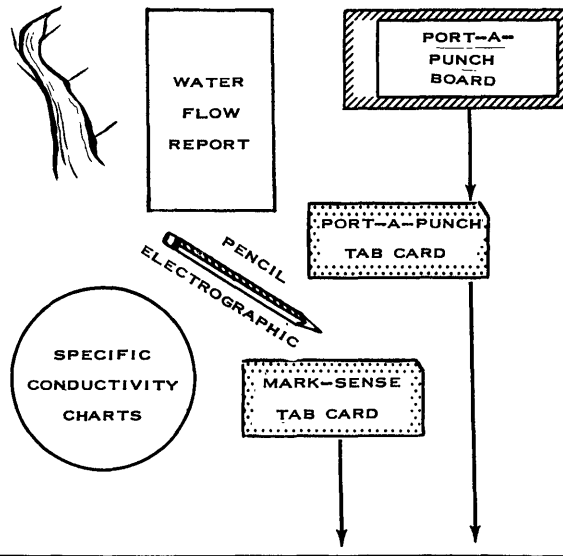
Provided for faster and more accurate processing.

Enabled the use of field personnel to prepare source documents.

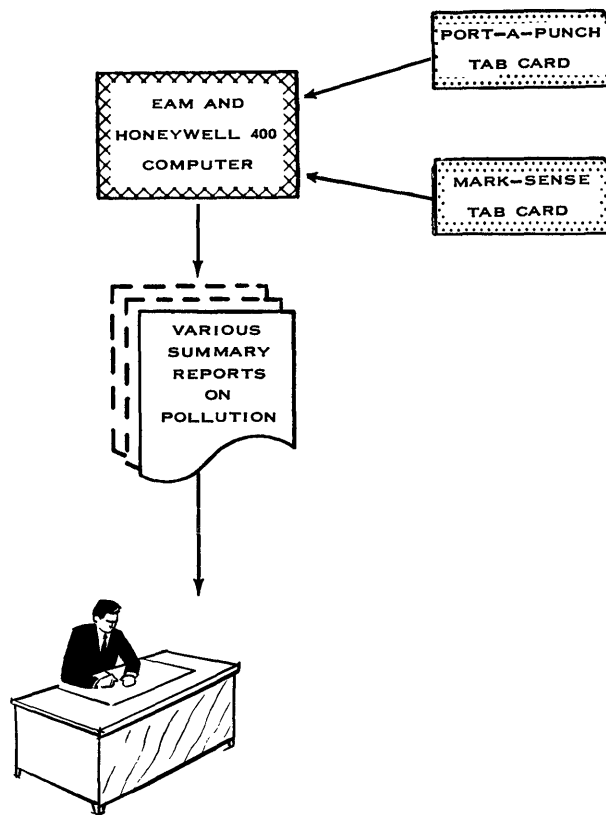
**SOURCE OF MORE INFORMATION.** More information is available from the Division of Water Supply and Pollution Control, Public Health Service, Department of Health, Education, and Welfare, Dallas 2, Texas.

## DIAGRAM - WATER POLLUTION STUDY

Phase 1. U. S. Public Health Service Regional Office receives from the U. S. Geological Survey reports of water flow, and manually punches the data in Port-a-Punch tab cards. The U. S. Public Health Service Regional Office also receives, from Public Health Service field staff, charts of specific conductivity readings and records the data on Mark-Sense tab cards.



Phase 2. The Sanitary Engineering Center processes the Port-a-Punch and the Mark-Sense tab cards. It uses correlation factors to produce for further review various summaries of water pollution.



# SDA system 63

RESERVE DRILL ATTENDANCE  
Department of the Navy

**OBJECTIVES OF PROCESS.** The objectives of the process are to document reserve drill training attendance at the unit level and to process these records at the Reserve Headquarters level. This is a procedure of the United States Marine Corps.

**THE PROCESS.** Payrolls for reserve drill attendance are maintained on a quarterly basis. The Marine Reserve Headquarters maintains a master deck of cards of all reservists participating in the Reserve Training Program. From this master deck, a specially designed Port-a-Punch 80-column tab card is pre-punched with the reservist's name, service number, and rank. These cards are sent to the unit before the beginning of the quarter to which they pertain.

At each scheduled drill, the reservist's card is punched to indicate attendance or absence. Supplementary cards are provided to record attendance at "make-up" drills, and to record corrections, joinings, and supplementary drills. At the end of the quarter, the number of drills attended is totaled and this total is punched into the card. The cards are then forwarded to Reserve Headquarters.

A new tab card is automatically reproduced from the Port-a-Punch tab card. Checks then are automatically written and mailed to the reservist. Fiscal records at headquarters are updated.

**EQUIPMENT.** The equipment used is IBM Port-a-Punch Boards (or plastic stylus and sponge) and conventional electronic accounting machines.

**RESULTS.** The system had these results:

Eliminated payroll preparation at the unit level.

Saved 114 man-hours a quarter.

Eliminated about 20 hours of manual key punching per quarter at Headquarters.

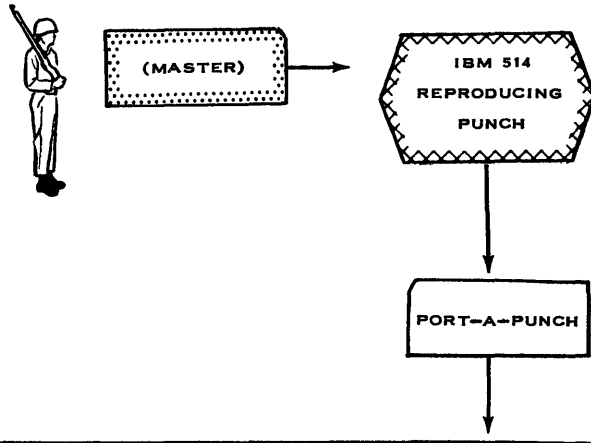
Permitted mailing the payroll checks about 17 days earlier than under the previous plan.

Reduced errors in checks from as high as fifteen percent to less than one-tenth of one percent.

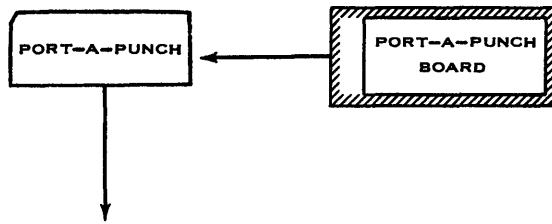
**SOURCE OF MORE INFORMATION.** More information is available from the Commanding Officer, Headquarters Sixth Marine Reserve and Recruiting District, Room 752, Peachtree-Seventh Building, 50 Seventh Street, N. E., Atlanta 23, Georgia.

## DIAGRAM - RESERVE DRILL ATTENDANCE

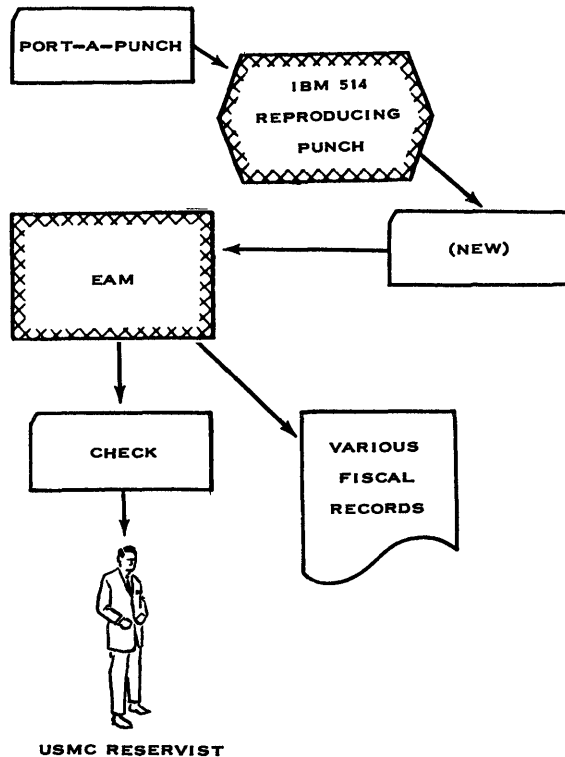
**Phase 1.** Reserve District Headquarters prepunches, from master cards, a Port-a-Punch attendance card for each reservist participating in the program, and mails the cards to the unit assigned.



**Phase 2.** The Reserve Unit punches the Port-a-Punch tab card at each drill for attendance or absence, totals the drills attended at the end of the quarter, punches the total in the card, and returns the card to the Reserve District Headquarters.



**Phase 3.** The Reserve District Headquarters machine room reproduces from the Port-a-Punch tab card a standard 80-column tab card. After further processing, it automatically writes checks and mails them to the reservists, and updates the Headquarters fiscal records.





# SDA system 64

**OBJECTIVE OF THE PROCESS.** The objective of the process is to collect work sampling data in the work measurement program of the Air Force Contract Management District, U. S. Department of the Air Force, Dallas, Texas.

**THE PROCESS.** The Management Analyst making the observation of the work activity uses Port-a-Punch tab cards to record his observations at the worksite. He punches in the card the work activity being performed at the time of the visit, the rating of the individual for the work, and the date. Eight or more work samplings per day for each person can be shown on one card. The data processing unit processes the tab cards to produce work measurement data and reports.

**EQUIPMENT.** IBM Port-a-Punch Boards and conventional electric accounting machines are used.

**RESULTS.** On the basis of pilot test the system had these results:

Produced more accurate reports.

Eliminated manual recording of work activities.

Provided for faster processing, increased accuracy, and improvement of data.

Freed technical staff from making computations.

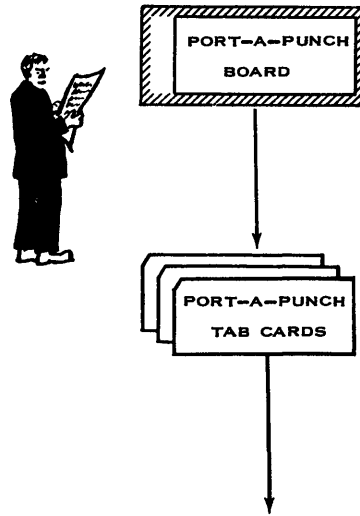
Afforded work sampling data to be analyzed more extensively.

Relieved work measurement analysts and other personnel used to collect data of many hours normally spent consolidating data.

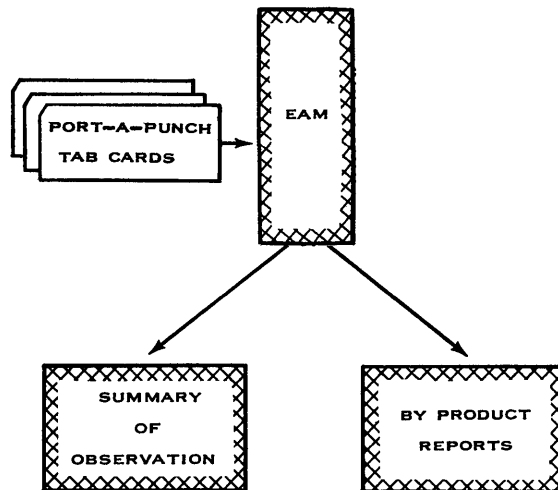
**SOURCE OF MORE INFORMATION.** More information is available from the Air Force Contract Management District, Dallas, Texas.

## DIAGRAM - WORK SAMPLING PROGRAM

Phase 1. A management analyst of an Air Force Contract Management District office records in a Port-a-Punch tab card his observations of the work activity and quality rating for each employee. He records as many as 8 observations and ratings in each card, and takes the samplings each day for periods of 2 to 3 months.



Phase 2. The data processing activity receives and processes the tab cards and produces work measurement data and reports.



# SDA system 65

TELEPHONE USE REPORTS  
Department of the Air Force

**OBJECTIVE OF PROCESS.** The objective of the process is to accumulate data on long distance and local telephone use to forecast future manpower and equipment requirements. This is a system used in the Alaskan office of the 1929 Communications Group (Alaska Communications System).

**THE PROCESS.** The study is made once each quarter. As each operator processes a call, she punches the required data into a Port-a-Punch tab card, using a specially designed template. Each study lasts 5 to 7 days, 24 hours a day. When the data has been accumulated, the cards are sent to the Data Processing Section in Seattle. The cards are used without conversion or repunching to produce various reports on telephone usage. About 12,000 cards are processed for each quarterly report.

**EQUIPMENT.** The equipment used is IBM Port-a-Punch Boards, conventional electric accounting machines, and an IBM 602A Calculator.

**RESULTS.** The system had these results:

Reduced errors from about 1200 per 12,000 cards processed to an average of 3 per 12,000.

Reduced the time required to prepare the consolidated reports from 25 days to 9 days.

Reduced the training requirements for the work to a short orientation from the immediate supervisor.

Provided for more reliable reports.

Reduced the cost of the reports and the man-hours needed to produce them.

**SOURCE OF MORE INFORMATION.** More information is available from the Data Processing Section, 1929 Communications Group (Alaska Communications System) U. S. A. F., AFCS 1519 Alaskan Way, Seattle 4, Washington.

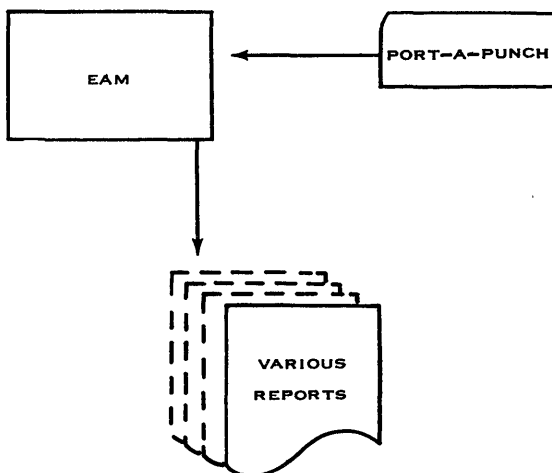
## DIAGRAM - TELEPHONE USE REPORTS

Phase 1. The telephone operator punches in an IBM Port-a-Punch tab card the data required for each telephone call she handles.



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Phase 2. The Data Processing Section processes the Port-a-Punch tab cards and produces various reports for its telephone usage studies.



# SDA system 66

PERSONNEL ACTION  
DOCUMENTATION  
United States Information Agency

**OBJECTIVES.** The objectives of the process are to record and report personnel actions in the United States Information Agency, and to establish and maintain a comprehensive personnel reporting system.

**THE PROCESS.** The operating organization manually types a Standard Form (SF) 52 and sends it to the Personnel Division.

The Personnel Division uses the SF 52 in typing on a Flexowriter an SF 50. Simultaneously, it produces two punched paper tapes containing selected information. It sends one paper tape to the Data Processing Branch to establish or update master personnel records, and files the other.

When the next personnel action occurs, the Personnel Division prepares a new SF 50.

The new SF 50 is prepared largely from the punched paper tape produced at the time the preceding SF 50 was prepared.

While preparing the new SF 50, the Personnel Division produces two punched paper tapes. It places in the employee file the tape which has information for producing the next SF 50. It sends the other tape to the Data Processing Branch.

The Data Processing Branch uses the paper tapes to establish or update master tab card records and to produce various reports for the Personnel Division.

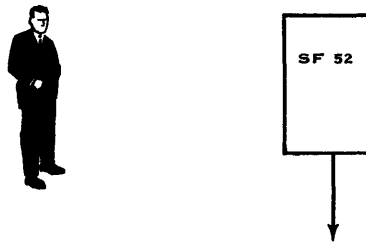
**EQUIPMENT.** The Friden Programatic Flexowriter with auxiliary punch and selectadata attachments and conventional electric accounting machines are used.

**RESULTS.** The system provides more reliable, timely, and comprehensive data than was provided by the system it replaced.

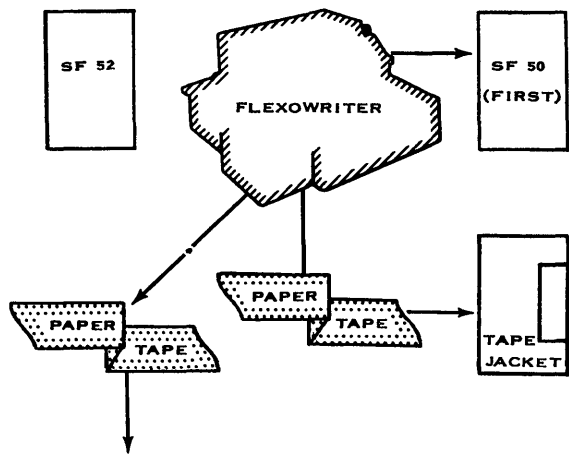
**SOURCE OF MORE INFORMATION.** More information is available from the Systems and Procedures Staff, Finance Division, Office of Administration, United States Information Agency, Washington 25, D. C.

## DIAGRAM - PERSONNEL ACTION DOCUMENTATION

**Phase 1.** The operating organization types a Standard Form (SF) 52 and sends it to the Personnel Division. (A supplemental personnel data form for various special domestic and foreign program purposes is sent with the SF 52. Not charted.)



**Phase 2.** The Personnel Division types on a Flexowriter an SF 50 upon accession of an employee, and as a byproduct produces two punched paper tapes. It files one tape in the personnel tape jacket for the employee and sends one to the Data Processing Branch.



**Phase 3.** The Data Processing Branch uses the punched paper tape to establish the master record and for other purposes.

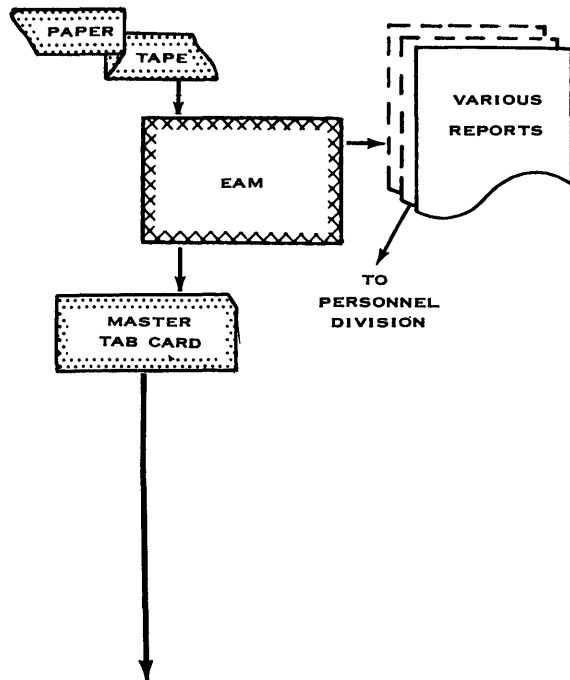
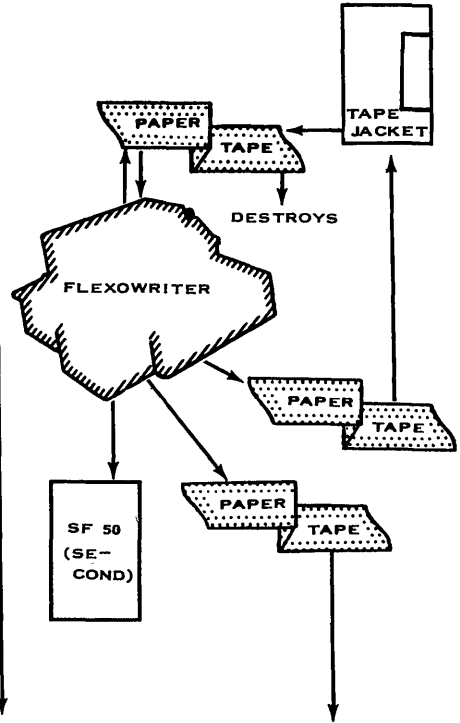
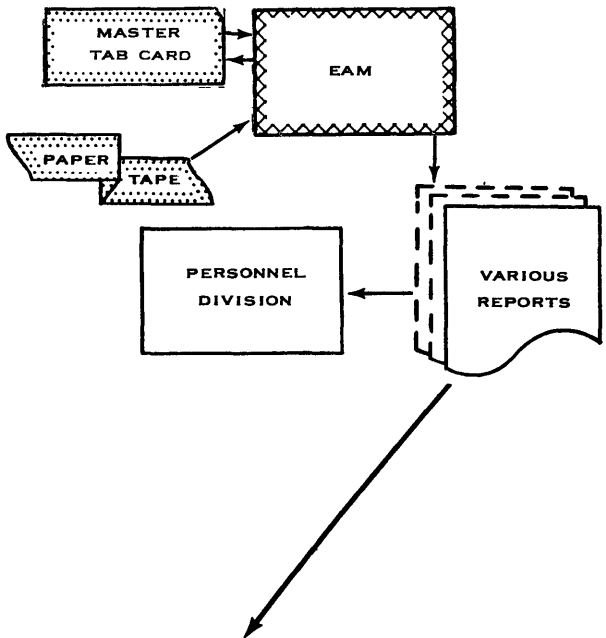


DIAGRAM - PERSONNEL ACTION DOCUMENTATION (Continued)

Phase 4. At the next action, the Personnel Division uses the previously prepared paper tape in preparing (a) a new SF 50, (b) an up-to-date paper tape to be used at the next personnel action, and (c) a paper tape sent to the Data Processing Branch.



Phase 5. The Data Processing Branch updates its master tab cards for personnel and produces various reports for the Personnel Division.







# SDA system 67

PERSONNEL ACTIONS AND  
REPORTS  
Department of the Army

**OBJECTIVES OF PROCESS.** The objectives of the process are to document actions and provide reports for all military personnel in the headquarters and in the field installations of the Department of the Army. This system is being tested and installed step by step throughout the Department of the Army.

**THE PROCESS.** The headquarters or field installation personnel unit, by means of an edge punch card for static information and manual typing for variable information, prepares a stencil of individual military personnel orders. Simultaneously it punches the data in tab cards and paper tape. It uses these tab cards and paper tape in updating personnel records and producing consolidated strength and status reports for the Department of the Army. The personnel unit mimeographs and distributes the required hard copies of the orders and refiles the edge punch card.

**EQUIPMENT.** The equipment used is a machine which has the ability to read, write, and punch paper tape and tab cards along with other data processing machines. These include the Friden Flexowriter with attachments or the IBM 870 Document Writing System, electric accounting machines, and IBM 1401 or IBM 7080 Data Processing Systems.

**RESULTS:** On the basis of pilot tests and actual operation, the system had these results:

Eliminated the individual composition and complete manual typing of personnel and administrative action documents.

Provided for the preparation of personnel action documents according to standard format.

Eliminated the need for long periods of training in composing actions for various purposes. After a short training period the procedures now can be followed readily by short-term as well as career enlisted personnel.

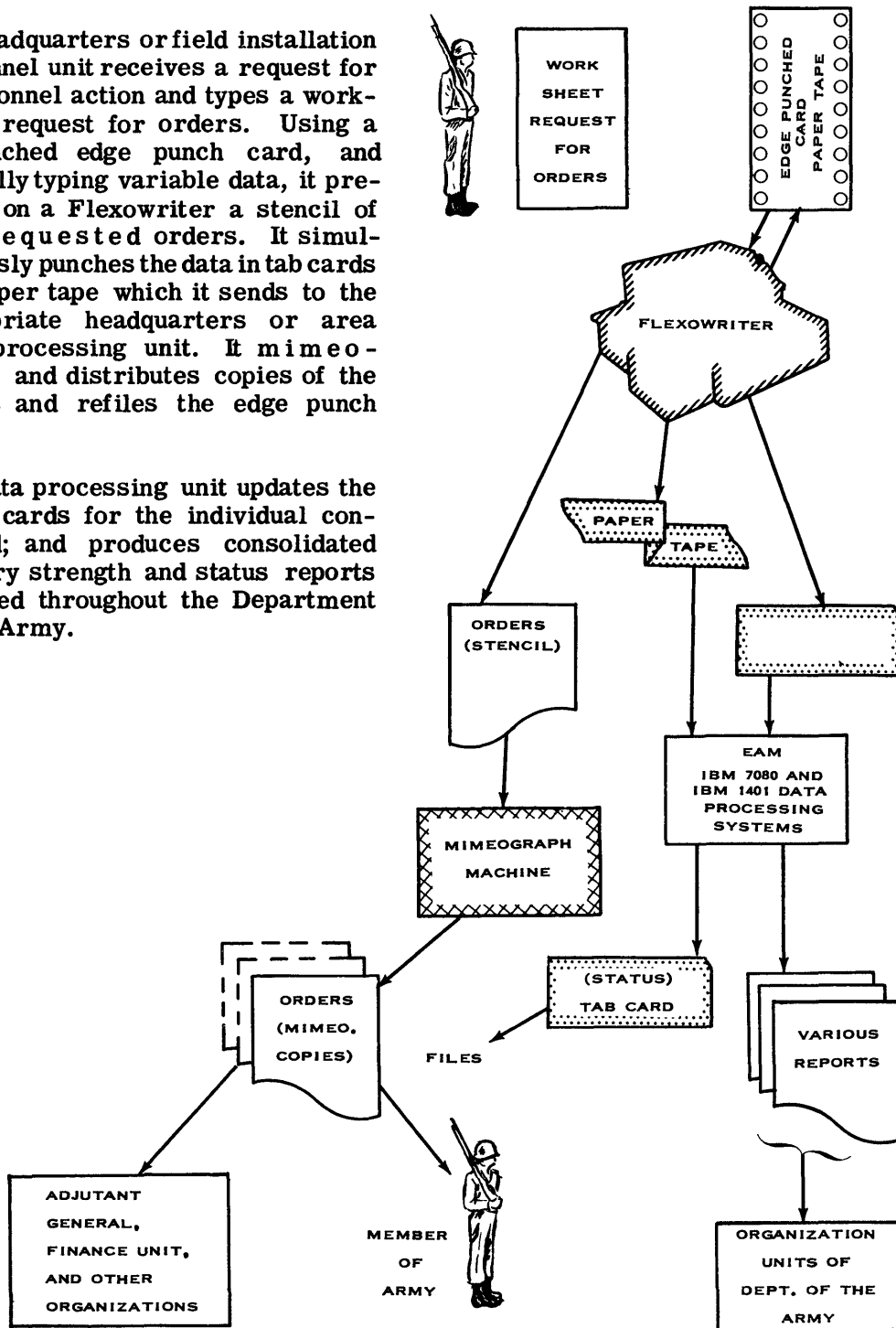
Reduced from 20 percent to 3 percent the number of orders which have to be amended upon review.

Greatly reduced administrative and clerical time required in retrieving individual items of information from the hard copy orders because the items now are written in a specified sequence.

## DIAGRAM - PERSONNEL ACTIONS AND REPORTS

The headquarters or field installation personnel unit receives a request for a personnel action and types a worksheet request for orders. Using a prepunched edge punch card, and manually typing variable data, it prepares on a Flexowriter a stencil of the requested orders. It simultaneously punches the data in tab cards and paper tape which it sends to the appropriate headquarters or area data processing unit. It mimeographs and distributes copies of the orders and refiles the edge punch card.

The data processing unit updates the status cards for the individual concerned; and produces consolidated military strength and status reports required throughout the Department of the Army.



# SDA system 67

PERSONNEL ACTIONS AND  
REPORTS  
Department of the Army  
(Continued)

Provided data in a standard sequence required for economical and orderly machine processing.

Increased production with no increase in staff.

Substantially reduced the cost of preparing data input for machines.

SOURCE OF MORE INFORMATION. More information is available from the Systems Engineering Division, Data Services and Systems Command, Department of the Army, Washington 25, D. C.



# SDA system 68

INDIVIDUAL TAX AUDIT REPORT  
Treasury Department

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare the auditors' report to the taxpayer.

**THE PROCESS.** From information of the Office Audit Adjustment Worksheet, a machine operator in the Service Branch, Internal Revenue Service Center, prepares the Report of Individual Income Tax Audit Changes (Form 1902-E) on an audit accounting machine which makes the computations, and prints the amount due or the overassessment.

The machine operator types an explanation of the adjustment on an automatic typewriter using paragraphs prepunched in paper tape.

The Service Branch sends both the tax audit report and the explanation to the taxpayer.

**EQUIPMENT.** An Underwood Audit 513 Accounting Machine and an American Automatic Typewriter Company Auto-Typist Model 5660 are used.

**RESULTS.** This system had these results:

Freed technical staff from making routine computations.

Provided the taxpayer with a legible type report instead of a handwritten one.

Expedited reports to taxpayers.

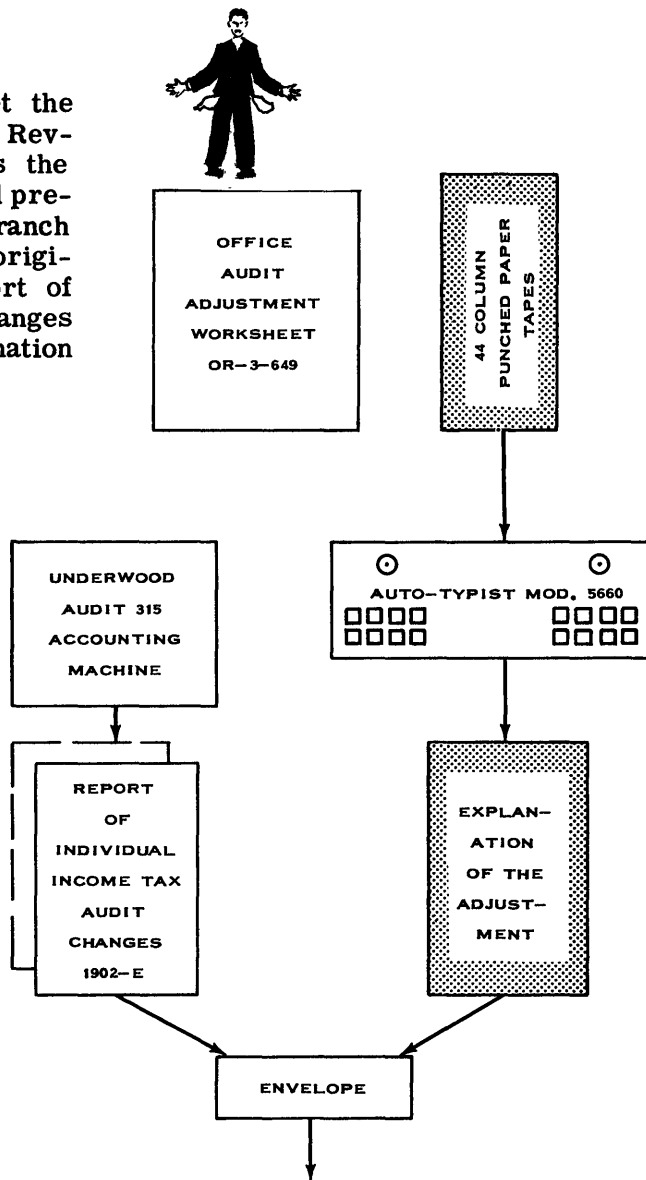
Created better public relations.

Provided savings of \$677,500 a year, or 82 cents on each of the 826,200 reports issued.

**SOURCE OF MORE INFORMATION.** More information is available from the Planning and Program Division, Internal Revenue Service, Washington 25, D. C.

# DIAGRAM - INDIVIDUAL TAX AUDIT REPORT

From the auditor's worksheet the Service Branch of the Internal Revenue Service Center produces the report of the audit changes and prepares the explanation. The Branch then sends to the taxpayer the original and one copy of the Report of Individual Income Tax Audit Changes and the original of the Explanation of the Adjustment.



TAXPAYER

# SDA system 69

SOCIAL SECURITY BENEFITS  
Department of Health, Education,  
and Welfare

**OBJECTIVE OF PROCESS.** The objective of the process is to determine and to pay benefits under the Old Age and Survivors' Insurance (OASI) Program.

**THE PROCESS.** The procedure involves the SSA Office at Baltimore and its six communication control centers, six payment centers (for several States), 47 communications relay centers, and 600 district offices.

A district office receives from an individual a request for benefits. The office prepares a Form IDP 450 worksheet. From the worksheet it teletypes data, through the appropriate communications relay center, to the communication control center. The communication control center transmits the data by Digitronics Paper Tape Reader to the SSA Office in Baltimore. The SSA Office in Baltimore records the data on magnetic tape, during receipt, by a Digitronics Magnetic Tape Reader.

The Baltimore SSA Office, using the magnetic tape in data processing equipment, determines and prepares the award and the certification for benefits. It mails the award and the certification to the district office. The district office mails the award, certification, case file, and supporting documents to the payment center.

The payment center processes the claim, certifies payment, consolidates the data, updates the master OASI records on magnetic tape, and makes numerous reports. It also prepares and sends to the Department of the Treasury a magnetic tape authorizing payments to new beneficiaries, discontinuance of payment to existing beneficiaries, or change of address of beneficiaries. The Department of the Treasury uses the tape to update its master records on magnetic tape, to machine produce checks for OASI beneficiaries, and to carry out related work.

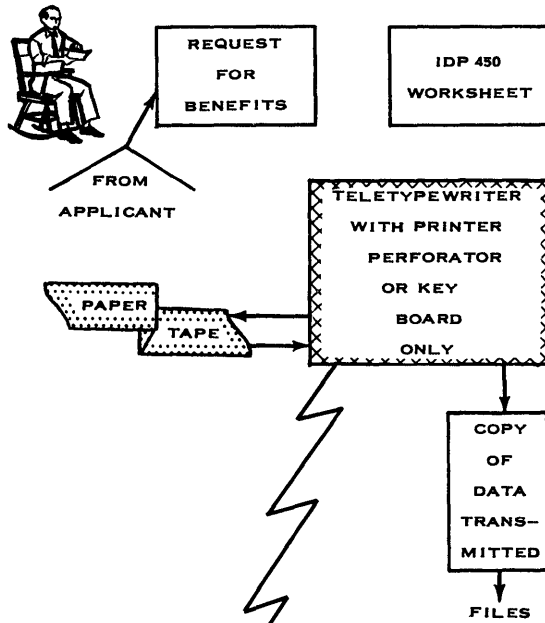
**EQUIPMENT.** Equipment used is Teletype Corporation Model 28 ASR Simplex Circuit Teletypes; Teletype Corporation Receive only Teletype Reperforator; Digitronics Paper Tape Readers, D505; Digitronic Magnetic Tape Readers, D520, Digitronic High Speed Punched Tape Sorters, D755; RCA 301 Computer; IBM 705 Data Processing System; IBM 7080 Data Processing System; and conventional electric accounting machines.

**RESULTS.** This system provided faster service to the public, more accurate records, and increased speed and accuracy in reporting.

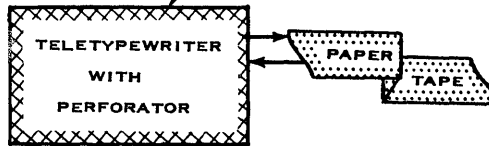
**SOURCE OF MORE INFORMATION.** More information is available from the Social Security Administration, Department of Health, Education, and Welfare, Baltimore, Maryland.

## DIAGRAM - SOCIAL SECURITY BENEFITS

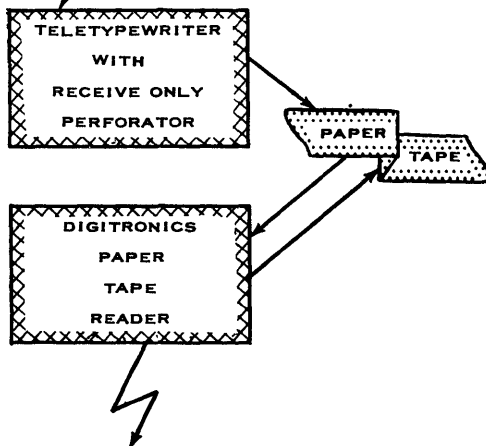
**Phase 1.** The District Office (SSA) receives a request for OASI benefits. It prepares a Form IDP 450 worksheet. The District Office by teletype and perforator prepares, edits, and corrects a punched paper tape of data from the Form IDP 450. It then uses the tape to teletype the data to a relay center and to produce a correct hard copy of the data.



**Phase 2.** The Relay Center receives and transmits the data to the communication control center.



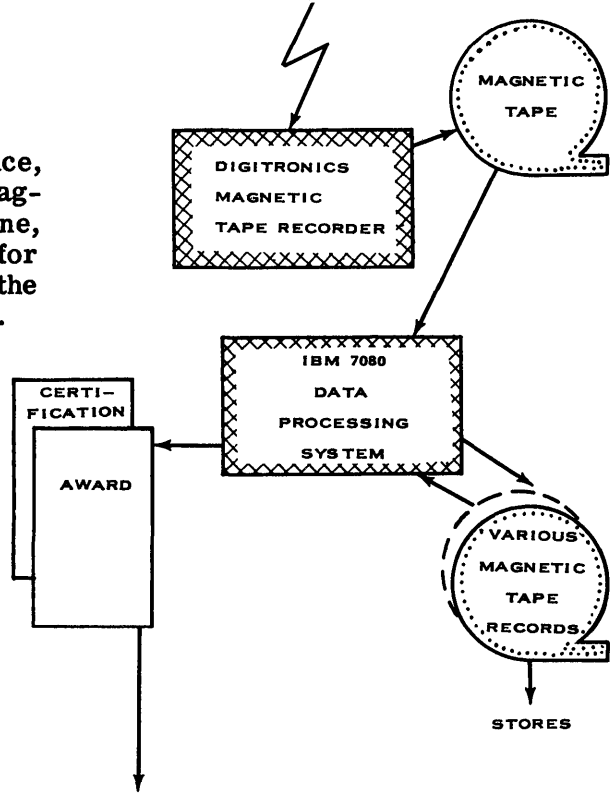
**Phase 3.** The communication control center receives and transmits the data to the Social Security Office (SSA) at Baltimore.





**DIAGRAM - SOCIAL SECURITY BENEFITS (Continued)**

**Phase 4.** The Baltimore SSA Office, as received, records the data on magnetic tape to produce, by machine, the award and the certification for benefits. It mails the award and the certification to the District Office.



**Phase 5.** The District Office mails to the Payment Center the award, certification, case file, and supporting documents.

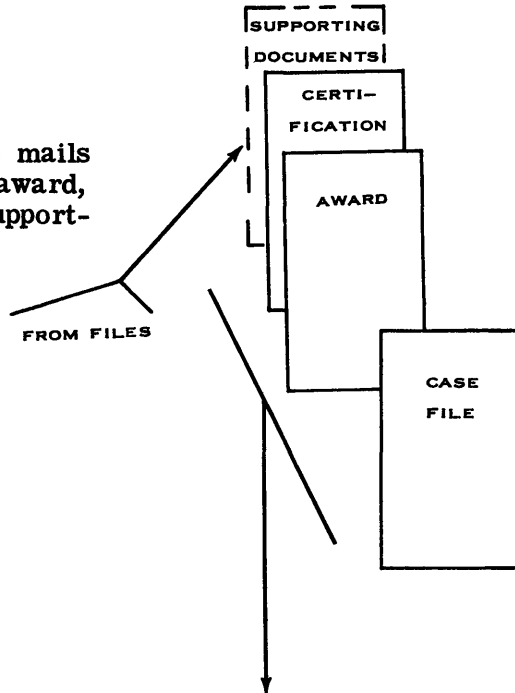
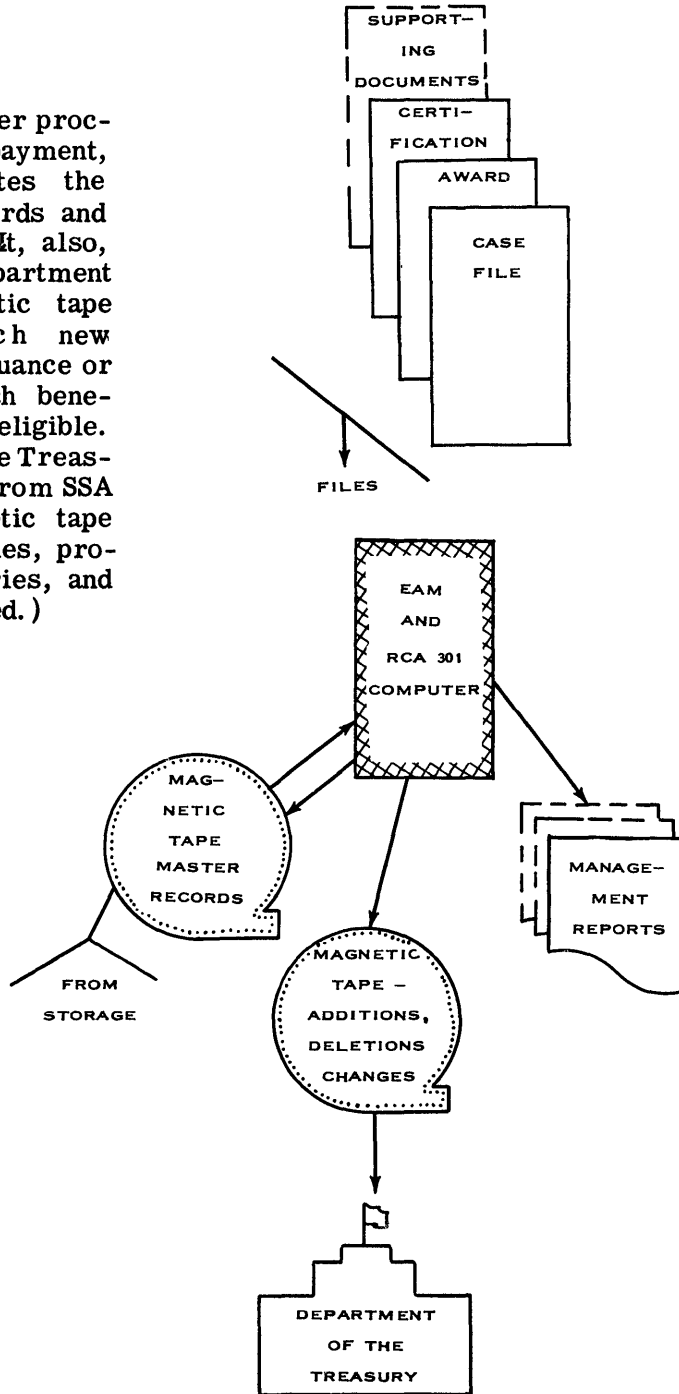


DIAGRAM - SOCIAL SECURITY BENEFITS (Continued)

Phase 6. The payment center processes the claim, certifies payment, consolidates the data, updates the master magnetic tape records and makes numerous reports. It, also, prepares and sends to the Department of the Treasury a magnetic tape authorizing payments to each new beneficiary and the discontinuance or changes of payments to each beneficiary who is no longer eligible. (Note. The Department of the Treasury uses the magnetic tape from SSA to update its Master Magnetic tape records for OASI beneficiaries, produce the checks for beneficiaries, and do related work. Not charted.)



# SDA system 70

INSURANCE PAYMENTS  
Veterans Administration

**OBJECTIVES.** The objectives of the process are to bill for, and process, Veterans Administration (VA) insurance premium, loan, and lien payments.

**THE PROCESS.** The VA Data Processing Center at Philadelphia, Pa. , forwards magnetic tapes to each of three insurance offices of the VA. Each insurance office processes the magnetic tapes and produces tab card bills for use by the insured in making various types of insurance payments to VA.

Each insurance office receives the insured's payments along with the tab card bills. It deposits the payment in a Federal Reserve Bank for crediting to the VA insurance fund. It processes the tab card bills and records the data on magnetic tapes. The two western insurance offices of the VA transmit the data--tape to tape--by Digitronics Dial-O-Verter Systems, using telephone lines, to the Data Processing Center at Philadelphia. The Philadelphia insurance office of the VA located in the same building carries its magnetic tape to the Data Processing Center.

The Data Processing Center processes the magnetic tapes to update the insurance accounts. At the same time it records data on magnetic tape used by the insurance offices to prepare hard copy status notices, reports, and a new cycle of tab card bills.

**EQUIPMENT.** The equipment used is Digitronics Dial-O-Verter Systems, an IBM 7080 Data Processing System, IBM 1401 Data Processing Systems, and conventional electric accounting machines.

**RESULTS.** The system had these results:

Reduced costs of processing insurance payments.

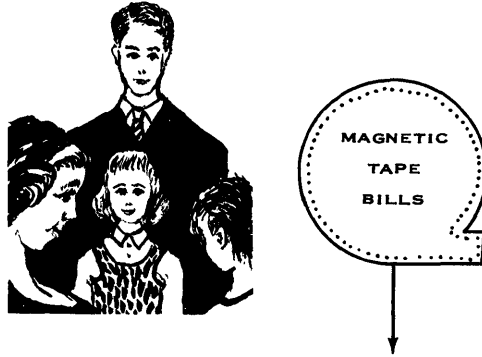
Provided for quick preparation of reports in greater detail than formerly was possible.

Permitted automatic preparation of routing status notices to the insured as required.

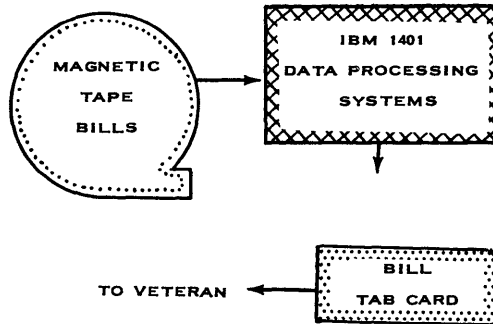
**SOURCE OF MORE INFORMATION.** More information is available from the Veterans Administration, Washington 25, D. C.

## DIAGRAM - INSURANCE PAYMENTS

**Phase 1.** The Data Processing Center at Philadelphia, Pa., forwards magnetic tapes to each of three insurance offices of VA. (See Phase 4 for preparation of the magnetic tapes.)



**Phase 2.** Each insurance office processes the magnetic tapes and produces tab card bills for use by the insured in making various types of insurance payments to VA.



**Phase 3.** Each insurance office receives the insured's payment along with the tab card bills and records their data on magnetic tapes. The two western offices transmit the data - tape to tape - by Digitronics Dial-O-Verter Systems to the Data Processing Center at Philadelphia. (The Philadelphia Insurance Office carries its tape to the Data Processing Center. Not diagrammed.) Each insurance office deposits the payments in a Federal Reserve Bank for crediting to the VA insurance fund.

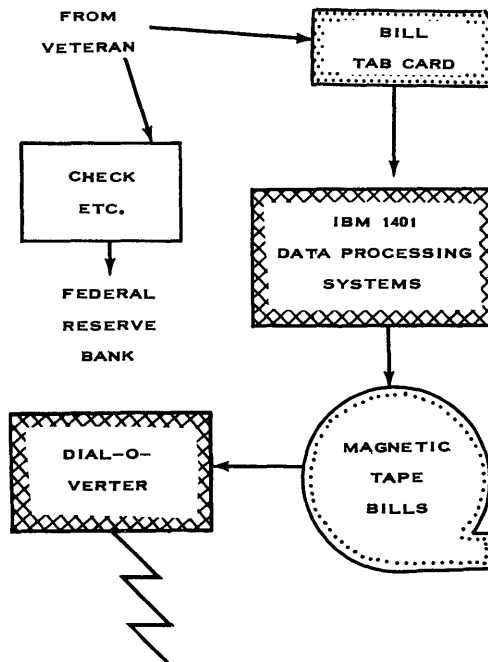
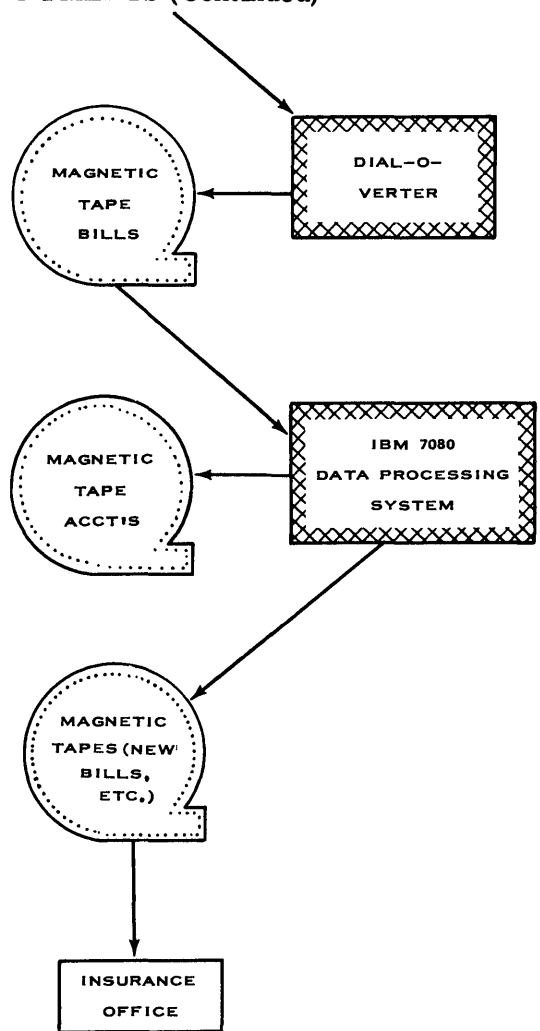


DIAGRAM - INSURANCE PAYMENTS (Continued)

Phase 4. The Data Processing Center processes the magnetic tapes to update the insurance accounts. Simultaneously, it records data on magnetic tape used by the insurance offices to prepare hard copy status notices, reports, and a new cycle of tab card bills.





# SDA system 71

DISCHARGE OF RESERVISTS  
Department of the Army

**OBJECTIVE OF PROCESS.** The objective of the process is to discharge Army enlisted reservists after completion of service, and to mail their separation documents to them. Approximately 25,000 are discharged each month.

**THE PROCESS.** Each month, the Department of the Army selects from a master file the tab cards for reservists whose terms of service expire during the next month. It uses the tab cards to prepare automatically for each reservist a discharge certificate, letter orders, and a letter of appreciation. It uses machines to assemble these documents and insert them into window envelopes for mailing.

**EQUIPMENT.** Conventional electric accounting machines, Standard Register Company Deleaver, Selec-tronic Burster, A. B. Dick No. 350 Offset Duplicator, and Phillipsburg Inserter are used.

**RESULTS.** The system had these results:

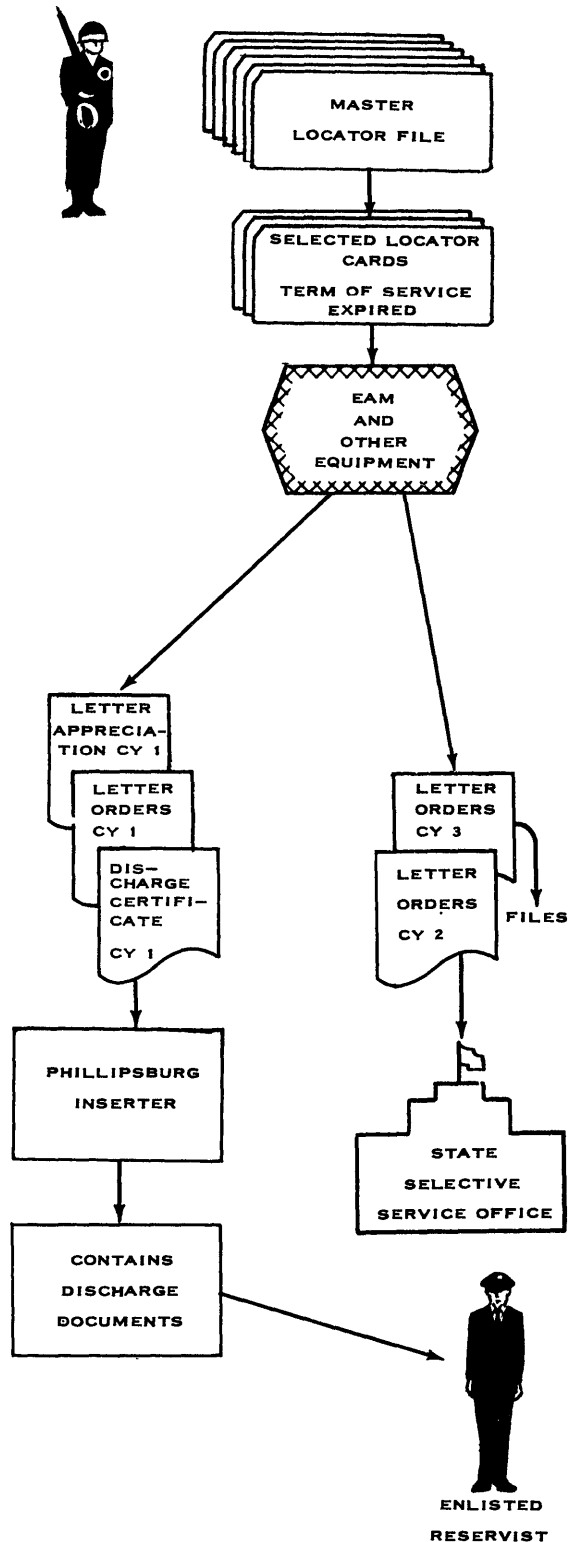
Insured accuracy in identifying reservists ready for discharge after completion of service.

Effectted tremendous savings in clerical work by eliminating the manual preparation and dispatch of separation documents.

**SOURCE OF MORE INFORMATION.** More information is available from the ADP Office, U. S. Army Records Center, St. Louis 32, Missouri.

## DIAGRAM - DISCHARGE OF RESERVISTS

The Department of the Army selects from a master file a tab card for an enlisted standby reservist whose term of service has expired. It uses the tab card to complete a discharge certificate, letter orders, and a letter of appreciation. It mechanically assembles and inserts the originals in an envelope for mailing to the reservist. It forwards Copy 2 of the letter orders to the State Selective Service System and files Copy 3 in the reservist's personnel folder.





# SDA system 72

TELEPHONE BOOK PREPARATION  
Federal Aviation Agency

**OBJECTIVE OF PROCESS.** The objective of the process is to prepare copy for a telephone book for the Southern Regional Office, Federal Aviation Agency.

**THE PROCESS.** The telephone book is printed quarterly in three sections: General information, alphabetical name listing, and classified office listing. General information is recorded in eight channel punched paper tape. Individual line entries for the alphabetical name listing and classified office listing are recorded on edge punch cards. Each edge punch card is line spaced during preparation. Cards are prepared and added to the file for changed or new listings.

The general information section for the book is prepared by reading the general information tape through the Friden Justewriter, producing justified copy ready for photographing and plate preparation. The two listings are prepared by reading the edge punch cards through the Justewriter recorder which produces hard copy ready for pasting page mock-ups, photography, and plate preparation.

**EQUIPMENT.** The Friden Justewriter with edge punch card attachment is used.

**RESULTS.** The system had these results:

Eliminated two manual typings by varityper of the telephone book entries to obtain justified copy.

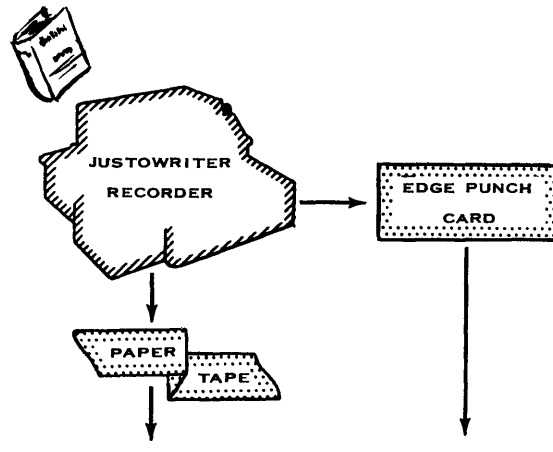
Eliminated seven man-days formerly needed to check the accuracy of the entries.

Reduced the total typing time from seven to three man-days.

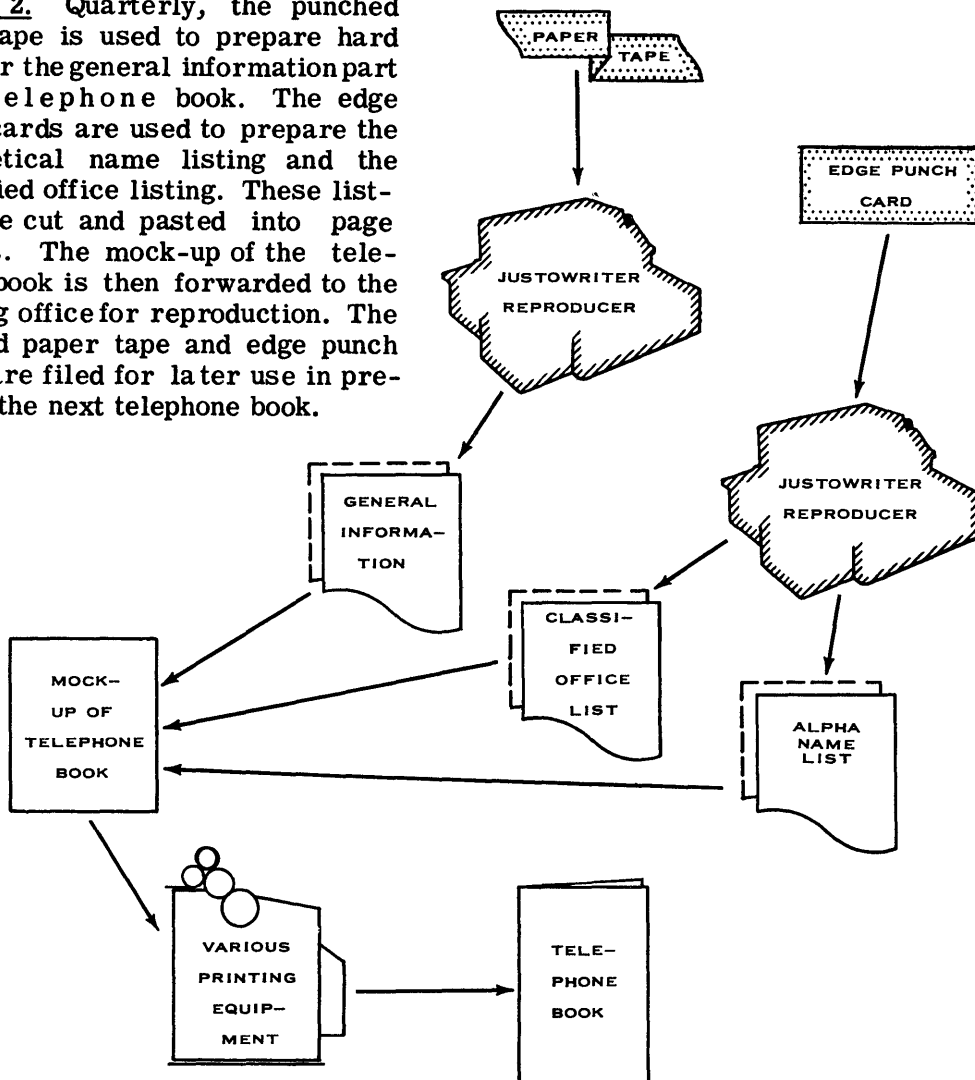
**SOURCE OF MORE INFORMATION.** More information is available from the Chief, Administrative Service Branch, Management Services Division, Southern Region Headquarters, Federal Aviation Agency, Atlanta, Georgia.

## DIAGRAM - TELEPHONE BOOK PREPARATION

**Phase 1.** The general information portion of the telephone book is recorded on punched paper tape prepared by the Justewriter. Individual line entry edge punch cards for alphabetical name and classified office listings are prepared on the Justewriter recorder and filed. As changes to these cards occur, new cards are prepared and filed ready for use.



**Phase 2.** Quarterly, the punched paper tape is used to prepare hard copy for the general information part of the telephone book. The edge punch cards are used to prepare the alphabetical name listing and the classified office listing. These listings are cut and pasted into page listings. The mock-up of the telephone book is then forwarded to the printing office for reproduction. The punched paper tape and edge punch cards are filed for later use in preparing the next telephone book.



# SDA system 73

SOCIAL SECURITY EARNINGS  
REPORTS ON MAGNETIC TAPE  
Department of Health, Education,  
and Welfare

**OBJECTIVE OF PROCESS.** The objective of the process is to receive and record earnings data to the accounts of individuals for use by the Social Security Administration in computing old age, disability, and survivors insurance benefits.

The SSA receives earnings reports for about 65 million employees each quarter. Some companies submit the earnings data on magnetic tape ready for use upon receipt by the SSA. The procedure discussed below pertains only to the handling of these magnetic tapes.

**THE PROCESS.** The SSA receives magnetic tapes for a company reporting earnings data for its employees. The SSA, by data processing machines, prepares a list of the employees and earnings data from the report; balances to the employer total; and prepares tapes for subsequent operations which result in the earnings amounts being posted to the individual social security accounts. The SSA microfilms the report for SSA purposes. The employer may request either a paper or a microfilm copy of the report. The SSA sends to the employer the original magnetic tape and either a paper copy or a microfilm of the report.

**EQUIPMENT.** Recordak Microfilm cameras; IBM 1401, IBM 705, and IBM 7080 data processing systems; and conventional electric accounting machines are used.

**RESULTS.** The system had these results:

Eliminated manual key punching and verifying of the earnings data by the Social Security Administration and converting the data to magnetic tape.

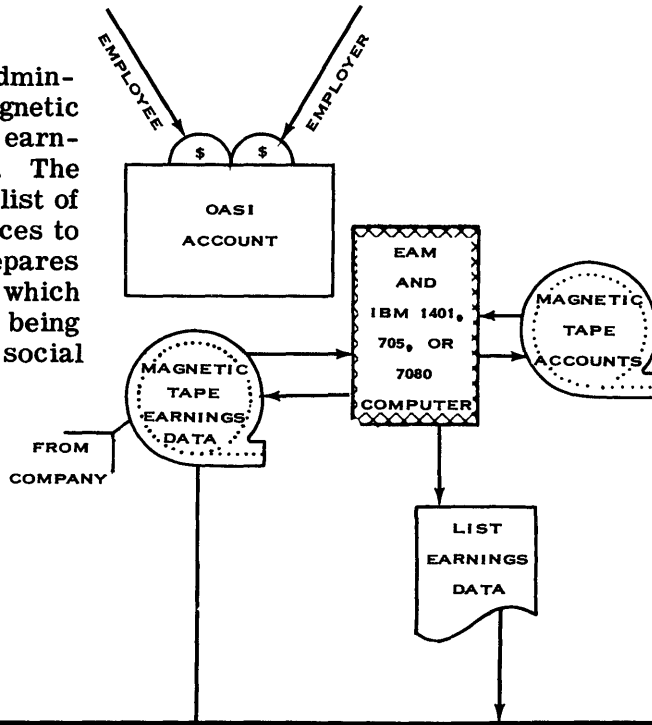
Permitted posting earnings items at an earlier date.

Eliminated key punch errors.

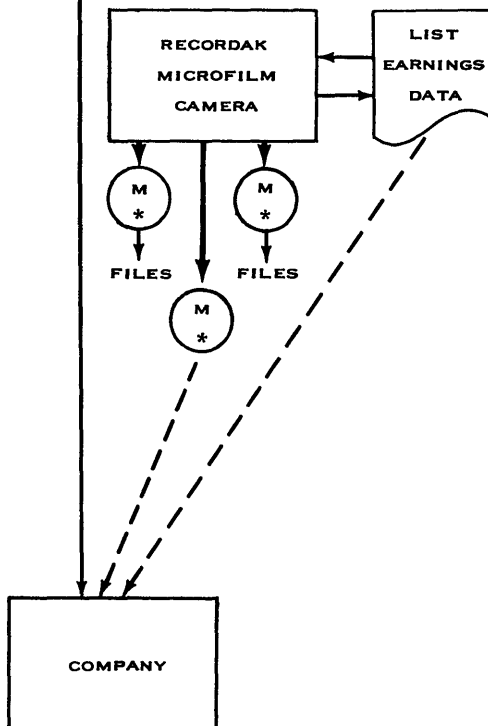
**SOURCE OF MORE INFORMATION.** More information is available from the Social Security Administration, Department of Health, Education, and Welfare, Baltimore, Maryland.

**DIAGRAM - SOCIAL SECURITY EARNINGS REPORTS ON MAGNETIC TAPE**

**Phase 1.** The Social Security Administration (SSA) receives magnetic tape from a company reporting earnings data for its employees. The SSA, by machine, prepares a list of the earnings data report, balances to the employer total, and prepares tapes for subsequent operations which result in the earnings amount being posted to the individuals social security accounts.



**Phase 2.** The SSA makes two microfilm copies of the printout. The SSA sends the company the original magnetic tape and either a copy or a microfilm of the earnings data report.



\*Microfilm

# SDA system 74

HOSPITAL PATIENT RECORDS  
St. Elizabeths Hospital  
District of Columbia

**OBJECTIVES OF PROCESS.** The objective of the process is to prepare statistical reports and to print the patient's identification on forms used during the period of hospital treatment.

**THE PROCESS.** The Registrar's Office prepares two embossed name plates when a patient is admitted to the hospital. One plate is retained in the Registrar's office and is used for preparing reports and statistics.

The second plate is forwarded to the patient's ward. As diagnosis is made, treatment started, therapy modified, medicine given, etc., the information is recorded on a variety of medical treatment forms. The identification plate is hand stamped on the form as each action is accomplished.

**EQUIPMENT.** An Addressograph Grapho-Type, Class 6400; an Automatic Printer, Class 1900; and a number of Hand Printers, Model 1217, are used.

**RESULTS.** The system had these results:

Eliminated transcription errors,

Provided faster and more accurate reports.

Reduced manual preparation of forms, reports, and statistics.

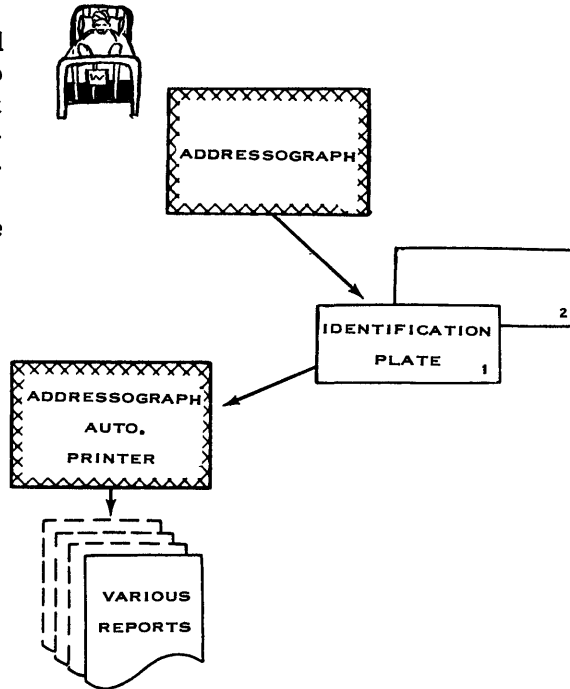
Provided more complete statistics.

Speeded the preparation of forms and eliminated hand posting patient identification data on thousands of forms annually.

**SOURCE OF MORE INFORMATION.** More information may be obtained from the Management Analysis Section, St. Elizabeths Hospital, Washington 20, D. C.

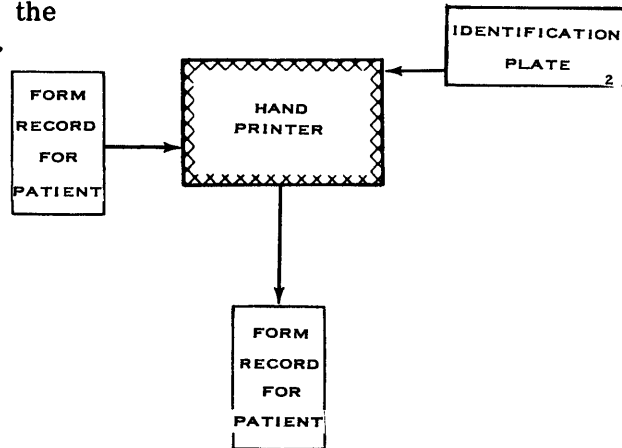
## DIAGRAM - HOSPITAL PATIENT RECORDS

Phase 1. When a patient is admitted the Registrar's Office prepares two embossed identification plates. It uses one identification plate to prepare a variety of reports and statistics concerning hospital activities. It forwards the second plate to the patient's ward.



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Phase 2. The patient's ward uses the identification plate "2" to stamp patient identification data on the treatment record for the patient.



# SDA system 75

SALES, REDEMPTIONS, AND  
SERVICE — U. S. SAVINGS BONDS,  
SERIES E CARD BONDS  
Treasury Department

**OBJECTIVES OF PROCESS.** The objectives of the process are (1) to audit and account for all sales and retirements of Series E card bonds, (2) to establish and maintain bond ownership records on magnetic tape in both alphabetic and numeric sequence, and (3) to service the accounts of the registered owners.

**THE PROCESS.** Sales - Each bond assembly is prepunched to identify the bond by denomination, serial number, and series. The stock is distributed through the appropriate Federal Reserve Banks to authorized issuing agents. Each agent inscribes the bond and the attached stub to show the registered owner's name and address and the issue date of the bond. The agent then affixes his validation stamp to confirm the validity of the issue. The bond is given to the purchaser and the stub is sent for processing through the appropriate Federal Reserve Bank to the Bureau of the Public Debt Office in Parkersburg, West Virginia.

The Parkersburg Office microfilms the stub and then key punches in the stub the purchaser's name and address and the issue date of the bond. The punched data in the stub is converted to magnetic tape. The first use of this data is the audit of the agents' transmittals to confirm the accuracy of the shipment. The data is then used to update the magnetic tape which contains the bond ownership records in both alphabetic and bond serial number sequence. The magnetic tape records are crossed indexed to provide an easy reference to the microfilm record of the sale or retirement.

Retirements - The bond is redeemed by a paying agent who then submits it for credit to the appropriate Federal Reserve Bank for subsequent submission to the Bureau of the Public Debt Office at Parkersburg, W. Va. The bond is microfilmed and then key punched with the issue date and retirement date information. The prepunched data as well as the issue and retirement data is then converted to magnetic tape. The tape is used to audit the shipment, determine the accuracy of the redemption, and finally to update the numeric tape file to show the current status of the bond.

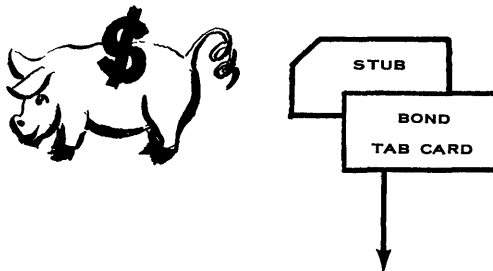
**EQUIPMENT.** The Parkersburg Office uses a Minneapolis-Honeywell H-800 Computer, Recordak microfilm cameras, and conventional electric accounting machines.

**RESULTS:** The system had these results:

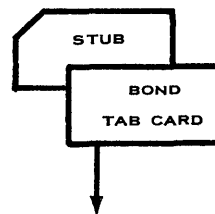
Simplified the audit of sales and redemptions.

**DIAGRAM - SALES, REDEMPTIONS, AND SERVICE - U.S. SAVINGS BONDS,  
SERIES E CARD BONDS**

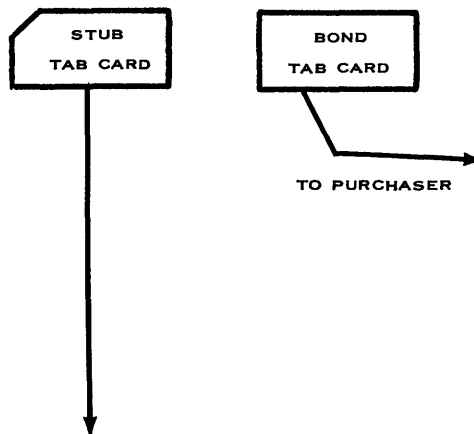
**Phase 1.** The Bureau of the Public Debt distributes a preprinted and pre-punched bond assembly to a Federal Reserve Bank (as fiscal agent).



**Phase 2.** The Federal Reserve Bank supplies the assembly (or bond stock) to an authorized agent such as a local bank.



**Phase 3.** The agent issues the bond for cash or on authorization from payroll deduction amounts. The agent imprints on the bond and the stub the appropriate registration data such as the owner's name and address and the issue date of the bond. The agent receives the purchase price of the bond for subsequent deposit to the U. S. Treasurer's account, gives the bond to the purchaser, and forwards the stub to the appropriate Federal Reserve Bank.



**Phase 4.** The Federal Reserve Bank credits the account of the agent, assigns a batch number to the agent's shipment of stubs and forwards the shipment to the Bureau of the Public Debt, Parkersburg, West Virginia.

