$2.7 Million Prototype System Being Developed

A 24-month, $2,685,350 contract was recently awarded the corporation by the Advanced Research Projects Agency to design and implement a time-shared, general-purpose data management system and to demonstrate the capabilities of the system in an operational environment. The ADP (Advanced Development Prototype) system comprises three major components — a time-shared executive, a user oriented data-management system and a professional programmer's package for the IBM 360/50H computer.

Coordinating the contract within the Research and Technology Division are Moe Spierer, Bud Drutz, and Clark Weiss-

man. Gene Grant is responsible for system documentation.

The ADP contract was awarded to SDC largely as a result of the corporation's ARPA-sponsored design and implementation of the Q-32 time-sharing system (a project that began in 1962) and because of ARPA's continuing interest in furthering the development of computer technology and its applications.

A series of studies and projects sponsored by the Department of Defense — work in which SDC was and is actively engaged — led ARPA and other prominent agencies to the conclusion that the combined ADP components could be successfully applied in military and nonmilitary situations to provide valuable and needed assistance in solving national data-handling problems.

The time-sharing component, based on concepts developed by SDC, MIT and others,

will consist of the basic executive and the extended executive programs. A portion of this component will be designed to include network software. The basic executive will contain elementary functions such as an input/output processor, a scheduler that permits the dynamic adjustment of priorities, an interrupt processor and a basic sequencer. The extended executive will contain routines to interpret user commands, file-inventory routines, various other aids for both programming and nonprogramming users, and it is intentionally planned as an open-ended module to permit expansion when necessary.

The programmer's component consists of a basic JOVIAL compiler, an editing system and an on-line debugging package, TINT, oriented for use by persons with little programming knowledge, is to be

Revolutions Discussed At ASPA Conference

Some 1500 leaders from the campus, government and industry — including four SDC executives — devoted considerable attention to revolution at the 1967 American Society for Public Administration (ASPA) national conference held March 27-30 in San Francisco.

Not that anyone was plotting to topple governments. The intent was just the opposite as more than 100 speakers, in keeping with the conference theme "Public Administration and the Contemporary Revolutions," outlined ways to preserve and improve administrative processes in the face of five major revolutions under way in society — social, technological, economic, political and administrative.

SDC was represented at the meeting by Senior Vice President Bill Parsons, national president of ASPA in 1954-55, by Vice President Tom Rowan, by Charles Smith, senior technical advisor to management, and by

Lee Dutcher, chief of the Water Resources Division, and hydraulogists Bill Hardt and Richard Bloyd, U.S. Geological Survey, Garden Grove, Calif., discussed SDC's capabilities with digital modeling on March 30 with Norm Schneidewind and Alan Rugg, Western Development Department. Demonstrations of LUCID and BOLD were respectively given by Dick Lickhalter and Howard Burnaugh, Technology Directorate. From left are Burnaugh (at the console), Rugg, Dutcher, Hardt and Bloyd.
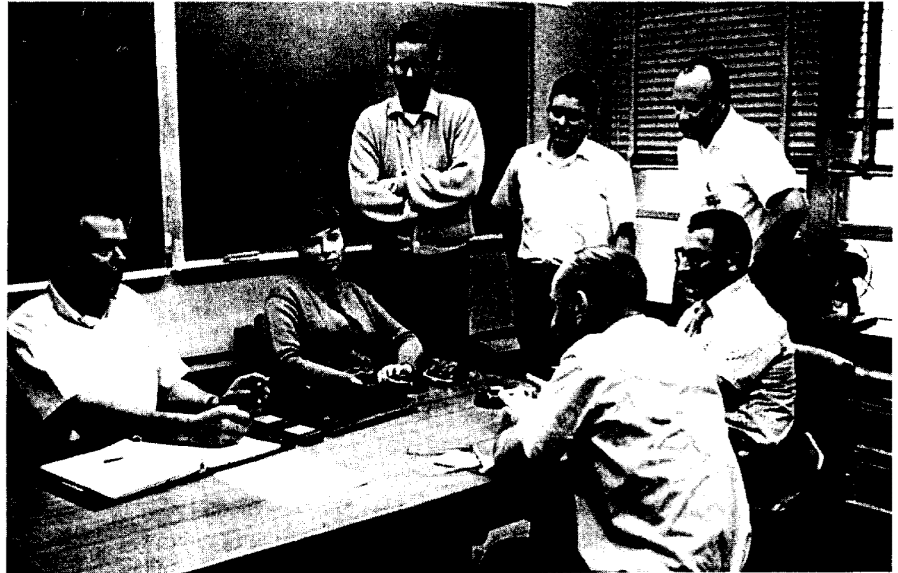
R&TD Staff Members Doing Advanced Prototype Contract Work

provided to assist users of the ADP system in problem solving.

The data-management component will evolve from a version of SDC's current design of TDMS. TDMS represents the convergence of several trends — both in hardware and software — within the information processing industry, as well as the culmination of several years of research at SDC.

The design features of TDMS provide a user who has a large file of structured data with three basic advantages over most present-day file-management systems. Without the necessity of communicating requirements through an intermediary programmer, the user has the data management capabilities of powerful computers directly available to him. The system also provides a complete set of generalized data-management tools, including capabilities for manipulating data files and generating reports. In conjunction with time-sharing, TDMS makes optimum use of machine resources by giving many users simultaneous access to data and organizes files to make maximum use of random-access, mass-memory devices and complex list and tree data-structures.

Consisting of the basic and extended executive systems, the time-sharing component of the ADP work is being done by, from left, Clay Fox (project leader), Pat Kribs, Dick Linde, Sal Aranda, Reg Martin and, seated, Clark Weissman and Alex Tschekaloff.

Jules Schwartz, director of Technology, explains that "in conventional data-management systems, a large percentage of the total time and manpower available is spent in merely maintaining the data base and printing out routine reports. When a user (manager, commander, engineer or whoever) recognizes a need for intelligence — that is, for accurate, up-to-date information in a usable form — he has to take a number of steps to 'get the problem into the computer.' Days, weeks or months later,

The data management component of the ADP contract will be provided by members of the Data Base Systems staff working on TDMS. The staff is shown during a briefing pertaining to the new contract by Al Vorhaus (standing), head, and Bob Bleier (seated, far left), assistant head for the TDMS Project, Data Base Systems staff. From left to right, front row, are Charles Kribs (maintenance project leader) and Viriginia Raucher (language and retrieval project leader); second row — Paz DeSimone, Sam Brown, Dick Lickhalter, John McGahey and Jules Farell; third row — Phil Bartram, Ken Brandon, Bill Williams and Dick Stewart; third row — Alice Lanes and Nora Bosak. Staff members not shown are Bill Cozier, Herbert Henley, Uwe Michael, Bob Reynolds, John Reynolds, Bill Shasberger and Mary Ann Shaw.

The portions of work concerning the programmer's component is being performed by Marty Bleier (editing and debugging capability), Dick Brewer (TINT), Ed Foote and Norm Sandin (JOVIAL compiler). From left are Sandin, Foote and Brewer.

the original poser of the problem is presented a report, often inadequate for his purposes, and in the meantime his problem may have changed."

Al Vorhaus, manager of the Data Base Systems staff, said that "with TDMS, routine file maintenance and the production of reports can be done either on a production basis or interactively on-line. For tasks that are well defined and have relatively unchanging requirements, TDMS has components that can operate in the background under the time-sharing component. For future requirements or for ill-defined problems, the TDMS user takes certain steps from problem to solution. First, he gains direct access to the computer via the time-sharing component, typically from a remote console. He calls upon a large data base that he has previously defined and loaded. He can then request that selected portions of this data base be displayed or otherwise presented for his analysis. Finally, he can ask for hard-copy reports of any data — in the format he prefers."

The Advanced Development Prototype system will be used to serve several purposes. It will permit a user organization to use the data-management component for the everyday solution of its data-handling problems. It will permit the programming and checkout of new operational functions without disturbing existing features as the user develops new requirements. It will encourage a variety of forms of access to the computer, allowing various response and priority levels.

SDC is designing the system to serve as the basis on which a number of user

organizations can begin system operation and expand the system's capabilities as required.

The first version of this system will be used in one or several military environments so that the concepts contained can be demonstrated in the field and thereby enhance use of this framework for future system production. The experimental system will initially be used at the Defense Communications Agency.

Under the terms of the contract, checkout of the executive system is scheduled for December of this year, and the target date for the experimental v̄ type system has been se

Williams to Des Compose/Prodi

Bill Williams of Shell is working as a resea on the Time-Shared D: tem, will speak on C Friday, April 14, at Commons Room.

The presentation, ι by Phil Bartram, Dat will be open to all em

Compose/Produce generating program part of TDMS, has be user on-line access to purposes of describin mat of a report and report. This present: the 1967 Spring Joi ence in Atlantic City

Schwartz to Chair Steering Committee

Jules Schwartz was appointed chairman of the interdivisional technical steering committee on data base systems on March 28 by President Wes Melahn. The establishment of this committee, which is responsible for data management, computer graphics and user/computer communications within the corporation, was announced last September by Melahn.

The president reflected that "As director of Technology, Schwartz brings a wealth of pertinent knowledge and experience to this additional function. I am confident that, under his leadership, the data base committee will continue to provide effective guidance to SDC in the rapidly developing technology of data management." Schwartz is also director of the company's Advanced Research Projects Agency contractual efforts.

Other committees established last year were those on education and training, executive systems, natural language processing and programming languages. The formation of the committee on mathematical modeling and simulation was announced last month, bringing the number of professional, internal communication

Jovial compiler should read

JTS JOVIAL TIME SHARE
compiler; a one pass compiler.

TINT was TIME (SHARE) interpreter

Please note: Clay Fox, Sal Aranda, and alex Tschekaloff.
They were part of the folks that produced the first time sharing System.

Ed Foote

PS. Joe Cooler use to be in all SDC phone book

2/30 Jules Schwartz

Contemporary Revolutions Discussed at ASPA Conference

Joel Kibbee, manager of State and Urban Systems.

Rowan presented "Technological Change and Public Administration," one of the five pacesetter addresses given at the outset of the meeting. The pacesetter talks were designed to establish general frames of reference for two days of panel discussions in each of the "revolutionary" areas.

After tracing the rapid pace and diverse character of recent technological development, Rowan turned his attention to communications and information processing, the two areas of technology that he predicted are going to have "the most profound effect on public administration."

In both fields he termed the computer as "the number one candidate for having the most potential impact *and* being the least widely understood." To underscore this point, Rowan described advances in time-sharing, hardware capability and the ability to construct and manage large data banks.

"Such developments as the metropolitan or regional data bank are very promising," he said. "They enable decision makers to manipulate information more easily and more meaningfully. Properly used, this will lead to better decisions and, thus, to better public administration."

Recently, however, there has been increasing concern about possible invasion of privacy resulting from the use of individual files in central data banks, Rowan noted. "I do not at all minimize the problem of privacy," he stressed, "but I do believe we can preserve the individual's right to be anonymous. . . . I assert that as records are automated and centralized, safeguards can be instituted to protect the individual."

To illustrate this last point, Rowan detailed some of the protective measures that are being considered for the NYSIIS project. These include not only strict administrative procedures, but also hardware and software safeguards. "A theme that runs through the NYSIIS development," Rowan explained, "is that it is essential to isolate and pinpoint individual responsibilities. This is just as true in an information bank as it is in a money bank."

Following the pacesetter talks, a panel session on The Executive and the Information Explosion was held. Joel Kibbee said that "although the Department of Defense and certain large industrial corporations have begun to develop systems to supply management with better information, most public administrators are not being so supplied."

Kibbee outlined three requirements for getting the most mileage from the electronic computer in public administration: "1) the need for user discipline, 2) the need for additional applied socioeconomic theory and 3) the need for a better acceptance of governmental research and development, particularly at the state and local government level."

In the session on Knowledge for Sale, Charles Smith maintained that "the complexity of problems facing civil government today demands the application of new knowledge and new techniques in order to meet the needs of the community.

"The value system currently existing in government that affects elected, appointed and civil service officials is so internalized and tradition-bound that it is literally impossible to independently effect the change necessary to solve organizational and socioeconomic problems," Smith added. "Therefore it is clear that civil government must turn to the private sector as a source of assistance."

Don Ramsay, manager of Corporate Communications, served on the ASPA conference's three-man publicity committee, which was responsible for coordinating appointments and press activities and other publicity arrangements for the conference. Irwin Schorr, head of SDC's Public Information office also provided public relations support to the conference.

Group Established to Eliminate Sex Discrimination

The establishment of the Southern California chapter of the National Organization for Women (NOW) was announced last week by Inka O'Hanrahan, NOW's Western Division Director. Mrs. O'Hanrahan is also vice chairman of the California Governor's Commission on the Status of Women.

"NOW has been established to initiate and support action nationally or in any part of the nation, by individuals or organizations, to eliminate the prejudice, discrimination and inequalities of opportunity confronting women throughout American society," Mrs. O'Hanrahan explained. "Women now constitute 51 percent of the total U.S. population and are currently providing the nation with 35 percent of its working force. But though 46.4 percent of all American women of working age are now actively employed, women workers today earn, on the average, only 60 percent of what men in similar jobs earn, and the wage gap has been increasing over the past 25 years in every major industry group."

NOW's prime objective is to eliminate discrimination against women not only in pay, but in opportunity in government, industry, the professions, education, the churches, the political parties, the judiciary, labor unions and other fields of significance in American life.

Mrs. O'Hanrahan stressed the fact that NOW is an organization *for* women, not *of* women, pointing out that NOW's national vice president is Richard Graham, director of the National Teacher Corps and a former Equal Opportunity Commissioner.

"Our invitation to membership has been and will continue to be directed toward both men and women," Mrs. O'Hanrahan said, "to achieve NOW's overriding goal — full equality for women in truly equal partnership with men."

NOW's other national officers include educator Dr. Kathryn Clarenbach, chairman of the board, and author Betty Friedan, president. Dr. Clarenbach is director of continuing education at the University of Wisconsin and chairman of the Wisconsin Governor's Commission on the Status of Women. Mrs. Friedan authored the best seller, *The Feminine Mystique*.

Though NOW was established nationally as recently as last October and has just begun to establish regional chapters, its membership has grown from 32 to more than 3000. "Applications for membership are coming in faster than the national office can process them," Mrs. O'Hanrahan said. "Now that the chapters will be handling these applications, we'll be able to respond more quickly and get a more accurate nose count of our own membership." Formation of the Southern California chapter followed by one day the organization of a Northern California chapter.

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│        STAFF                    │
│        TRAINING                 │
│        SCHEDULE                 │
│  Questions concerning schedule may be directed │
│  to Dorothy Patterson, Santa Monica Ext. 7785, │
│  Room 24034.                    │
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WEEK OF APRIL 10

Department of Rehabilitation, Class 1: High-order Language, C. Walker.

Satellite Control Department, Class 3: 8-5, On-the-Job Training, CPDC, M. Kostiner.

Los Angeles Data Services Bureau: April 10, 11, COBOL Coding; April 12, 13, COBOL Analysis; April 14, Workshop, C. Hand.

Research and Technology Division, Class 3: 8-5, P. Baker, P. Eddy.

Satellite Control Department, Class 4: operators, General Programming, W. Fox, F. Park.

Advanced Instruction in Information Sciences for Military Managers: A-217, 8-5, J. Hofmann, E. Sheffield. Class closed.

WEEK OF APRIL 17

Department of Rehabilitation, Class 1 (continued): C. Walker.

Los Angeles Data Services Bureau: 8-5, D-216, COBOL Workshop, C. Hand.

Research and Technology Division, Class 3 (continued): P. Baker, P. Eddy.

Satellite Control Department, Class 4 (continued): W. Fox, F. Park.

Advanced Instruction in Information Sciences for Military Managers (continued): J. Hofmann, E. Sheffield.

WEEK OF APRIL 24

Department of Rehabilitation, Class 1: Assemblers, Compilers and Higher-order Languages, C. Walker.

Los Angeles Data Services Bureau: April 17-20, COBOL Workshop; April 21, Multi-programming, C. Hand.

Research and Technology Division, Class 3 (continued): P. Baker, P. Eddy.

Satellite Control Department, Class 4: operators, CDC 3800 Computer Coding, D. Tunick, L. Webb.

Department of Water and Power: 8-12, Los Angeles, Introduction to Programming Techniques, F. Park; 1-5, 1401 Coding, M. Spriggs. Class closed.

Attendees at a luncheon during President Melahn's visit to Sunnyvale included, from left, Don Henley, Col. Paul Skartvedt, Melahn, Don Marioni, Lt. Cols. Bordean Clinger and Richard Bond. Jim Wong took the pictures at the luncheon, which was held at the Lamplighter Lodge.

President Melahn Tours Sunnyvale Facility

President Wes Melahn was welcomed to the Satellite Test Center in Sunnyvale, Calif., by Col. William Bumm, STC deputy commander, and Don Marioni, head of the Satellite Control Department's Field Support Group, during a visit on March 17. Col. Paul Skartvedt, head of the Operations Control office, gave the president a briefing on the function of the Satellite Control Facility and, with Col. Richard Bond,

conducted a tour of the STC. Melahn and the military officers were accompanied by Marioni, Don Henley, head of the Operations Support Branch, and Jim Wong, assistant head of the FSG.

Melahn, who discussed corporate programs and plans with SDCers while in Sunnyvale, commended the corporation's employees for the cordial working relations apparent at the STC.

Junior Achievement Trade Fair/Sales Day Scheduled

Plat-Co, the SDC-sponsored Junior Achievement company, will be among 50 JA firms participating in the first Junior Achievement trade fair/sales day, April 15, in Hawthorne, Calif.

Counseled by staff members of SDC, Plat-Co operates under the supervision of the Junior Achievement Western Business Center located in Culver City, representing students of nine high schools.

The trade fair/sales day is being sponsored by the Hawthorne Shopping Center Association and will feature Junior Achievement companies representing every high school from Santa Monica to Long Beach.

According to Daryl Douglas, association manager, all participating JA firms will be assigned locations in the Hawthorne business district where they will establish their outlets. Special permits have been acquired from the City of Hawthorne to allow the junior achievers to display and sell their products on the sidewalks of the business district, Douglas explained.

All employees are cordially invited to attend. The Trade Fair hours are 10-4 on Saturday, April 15.

All proceeds from the sales will go to the individual JA firms, and the companies will be eligible for special awards to be provided by the association.

SDC has been a staunch supporter of the Junior Achievement program of America for high school students in the tradition of the free enterprise system of our nation. Under this program, SDC counselors donate their time to serve as advisers to members of JA, who enroll in the program to "learn by doing."

Achievers form their own corporations, sell stock, produce a product, administer their own affairs, and sell their respective products with the assistance of adult advisers.

Employees serving as Plat-Co advisers are Gloria Lee, Bert Robles and George Sanders. Johnnie Morton and SDC's JA coordinator, Dave Savard, are providing help as required.

ACC News

Amateur Radio Club, Santa Monica— Six SDCers earned ratings as novice amateur radio operators recently after attending a three-month course of code and theory sponsored by the Amateur Radio Club. Sam Beach, Bill Cannon, Gloria Grace, Reg Martin, Lee Page and Gale Williams represent a part of the 87.5 percent of club members who are now licensed operators.

SDC's Amateur Radio Club was organized under the auspices of the Activities Coordinating Committee in March of last year. Eighteen club members are now affiliated with the American Radio Relay League, and four are currently in a novice training class.

Equipment used in the club's radio station has been loaned by members, who also maintain a workshop/demonstration area in Room 15011. Dave Hardacker (W6PIZ) can supply more information about this aspect of the club.

Bob Henderson (WB6MNJ) or Seymour Schwartz (K6APN) will be available to answer any questions regarding the club's classes in radio code, operating practice and radio theory. Novice training classes lasting approximately three months (two hours each week, one each for code and theory) are conducted on a continual basis. The next class is scheduled to begin early in May. A training class for general and amateur extra class licenses is planned for this month.

The club also provides a technical advisory staff to help members establish, operate and maintain their own radio station equipment. In addition, each Wednesday evening is set aside by interested club members for checking out equipment and for general chatter on a frequency of 3752 KCS. Paul Thompson (W6EFN) is the contact for radio nets.

The regular club meetings are held the first Monday of each month in Room 3540. All interested employees are invited to join. Further information can be obtained by calling Bill Brinkmeyer (WB6MXS).

Future plans of the club include a project to increase participation in the use of amateur radio frequencies. A current activity of a few members is the construction of converter units and the use of teletypewriters.

Amateur Radio Club members recently receiving the novice class license are (from left, standing) Reg Martin (WN6 VOM), Lee Page (WN6 VNY), Sam Beach (WN6 VTO), Bill Cannon (WN6 VRW) and (seated at the club station equipment) Gloria Grace (WN6 VQT) and Gale Williams (WN6 VRV).

Ozbekhan to Speak At Planning Meeting

Hasan Ozbekhan, director of Planning, will be addressing the Los Angeles chapter of the TIMS College on Planning, Wednesday evening, April 19.

Ozbekhan has invited George Steiner, professor of business administration, UCLA, to share the platform with him. They will discuss such fundamental planning questions as: Can there be a planning science, and if so what does it encompass? What are the qualities required of the ideal corporate planner, and how may such qualities be developed? To what extent can one "invent the future"?

Ozbekhan has been director of Planning at SDC since 1964, responsible for overall corporate planning. Before becoming associated with SDC, he was with the General Electric Company in New York and with New York University. Steiner is a nationally known teacher and writer in the field of corporate planning and a consultant to SDC.

Everyone is invited to attend the meeting at the Raffles Restaurant in Los Angeles. For further information and reservations, contact Lynn Fisher, Ext. 279.

Immunization Program To Be Repeated

As in previous years, a combined tetanus/diphtheria immunization series will be available to SDC employees. These injections will be given starting April 19. Watch the SDC *Bulletin* for the times and locations most convenient for you. Cost will be 50¢.

A film depicting the life of Ernest Hemingway will be presented on the Filmfare program, April 11, 2500 Commons Room at noon, and April 12, Olympic Building Commons Room at noon.

Hemingway portrays the active life led by Hemingway and provides glimpses of his associations with other literary personalities such as F. Scott Fitzgerald, Gertrude Stein and James Joyce.