The CenterScene

Dedication ceremonies were held recently for the new USGS Center located on the Alaska Pacific University Campus in Anchorage. The EROS Field Office has moved into the new facility. Dr. Glen Olds, President of the University; George Gryc, Regional Director for USGS, Western Region; and Ed Grant, Assistant to the Director for USGS Administration, participated in the dedication ceremonies.

EROS FIELD OFFICE MOVES TO NEW USGS CENTER

Dave Carneggie

After two years of planning, the USGS/EROS Field Office in Anchorage moved its offices from the Skyline Building in downtown Anchorage to the new USGS Center located at Alaska Pacific University (APU) in the east central part of the city. The EROS Field Office, the National Cartographic Information Center (NCIC), the Public Inquiries Office (PIO) and Alaska Program Office of the National Mapping Division (NMD), moved in December. Water Resources Division (WRD) personnel who also share space in the new Center were the first to occupy the facility, their move occurring in November. The new Center brings together for the first time in Anchorage the offices of the National Mapping and the Water Resources Divisions and the Offices of the Branch of Alaskan Geology (BAG), Geologic Division. The BAG offices and laboratories were moved to the APU campus in the fall of 1981, occupying Gould Hall, a refurbished dormitory. The new Center was constructed behind Gould Hall and joins with it via an enclosed walkway.

The NMD Alaska Program Office, NCIC, and PIO offices occupy the first floor of the new Center, while the EROS Field Office shares the second floor with the WRD personnel.

The EROS Field Office is comprised of seven offices, a reception area, a classroom, a project room and an enlarged Digital Analysis Laboratory (DAL). The DAL occupies 1,200 square feet and has a sunken floor, more than adequate air conditioning and a Powerbloc to regulate electrical current irregularities.

The DAL is comprised of a CPU room that houses the IDIMS system, a peripherals room and two display rooms. The DAL design takes into consideration requirements for operating up to two computer systems.

Terry Bobbie and Jerry Fischer, from EDC, installed a Hyberbus on the HP-3000 computer which provides eight terminal connections from various EROS offices, two terminal connections from NCIC offices, and one terminal connection each from the Alaska Program Office and the WRD computer terminal room. The Hyberbus enables EROS personnel to have direct access to IDIMS from terminals in their offices, allows NCIC Personal Computers (PC's) to access the HP-3000 Digital Data Base Access System, to exchange data between PC's and their Wang word processing system and provides WRD with direct access to its Lake Inventory Data Base. The Hyberbus represents a first step in the development of a Local Area Network for the USGS Center.

(Continued on page 2)

ARTS APPRECIATION COMMITTEE NEWS

Phyllis J. Wiepking

A group which began somewhat hesitantly three years ago, has become such an integral part of EDC that we may be inclined to take it for granted. The dedicated persons who serve on the committee spend a lot of free time selecting artists to display their works in the Cafeteria Gallery, assisting with the actual hanging and removing of the art works, and raising funds to pay for the necessary insurance, the only expense of the project. The major art-insurance fund-raising effort is the annual Christmas bake sale.

The committee is urgently seeking new members. The only requirement is an interest in the fine arts. Anyone who might consider joining the group should contact Jim Sturdevant, extension 114, to learn about meeting dates and times.

Artists whose works were displayed in 1984 and the first four months of 1985 are Mary Groth—colored pencil; Full Circle Gallery—regional artists' prints; Terry Baumeister—charcoal, pencil, silk-screen; Dell Rapids Paint and Pallete Club—oil; Betty Rosin—oil and pencil; Lisa Van Ert—lithography; Dave Hare—photography; Paul Blotz—photography; Mike Dhaemers—photography; Charles Lewis—photography; Gloria Evans—acrylic, pen and ink; Agnes Schwebach—oil; Darla Larsen—multi-media; Jamey Gardner Rehfeld—colored pencil; Bruce Molnia—photography; and Tom Rickers—multi-media.

Many artists have expressed their appreciation to EDC for providing this opportunity which offers them a chance to show their talents while providing visual stimulation for EDC employees and visitors.

UP FRONT

The EROS Data Center software staff is contributing to several development activities of the National Mapping Division's digital cartography program.

Most of the current work stems from the Division's cooperative effort with the Bureau of Census. Early in this project, it was necessary to solve the problem of topologically structuring digital line graph (DLG) data and transferring that data from the Scitex raster scanning system to the Intergraph systems, where line graph editing and assignment of feature attributes could be performed. This transfer required software that could be installed in the Mapping Centers to facilitate the flow from the Scitex systems to the Intergraph. Vic Conocchioli of the Technique Development and Applications Branch and Darla Conocchioli of Computer Services were assigned to this project in 1983 and the resulting software was installed on the Perkin Elmer computer in the Mid-Continent Mapping Center in early 1984.

A second major area of software enhancement involved considerable revision of the Unified Cartographic Line Graph Encoding System (UCLGES) to allow processing of large, complex transportation pattern overlays resulting from the Census project. Dave Hair was assigned to this project in late 1983 and the revised system was delivered to Eastern Mapping Center in mid 1984, running on the Amdahl computer system in Reston.

As the digital data from the Census project became available, the distribution of that data to the public became an important issue. A decision was made that the distribution format for the DLG data would be in 15-minute map quadrangle units. Since much of the existing data were in other formats, software was identified to: a) panel (or merge) smaller data sets and b) partition (or segment) large data sets into the 15-minute format. The paneling function required unique software to allow the joining of line graph features from one quad to corresponding features from adjacent quads. This software also had to allow the reporting of errors encountered for editing staff to isolate areas requiring attention. This project was assigned to Dave Hair upon his completion of the UCLGES revision project, and will be completed in mid-1985. While the partitioning software has been initiated, final design is not yet complete. The scheduled delivery of this software in late 1985 is also important to the Division's ability to distribute the 1:100,000 scale data from the Census project.

A third area of EDC involvement centers around the Intergraph systems that are implemented throughout the Division. EDC acquired an Intergraph system in early 1983 to provide digitizing services that would be compatible with similar activities throughout the Division. Dave Bankers and Diane Stoick were assigned responsibility for implementation of that system to support EDC objectives. This project has required a unique combination of seeking out available software (such as the Cartographic Reproduction and Interactive Graphics Editing System (CRAIGES), originally developed by staff of the Western Mapping Center), applying enhancements and upgrades to that software to improve its effectiveness, and adding entire subsystems to specifically address EDC digitizing/editing requirements. Dave's and Diane's efforts resulted in the delivery to the other Division Intergraph

(Cont. on page 6)

(Cont. from page 1 - Field Office)

Although the new Center is located on a relatively undeveloped portion of the University Complex (comprised of Anchorage Community College, the University of Alaska at Anchorage, and Alaska Pacific University), it is much closer to facilities occupied by the U.S. Fish and Wildlife Service, the Department of Natural Resources, the U.S. Forest Service, the Bureau of Mines, and the Soil Conservation Service. Already the merger of the Survey's divisions into one location has stimulated discussions for greater utilization of the EROS computer facilities and promises to increase scientific interaction and exchange with the university community. EROS personnel are pleased with their new facilities and enjoy ready access to the running and skiing trails and the recreational facilities available on campus.

Special acknowledgement is extended to Don Orr, Robin Hermanson, Gary Nelson, Bill Nelson, Terry Bobbie and Jerry Fischer for their assistance in facility design and specifications, electrical and mechanical installations, disassembly and reassembly of computer equipment and installation of the Hyperbus.

EDC NURSE ANNOUNCES CANCER SEMINAR

Bonnie Griffith, R.N., EDC Industrial Nurse, announces a Colon-Rectal Cancer Seminar to be held on Monday, May 6, in the Executive Conference Room. The seminar will be conducted by the American Cancer Society from 11:30 a.m. to 12 noon and repeated from 12 to 12:30. It will include an informative lecture, hand-out materials, and free test kits for individuals over age 40.

TECHNICOLOR EARNS UNITED WAY GOLD AWARD

K.C. Wehde

For the second consecutive year, Technicolor Government Services, Inc. has earned the Sioux Empire United Way's Gold Award. According to Technicolor's Loaned Executive, Tom Holm, the giving potential of firms is calculated by the United Way at the beginning of each campaign. The Gold Award is presented to those firms that reach 80 percent or more of their giving potential. Technicolor Government Services gave $13,113 toward the 1984-85 campaign, a 26 percent increase over 1983-84, to reach 91 percent of its giving potential.

In addition to its employee gifts, Technicolor donates the services of an employee to act as one of the Sioux Empire United Way's 33 Loaned Executives. United Way's Loaned Executives were responsible for raising approximately $1 million of the United Way's $1.8-million campaign goal, therefore playing a major role in the success of the Sioux Empire's overall campaign program. Holm shared the following concerning his year as a Loaned Executive: "My experience as a Loaned Executive has been both personally and professionally rewarding. While my experiences with United Way were enriching, I came to realize the importance of, and the excellent reputation of, Technicolor and EROS within our community. I hope we never lose sight of the important contribution a Loaned Executive makes to our community, whomever it may be."

CRIBBAGE TOURNAMENTS

As winter draws to a close, so do the Center's various cribbage tournaments. In EROS Data Center play, Brent Lowell defeated Tom Jellema to retain the EDC cribbage singles championship for the second consecutive year. Wayne Rohde and K.C. Wehde won the EDC cribbage doubles championship over Loren Koepsell and Terry Baker, to succeed last year's doubles champions, Woody Yaroch and Ben Raiche. In Technique Development and Applications Branch play, last year's "Czar," Bryan Bailey, was overthrown in semi-finals play. Damon Judd defeated Bruce Quirk to claim the 1984-85 TD&AB cribbage championship title. Second place finisher, Quirk, will be in charge of the 1985-86 TD&AB Cribbage Tournament, while 1985-86 EDC Cribbage Tournament organizers will be Lowell, Rohde, and Wehde. Congratulations, Winners.

SOFTWARE DOCUMENTATION GROUP:

"Spreading the Word"

(Editor's note: The following news story was received in response to the article in the last issue of the Center Scene requesting EDC staffers to inform our readers about the work that is carried out in their offices or sections.)

Mary Jungling

As you might surmise, this group—composed of technical writers Brian Wolfe and Mary Jungling, and a program librarian, Mary Chmela—is part of the Software Development Section. Their work efforts include a variety of communication tasks. The staff in general provides support for the section in the areas of documentation, formalized release of software into production, finalization of design review documents, and other incidental duties.

The main thrust of work centers around documentation efforts. Documentation is the written instructions and information that accompanies software programs; this may be in the form of a guide for the actual user, a guide for the computer operator, or a guide for the system's analyst or programmer. Technical writers edit documentation provided by programmers and compose entire manuals to provide useful user documents.

Editing a programmer's initial documentation involves checking for syntax, mechanical construction, and designating the proper format for the document. This means working closely with the programmers to ensure that documents communicate accurately and clearly all the essential information. When a technical writer composes the manual from start to completion, the writer spends time at a terminal running the programs to organize and write the instructions. The program librarian is then responsible for the typing, formatting, and printing of documents and manuals utilizing word processing equipment. Upon completion, some documents require reviewing by various EDC personnel, and it is the responsibility of the technical writer to distribute the document. With a positive outlook of getting comments back in a timely manner and before they are outdated, the programmer incorporates elected comments and changes from the review process and returns the document to the technical wrter to be processed and finalized.

Finalized program documents and manuals are filed in Software Documentation and are available on request from any of the three staff persons.

The program librarian has additional responsibilities including carrying out a formalized release procedure to put newly developed computer programs into production. Via the computer terminal, the program librarian copies the completed software from a programmer's workfile/account to a designated production account. If a previously released program is to be modified, the librarian transfers, by using a terminal, the program from the production account into the programmer's account. Upon completion of modifications, the librarian will again transfer the program back into production. In conjunction with the release procedure, the librarian is responsible for maintaining a record that designates the status of all programs.

Recently, the Software Documentation staff has been working more extensively with preparation and finalization of design review documents for new functions being incorporated into operations at EDC. Programmers develop designs in response to user requirements and then present these in the form of design reviews to various users. The Software Documentation staff provides support for the written communications that accompany the design reviews. Of course, documentation and design reviews are not the full extent of "spreading the word" by this office. Additional duties include maintaining reports, updating manuals, and generally providing support for the Software Development Section.

The Software Documentation staff recently moved into new quarters, Room 502, located next to the Custom Photo Lab.

EDC EMPLOYEES BOWL FOR HEART FUND

EROS Data Center employees, from left, Larry White, Peggy Keegan, Gordon Strom, and Becky Deno, pictured with Dr. John Langdon, American Heart Association, earned contributions of more than $465.00 for the first Sioux Falls Earl Anthony Bowling Tournament with proceeds going to the Heart Association. The bowlers and their generous contributors proved again that EDCers have big hearts.

EDCEA NEWS

Terry Bobbie

Newly elected EDCEA officers are **Terry Bobbie**, president; **Robin Hermanson**, vice-president; **Cindy Covington**, secretary; and **Connie Feyereisen**, treasurer.

EDCEA meets at noon on the 2nd Tuesday of each month in the back half of the Main Conference Room. Along with the Board of Directors, each department has a representative to provide ideas and to keep his or her department informed. All employees are welcome to visit the meetings and all administrative and financial records are open for inspection. Anyone who wishes to volunteer some time and talent on an EDCEA committee should contact one of the officers.

Some recent activities include a stamp collections' project and an Easter bake sale. Both were very successful fund raisers.

Future activities include a spring raffle and a traditional summer picnic. Plans are under way to produce EDCEA T-shirts and caps for sale to employees, families, and friends.

A competition to find a new EDCEA logo has been announced. The winning artist will receive his/her choice of a $25.00 gift certificate or a satin baseball jacket with the new logo. All entries must be submitted to EDCEA officers by 3 p.m., May 10.

SOIL LANDSCAPE ANALYSIS PROJECT (SLAP): AN EROS COOPERATIVE PROJECT

K.C. Wehde

Cooperative applications projects are designed as mechanisms for information exchange between the EROS Data Center and other agencies. These projects also act as vehicles to test, document, and disseminate research and development findings. This is the second in a series of articles with the intent to acquaint the reader with a specific cooperative applications project and its objectives, analyses, field work, and results.

The Soil Landscape Analysis Project (SLAP) is a cooperative project involving the EROS Data Center, the Soil Conservation Service, and the Bureau of Land Management whereby a method to reduce the amount of field time necessary to conduct soil surveys is being studied. Though agencies conduct soil surveys on a scheduled basis, budgetary and economic conditions make it necessary to find more effective means for completing the mapping of approximately one third of the United States still lacking up-to-date soil surveys.

Three 7.5-minute quadrangle areas in the Grass Creek resource area of north-central Wyoming were chosen as the pilot project site to test a method which combines computer technology and soils information to conduct the survey. Slope-class maps are produced using digital elevation model (DEM) data. These maps are overlaid on orthophotos and combined with information from other ancillary data including surface geology and soil association maps to produce physiographic maps. The physiographic maps are then digitized (converted to computer-readable numeric symbols) and entered into a computerized spatial data base. Spectral maps showing vegetation/soil features are produced by using Landsat multispectral scanner data. When the information is compiled, tabular summaries are produced from the data base describing the physiographic unit, slope, aspect, elevation, area, and spectral data values.

This method was tested by visiting 60 sites within the three 7.5-minute Grass Creek quadrangles. Physiographic maps and Landsat spectral categories were evaluated according to soils, vegetation, range sites, and overall physiography. The evaluation of this test showed a good correlation between physiographic units and soil mapping units defined during a conventional soil survey. This confirmed the feasibility of a computer-aided approach to preparing products useful to soil surveying and mapping in order to reduce costly and time-consuming field work. Since the Grass Creek pilot project, over 1½ million acres in Wyoming, Nevada, and Idaho have been evaluated using this method, which is still under study.

More information on this project may be obtained from Dr. Emil Horvath, Technique Development and Applications Branch.

EXAMPLES OF TABULAR SUMMARIES THAT ACCOMPANY EACH PHYSIOGRAPHIC MAP

SUMMARY OF POLYGON

POLYGON DESCRIPTORS				TERRAIN DATA			SPECTRAL DATA		SPECTRAL CLASSES						
									Dominant		Secondary		No. Polygons		
Polygon No.	Physiographic Unit	Total Area (acres)	PRECIP. ZONE (IN.)	Mean % Slope	Dom. Aspect	Mean Elev. (FT.)	Mean Brightness	Mean Greenness	Class	Area	Class	Area	<30	30-60 (acres)	>60
1	186A	10.5	16-20	4	NE	7203	22.3	22.9	3	9	7	1	3	0	0
13	210C	115.3	16-20	23	SW	8300	26.9	22.8	5	85	6	30	2	1	1
31	228B	82.0	16-20	10	S	9200	39.1	29.5	8	80	6	2	1	0	1

THE UNIX OPERATING SYSTEM: A HISTORICAL NARRATIVE

Jean Paulson

The UNIX Operating System is used as the native operating system on a variety of machines from microprocessors to supercomputers, including several of the new systems at EDC such as the Gould PN9050, the SUN workstations, and the Callan Unistar 300 business micros. UNIX is unique because it was not created by a hardware vendor specifically for one type of computer, but instead was developed by users who were dissatisfied with the systems that the vendor provided.

The history of UNIX is an interesting narrative for EDC non-computer types as well as for computer professionals. UNIX is a trademark of Bell Laboratories. It was created by Ken Thompson and Dennis Ritchie at Bell Laboratories during the late 1960's and early 1970's. A major influence on UNIX came from the Multics system, which was a multi-user interactive system on a GE 645, developed as a joint project by Bell Labs, General Electric, and the Massachusetts Institute of Technology.

In 1969, Bell Labs withdrew from the Multics effort and its computer science research group began working in other areas. Because Ken Thompson was located in office space with many of the former Multics researchers, it was natural that he would incorporate some of their ideas into the new operating system that he was developing for a PDP-7 minicomputer.

However, in contrast to the complexity of Multics, the UNIX design was kept relatively simple. UNIX was targeted to fill the need for a multi-user, interactive, time-sharing system with a file system that allowed a group of users to share selected programs and data while keeping other information private.

When Bell's computer science group obtained a PDP 11/20 in 1970 to support the development of a text processing system for use in its patent department, UNIX was implemented as the operating system. The set of text processing capabilities that was added to UNIX is ideal for supporting many types of activities, including programming.

Text is used extensively in program development, data entry, and documentation, and the UNIX facilities for editing and formatting text make it a general-purpose operating system. In addition, development of the UNIX process management capabilities, file system, and command facilities continued, so that with the addition of pipes for transmitting information between programs, most of the features of UNIX were in place by the end of 1972.

At that time, Ritchie was working on developing a new general-purpose language, called C, which is a descendant of the languages B and BCPL. Some of the features of C include flow control statements for writing structured code, pointers and the ability to do address arithmetic, structures for organizing data, recursive function calls, and separate compilation capabilities.

Because C is a relatively low-level language, which means that it deals directly and efficiently with the kinds of objects found in computer systems,

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EMPLOYEE NEWS

WELCOME ABOARD

K.C. Wehde

John R. Allen, from Omaha, Nebraska, joins the Computer Services Branch as a Programmer A in the Software Development Section. John is a graduate of Iowa State University with a Bachelor of Science degree in computer science. John enjoys bicycling, reading, automobiles, and flying.

Julia O. Domingue, an Applications Scientist in the Geo-information Sciences Section of the Technique Development and Applications Branch, comes to the Center from Syracuse, New York, where she was employed by the College of Environmental Science and Forestry, SUNY. A graduate of the University of Illinois at Urbana with a Masters in geography, Julia enjoys skiing, bicycling, and photography. Her most prominent photography subject is her 1-year-old son, Chad.

Randy J. Farland joins the Computer Operations Section of the Computer Services Branch as a Computer Operator after completing a temporary assignment as a Data Technician in the Data Management Section. Randy attended Black Hills State, Central Texas College, and Augustana College and had four years of computer operations experience with the U.S. Air Force.

Douglas R. Gordon, a Programmer A in the Software Development Section of the Computer Services Branch, is a graduate of Iowa State University, Ames, with Bachelor of Science degrees in computer science and speech communication. Doug's previous experience includes starting a summer computer camp. He enjoys a multitude of hobbies including wind surfing, skiing, swimming, photography, theatre, and the arts.

Monte R. Moe joins the Data Management Section as a Data Technician. Monte is a graduate of South Dakota State University with a Bachelor of Science degree in geography. His home town is Raymond.

LuAnn K. Pfeifle joins the Data Management Section as a Data Specialist. Her educational background includes a Bachelor of Science degree in sociology from South Dakota State University, where her husband, Mike, will graduate with a Bachelor of Science degree in geography in the spring. LuAnn enjoys traveling, golf, and gardening. She says she also enjoys consuming exotic food in mass quantities.

Bryan L. Radspinner, a graduate of Dakota State College, with a Bachelor of Science degree in business administration and Associate degrees in computer science and accounting, joins the Software Business Group as a Programmer A in the Software Development Section of the Computer Services Branch. Bryan is a single gentleman who enjoys bowling, tennis, and snow skiing.

Thomas J. Senden who previously worked part time at EDC returns to the Data Center in a full-time capacity as a Production Laboratory Technician in the Photographic Laboratory. Tom is currently working on a degree in electrical engineering from South Dakota State University.

Robert M. Stieha, a graduate of the South Dakota School of Mines and Technology, holds a Bachelor of Science degree in geological engineering. Work is in progress on a Bachelor's degree in computer science. Previously employed as a contract geologist for Getty Mining in the Black Hills, Bob joins the Data Management Section as a Data Specialist. His wife, Marlene, is employed by Northwestern Bell. Bob's hobbies include skiing, rock climbing, and swimming.

Terry L. Tronson returns to Technicolor Government Services as a Logistics Technician in the Logistics Section after working for Commercial Guard, Inc., at EDC. Terry holds an Associate of Arts degree from the University of South Dakota, Springfield. He and his wife, Darlene, live in Sioux Falls. He enjoys golf and tennis.

Donald F. Wagner, a graduate of the National School of Business with a Bachelor of Science degree in business administration, joins the Photographic Laboratory as a Precision Photo Equipment Technician. He is a seven-year Navy veteran and has operated and maintained electronic equipment for several companies. Don, his wife, Ruth, and their three children, Paul, 14, Amy, 12, and Tim, 5, will live in Garretson. Don enjoys almost all sports.

Gayla A. Evans joins the Data Management Section of the Data Production and Distribution Branch as a Data Technician. Gayla attended South Dakota State University and has actively farmed with her husband, Bill and children, Justin, 4, and Billie Jo, 18 months. Her hobbies include water skiing, gardening, horseback riding, and reading.

Marla K. Boese is completing a temporary assignment as a secretary to the User Services Section of the Data Production and Distribution Branch. Marla, her husband, Bob, and girls Anita, 14, and Lisa, 8, live in Brandon. Marla's free time is spent with family activities. She also enjoys the car races in the summer.

EMPLOYEE AWARDS

Richard Nelson, Custom Lab Supervisor, and **Max Borchardt**, Custom Lab Technician, received awards for outstanding performance.

Dick's citation emphasized his efforts in expediting rush orders while maintaining high standards of quality and his helpful, cordial assistance in demanding situations.

Max was commended for his enthusiastic, productive response to high pressure workloads and for his creativity and imagination in photographing EDC staff and facilities.

Brenda Jones, Automatic Data Processing (ADP) Image Processing Analyst, and **LeAnn Doorn**, ADP Support Analyst, received special achievement awards for their contributions to the Western Sahara mosaicking project.

Brenda's award noted her project coordination responsibilities, her demonstrated leadership and her outstanding technical abilities in a difficult, pioneering effort that entailed great pressure, job stress, and long hours.

LeAnn's award cited her efforts toward the organization of the workflow, development of the internal procedures, and management of the vast resource requirements of the project and her technical abilities which proved instrumental to the successful completion of the mosaic.

EDC COMPUTER CLASS

Nineteen EDC employees are enrolled in a Dakota State College computer course, Computer Concepts, held at the Data Center from 4:30 to 7:30 p.m. each Monday. The introductory course includes fundamental concepts and techniques and hands-on experience on computer terminals. Bruce White and Melanie Stopfer are the instructors.

NEW NHAP PRODUCT MAY APPEAL TO OUTDOORS ENTHUSIASTS

Campers, hikers, and other outdoors enthusiasts have long been users of USGS 1:24,000-scale topographic maps. Now, the same scale black and white and color infrared aerial photographs, acquired through the National High Altitude Photography program, are available through User Services at EDC. The photos will be excellent complements to the maps.

(Cont. from page 2 - Up Front)

systems of a number of enhancements and problem fixes, and most recently in the delivery to EDC's Data Production and Distribution Branch of operational software in support of EDC contributions to base category DLG digitizing, attribute tagging operations to support the Census Project, and specifically the digitizing of non-standard data for support of EDC's application research and cooperative project activities.

Most recently, the Data Center was assigned reponsibility for distribution of products from the National Digital Cartographic Data Base. This assignment requires the preparation of an implementation plan by July 1985 and of product generation capability by July 1986. Personnel from EDC, Eastern Mapping Center, NCIC, and the Office of Research are addressing both policy and technical issues of the plan. A task force including Jerry Smith, Ron Risty, Carolyn Morse, Diane Krell, and Wayne Miller is analyzing anticipated impact of this assignment on EDC operations, and formulation of recommendations for appropriate actions.

Perhaps the most important development currently in progress for digital cartographic data processing in the Division is the implementation of minicomputer systems throughout the Mapping Centers to allow consolidation of and access to the software for data collection and editing. EDC personnel were involved in the formulation of the proposal for distributed minicomputer systems, and contributed to the formulation of technical specifications for the procurement and to the development of benchmark software for system validation.

The contract award for these systems was recently announced, specifying Gould 32/9780 dual processor systems as the hardware system to be installed. These systems are referred to as DLG processors, and several EDC staff will participate in the required training. Although EDC participation in the implementation of these systems is not yet clearly defined, the expertise developed by Vic and Darla Conocchioli, Dave Hair, Dave Bankers and Diane Stoick has already been called upon to participate in system design discussions, planning and scheduling for implemetation of necessary software.

As the Division has further defined the committment to digital cartography in recent years, senior-level division staff are discussing the next generation of systems, software techniques and procedures necessary for continued progress into the 1990's. These concepts, and the discussions related to them are referred to as Mark II. The evaluation of Mark II will take time, and its impact will be far reaching. Perhaps the first specific component is represented by a project to develop specifications for and conduct procurement of stand-alone edit stations for quality control of DLG data. Again, EDC staff will participate in this development via the assignment of Dave Bankers to participate in the task force to formulate the system design and related specifications. Overall, EDC's participation will be coordinated through Wayne Rohde in the Digital Spatial Data Technology Office and John Boyd of Computer Services Branch.

R.J. Thompson

MINIATURE COWS?

(From the Alberta Remote Sensing Center, Edmonton, Alberta Remote Sensing Newsletter:)

Five years of research at the University of Edmonton has led to the development of miniature cows. The head of the research team says it all started as a result of satellite monitoring of Alberta's Rangelands. He told a reporter, "Cal Bricker of the Alberta Remote Sensing Center told us that the Federal government was using satellites to monitor Alberta's rangelands and that new satellites would see even more detail on the ground so we decided to get a step ahead of the feds by reducing the size of our cows faster than those smart easterners could increase the resolution of their satellites." (Thanks, Char Johnson.)

From the Editor:

Thanks very much to the Software Documentation Group for providing a very interesting account of the work that is carried on in that office. Again, we ask that other sections and offices provide our EDC associates with a glimpse into their work-a-day worlds. Either a completely developed news story such as the one that Mary Jungling wrote for this issue or an outline and notes will be greatly appreciated.

A special word of commendation is also due our receptionists, Julie Bowman, Carol Schmidt, and Barb Larson, for their courtesy, patience, and dedication as they greet EDC guests of all ages during the frantic months of April and May when school field trips turn the Data Center into a veritable classroom. These women conduct most of the school group tours. To date, tours have been scheduled for 320 5th-8th graders, 243 high school students, and 110 college students from April 1 through May 15. More will be coming!

Guided tours for school groups, grades five through college, and for civic and service organizations, may be scheduled through the Technical Information Office.

Phyllis

(Cont. from page 4 - UNIX)

such as characters, numbers, and addresses, using the arithmetic and logical operators implemented in the hardware, C is often substituted for assembly language. This capability has earned C a reputation as a good systems programming language, although it is equally useful for writing a variety of applications, text processing, and database management programs.

In 1973, UNIX was rewritten in C with only a small portion of the original system-dependent code remaining in assembly language. Traditionally, an operating system had been tied to only one family of computers because it is so time consuming to rewrite all of the assembly language code for a new system. But with UNIX implemented mainly in C, Thompson and Ritchie demonstrated how it could be moved to other computer systems by porting UNIX to an Interdata 8/32.

With a few additions, this portable version was released as the Seventh Edition UNIX system in 1979 and was widely used in PDP 11 16-bit systems. The first VAX 11/780 version, UNIX 32V, originally developed at Bell Labs, formed the basis for the enhanced version of UNIX now distributed by the University of California at Berkeley. Bell Labs also continued to develop new UNIX systems, the latest of which, System V, has incorporated many of the Berkeley improvements.

As the popularity of UNIX spread, Western Electric began issuing UNIX licenses in 1975. At that time UNIX was especially attractive to universities because of the low fees charged to academic institutions and the simple, yet elegant, design of the system that made it ideal for teaching courses in operating system theory. This has resulted in a large number of students that are trained in C and UNIX, and consequently their popularity is predicted to increase dramatically as recent college graduates enter industry in large numbers.

IN MEMORIAM

Our very deep sympathy is extended to Mr. Watkins and his family in the recent death of his father, Mr. Austin Watkins of Newport News, Virginia.

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