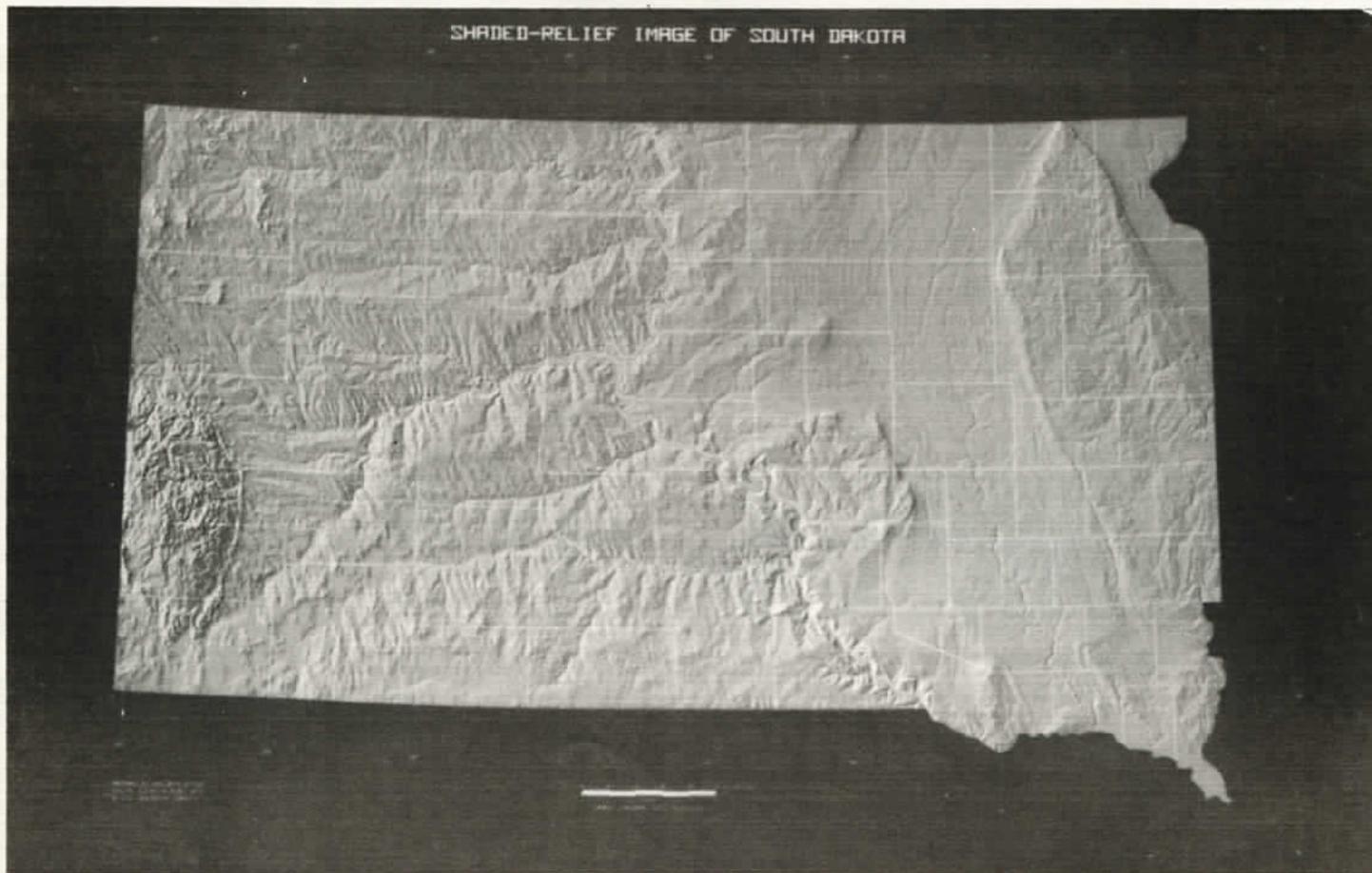


The Center Scene

SUMMER 1986

SHADED-RELIEF IMAGE OF SOUTH DAKOTA



South Dakota's Black Hills on the west, the Prairie Coteau elevation on the east, and all of the state's major river valleys are prominent on this shaded relief image.

EROS Data Center Mission Expands

The EROS Data Center, established in 1971, was designed as a remote-sensing data production and applications assistance facility for aerial photographs and satellite-acquired computer products and photographic images of the Earth.

Satellite Reception Capabilities

Since then significant changes have occurred that will expand EROS' role as a national center for remotely-sensed images of the Earth and for computerized cartographic and Earth-science information. In 1979, the Center installed a

large receiving antenna that permits it to receive Landsat satellite images of the Earth from NASA's Goddard Space Flight Center via a communications satellite.

During this past year, funds were provided for a tracking antenna to receive Advanced Very High Resolution Radiometer (AVHRR) images of the United States from the National Oceanic and Atmospheric Administration's series of polar orbiting meteorological satellites. The antenna will be installed in the Spring of 1987. These satellites record daytime and nighttime images of

the Earth. The data will be used by numerous Federal agencies in research programs related to management of forest, rangeland, and agricultural lands and for various regional planning applications. The Geological Survey is investigating the use of AVHRR images for making image maps of very large areas. EROS is the principal Federal center for processing such images.

National Land Satellite Remotely Sensed Data Archive

The EROS Data Center presently maintains data base holdings of more than 7,500,000 frames of aerial photographs, satellite images, and computer tapes of aircraft and satellite data.

(Cont. on page 3)



Up Front Retirees Saluted

It seems appropriate to use this issue's Up Front column for a bit of reminiscing as we say "Farewell—and

Well Done" to three long-time Federal Government employees who have taken advantage of the National Mapping Division's "early out" retirement option.

James "Jim" McCord, Edward "Ed" Constant, and Gerald "Gerry" Moore have collectively served our nation for 87 years as a part of its Civil Service work force, and have contributed to the success of EDC for a combination of nearly 39 years.

Jim was in on the birthing of EDC in the fall of 1971. EDC had 13 employees when he arrived. The facility began processing aerial photographs immediately and was making plans for the satellite images that were anticipated as the Landsat satellite program evolved.

Jim helped set up the photo lab in the interim facilities in downtown Sioux Falls. Since that time, he has not only been involved in numerous photo laboratory/photo science activities at EDC but has used his expertise around the world as he has assisted in design for photo labs in Thailand, Egypt, France, Tunisia, Syria, India, Indonesia, and China.

By the time Ed Constant came to EDC, the new EROS facility was nearly completed and 70 people were employed. Landsat 1 had been launched and EDC was making copies of Landsat images and tapes from data processed at Goddard for scientists from around the world.

Ed's work in specification, procurement, and operational support of computer systems has earned him an enviable reputation as a "can do" individual. From the transition of the IBM 360/30 in downtown Sioux Falls to the implementation of the current local area network of minicomputers Ed was there!

Gerry Moore came on board in 1975, first working for Water Resources Division and later becoming a fulltime EDC employee. Staffing at EDC had grown to 310 employees when Gerry began working here and Landsat 2 had been launched. EDC was being recognized by the scientific community worldwide for its remote sensing activities.

Gerry's major contributions to EROS and the National Mapping Program include his exemplary work in the development of complex data bases, information processing techniques, and im-

TECHNIQUE DEVELOPMENT AND APPLICATIONS BRANCH

by K.C. Wehde

The EROS Data Center's Technique Development and Applications Branch (TD&AB) is comprised of several Offices and Sections: the Training and Assistance Section, the Bioscience Applications Section, the Geoscience Applications Section, the Technique Development Section, and the Alaska Field Office. The many and varied activities of TD&AB include spatial data processing research and development, involvement in cooperative demonstration projects, training in remote-sensing and information-systems technologies, foreign and domestic visitor assistance, and the publication of research findings in open file reports, technical journals, and proceedings of symposia and conferences. This is the first in a series of articles about each Branch Section.

Training and Assistance Section

The Training and Assistance Section (T&A) has a variety of responsibilities that includes support of the EROS Data Center's training activities. T&A staff play a pivotal role in training courses sponsored or hosted by the Data Center, including serving as instructors or working closely with other teaching staff from within and outside of the Data Center, assisting in preparing training materials and syllabuses, organizing and directing course logistics, directing the scheduling, budgeting, staffing, and planning of workshops, collecting tuition, and tracking workshop-related expenditures.

Approximately 15 workshops are presented each year. Planning sessions for workshops begin early (including the coordination of the International Workshop series, in which planning begins years in advance of course presentation). Training schedules, which reflect yearly workshop offerings, are prepared and distributed.

age processing and analysis procedures.

This issue's cover story details current and future accomplishments and expansion of the mission of EDC. It is largely due to its dedicated, proficient staff that EDC has been able to attain and maintain the degree of excellence and international status that it holds. Jim, Ed, and Gerry are representative of the calibre of people who work at EDC. As I thank them for their major contributions to our success, I also say "Thank you" to all EDC employees. We are a team — a winning team! And although we will greatly miss Jim, Ed, and Gerry, we will continue to work hard to assure that EDC remains the best research and production facility possible.

Allen H. Watkins

Training statistics and computerized mailing lists are filed so that they may be readily accessed. Although, in most instances, a workshop lasts only three to five days, the organization and logistics preceding and following it is an ongoing process requiring extensive preparation to achieve the desired result.

Information concerning the applications of remotely sensed and other types of spatial data is in demand on a daily basis. The individuals who request the information may have varying degrees of experience and expertise in the use of these data. T&A personnel either directly assist with these inquiries or they forward the inquiries to an appropriate scientific staff member. A concerted technology transfer effort is maintained.

In addition to training and information dissemination, T&A personnel give orientation sessions to potential technical users, administer the MicroLab (a microcomputer area for use by Center personnel), provide editorial assistance for technical publications as part of the U.S. Geological Survey's review and approval cycle, and prepare technical publications, documentation, monthly and annual reports, training exercises, and Center publications as required.

The Training and Assistance Section is comprised of a group of individuals dedicated to making spatial data analysis and remote-sensing technologies available to others whether it be through training, information dissemination, written publication, or oral presentation.

(Bioscience Applications Section next in this series.)

Volume 3

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The above AVHRR images illustrate the severity of the 1986 spring flooding in eastern South Dakota, particularly in the eight northeastern counties outlined on the images. The May 30, 1984, image (left) shows the rivers and lakes during a "normal" spring. The May 4, 1986, image was acquired after heavy spring rains brought severe flooding. Differences in the size of the lakes Poinsett, Thompson, and Henry, and the Big Sioux River are clearly evident on the two images.

EROS DATA CENTER MISSION EXPANDS

(Cont. from page 1)

Plans are under way to establish the National Land Satellite Remotely Sensed Data Archive at the Center. This archive will contain images acquired by United States government- and privately-owned satellites and selected images acquired by satellites operated by foreign governments.

Because of the Data Center's advanced computer technology and scientific expertise, the U.S. Geological Survey recently decided to broaden the Center's mission and to distribute cartographic and Earth-science data from its facility near Garretson. These data base holdings include USGS Geophysical Data on a state-by-state basis and National Uranium Resource Evaluation Data. Later this year, the Center will take over responsibility for the Rock Analysis Storage System and discussions are under way to move other digital data sets to EROS. These data are widely used by USGS scientists throughout the United States in various geologic and water resource investigations.

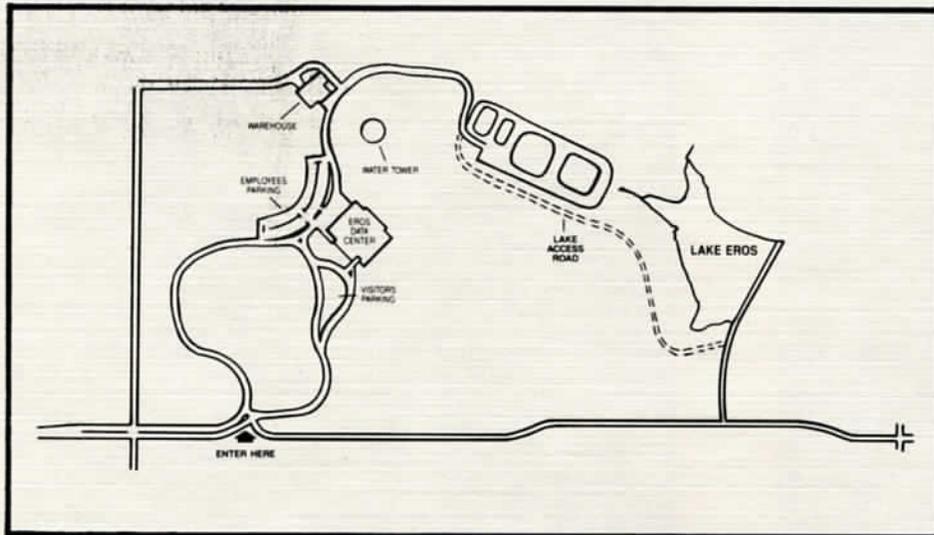
National Digital Cartographic Data Base

Also later this year, EROS will assume responsibility for archiving and distributing data from the Survey's National Digital Cartographic Data Base. Specifically, it will receive Digital Line Graphs (DLG) of the entire United States showing transportation routes, political and administrative boundaries, hydrography, digital elevation data corresponding to 1:25,000-scale topographic maps, and digital land use/land cover data that are presently being produced. The Data Center will reproduce and distribute these data to the public. In addition, the data will be used to produce special products for use by State and Federal agencies. For example, a shaded-relief image of the State of South Dakota was created at the EROS Data Center from Digital Elevation Model and DLG data. This image was provided to the South Dakota State Geologists who can use it to study surface landforms and lineaments, which can be keys to the occurrence of ground water, minerals, and petroleum. Landforms are land-

scape features that have been produced by geologic processes and erosion at the Earth's surface. Lineaments are natural linear features that may indicate faults or other fractures in the underlying bedrock.

As new kinds of Earth-science data sets are added to the EROS archives, scientists and technologists will be working with cooperating State and Federal agencies to identify, develop, and produce new and useful products. While these types of products have unlimited applications for resource managers, planners, and geologists, they also have the potential to be valuable tools for geography and geology teachers at all educational levels.

(This story was compiled by Wayne Rohde, Wayne Miller, Gerald Moore, and Phyllis Wicpking.)



FISHING FOR FUN

by Mary Jungling

Fishing opportunities at Lake EROS improve steadily each year with the management efforts of the Fish and Wildlife Service (FWS). The "Fishing for Fun" lake, located to the east of the Data Center facility, covers approximately 15 acres. The lake, presently at its high level mark, reaches a depth of 21 feet in the deepest parts and provides fishing opportunities for channel catfish, blue gills, bullheads, and bass.

FWS fish management activities, which began in 1984, continue to show significant results as indicated by a progress report for 1985. As a result of trapping an additional 3,150 bullheads this last year, the bullhead population decreased to such a level that the electrofishing survey in July of '85 yielded only one bullhead and thirty bass for the entire operation. Other management activities last year included stocking adult male and female bass, adult bluegill, bluegill fingerlings, and channel catfish. The FWS plans to conduct another survey this summer. Based on the results of the survey, they will make recommendations for managing the lake in future years.

From the survey data, the FWS will evaluate the growth and population of the species stocked and will suggest necessary guidelines and restrictions to ensure a balanced population for continued good fishing. At the present, bass must be returned to the lake, bluegills and catfish may be taken out, and all bullheads caught must be removed. Guidelines for future fishing of bass could involve managing volume limits, that is, the total number of fish taken or slot limits, based on size. Naturally, slot limits would mean some catch-and-release policy. To ensure that catch-and-release efforts are successful, participants must use proper release pro-

cedures; otherwise, released fish will die and the total effect for balancing the population will be lost. With conscientious efforts by the angler and careful management, the lake should provide many years of "fishing for fun."

Also in the future, the EROS Data Center Employee Association (EDCEA) is planning to install a floating dock. In an effort to keep the cost within their reach, the Association is seeking donated material; the biggest concern is finding large fiberglass or polyurethane drums that have not contained anything that would contaminate the lake. If you know of such available drums, please contact an EDCEA officer. Some employees have suggested that a "fish association" be formed to assist with the dock project and lake management. Other possible activities for an association include efforts to keep the ice cleared in the winter and to ensure deep water structure to enhance the environment for the bass population. This kind of special employee interest and continued good management will provide a pleasant, convenient recreation spot for EDC employees and their families.

If you and your family should decide to visit the lake, keep in mind the regulations on signing in, type of boats allowed, no swimming, fires, and legal bait, etc. A complete list of regulations may be obtained from the EDC Administrative Office or the guard's desk. The lake officially opened Memorial Day weekend; fishing hours are from sunrise to sunset. An access road has been established through the Data Center grounds. See the accompanying map for the location of this access road. Be watching for the forthcoming results of a new FWS survey and the news on bass fishing. Have a "Fishing For Fun" summer!

EDCEA News

by Steve Covington

This year's EROS Data Center Employees Association (EDCEA) picnic was held on Saturday, August 23. A record crowd enjoyed the day. The next issue of *The Center Scene* will include a full report.

T-shirts are on sale at the front counter in the lobby. You can buy the shirts there or, if you don't like what you see, talk to your EDCEA representative to order something that appeals to you. There are jackets, baseball caps, rugby shirts and many other items to choose from. Prices have changed since last year; some are up and others down. See your EDCEA representative for a list of the current prices.

Construction is completed on a dock for Lake EROS. The dock will make an excellent place to enjoy a summer day of fishing without traveling for hours to find the fish. The lake is there for the enjoyment of EDC employees and their families, so go out there and take advantage of the great fishing. (Of course, think of fellow employees and obey all rules and leave the area looking better than when you came.)

ASPRS Honors Eidenshink

Jeff Eidenshink, Senior Applications Scientist and Supervisor, Bioscience Applications Office, TDAB, received first prize in the American Society for Photogrammetry and Remote Sensing's President's Award for Practical Papers. The purpose of the competition is "to encourage and commend the individual(s) who publish papers of practical or applied value in the society's *Photogrammetric Engineering and Remote Sensing*." Jeff's paper titled "Detection of Leaks in Buried Rural Water Pipeline Using Thermal Infrared Images" appeared in the May 1985 issue of the journal.

Welcome Aboard

by K.C. Wehde
SUMMER HIRES

TGS Technology, Inc.

Nancy Bradwisch returns to the Data Center as an ADP Support Specialist in Computer Operations. Nancy attends the South Dakota School of Mines and Technology in Rapid City where she is majoring in mechanical engineering. She enjoys swimming and biking. Nancy's family is moving to Salt Lake City, Utah this summer.

Michelle Drefs, Corsica, is a sophomore at Augustana College majoring in mathematics and minoring in computer science. Michelle is a Logistics Technician. She has three sisters and one brother. Her hobbies include sewing, running, reading, and playing the piano.

Tanya Hovatter also joins the Logistics Section as a Logistics Technician. From Colton, Tanya is a Geological Engineering major at the South Dakota School of Mines and Technology.

Susan Kiebne joins the User Services Section as a Customer Services Technician. From Lanesboro, Minnesota, Susan attends Augustana College, where she will be a senior this fall. Her majors include physics and math with a minor in computer science. Susan is a student pilot working toward her private pilot's license and ground instructor's permit. She also enjoys singing, horseback riding (she has a real love of horses), listening to a variety of music, and reading.

John W. (J.W.) Jones is a Physical Science Aide in the Technique Development Section. Originally from Stamford, Connecticut, J.W. received his B.A. degree in geography from the University of Connecticut, and is currently working on his M.A. degree in geography from the University of Nebraska at Lincoln. J.W.'s wife's name is Mari. His hobbies include acoustic guitar, ballroom dancing, hiking, and backpacking.

Margaret Mayers joins the Geo-information Sciences Section as a Physical Science Aide. Margaret attends Virginia Polytechnic Institute and State University in Blacksburg, Virginia, where she has completed a B.S. degree in biology, a B.A. degree in geography, and is working toward an M.S. degree in geography. From Vienna, Virginia, Margaret enjoys exploring, jogging, biking, and swimming.

Angel Parker is a Physical Science Aide in the Bioscience Applications Section. Originally from Wilmington, Delaware, Angel received her B.A. degree in geography from the University of Denver. She attends the University of Kansas, Lawrence, where she is

working on her M.A. degree in geography. Angel has two older sisters and one older brother in Delaware. She enjoys outdoor sports such as hiking, running, and canoeing and team sports such as volleyball, softball, and basketball. Her hobbies also include reading, and visiting zoos and museums.

Mark Robinson joins the Alaska Field Office staff in Anchorage as a summer intern. From Fairbanks, Mark attends the University of Alaska, where he has received a B.A. degree in political science/fine arts and is working toward a B.S. degree in geosciences.

U.S. Geological Survey

Andrew Ingalls, a participant in the U.S. Geological Survey's Cooperative Education Program, returns to the Data Center. The cooperative program allows Andrew to alternate semesters of work and study for the remainder of his college program. We welcome him back to the Data Center and also congratulate him and his new wife, Michele, on their recent marriage.

Viking Engineering Services Company (VESCO)

Darren Brandner from Dell Rapids, is a summer employee for VESCO. Darren is a senior working toward a degree in civil engineering at the South Dakota School of Mines and Technology. His hobbies include basketball, golf, tennis, and writing creative fiction.

Daron Ailts is a summer yardman for VESCO. From Flandreau, Daron attends South Dakota State University, where he will be a junior working on his B.S. degree in computer science.

Ron Johnson, Computer Operations was recognized for superior efforts that resulted in the development of a new, viable, and credible Computer Utilization Resource Management Report System that has proven to be a valuable contribution to EDC.

Carolyn Morse, Computer Operations, received an award for sustained excellent performance and expertise in her responsibilities for Interactive Digital Image Manipulation Systems, image processing production, and training activities.

Don Oblen, *Bill Anderson*, and *Frank Sadowski* were presented awards for their superior performance in developing and conducting an outstanding U.S. Department of the Interior training program for the Office of Surface Mining that has included 18 basic or advanced workshops during the past 8 years. Don and Frank are in the TDAB Bioscience Section and Bill is in the Training and Assistance Section.

Rick Vandersnick, Data Management, was honored for his contributions to the Side Looking Airborne Radar (SLAR) program at EDC. His citation noted that under considerable time pressures, he successfully completed important documentation for the SLAR contract.

Mertyn "Woody" Yaroch, Administrative Officer, received a USGS award for the implementation of the EDC Energy Management Program. His award recognized the exceptional value of the procedures and improvements that were made at EDC under Woody's directions during a 10-year period.

EMPLOYEE AWARDS

Cathy Groen, Data Management Section, Data Production and Distribution Branch, received special recognition for her consistent, above average work and her willingness to perform a wide variety of duties, including support for a number of offices in addition to Data Management.

Bill Draeger, Chief, Training and Assistance Office, Technique Development and Applications Branch (TDAB), and *Don Orr*, Deputy Chief, TDAB, received Special Achievement awards from the U.S. Geological Survey for superior performance while on special assignments at EDC. Bill's award commended him for his exemplary performance while serving temporarily as Chief, Bioscience Applications Office. Don's award cited his outstanding performance during the period that he served as Chief, Training and Assistance Office.

Federal Women's Program

The EDC Chapter of Federal Women's Program sponsored an Adult Education Fair in July. Participants from seven local and area colleges and universities participated. They presented information on evening and weekend programs, graduate courses, and financial aids.

City Commissioner *Loila Hunking* spoke at the August 14 Lunch-and-Learn program. Her topic was "Women — Why They Must Be Politically Aware and Active and Why They Must Work Together." All EDC women employees were invited to attend this meeting.

The Other Life:



Ray Byrnes



Charles Luden

Ray Byrnes and Charles Luden, Poets

by Mary Jungling

Ray Byrnes, Production Manager for EOSAT at EROS, and Charles "Chuck" Luden, who works for TGS Technology as a chemist for the Photo Lab, share a common interest—writing poetry; yet each has his own unique expression of this interest.

Ray's interest in poetry evolved through 14 years of teaching college English. Those years provided an exposure to the works of great poets and an introduction to writing poetry in later years.

Ray's contemporary poems reflect themes of nature and its transitory state. He classifies his style of writing as visually oriented and conversational. The accompanying poem expresses these ideas. Ray's poems have been published in various literary journals and he has also conducted readings. For the most part, writing poetry is for his own pleasure. Although he doesn't have a particular favorite poet, he enjoys the poetry of Dylan Thomas and William Stafford.

Chuck's interest in poets reflects his attraction for different things at different times in his life. Generally, he prefers short poems. He expresses it in terms of "minimalism—less is more." The short poems included here are characteristic of his style. He describes his poems as being a statement of the obvious or expressing a mental attitude. Some may also center around character sketches. Chuck, who is also a professional musician, has done public readings, too. A highlight was a reading at the Ferlinghetti's City Lights Poets' Theatre in San Francisco. The following poems are from his book, *West of Venus—Punk Love Poems*. These short pieces reflect Chuck's diverse interests and emotions.

A high school English teacher introduced Chuck to the Public Broadcasting System Program "Poetry USA" which initiated his interest in poetry. He has explored various art forms but has

let music and poetry dominate his efforts. Chuck's poems have been published in literary journals and in three books of collections of poems. For Chuck, writing poetry is a means of "celebrating life—clearing the mind."

Unlike the verse of traditional great poets, both Ray and Chuck noted that few contemporary poets write in strict verse form; styles and form for poetry have changed over a period of time as have other art forms. A reflection of the change in poetry is the obvious change in music over the last century. Today's music has actually become an extension of poetry. Today's songwriters are yesterday's poets. The popularity of music and song is an indicator of the importance of poetry to individuals. Much of our popular music is verse combined with a melody to form a song; interest in poetry has not hit a "flat note" but is "singing a new tune."

In the Garden

by Ray Byrnes

Tall, dewed, fragrant in the stillness of the morning, the iris stand in stunning harmony of glowing yellow, pastel blue, peach, and white-on-purple against the dense emerald of the alpine currant hedge.

In a rainy year, the waxy flowers exude their true perfume for several days, even weeks. This spring, a steady arid prairie wind blows every afternoon. Morning's bloom is weathered crepe before the evening comes.

The long green iris leaves remain erect until the summer sun bleaches and folds them into earth. Quackgrass shoots and daisy sprouts struggle for the ground above the buried rootstock of another year.

EDC Good Samaritan

Riders on the southwest Sioux Falls EDC van have asked to share their appreciation and respect for their driver, Ken Graack, for his courage and competence in giving first aid to a young accident victim on Tuesday, afternoon, July 15.

Three riders and the driver were on the van, which had nearly completed its return trip, when they saw an automobile hit a child on a bicycle. Ken immediately pulled over, grabbed the van's first-aid-kit and ran to the little boy, who was bleeding profusely, while Linda Hansen ran to a nearby house to call the ambulance.

Linda and Terry Bobbie said that Ken acted compassionately and professionally while waiting for the ambulance to arrive.

Later, it was learned that the accident victim was the son of Jeff Powell, also an EDC employee. We are very grateful to report that six-year-old Jordan is doing well. His injuries were primarily deep facial lacerations. Jeff also expresses his appreciation to Ken.

Poems by Chuck Luden

Untitled

*Is it a waste of time
to read the same poem over again
when there are children dying
of hunger in Africa?
If the nickels I've put in
gum machines were laid end to end
would the walk to the Nairobi
food depots be shorter?
No, they are so far away,
and the soldiers guard the food
until it rots.
Thank you benevolent governments
of the world, but it's not raining.*

The Lady on the Corner by the Fire Hydrant

*These sexual things are so confusing.
We are strangers, become lovers,
and end up in court deciding
who keeps the Chevrolet.*

The Director of the U.S. Geological Survey has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this agency.