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WU scientists examine cosmic ray data from an earth-orbiting satellite. From left are Joseph Klarmann, professor of physics, Martin H. Israel, professor of physics, and W. Robert Binns, senior research association.

WU Scientists Study Stardust To Find Elements’ Birthplaces

“We are stardust, we are golden . . . ,” sings Joni Mitchell in “Woodstock.” Such sentiments are not limited to the realm of poets and lyricists. Space scientists now are exploring the physical truth contained in those lines.

“In a real sense,” said Martin H. Israel, WU professor of physics, “all the elements essential to life are stardust—the ashes of stellar fires which burned for billions of years after the big bang explosion formed the universe.”

Israel returned this fall from a year’s leave at the California Institute of Technology where he performed preliminary analysis of data from a year-old experiment designed to detect super-heavy cosmic rays. The experiment is aboard the third High Energy Astronomical Observatory, an earth-orbiting satellite launched by the National Aeronautics and Space Administration.

Cosmic rays are the bare centers or nuclei of atoms which shoot through space at close to the speed of light, explained Israel, who is the project’s principal investigator. He and WU collaborators Joseph Klarmann, professor of physics, W. Robert Binns, senior research associate, and John W. Epstein, engineer, hope the study will lead to new knowledge about how the elements were created.

According to the big bang theory, Israel said, the first elements created were the two lightest, hydrogen and helium. These gases condensed into stars, and the energy released as they burned formed the 24 next heaviest elements up to iron. Anything heavier than iron requires much more energy to make, noted Israel. Most of these latter elements probably were created when giant stars exploded far out in the galaxy.

“Exploding stars probably provided the ‘kick’ that speeded up the particles we now are detecting as cosmic rays,” said

Weidenbaum Paper on Regulation Among Reports Made to Reagan

Murray L. Weidenbaum, director of WU’s Center for the Study of American Business and Mallinckrodt Distinguished University Professor, was among four economic specialists who recently presented reports to President-elect Ronald Reagan on economic issues that will confront his administration. The high-level task force was appointed several months ago.

Formerly assistant secretary for economic policy in the U.S. Treasury Department during the first Nixon administration, Weidenbaum was chairman of a team which studied methods of curbing federal regulation of business. Other chairmen were former federal budget director James T. Lynn, head of the budget review group; former Treasury Undersecretary Charles E. Walker, head of the treasury and tax policy team; and former Federal Reserve chairman Arthur Burns, who coordinated the international economic group.

Weidenbaum and the other team captains were scheduled to meet in Los Angeles last Friday with Reagan and George P. Schultz, widely regarded as Reagan’s choice as a chief White House advisor. According to the St. Louis Globe-Democrat, the task force chairmen were to recommend personnel and policy for the new administration.

Weidenbaum is among those being considered for White House posts, according to the newspaper, perhaps as an overseer of federal regulatory agencies.

Weidenbaum joined the WU faculty in 1964. He was chairman of the economics department from 1966 until 1969, when he served for two years in the Treasury. Before coming to WU, Weidenbaum was a fiscal economist in the U.S. Bureau of the Budget and a corporate economist for the Boeing Co. Currently, he is a consulting economist to the First National Bank of St. Louis, and Mallinckrodt Inc., and a member of the board of directors of the May Department Stores Co.

Weidenbaum is widely known for his research and publications on government regulation of business. His most recent book, *The Future of Business Regulation*, was published by Amacom in 1979. He is coeditor of the bimonthly magazine *Regulation* and is a member of the Board of Economists of *Time* magazine. He also writes regular columns for the Washington Report and the Los Angeles Times syndicate.

Weidenbaum, who has an appointment as professor of economics in the WU business school, is also an adjunct scholar at the American Enterprise Institute for Public Policy in Washington, D.C.
Students Have Designs on Tourists To Visit Transport Museum

The National Museum of Transport in south St. Louis County is full of vehicles which are going no place. The wheels of its planes, trains, streetcars, double-decker buses and rickety rickshaws have ground to a halt. But even as they stand, immobile and silent, they are by no means useless, for their presence kindles old memories of adventurous travel, and fires the imagination of younger viewers who have never had the fun of riding in many of these strange and wonderful conveyances.

Recently, some 40 WU juniors majoring in graphic communications in the School of Fine Arts became caught up in the romance of these transports of the past, and made them the focus of an unusual design project.

Casting around for a class exercise which would provide a community service, the young designers, guided by professors Richard H. Brunell and Gene R. Hoefel, accepted a challenge from Wayne P. Kennedy, director of the St. Louis County Department of Parks and Recreation. Kennedy, who acquired the open-air transport museum last September, invited the WU students to design a scale-model of a traveling exhibit depicting the museum’s attractions to lure crowds to this place, much as the Saarinen arch draws people to the St. Louis riverfront.

The exhibits, put together with love, Elmer’s glue and Scotch tape, range from a three-dimensional, idealized steam engine to a trendy fusion of a locomotive and tunnel through which children can crawl. Another exhibit is intended as a “walk-through” railroad station as it looked at the turn of the century, decorated with memorabilia and including signals and even a section of track. Every model is an example of intricate detail and skillful craftsmanship.

After Nov. 24 and into early December, the exhibit will be displayed at the St. Louis County Courthouse complex on the first floor of the Administration Building.

Meanwhile, Kennedy is selecting a jury of three to decide which of the eight exhibits will be judged “best of show.” This winning design will then be transformed into a full-scale exhibit which can be toted all over town, from Lambert airport to the Convention Center.

Once attracted to the museum, visitors, awed by the transportation dinosaurs, and delighted by Bobby Darin’s “Dream Car” and a Paris Transit System bus, will become, Kennedy hopes, museum “regulars.” For this place, like the exhibit itself, is truly intriguing.

An idealized steam engine, complete with piston rod and locomotive wheel, is one of eight exhibits designed by WU graphics students to attract visitors to the National Museum of Transport, south St. Louis County. Above, Gene Hoefel (left), associate professor of fine arts, and graduate student Gabriel Suarez admire the work of Annette Pundt, Sue Amin, Anita Loring, Arthur Webb and Merryl Winstein.

Back by popular demand this semester is the second annual Tyson Wildlife Workshop for high school students. Led by Richard W. Coles, director of WU’s Tyson Research Center, the students spend four Saturday mornings exploring activities at the site about 20 miles southwest of St. Louis. Last fall, students from 20 area schools attended.

Stardust—continued from p. 1

Israel. “What we don’t know is whether the particles are fresh debris from these explosions or bits of old debris which have been accumulating in interstellar gas for billions of years before acceleration.”

The answer may come from analyzing a portion of the various cosmic rays. In our solar system, scientists have identified important ratios of certain elements to other elements. By detecting and counting cosmic rays, scientists are trying to discover if the same ratios exist among cosmic rays.

“Similar ratios would imply that cosmic rays were accelerated from the same mix of interstellar material that formed our solar system,” Israel explained. “Different ratios would imply a different origin—perhaps in the heart of exploding stars.”

At this point, scientists have collected enough data to ascertain among the cosmic rays the ratio of the 40 lightest elements. Israel and his colleagues are interested in superheavy cosmic rays, chiefly those made up of platinum, the 78th element, to lead, the 82nd element.

These particles are much rarer. During the first six months of the satellite experiment, only 45 zipped through the cosmic ray detector, roughly the size of a five-foot cube. Described by Israel as a “monster” compared to earlier instruments, the detector records lighter iron particles at the rate of one per second. The tracks of the rare, heavy particles are calculated from among millions of lighter ones.

The experiment is expected to radio back data to earth until the end of 1981. By then, investigators hope the detector will have recorded at least 100 superheavy cosmic rays, including uranium. It’s even possible, though unlikely, that the instruments will detect elements whose existence has only been theorized.

Because most cosmic rays are destroyed by the earth’s atmosphere, scientists have had little opportunity to accumulate data over a long period of time, Israel noted. The satellite experiment offers the best chance yet to learn about the rays’ origins.

Health Services Sponsor

A self-monitoring blood pressure machine will be installed in the hallway of Mallinckrodt Center during the week of Dec. 1. The campus monitoring drive is sponsored by the WU Health Services.

Mary Parker, director of the health services, said that while the readings taken by the machine can not replace the careful testing procedures performed by a doctor or nurse, it still provides a “good screening.”

“If you have high blood pressure, see us or your personal physician,” Parker said.

During a similar blood pressure screening on campus last year, over 3000 recordings were made, Parker said.
Soprano Gubrud Is Soloist At Music Series

Irene Gubrud, nationally acclaimed soprano and WU artist-in-residence, will present a recital at 8 p.m. Sunday, Nov. 23 as part of the University’s “Music at Edi-son” series.

With Martin Katz at the piano, she will present songs from Mahler’s “Das Knaben Wunderhorn,” Richard Strauss’ “Drei Lieder der Ophelia” and songs from Wolf’s “Italienisches Liederbuch.” Her recital also includes songs by Satie, Pasatieri, Hundley, Ives, Dougherty, Cowell and Obradors.

Tickets to the Edison Theatre performance are $5 general admission, $3.75 for WU faculty and staff and area students and $2.75 for WU students.

Gubrud, one of four winners of the 1980 Naumburg International Voice Competition, has appeared widely in recital and in concert with the orchestras of St. Louis, Chicago, Cleveland, Philadelphia, Dallas, San Francisco and Atlanta.

In May 1977, with the New York Philharmonic under the direction of Pierre Boulez, the soprano presented the world premiere of George Crumb’s “Star Child,” commissioned for her by the Ford Foundation. She has appeared with the Stuttgart Radio Orchestra and with the Buffalo Philharmonic under the direction of Sarah Caldwell.

A graduate of both Juilliard and Yale, Gubrud was praised by The New York Times for her “instinct for telling interpreta-tion” and her “natural gift for communication.” The Washington Post said, “We should hear great things about this young artist. She will surely achieve stardom.”

Soccer Bears to Meet MacMurray in Championship

The WU Bears soccer team will play MacMurray College at 1 p.m. Saturday, Nov. 22, at MacMurray’s home field in Jacksonville, Ill., for the NCAA Division III Midwest—Far West Regional championship.

The Bears won last Saturday, 5-0, over Pomona-Pitzer Col-lege in the semi-final round of the tournament. Arthur Jurema scored two goals, and Owen Curtis, Jeff Lovoff and Jacques Shalo each had one goal for WU.

MacMurray defeated Lake Forest College 2-1 in a semi-final game Nov. 15 at Jacksonville. Earlier this season, the Bears lost to MacMurray 1-0, their only loss of the season to a Division III team.

John Schael, director of sports and recreation at WU, said that if the Bears beat MacMurray, they will compete in the national finals Nov. 28 and 29 at a field to be determined.

Student Paper Wins Competition

A paper by Mark A. Johnson, a WU senior in physics, was presented as the result of a student competition at the National Confer-ence on the Use of On-Line Computers in Psychology Nov. 11 in St. Louis. Johnson based his paper, “The Analy-sis of Multi-Phasic Signals with the Apple/First Micro-processor System,” on re-search he did last summer with Isidore Gormezano, pro-fessor of psychology at the University of Iowa, and Rich ard H. Scandrett, WU associate professor of physics. The paper describes the successful identification of peaks in the multiple eyelid blinking re-sonse of rabbits during an experiment of classical condi-tioning. The award included a $50 cash prize.

Dean Williams Appointed to NIH Council

Luther S. Williams, dean of the WU Graduate School of Arts and Sciences and pro-fessor of biology, has been appointed to the National Ad-visory General Medical Sciences Council, National Institutes of Health (NIH), by Secretary Patricia Harris, U.S. Department of Health and Human Services. He will serve through October 1984.

The council recommends to the secretary, the assistant secre-tary for health, and the director of NIH the approval of those projects which merit support, and advises on matters relating to general or basic medical sciences. As scientific leaders, the members survey the status of re-search relating to basic and certain clinical sciences.

Dean Williams presently serves as a member of NIH’s Recombinant DNA Ad-hoc advisory committee and as a member of NIH’s General Medical Sciences Council.

WU Computer Team Wins Fourth Regional Contest

For the fourth year in a row, a team of WU students captured first place in the North Central Regional Computer Programming Contest held recently at the University of Nebraska, Lincoln.

The WU team was the only one to solve correctly all six of the complex computer problems presented in the contest’s seventh annual regional event. Competing against 16 other groups, they finished the problems in half of the six-hour time limit.

The winning regional teams will compete at the national finals on Feb. 25 in St. Louis. Teams from WU have won first place national trophies for the past two years.

The WU team members are: Steven F. Karasek, captain and coach, a second-year computer science graduate student from Omaha, Neb.; David J. Camp, a senior in computer science from Pine Lawn, Mo.; Nathan E. Schroeder, a senior in mathematics from Clayton, Mo.; and Michael J. Zyda, a five-year graduate student from Northridge, Calif., who is working on his doctorate in computer science.

The same four students last year defeated contenders Purdue, Ohio State and New York universities in the national finals.

The School of Fine Arts’ annual Beaux Arts Ball was just the ticket for this motley pair. This year’s ball will be held Saturday, Nov. 22, in Bixby Hall Gallery.
Calendar
November 21-December 4

Friday, Nov. 21
12 noon. Departments of Anatomy/Neurobiology and Pathology Seminar, "Studies of Porphyrinone Metabolism and Lead Toxicity in Cultures of Mammalian Peripheral Nerve Cells," William O. Whetzel, Jr., dept. of pathology, College of Medicine, U. of Tenn. 928 McDonnell Medical Sciences Bldg., 4750 McKinley.

1 p.m. The Legacy of Jean-Paul Sartre (1905-1980) Colloquium, WU Student Round Table, "On Reading Sartre." Hurst Lounge, Duncker Hall.

2 p.m. The Legacy of Jean-Paul Sartre (1905-1980) Colloquium, "Sartre and Literature: A Lover's Quarrel," Hazel E. Barnes, prof. of humanities, U. of Colo., translator of Sartre's Being and Nothingness, and author of several critical studies on Sartre. Hurst Lounge, Duncker Hall.


4:30 p.m. The Legacy of Jean-Paul Sartre (1905-1980) Colloquium reception. Hurst Lounge, Duncker Hall.

Saturday, Nov. 22
9 a.m. Neural Sciences Program Seminar, "Astrocyte Epidepmy and Related Supporting Cells," Carl M. Rovainen, WU assoc. prof. of physiology and biophysics. 928 McDonnell Medical Sciences Bldg., 4750 McKinley.

8 a.m. Beaux Arts Costume Ball, sponsored by the School of Fine Arts. Music by "The Nukes." Admission $3 at the door, includes refreshments. Bixby Gallery.

Sunday, Nov. 23
9 a.m. School of Continuing Education Third Annual Pumpkin Pie Run. Three-mile scenic run on and off campus. For more information call Ext. 6777.

6:15 p.m. Cosmo International Club Dinner. Stix International House. Tickets in advance $3.50; $3 for WU faculty and staff and $2.50 for students. Tickets at the door. For details call Ext. 5904.

Monday, Nov. 24
11 a.m. Department of Civil Engineering Lecture Series, "The Practical Dam Design and Construction." Bruce Moore, chief, Engineering Foundation and Materials Branch, U.S. Army Corps of Engineers. 100 Cupples.


Tuesday, Nov. 25

Monday, Dec. 1
6 p.m. Society of Professors Emerita Gala Banquet. Social hour, 6 p.m.; banquet, 7 p.m. Whittemore House.

Tuesday, Dec. 2

4 p.m. Department of Chemistry Seminar, "Neutral Alkylations of Vinyl Epoxydes via Palladium0 Catalysis," Gary Molander, dept. of chemistry, U. of Wis. 311 McMillen Lab.

Tuesday, Dec. 3

Wednesday, Dec. 4
11 a.m. Assembly Series Lecture, Carlos Fuentes, novelist and former Mexican ambassador to France. Graham Chapel.


Music
Friday, Nov. 21
8 p.m. Department of Music Choral Recital, conducted by Steven Finch, WU graduate student in choral conducting. Graham Chapel. Admission free.

Sunday, Nov. 23
8 p.m. "Music at Edison" Series Recital, Irene Gubrud, WU artist-in-residence, soprano soloist. Edison Theatre. General admission $5; $3.75 for WU faculty, staff and area students; $2.75 for WU students. Tickets available at Edison Theatre Box Office.

Monday, Nov. 24
8 p.m. Salute to Charlie Parker, with the WU Jazz Ensemble, conducted by Robert Edwards, Jr., WU instructor in music. Edison Theatre.

Tuesday, Nov. 25
8 p.m. Salute to Charlie Parker, with the WU Jazz Octet and the Performing Arts Group, a quartet of professional musicians. Edison Theatre.

Wednesday, Dec. 1
8 p.m. WU Wind Ensemble Concert, directed by Dan R. Presgraves, WU instructor in music. Edison Theatre. No charge.

Thursday, Dec. 4
8 p.m. WU Collegium Musicum Concert, directed by Nicholas McGegan, WU visiting artist-in-residence. Graham Chapel. No charge.

Films
Friday, Nov. 21
7:30 and 9:45 p.m. WU Filmboard Series, "And Justice for All." Brown. $1.75. (Also Sat., Nov. 22, same times, Brown.)

8 p.m. Classic American Cinema Series, "Madame X" and "Stella Dallas," Reprintstock Aud. $2.

Saturday, Nov. 22

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Exhibitions
"Greek Vases and Roman Glass." Print Gallery, WU Gallery of Art, Steinberg Hall, 10 a.m.-5 p.m., weekdays; 1-5 p.m., weekends. Through Nov. 23.

"The Faculty Show," an exhibit of WU faculty art work in all media. Upper Gallery, WU Gallery of Art, Steinberg Hall, 10 a.m.-5 p.m., weekdays; 1-5 p.m., weekends. Through Jan. 11.

"American Art," an exhibit of 19th- and 20th-century paintings. Lower Gallery, WU Gallery of Art, Steinberg Hall. 10 a.m.-5 p.m., weekdays; 1-5 p.m., weekends. Part of exhibit moved from Lower Gallery to Print Gallery on December 7. Through Feb. 1.

"J. S. McDonnell Memorial Exhibit." Olin Library, third floor. Hours: 8 a.m.-12 midnight, Mon.-Thurs.; 8 a.m.-8 p.m., Fri.; 9 a.m.-10 p.m., Sat.; 11 a.m.-12 midnight, Sun. Through Dec. 4.

"William Jay Smith, Man of Letters," a retrospective exhibit of the author's books and literary papers. Department of Rare Books and Special Collections, fifth level, Olin Library. 8:30 a.m. to 6 p.m., weekdays. Through Dec. 20.

"St. Louis Children's Hospital, 1879-1980," an exhibit on the architectural history of the institution. WU Medical Library Annex, 615 S. Mallinckrodt Drive. 8 a.m.-5 p.m., weekdays. Through Jan. 11.

"Exhibit of Sartreana." Olin Library, third level. Hours: 8 a.m.-12 midnight, Mon.-Thurs.; 8 a.m.-8 p.m., Fri.; 9 a.m.-10 p.m., Sat.; 11 a.m.-12 midnight, Sun. Through Nov. 23.

Sports
Monday, Nov. 24
6:30 p.m. Women's Basketball, WU vs. Central Methodist College. Francis Field House.

The W.U. Record will not publish Nov. 27 because of the Thanksgiving holiday. The next issue will appear on Dec. 4.