

on the surface pressure. There have been reports of hydrogen and carbon dioxide in the atmosphere. Oxygen may be there, as well as neon and argon. An ultraviolet spectrometer on board Mariner 10 will be used to search for this atmosphere, its structure and composition. A charged particle detector will measure particles over a wide range of energy in the upper atmosphere.

Recent estimates of atmospheric pressure at the surface range from 0.01 to 10 millibars (the latter is about one-hundredth of earth's surface pressure). Rasool and Belton think the pressure will be less than one millibar. But most expect to see more of an atmosphere on Mercury than on the moon because of Mercury's higher escape velocity, says Rasool.

The presence of an atmosphere is coupled closely with the presence of a magnetic field. "We really don't expect to find a large-scale global field," says Norman Ness of the Goddard Space Flight Center. However, says Ness, "Because of the high density and gravity, the weak atmosphere may interact with the solar wind to produce a class

of phenomena never seen before."

With two radio transmitters on board Mariner 10, earth-based scientists will perform occultation experiments that should yield information about Mercury's atmosphere and ionosphere, as well as its mass and radius. A scanning electronic analyzer will be used to determine how the solar wind interacts with Mercury. An infrared radiometer will get measurements of both the sunside and nightside. Calculations place the temperature at local noon on the equator on the sunside at around 340 degrees C., and a range for the nightside temperatures between minus 175 degrees C. and minus 125 degrees C. But these calculations vary depending on what is assumed to be the surface thermal properties and constituents in the atmosphere.

Mariner 10 will give earthlings a good look at Mercury's surface. Two television cameras on board equipped with 1,500-millimeter Cassegrain telescopes will get a resolution of two miles or at least half the surface on the first pass. Many portions will be mapped with a resolution of 300 feet. Succeeding passes by Mercury will photograph

more areas at 300 feet resolution. At encounter, each camera will take a picture every 42 seconds.

Cornell University's Carl Sagan, the articulate astronomer with a space-age imagination, describes an appropriate morning to conclude our imaginary astronaut's night on Mercury:

When morning comes at one point on Mercury, the sun rises very small, rising slower and slower, swelling to the zenith. At one degree past the zenith it stops. It then goes backward to the other side of the zenith and stops again. The sun then continues in the direction it was originally going toward the opposite horizon, shrinking as it sets.

Morning at a look-out point 90 degrees away is even more uncanny. A big swollen sun ponderously rises, looks at the surroundings and immediately sets again. Then, as if changing its mind, it rises again, going faster and faster, shrinking all the while to the zenith. It then goes toward the other horizon, slowing in speed and swelling in size as it sets. As though reluctant to leave, it then rises again to bid a fond farewell and finally sets. □

OFF *the* BEAT

Transition . . .

The preceding report on the planet Mercury is Everly Driscoll's last major article for SCIENCE NEWS. Starting this month, she will direct her writing talents toward an exclusively overseas audience in more than 100 countries—as a science and space writer for the United States Information Agency.

In the nearly three and a half years since she came to SCIENCE NEWS following eight years of teaching in Texas and six months of working in the office of astronaut Frank Borman in Houston, she has earned a reputation as one of the nation's outstanding space reporters. As scientists who have worked with her know, one of her major professional qualities as a reporter has been tenaciousness. During Apollo moon flights, she spent long hours day and night in the press room in Houston listening to air-to-ground commentary, often after most other reporters had closed down for the night. Such dedication made her the first reporter to learn of the explosion that crippled the Apollo 13 flight. She has been known to track sources by long-distance telephone to beachside vacation hideaways, and weekends and evenings never posed an obstacle to her news-gathering efforts. A second major quality—one equally appreciated by editors and sci-

entists—has been her unwavering dedication to accuracy and balance. She spared no effort to verify the facts and judgments in her stories. She will be missed. We wish her the best of luck in her new duties.

Fortunately, we have to search only so far as one of our own staff members to find an experienced and talented successor: Jonathan Eberhart. In taking over the space-writing duties, he will be returning to familiar ground. He has been writing on space for SCIENCE NEWS since 1960. He was aerospace editor through all the formative years of Apollo, climaxing with his coverage of the historic Apollo 11 moon landing in July 1969 and the first Lunar Science Conference in Houston early the next year. Since his return to the staff in March this year he has written on topics ranging from earthquake prediction to archaeology, from Chinese clams to earth resources satellites. An enthusiast about space, science fiction, music, exotic food and a seemingly endless number of other matters, he brings a lively mind, an eclectic perspective and a gift for language to all his writing. I know you'll enjoy it.

—Kendrick Frazier

From sun, to satellite, to magazine, to art for floor

Every publication's staff likes to hear when its efforts prove useful to a reader, and ours is no exception. Recently we received a rewarding letter

that describes what has to be one of the most unusual and creative applications ever made of magazine cover art. You may remember that the Jan. 27, 1973, issue of SCIENCE NEWS presented a full-color cover photograph of a computer-drawn color-coded map of the temperatures in the sun's corona based on data from the oso 7 satellite. The photo showed a striking abstract pattern of blue, turquoise, violet, yellow, orange and red.

One subscriber, Mrs. John P. Magos of Wilmette, Ill., has been very busy since then. Obviously extremely skilled in hand-spinning and hand-weaving, she has woven an entire rya-type rug based on the design of the cover photo. She has sent us a snapshot of the rug. It is beautiful. "The background is of yarn handspun from the fleece of a black sheep," she writes. "The colors are of yarn handspun either from natural fleeces or fleece which has been dyed commercially for handspinners by Harrisville designs in New Hampshire . . . It was great fun—and I am eagerly searching your magazine for new and exciting ideas for my future projects."

The January solar corona photo and the view of the Trifid nebula on the cover of our special astronomy issue in August were our first and second full-color covers of the year for SCIENCE NEWS, and only the third and fourth ones in our history (the other two were in 1970). This year's third color cover is tentatively scheduled for later this month.

—K.F.