animals clustered around them, apparently thriving in the 9°C-warmer-than-usual water. Though well-known in shallow water, this is the first known occurrence of such clusters in the deep sea. The scientists have taken to calling these clusters of animal communities "clambakes." Their existence, speculates Woods Hole marine microbiologist Holger W. Jannasch, is probably due less to the warm water than to the probable profuse growth of sulfide-oxidizing bacteria that thrive on hydrogen sulfide emerging from the springs. These bacteria then would serve as a lower link in the food chain leading up to the coral-like organisms, clams and 10 other species seen.

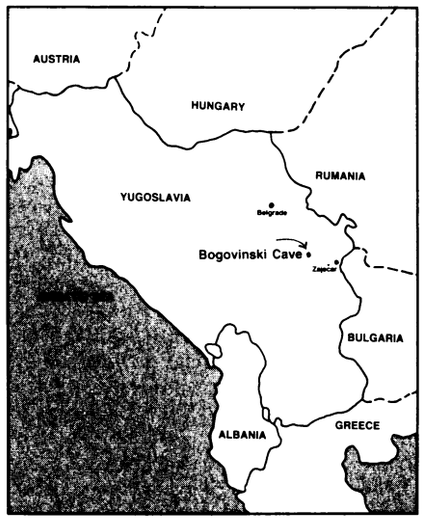
After port stop in the Galapagos Islands, the ships departed for the second half of the cruise, with Robert D. Ballard of Woods Hole on board as chief scientist. Diving resumed on March 8, and by March 16, 10 more dives had been successfully completed. □

Yugoslavs test man in isolation

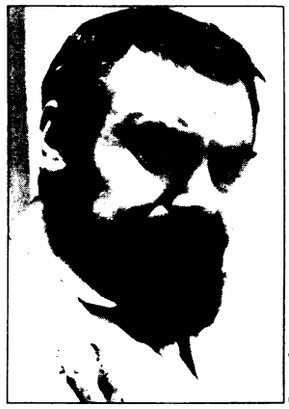
When Milutin Veljkovic emerges from the Bogovinski Cave in Yugoslavia in July 1979, he will not know what day it is or what time it is. He may not even know the season or the year. When he does come out after two years of isolation 3,200 feet below the surface of the earth—if indeed he can stay below that long—he will have set another world record and provided researchers with scores of data on the functioning of biorhythms in an enclosed, sunless environment.

Last week Veljkovic, Yugoslav officials and an American company participating in the research announced their plans for the 24-month underground stay. Speaking in his native Serbo-Croation, Veljkovic described for an American audience his first world record, a lengthy underground sojourn begun six years ago in the Samar Cave in Yugoslavia. There, Veljkovoc tended a small number of ducks and chickens for 15 months for experiments on the animals' reproductive behavior in the dark, uniform environment of the cave. Sealed within the extensive caverns cut by an underground river, Veljkovic reported that he suffered from intense feelings of monotony, punctuated by infrequent hallucinations. A clock and a telephone to researchers above ground provided Veljkovic his only link with the daily movements of time and seasons.

His next underground trip will focus on human physiological and psychological adjustments to the isolation of the cave. When he descends into the cave in July this year, he will not be equipped with any clocks, animals or telephones. Instead, a computer terminal will serve as



Veljkovic and site of Bogovinski Cave in eastern Yugoslavia: An attempt to remain in underground isolation for two years.



Veljkovic's only connection to the team of researchers above ground.

Before entering the cave, Veljkovic will be subjected to a battery of tests to determine his psychological and physiological state. Similar tests will be run upon completion of the experiment in two years. During that time, Veljkovic will continually run tests on urine samples, air temperature, humidity, blood pressure, skin temperature and other factors. In addition, he must record changes in his psychological state by answering various questionnaires. The researchers also want to test the stability of his language structure during the isolation. Finally, records must be made of his sleep-awake cycle.

Research on the experiment is being undertaken by a number of Yugoslav scientific institutions, including the Institute for Nuclear Science, the Institute for Experimental Phonetics and Pathology of Speech and the Institute for Biochemistry of the Belgrade University Medical School. The team is interested in the synchronic interaction of the many variables affecting Veljkovic during his stay. Through a controlled situation such as this, the researchers hope to isolate and identify the factors controlling human adjustment to a new environment. □

Return of Adonis: An asteroid refound

In 1936, astronomer Eugene Delporte of the Belgian Royal Observatory discovered an asteroid which he named Adonis. It was only the second known asteroid whose orbit carried it inside the orbit of the earth, so it was an object of considerable interest. But in the four decades following Delporte's discovery, no one ever saw it again. Until last month.

Charles Kowal of the California Institute of Technology has found a number of interesting objects in the sky in recent years, among them the 13th and yet-unconfirmed 14th moons of Jupiter. And on Feb. 22, in a photographic plate taken eight days before, with the 122-centimeter Schmidt telescope at Palomar Observatory, he refound Adonis.

It is a dim object—only 16th magnitude on Kowal's plate—so it is an extremely difficult one to spot. Although Adonis's orbital period is only about two and a half years, according to Brian Marsden of the Harvard-Smithsonian Center for Astrophysics, it was 1943 before suitable observing conditions came along, but the elusive asteroid could not be found at that time.

Kowal sought the object using predictions made by Marsden based on the original observations by Delporte and others spanning a two-month period. Calculations based on Kowal's plate indicated that Adonis was three days late in reaching perihelion, a conclusion that enabled Marsden to follow the orbit's evolution backwards and determine that Adonis's motion had been deflected slightly by a close encounter with Venus in 1964, and its orbit thereby somewhat altered.

The rediscovery was part of a deliberate effort by Kowal to locate some of the many "lost" objects in the solar system. In January, for example, he spotted a piece of comet Taylor, which broke in two in 1916, the year after its discovery, and hadn't been seen since. In that effort, Kowal used predictions provided by Nikolai Belyayev and V.V. Emel'yanenko of the Institute for Theoretical Astronomy in Leningrad, which were in turn based on calculations published half a century before by Hamilton M. Jeffers of Lick Observatory.

Asked whether he has a "pet object" that he'd like to find in his search for the solar system's lost, Kowal has a ready answer: comet Swift-Tuttle, discovered in 1862. Since it takes about 120 years (give or take a few) to circle the sun, this will be its first visit since that time, so it can't really be considered "lost." But there is nonetheless a compelling reason for interest: Kowal—and others—believe Swift-Tuttle to be the parent body of the annual Perseid meteor shower, which occurs in August. □