show any significant anomalies, skepticism about the French claim mounted.

A manganese crust does cover most rocks in the area, the apparent result of precipitation from the surrounding seawater, but no other localized concentrations were discovered. To find a region of hot water percolating up from the depths that might be the source of manganese, Alvin even performed the risky maneuver of thrusting its heat sensor into one of the narrow fissures. But no hot water was found.

Woods Hole Provost Arthur E. Maxwell says one of the major accomplishments of the expedition was demonstrating "how effectively we could operate out there." Bryan describes a journey along the bottom as being like "hedge-hopping in a helicopter," as the neutrally bouyant Alvin skipped lightly over sediment-dusted formations "like flying over a snow field. Unfortunately the field of view was usually limited to a radius of 50 to 100 feet, "like working in a fog," and pictures could not display the vast scope of the surroundings. Though plans for further exploration of the area have not been submitted and funding for Alvin is currently "in doubt," Maxwell feels confident that the project has "opened a whole new era" in how we view the ocean bottom. □

Rise of antibiotic-resistant bacteria

Since they became available in the 1940's, antibiotics have saved millions of people from life-threatening bacterial infections. But these "miracle" drugs have a serious drawback: Bacteria can build resistance to them. Resistant strains of pathogens have multiplied to the point where they may cause 50,000 to 100,000 deaths a year in American hospitals, according to figures cited by Henry E. Simmons, deputy assistant secretary for Health, Education and Welfare. Now two reports, one in the Aug. 19 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and one in the Aug. 3 LANCET, show that antibiotic-resistant pathogens are also becoming a health danger outside the hospital.

The pathogen *Staphylococcus aureus* can cause severe infections such as pneumonia, septicemia or osteomyelitis. Large numbers of penicillin-resistant staph microbes have been observed in hospitals for many years. But the incidence of resistant staph outside the hospital setting has been much lower. Now Sydney Ross and his infectious disease team at the Children's Hospital National Medical Center in Washington have isolated staph pathogens from 133 children seen in the hospital outpatient department or by physicians in private practice. Eighty-four percent of these pathogens were resistant to penicillin G, compared with a 95 percent resistance among hospital staph. The team also surveyed 309 healthy school children and found that 47 percent of them were asymptomatic carriers of staph. Sixty-eight percent of the pathogens taken from these children were resistant to penicillin G. "These findings," the investigators conclude in JAMA, "suggest a trend of increasing penicillin G resistance of community (street) strains of *S. aureus* similar to that already observed among hospital strains."

M. S. Schiffer and co-workers at the National Institutes of Health have isolated the pathogen *Haemophilus influenzae* type B from children at a day-care center. All of the pathogens isolated were resistant to the widely used antibiotic ampicillin. One child, in fact, had come down with meningitis as a result of the pathogen, and he had received ampicillin before getting meningitis. The investigators admit in the LANCET, however, that "no data are available from the study to support any speculation on the role of this therapy in the development of . . . ampicillin-resistant strains."

The increase of antibiotic-resistant bacteria, especially out on the street, has some serious health implications. Although other antibiotics are available when one antibiotic doesn't work, some physicians wonder how long it will be before pathogens resist all available antibiotics and become dread "Andromeda strains." Meanwhile, it can cost patients more to switch to alternate antibiotics. In an editorial in the Aug. 19 JAMA, Jerome O. Klein of Boston City Hospital points out that substitute antibiotics for penicillin G can cost 10 times as much as penicillin G.

Why are pathogens becoming increasingly resistant to antibiotics? Hearings held by the Senate Health Subcommittee last spring suggest that drug companies overpromote antibiotics to physicians, and physicians overprescribe them, especially for colds and other viral infections that antibiotics can't counter. There is also evidence that lavish dumping of antibiotics into animal feeds to promote livestock growth may be increasing the reservoir of antibiotic-resistant pathogens (SN: 5/27/72, p. 348).

So antibiotic overuse appears to be the major factor in building up armies of antibiotic-resistant bacteria. Antibiotic overuse may also prevent patients from building antibodies to pathogens —antibodies that help immunize them against subsequent attacks by the same pathogens, investigators report in the September AMERICAN JOURNAL OF PUBLIC HEALTH. □

J. Bronowski dies: Did Ascent of Man

Jacob Bronowski, a pioneer in the effort to join the "Two Cultures" of science and the humanities, and to make them accessible to the average person, died last week of a heart attack while vacationing at the home of some friends in New York. He was 66.

Born in Poland and educated in England as a mathematician, Bronowski early branched out into other fields, conducting statistical studies of economics, analyzing biological systems, publishing scholarly works on the poet William Blake and pursuing a distinguished career as a civil servant. At his death he was a senior fellow at the Salk Institute in San Diego. But he will most likely be remembered best for his probing works on the history and nature of the scientific enterprise, particularly the 13-part television series *The Ascent of Man*.

Unlike the cool detachment that Kenneth Clark brought to a similar series on the arts, Bronowski's view of the place of science in man's "ascent" was one of passionate commitment. "We are a scientific civilization," he proclaimed, "that means, a civilization in which knowledge and its integrity are crucial." He once told SCIENCE NEWS (SN: 12/8/73, p. 364) that one reason he took on the project was that a BBC producer had warned him the programs might not go over well considering current anti-science attitudes. "In that case," he replied, "I regard it as a duty to speak out about what I think to be the true philosophy of science."

The programs have already been shown three times on BBC and have premiered as films at the Smithsonian Institution (SN: 5/5/73, p. 285), where they received rave reviews (SN: 6/23/73, p. 409). Ironically, Bronowski did not live to see the fulfillment of his dream of having them shown on national U.S. television (the series is tentatively scheduled to begin on public television Jan. 11, 1975), and he had just embarked on writing the script for a Bicentennial exhibit on science under a grant from the National Science Foundation.

Though he was an optimist who really believed that man's cultural evolution has been an "ascent," Bronowski was profoundly disturbed by what he saw as "a sense of retreat" in Western civilization. "I am infinitely saddened to find myself suddenly surrounded in the West by a sense of terrible loss of nerve, a retreat from knowledge. . . . We are nature's unique experiment to make the rational intelligence prove itself sounder than the reflex." □