

ployes who are "disadvantaged."

Dr. Cohn reports that some workers were upset with privileges that blacks initially received, but there were also some other less anticipated results. "White blue-collar workers have learned from blacks to be freer and more assertive toward management in bargaining. Blacks are less intimidated," he contends.

Dr. Sar Levitan, who organized the symposium of research studies, believes that the lower-middle class will be the "in" group of the seventies. "In the sixties, social scientists and governmental programs showered attention on the poor, but the problems of blue-collar workers are likely to receive top billing in the years ahead," he says. □

## PARASITOLOGY

### Amoebic killers



Dr. J. L. Griffin

*N. gruberi*: Invader of the brain.

Although medicine is even older than civilization, new disease discoveries are still being made. A fearsome one has been recognized in recent years, produced by a one-cell organism that now and then gives up its free-living state to become a parasite of man. Mercifully, human invasion is rare, for the invader, an amoeba, destroys the brain tissue and produces death in from four to seven days. Only 50 cases are known.

**The largest outbreak** of the amoeba-born disease occurred in a swimming pool in Czechoslovakia. Thousands of persons used the pool. Some 17 contracted encephalitis. Autopsy examination of their brains showed that amoebas had deeply penetrated the cortex of the brain, clustering around blood capillaries. The abundant oxygen in the brain's blood supply may be why this new-found invader chooses brain tissue. As a free-living organism it requires oxygen, unlike most of the parasites who live with man.

These amoebic invaders enter the nose of swimmers and eat their way

through the olfactory tract to reach the brain. Their victim usually feels he has a bad cold. The amoebas move faster than body defenses can be mobilized against them, according to Dr. Joe L. Griffin of the Walter Reed Armed Forces Institute of Pathology, who has watched them outpace blood cells in tissue culture. By the time moving amoebas can be detected in samples of cerebrospinal fluid, the invaders have reached the brain, the patient is unconscious and chemotherapy is useless.

**Two of three brothers** who picked up the amoeba playing in a pond of an English garden were, however, saved. When one of the boys died, physicians found the organism in his brain and quickly gave an antibiotic, amphotericin B, to the others. Dr. S. R. Das of the Central Drug Research Institute of India had shown that the drug checks the disease in mice.

This free-living amoeba, *Naegleria gruberi*, is not confined to tropical countries lacking modern sewage disposal. Four deaths traced to *Naegleria* occurred in 1967-69 in Virginia. Dr. Charles Richards of the National Institute of Allergy and Infectious Diseases, Bethesda, Md., has found *Naegleria* in domestic fresh-water snails. Cysts, the survival capsules in which amoebas live when separated from a food supply, suggest that snails may be a vector.

The most marked aspect of this disease is its rapid onset in young and healthy persons. When such patients are seen with flu-like states resistant to common antibiotics and when no bacteria can be found in cerebrospinal fluid, physicians should suspect amoebic meningoencephalitis. Dr. Lubor Cervá of the Czechoslovak Army Institute of Hygiene, Epidemiology and Microbiology in Prague advised colleagues at an international congress of parasitology last week in Washington.

The brain-invading amoebas have nothing at all to do with the widespread amoebic dysentery produced by much larger protozoa, *Entamoeba histolytica*. This cell is without the normal apparatus (mitochondria) for using oxygen. It is anaerobic and must live as a parasite. In the human gut, it causes chronic and debilitating disease, sometimes invades the liver and other organs.

**Dr. L. S. Diamond** of the National Institute of Allergy and Infectious Diseases has perfected a simple skin test useful to detect amoebic dysentery on a mass basis. He did this by developing a bacteria-free culture of *E. histolytica*, from which test antigen is derived. Before his work, parasitologists thought this amoeba must have bacteria to live (it feeds on them in the gut). These contaminants caused non-specific reactions to earlier tests. □

## POLITICAL SCIENCE

### Relevance and a new candidate

Prof. Carlos Munoz of the Chicano Caucus interrupted his low-keyed, almost inaudible presentation.

"If I can have your attention . . ." he thundered. The 30 or 40 listeners, who had been twittering like starlings, snapped into abrupt silence. "I'm getting tired of all this liberal b——," continued Prof. Munoz.

The audience winced at the word liberal. For the concept of liberalism has an Establishment ring to it, and this was a meeting of the Caucus for a New Political Science. The caucus has little use for the Establishment, either that of the nation, or that of the American Political Science Association.

"In 1967," says Dr. Phillip Brenner of Johns Hopkins University, "the American Political Science Association had its annual meeting at a time when the war in Vietnam was in full rage, with a tremendously unsettling effect on the American polity. Yet the association made no mention of it. This is supposed to be a body of scholars who are studying the American polity, and yet it saw no relationship between the war and what was going on in America."

**It was this silence** that led to the formation of the caucus. In the years since, its members have had considerable influence on the topics discussed at the annual meetings of the association. Last week in Los Angeles (see page 250) there were numerous panels not only on Vietnam but on caucus interests such as the rights of blacks, women and chicanos, and including topics like "Political Repression in the '70's" and "Radicalism in the Social Sciences."

But if the meeting has loosened up—largely as a result of the caucus's ability to turn the association's business meetings into parliamentary shambles—the leadership of the association, and the pages of the association's professional journal, haven't. The officers of the association are nominated by a small committee; until recently there has been no opposition candidate. And the journal—*THE AMERICAN POLITICAL SCIENCE REVIEW*—has been firm, says Dr. Brenner, in its refusal to open its pages to research which the caucus deems important.

As for the association leadership, the caucus is optimistic. Last year it sponsored an opposition candidate who gained a third of the votes cast by mail ballot by the members during the year. This year it is supporting a man for president-elect whose prominence makes him a stronger contender: Dr. Hans Morgenthau of the Univ. of Chicago and City University of New York.

Although long a major voice in the profession, Dr. Morgenthau has never been part of the society's ruling clique, as he calls it. He is not a member of the caucus, but he does agree on the question of relevance in political science research.

"The profession at large," he says, "has made an elaborate effort to avoid the real political problems of American society. They have taken refuge in

semantic and methodological exercises." His opponent is Dr. Heinz Eulau of Stanford University.

Concerning the journal, Dr. Morgenthau has negative thoughts. "It's a monumental bore," he says. "Who can read it? Who can understand it?" He expects to make some changes, or at least to separate membership in the society from subscription to the journal. □

## RADAR ASTRONOMY

### Mapping the veiled planet



NASA

*Bright spot in lower right of Venus radar map could indicate mountains.*

Except for a few asteroids, Venus is the planet that comes nearest the earth. Nevertheless it is one of the most difficult to study because its surface is hidden by whitish clouds that have never been known to break.

Radio waves can penetrate the clouds, however, and radar beams sent from the earth will strike the surface and come back with information about its roughness or smoothness. But only in the last few years have senders and receivers been strong enough to make attempts at mapping the surface of Venus practical.

**The first success** was reported two years ago by Dr. Richard M. Goldstein of the Jet Propulsion Laboratory of California Institute of Technology, who used JPL's 210-foot sending and receiving antenna at Goldstone, Calif. (SN: 8/10/68, p. 138). Now Drs. Goldstein and Howard Rumsey Jr., report that observations taken between March and May have yielded a map that covers a much larger area of the planet than the 1968 map. It contains about 100 times as much information as the previous one, according to Dr. Goldstein.

The new map covers an area 120 degrees of Venus longitude by 80 degrees of Venus latitude: about 8,500 miles along the Venus equator and

4,600 miles wide. There are, however, gaps or holes within this area that could not be mapped.

The most striking feature is a large rough spot in the planet's southern hemisphere, which Drs. Goldstein and Rumsey call Alpha. Alpha is roughly 1,000 miles in diameter. Dr. Goldstein believes it is probably a mountain range but adds that it "could be a chain of craters or large areas strewn with boulders."

**The map shows** a strip through the middle, which Dr. Goldstein calls a runway, where analysis of the radar beam is not as practical as at the edges. He hopes that observations planned for November will increase the definition in the runway. At that time the center of the apparent disk will be 10 degrees north of its position in the spring. That will put the runway in a position where better separation of points and images is possible. The capability of the radar may be improved by then too.

Another November observation will use two receiving antennas as a radar interferometer in an attempt to gain very fine resolution for a small area of the planet, say 10 degrees by 10 degrees. "It's a hard experiment," says Dr. Goldstein. "I don't know if we can pull it off." □

## AIR TRANSPORTATION

### Toward the year 2,000

In less than 20 years, the air transport industry has seen the bulk of its piston-engine aircraft supplanted by nearly supersonic jet-propelled jumbos. It now awaits new craft capable of flying at three times the speed of sound. Aircraft users and Government planners have consistently underestimated industry growth and the pace of technology. They have also failed to foresee the social and environmental consequences of this growth.

To obtain a better view of the future in this field, the Advanced Transportation Concepts department of McDonnell Douglas Corp. in Long Beach, Calif., sought the opinions of industry professionals on 10 possible developments. The questionnaire went to 304 persons representing different segments of air transportation.

Whether by design or oversight, the query did not address itself to worsening air congestion or to the potential restraining effects on the industry by environmentalists. However, these factors may have been considered by many respondents.

**The survey forecasts** the first use of exotic materials, such as boron filament (SN: 6/21/69, p. 601) and beryllium, in commercial aircraft by 1985 to 1990. Some 75 percent of those polled expect a nuclear-powered air transport to be in operation by 1995 or 2000.

The former is surprising in the delay anticipated: Boron composite for commercial air frame fabrication and testing was approved by the Federal Aviation Administration in late 1967 and was applied successfully to the leading edges of a C-141 Starlifter the next year. Boron filament also was tested on the Air Force F-111A fighter-bomber and the C-5A Galaxy transport because of its light weight, stiffness and resistance to corrosion.

The contrary is true for dreams of a nuclear-powered aircraft because there is no program for such a development today. The last was terminated during the first year of the Kennedy Administration; the only other remotely similar effort, a nuclear-powered supersonic low-altitude missile (SLAM), suffered a like fate in the Johnson era.

For non-Communist certified and chartered passenger services, the survey predicts passing of the trillion mark for annual revenue passenger-miles between 1990 and 2000. This calls for a marked increase in passenger service because the total for 1969 was only 217 billion, according to the International Civil Aviation Organization. Also, operation of a 1,000-passenger aircraft is expected by 1990 to 1995—a reasonable esti-