

says Etzioni. "The public trust in science is higher this year than last," and it was higher last year than the year before that.

"I predict that you'll see in the next three years an increase in the public trust of scientists and a greater reliance on them for advice and guidance in dealing with crises such as the energy crisis."

The rise of public appreciation of science, says Etzioni, is intimately related to the plunge in the public's regard for political institutions. "The public's disenchantment with political institutions is at its highest in 20 years," he says.

In his view, the public, with its loss of faith in politics, is turning and will continue to turn increasingly to science to help cope with major problems. Actually, the public, in turning away from politics, is turning in two "incompatible" directions, he says. One is toward science; the other, toward such areas as astrology.

His conclusions are based on Harris polls for 1966, 1971 and 1972 and a National Opinion Research Center poll for 1973. Data from the latter poll were made available to him and his associates about three months ago.

They show that science's ranking in public trust among 16 institutions has risen from fifth in 1971 to third in 1972 to second in 1973. In 1973, 54 percent of the public indicated they had "a great deal" of confidence in medicine; the figure for science, next in order, was 37 percent. Following, in declining rank, were education, finance, religion, psychiatry and the U.S. Supreme Court. The military was eighth, retail businesses ninth, the Federal executive branch tenth, major U.S. companies eleventh and Congress twelfth. Trailing the list were the press, television, labor and advertising.

The falling away from science between 1966 and 1972 was part of a general lessening of faith in American institutions and authorities, says Etzioni, rather than a major antiscience groundswell. Appreciation for all 16 institutions without exception has shrunk since 1966.

Another conclusion deriving from his analysis of details of the polls is that "the main source of lack of confidence [in science] is traditional and lower-class America, not counter-cultural, liberal or 'greener' America." Persons least confident in the scientific community tend to be those in the Deep South, the rural parts of the country and of lower income.

Poll data, Etzioni cautions, are not a totally reliable guide. "But they do provide a useful antidote to quick overgeneralizations and grand simplifications as to the scope, source and direction of antiscience sentiments." □

Studies cite drug overuse in hospitals

A series of studies presented last week to the Senate Health Subcommittee indicates that more than half of the antibiotics used in hospitals across the country are either incorrectly prescribed or not needed at all, and can result in needless adverse reactions, unnecessary expenditures and longer hospitalization for some patients. In addition, according to James V. Visconti of Ohio State University's College of Pharmacy, the unnecessary prescriptions are costing the nation as much as \$200 million a year.

Visconti and Charles C. Edwards, assistant secretary for health at the Department of Health, Education and Welfare (HEW) cited before the committee numerous studies documenting overprescription. In one such study, conducted by Visconti and A. W. Roberts in 1972, out of 1,045 monitored patients, 340 were receiving antimicrobial drugs. "Only 13 percent of the therapies were judged rational by the physician and pharmacist review team; 65 percent were judged irrational and 22 percent were considered questionable," Edwards says.

Edwards partly blames the drug problem on "inadequate drug information" and adds that there are over 35,000 prescription drug products on the market, all clamoring for the physician's attention.

"There is today no single well-organized comprehensive source of practical prescribing information for the physician," Edwards points out. ". . . The Physicians' Desk Reference (PDR), the most widely used information source, contains complete FDA approved labeling for many drugs, but only those promoted by manufacturers who buy

space in the book. The physician wishing to evaluate all his therapeutic options will have difficulty finding them in the PDR."

Sidney M. Wolfe, director of Ralph Nader's Health Resource Group, finds fault with the pharmaceutical industry for overprescription, that is, he believes that many doctors will prescribe drugs not on a diagnosis but "on the basis of those symptoms for which the drug is promoted."

Says Wolfe: "A well trained actor could probably prescribe drugs as rationally as the thousands of American doctors whose prescribing practice reflects drug company indoctrination in lieu of scientific evaluation."

Visconti points out that many times more expensive antibiotic drugs are prescribed by doctors even when a less expensive antibiotic could do just as well.

Subcommittee Chairman, Sen. Edward M. Kennedy (D-Mass.) says that many doctors will prescribe antibiotics even though they won't help, simply out of "a desire to do something" or under the impression that they will help. "As long as treatment of diseases is as unspecific as it is," Kennedy adds, "I think that we are going to continue to overabuse antibiotics." He also suggests that the drug industry's "detail man"—the salesman that calls on doctors—be licensed to prevent overpromotion of drugs.

Wolfe concluded his testimony by saying, "Until detailing of drugs and all other forms of educating doctors about pharmacotherapeutics gain freedom from the bias of the drug companies, the present epidemic of 'ethical' drug abuse is sure to continue." □

New approach: Conquering malaria

At the end of 1972, 73 percent of the 1.84 billion people living in the original malarial areas of the world were in areas where the mosquitoes that carry the malarial parasites had been eradicated, or where eradication programs were in progress. Still, malaria continues to be the major parasitic disease of the tropics. Millions of people in Africa and Asia have it (SN: 2/9/74, p. 88). Even if all these people could be treated with drugs, the drugs might not work because the incidence and number of drug-resistant malarial parasitic strains are on the rise.

A new approach to treating patients with malaria is being explored by Michael R. Levy of Southern Illinois University, W. A. Siddiqui of the Uni-

versity of Hawaii and S. C. Chou of the University of Hawaii School of Medicine. It would consist of giving a patient a drug that inhibits proteolytic enzymes in the malarial parasite. The parasite needs these enzymes to break down hemoglobin in the red blood cells of its victim. It presumably also needs these enzymes to break down some of its own cell parts when it gets into the red blood cell of its host. How present drugs kill malarial parasites is uncertain. There is some evidence that the drugs attack the parasites' DNA (genetic material).

Although the new approach probably wouldn't keep malarial parasites from becoming drug-resistant, at least it should give them one more chemical hurdle to overcome. "The more drugs

you have, the safer you are," Levy says.

Levy and his colleagues tested two malarial parasites for proteolytic enzymes. One of the parasites is found in humans, the other in monkeys. As they report in the Feb. 22 NATURE, they found an enzyme that acts under acidic conditions, is very stable and exists for weeks. It is an acid proteinase. Evidence for a proteolytic enzyme in malarial parasites was reported a decade ago, but the enzyme was unstable and disappeared overnight. Levy and his co-workers also report that their acid protease is potently inhibited by a number of chemical inhibitors, known as pepstatin, chymostatin, antipain and leupetin.

Since publishing their findings in NATURE, they have also found that

some of the inhibitors will inhibit growth of the parasites in red cell cultures and hence prevent the spread of malarial infection.

The next steps will be injecting the inhibitors into animals and hopefully eventually into people to see whether they will stop the spread of malaria. The inhibitors, of course, would also attack proteolytic enzymes in the red cells of animals and people. But Levy says that this action shouldn't be a problem. "The rationale behind the approach," he explains, "is that over a short period of time the parasites absolutely have to use their proteolytic enzymes, whereas over a short period of time the red cells could presumably do without theirs. If that statement is not true, then everything we're doing wouldn't work anyway." □

NASA tightens up

Now that U.S. manned space flights have all but ended until the space shuttle takes off in 1979, NASA has decided to gather in its troops. In a top-level reorganization effective March 15, it will be restructured as an agency with two overlapping arms, one of them divided into research and development areas and the other in charge of the 10 major NASA field centers.

For most of its life, NASA has been organized largely as a program-oriented body, with parts of the work farmed out to regional centers which were otherwise at least semi-autonomous. The key feature of the reorganization is the creation of the office of Associate Administrator for Center Operations, to be filled temporarily by Deputy Administrator George Low, which will knit the centers much more closely with Washington headquarters.

Symptomatic of the need for reorganization following the manned space flight push has been the departure of several top officials including Associate Administrator Homer Newell and Associate Administrator for Manned Space Flight, Dale Myers.

Supersonic space plane

The X-24B wingless aircraft made its first supersonic flight on March 5, reaching 1.12 times the speed of sound, about 740 miles per hour, and an altitude of 60,800 feet over Cuddebock Dry Lake in California.

The joint Air Force-NASA craft is the successor to the "manned lifting bodies" that at one time were the leading candidates for the design of the space shuttle to carry men back to earth from orbit. Used as a shuttle, they would fly up to orbital height using a rocket engine, then glide back down to an unpowered landing. The emphasis of the present X-24B operation is on using it as a research craft in studies of future hypersonic vehicles capable of cruising at speeds above Mach 5.

On to Saturn . . . maybe

The decision has been all but made to send Pioneer 11 as man's first visitor to Saturn. Though the official word is not due until the end of this week at the earliest, the signs have all been pointing to the ringed planet. As long ago as several weeks, a preliminary vote among project officials was "11 to one in favor" according to one participant, while another described the chances this week as "about 80 percent certain." The spacecraft will first fly by Jupiter on Dec. 3, but it must take a particular path past the planet in order to use Jupiter's gravity to swing it towards its 1979 rendezvous with Saturn.

A new dinosaur rears its snout



Univ. of Utah

The start of a new dinosaur: Pieces of hip bones and a smaller jawbone.

Tyrannosaurus rex, *Allosaurus*, *Triceratops*—dinosaurs that roamed the earth 100-million years ago. Now, add a new name to the list—*Stokesosaurus clevelandi*. A new genus and species of dinosaur has been discovered, the first one in 75 years, by James H. Madsen of the University of Utah.

Since the 1920's paleontologists have been working in the Cleveland-Lloyd quarry in central Utah, the largest dinosaur graveyard in the United States. The site has yielded numerous specimens and much information about the ancient reptiles. Three years ago Madsen identified three skeletal fragments of what he believed to be an entirely new genus of dinosaur. Since then he has been accumulating evidence to verify his hypothesis. His finds are described in detail in the January JOURNAL

OF PALEONTOLOGY.

The two hip bones and a jawbone with which Madsen has been working show certain features that do not exist on similar specimens from the quarry. There is a protruding ridge on the hip bone, for instance, and the jaw contains one less tooth than the allosaur. This, according to Madsen, indicates a more advanced form of predator with a shorter snout. The bulldog-faced stokesosaur, he says, was probably most closely related to the flesh-eating tyrannosaur. It is believed to have lived 140 million years ago when Utah resembled today's Amazon basin. When full-grown *Stokesosaurus* was thirteen feet long, five feet tall and fed on small reptiles and tiny mammals. Madsen hopes the entire skeleton can be reconstructed eventually. □