

"It was quite impossible to look at its structure and suspect it as a carcinogen," he comments. "Nor is there any reason to believe that any chemical, given continually in such large doses, will produce tumors. That assumption is a fallacy." Nor are there other food additives, he says, which are structurally like cyclamates.

Nevertheless, FDA is now expected to launch investigations of other food additives on what is called the GRAS (Generally Regarded As Safe) list. There are hundreds of them, including monosodium glutamate, also the object of recent controversy (SN: 10/4, p. 295), and saccharin, the sweetening agent used in combination with cyclamates.

It is uncertain at this point just which ones will be singled out for study, though Sen. Warren Magnuson (D-Wash.) has said he will try to provide FDA funds for such investigations.

Sen. Magnuson, a strong advocate of consumer rights and a member of the Senate subcommittee that oversees HEW appropriations, recently defended an FDA scientist, who had reported adverse findings from cyclamates studied in chick embryos, when she came under attack by HEW head Finch. Dr. Jacqueline Verrett reported last month that when chick embryos were fed normal doses of cyclamates, deformities appeared in 15 percent of the animals. Finch criticized her for taking her evidence directly to the news media, though she may well have informed FDA Commissioner Dr. Herbert L. Ley Jr. of her results in a neglected memo in December. More recently, another FDA scientist, Dr. Marvin Legator, reported on cyclamate-damaged chromosomes from tissue cultures (SN: 10/4, p. 306). These reports prompted Dr. Ley to call for a new NAS review, originally scheduled for completion by late November.

In the wake of these events, the major soft drink companies and other manufacturers of diet foods are quickly changing over to diet products that contain no cyclamates. Many expect to have their new products on the market within a few weeks. Apparently the cyclamate ban did not come as a complete surprise, although the cancer-based abruptness of it probably did.

And several firms, including the pharmaceutical manufacturer G. D. Searle and Co., report they are working on new artificial sweeteners to substitute for cyclamates, though it is unlikely FDA will pass any soon.

Meanwhile, Abbott is negotiating with the FDA to salvage some of its cyclamate business, saying it will cooperate with FDA in the "development of appropriate new regulations," that will make cyclamate products available to persons who need sugar-free food. □

WOBBLE IN THE CRAB

Pulsar may have a planet

Stars with companions, double and even triple stars, are fairly common in the universe, but only four stars are known to have planet-sized companions (SN: 5/26, p. 398). The known companions are all rather large bodies, between Jupiter and the sun in size.

Now a pulsar seems to have a companion the size of the earth.

The presence of dark companions is determined by observing minute back-and-forth fluctuations in the motion of the star. Only if the companion is quite large is its gravity strong enough to cause enough motion of the star to be seen on photographic plates. But with a pulsar there is another way.

"With a pulsar," says Prof. Thomas Gold of Cornell University, "we have this enormous ability to detect a very slight motion." It's done by watching for minute variations in the pulse repetition rate.

A group of Cornell radio astronomers led by Prof. Gold, Drs. D. W.

DELBRUCK, HERSHEY, LURIA

Biology Nobelists

When a virus invades a cell, it leaves behind its outer, protein coat, infecting the cell only with pure genetic material. The attacking virus works its way into the cell's genetic machinery, and metabolic changes ensue as virus and cell interact.

Within 30 minutes of the time a virus strikes a bacterium, some 100 progeny viruses form, destroying the original bacterium as they break through its cell membrane. Further, it is possible for two viruses to infect a cell simultaneously, with resultant mutations in their DNA and the eventual birth of hybrid progeny viruses. Such hybrids yield information about the detailed genetic structure of viruses.

This basic knowledge, available today in any biology text, came from studies in the 1940's of bacteriophages, simple viruses possessing only a few genes and a unique capacity to infect only bacteria. It formed the backbone of the investigations in the 1950's that led James Watson and Francis Crick to the helical structure of DNA, and helped Arthur Kornberg to identify an enzyme, DNA polymerase, as the molecule responsible for DNA copying. This year, the three scientists who built that foundation of knowledge shared the Nobel Prize in Physiology or Medicine "for their discoveries concerning the replication mechanism and genetic structure of viruses."

The \$73,000 Prize went to Dr. Max

Richards, G. H. Pettengill, C. C. Counselman and J. R. Rankin, have found a periodic three-month variation in the repetition rate of pulsar CP 0532 in the Crab nebula. This can be interpreted as a Doppler shift caused by a back-and-forth motion of the source. If it is so interpreted, says Prof. Gold, "then it would be a motion with an amplitude of 200 kilometers."

If it is such a motion, says Prof. Gold, then a companion the size of the earth revolving around the pulsar at a distance equal to a quarter of the earth-sun distance could cause it.

Another group of astronomers at Princeton University, led by Dr. R. B. Partridge, have been watching CP 0532 optically and checking its repetition rate against an atomic clock (see p. 375), and similar aberrations have been found in other pulsars.

"We haven't analyzed our data looking for wobble," says Dr. Partridge. "We're going to look right away."

Delbruck of the California Institute of Technology in Pasadena, Dr. Alfred Day Hershey, director of genetic research at Carnegie Institution in Cold Spring Harbor, L.I., and Dr. Salvador Luria of the Massachusetts Institute of Technology in Cambridge. While generally working independently, the three scientists then, and now, met informally to discuss their mutual interest in bacteriophages, forming the nucleus of what was called the Phage Group.

Dr. Delbruck, born in Berlin 63 years ago, came to the United States in 1937 (supported by a Rockefeller grant), where he began his phage work at Vanderbilt University with the development of the plaque technique for purifying viruses. In the 1940's he met Dr. Luria, a 57-year-old native of Turin, Italy, when both were on the faculty of Indiana University. For a time they worked together, constructing a mathematical model of phage reproduction and exploring the interactions between phage and bacterium. Dr. Hershey, who became friendly with the other two at about that time, was teaching then at the University of Wisconsin. Born in 1908 in Owosso, Mich., he is the only American-born member of this year's Nobel trio.

Health, Education and Welfare Secretary Robert H. Finch lauded the three Prize-winners, citing the fact that grants from the National Institutes of Health have supported all three Nobel

laureates in past years. Almost simultaneously, it was disclosed by NIH that all three have been hit by the across-the-board reductions in research support. "We are not being able to keep what we have called over the years a moral commitment," an NIH spokesman says.

During the current fiscal year, Dr. Hershey, who has won NIH backing for 20 years, took a 10 percent cut in funds, from \$45,399 to \$40,860. Dr. Luria's grant was sliced nine percent, from \$60,731 to \$55,266 and Dr. Delbruck lost eight percent, from \$406,274 to \$373,760. Dr. Delbruck's funds are part of a large grant to several members of the faculty of Caltech while the other two scientists receive individual grants.

It also became known this week that Dr. Luria has been barred from serving on NIH grant review panels since his name was blacklisted in a procedure established during the McCarthy era. Several hundred scientists are so blacklisted, the journal SCIENCE has reported, for what was believed to be security reasons when the procedure was established. □

MARIJUANA

Administration about-face

When he was a candidate last year, President Nixon strenuously deplored the increasing use of outlawed drugs and promised that his Administration would initiate a stern crackdown on drug abuse. In the decade between 1958 and 1968 the number of drug arrests had climbed from about 10,000 to more than 160,000, and the proportion of offenders under 21 years of age rose from 14 percent to 56 percent.

It was obvious that new legislation was needed, if for no other reason than that the existing drug laws are in a state of confusion: The penalties for the illicit sale of LSD, for example, are considerably lighter than the penalties for selling marijuana, although LSD is considered a far more powerful drug. Moreover, the Supreme Court recently ruled that the Marijuana Tax Act, which is the principal Federal marijuana law, violates the Fifth Amendment by requiring unauthorized users of marijuana to incriminate themselves through payment of the tax.

The President's intentions during the campaign and his intentions at the present moment look quite different, though. The new Administration indeed initiated stern measures, but has now done a 180-degree turn. As originally introduced by the late Sen. Everett M. Dirksen, the Administration-sponsored drug bill included marijuana in the same category with heroin

and required mandatory minimum penalties of five years or \$25,000 for a first-offense conviction of possession. The strict penalties, however, were opposed by the Department of Health, Education and Welfare and the National Institute of Mental Health, and Sen. Thomas Dodd (D-Conn.), whose Subcommittee on Juvenile Delinquency heard testimony on drug abuse throughout the summer, sponsored a softer bill. In contrast to the Administration proposal, the Dodd bill contains no mandatory minimum penalties and suggested that judges grant probation to first offenders convicted of possessing marijuana.

The Dirksen proposals were categorically rejected by the scientific community (SN: 10/11, p. 350), and several months ago the Administration began to follow suit. It is now arguing for a drug bill which relaxes, rather than tightens, the present penalties.

Mr. Nixon's about-face began on a tentative note in September when Attorney General John Mitchell told the Subcommittee on Juvenile Delinquency that the Administration had merely followed the existing penalty structure in drawing up its bill. "This does not mean that there are not other equally reasonable alternative approaches," Mitchell said, adding that he "personally" was in favor of more flexible penalties. He made it clear that the Administration would not care if someone revised its bill.

No one did, but neither was there a storm of outraged public opinion following Mitchell's trial balloon. And this week Administration spokesmen returned with specific proposals for rewriting the law. On Oct. 14 Dr. Roger O. Egeberg, assistant secretary for health and scientific affairs at HEW, had testified that the Government had determined hallucinogens such as marijuana to be fundamentally different from narcotics; in any case, Dr. Egeberg pointed out, a law "making a large part of our population criminals by definition" would be nearly unenforceable. Then, on Monday, John Ingersoll, director of the Bureau of Narcotics and Dangerous Drugs, repeated Dr. Egeberg's contentions and advised the Dodd subcommittee that the Administration wishes to do away with the mandatory sentences for first-offense marijuana possession. Ingersoll recommended that marijuana no longer be considered in the same category as heroin, but be treated the same as amphetamines, barbiturates and other drugs which "normally lead to a moderate dependency."

The Administration still wishes to distinguish sharply between simple possession of illegal drugs and professional trafficking; in the latter case, and re-

gardless of the drug, according to Ingersoll, the offender should be locked up "for as long as rationally possible." Possession of marijuana with intent to sell can be penalized with a five-year prison sentence for a first offense.

Mr. Nixon has presented Congress with a variety of sentencing schemes, in varying degrees of severity, from which to choose.

The Administration also wishes to enable the Attorney General to reclassify marijuana as either more dangerous or less dangerous at some later date, and it intends to provide itself with grounds for altering the law by creating a commission to study marijuana under the auspices of the Department of Justice.

RUSSIAN SPACE STATIONS

Still in the future

More than 1,750 man-made objects are now in space. Most are junk—burned-out rockets and fragmented debris—while more than 400 are operational sky-spies, weather-watchers, research probes and other devices.

Conspicuously absent from the inventory, however, is a device that could become a keystone of future space efforts: a permanent, or long-life, space station.

Practically every visionary anticipation of a full-flowering Space Age has envisioned some kind of large, orbiting facility for tasks ranging from servicing recalcitrant satellites to launching manned flights to distant planets.

The U.S. Gemini and Apollo programs have demonstrated the necessary docking techniques for assembling modular equipment in orbit; in January the Russians followed suit by coupling and jointly maneuvering the manned Soyuz 4 and 5 spacecraft, adding a spacewalk from one craft to the other that could have represented a repairman trouble-shooting an orbiting platform.

Last week, a troika of Soviet spacecraft seemed ready to take the next big step: the joining in space of three separately launched pieces of equipment (SN: 10/18, p. 347). As the week ended, however, so did hopes for the triple coupling. One by one on succeeding days, in the same order in which they were launched, Soyuz 6, 7 and 8 returned to earth, their main mission apparently unfulfilled.

For the U.S., a three-way docking ought not present any major technical hurdles—the entire Gemini program was largely devoted to learning how to bring spacecraft together in orbit. Russia has two automatic unmanned dockings to her credit, as well as the one manned maneuver. "Plugging three