

## PARKINSONISM

### L-dopa in small increments

L-dopa has been hailed the most effective treatment for Parkinson's disease, but because of the extremely large doses—up to 8 grams a day—required to keep disease symptoms under control, serious side effects are often encountered (SN: 5/17, p. 476). Of concern are such reactions as fainting, changes in blood pressure, twitching, grimacing and gnawing.

Dr. George C. Cotzias, who heads the research team at Brookhaven National Laboratory at Upton, N.Y., claims this problem may be circumvented by giving the patient gradually increasing doses of L-dopa. Dr. Cotzias told an international congress of gerontology in Washington, D.C., that success is often dependent on the difference between "dose and dose rate."

The Brookhaven scientist estimates that L-dopa will produce at least 50 percent improvement in about two-thirds of all patients with Parkinsonism. The optimum daily dose, that which produces maximum improvement with minimum side effects, ranges between 4 and 5 grams in 6 to 7 portions a day—a level that can be reached within 5 to 7 weeks. In one study, patients were given 100 milligrams of L-dopa 3 times daily, with increasing doses of 100 milligrams 2 or 3 times daily every 2 to 4 days. Dr. Cotzias reports that nausea, vomiting or faintness rarely occurred.

In another study, he says, of 34 patients treated for as long as 3 years, 11 showed improvement of symptoms to some degree. Toxic effects such as hypertension and increased heart beat occurred in only a few, and other side effects such as nausea, vomiting and fainting were clinically insignificant.

## TOOTH DECAY

### Dietary phosphates on trial

Sweetened breakfast cereals are frequently shunned by some mothers for dental reasons. But if these cereals are fortified with dietary phosphates and eaten on a regular basis, says a team of dental scientists, tooth decay can be reduced by 50 percent.

Writing in the January *JOURNAL OF THE AMERICAN DENTAL ASSOCIATION*, Drs. Harold E. Brewer, George K. Stookey and Joseph C. Muhler of Indiana University Medical Center in Indianapolis state they gave one-ounce servings of phosphate-enriched cereal on a daily basis to a group of 474 individuals in an institution for the mentally retarded. All subjects used a non-fluoride dentifrice and fluoride-deficient water.

The researchers report that dental caries were reduced by 48 to 55 percent.

## MALNUTRITION

### Effects on the brain

Malnutrition during periods of rapid brain growth in the fetus and infant produces permanent mental deficits. Dr. Delbert H. Dayton of the National Institutes of Health in Bethesda, Md., says the damage occurs during the phases when cells are multiplying.

The brain grows in three phases, including a period

when cells multiply, when cells increase both in size and number, and a period when the cells increase in size alone. If malnutrition occurs in either of the first two phases, says Dr. Dayton, it can interfere with cell division, thus resulting in fewer cells in the brain. This could be a permanent effect, he says.

Cell division in the human brain usually occurs during development in the uterus and the early part of the first year of life. Dr. Dayton cites a study where markedly fewer cells were found in the brains of a small sample of children who died of malnutrition during the first year of life than in the brains of a group of well-nourished children who died in accidents.

Although these studies demonstrate the importance of nutrition during development of the nervous system in these stages, it is not known whether this represents an irreversible change.

## RIFAMPICIN AND ANTIVIRAL DRUGS

### New way of fighting virus

It has recently been reported that the antibacterial drug, rifampicin, also has antiviral activity, and it was assumed that the drug acted by blocking the synthesis of ribonucleic acid (SN: 11/1, p. 414).

However, according to findings of Dr. Bernard Moss of the National Institute of Allergy and Infectious Diseases in Bethesda, Md., rifampicin acts by blocking virus particles from forming. If this is the case, a new approach to virus research may be opened up, leading to development of better antiviral drugs.

Using radioactive tracer chemicals, Dr. Moss showed that rifampicin permits RNA and deoxyribonucleic acid to synthesize normally in cells infected with vaccinia virus, but that the viral membranes were irregular and incompletely formed. When rifampicin was removed, membrane and particle synthesis proceeded normally into the infectious virus.

Dr. Moss concludes that by interrupting the development of the virus membranes, rifampicin blocks the formation of DNA and protein into mature viruses.

## POLLUTANTS

### Sulfur dioxide and guinea pigs

Tests conducted at Hazelton Laboratories in Falls Church, Va., show that guinea pigs living in an atmosphere laden with sulfur dioxide were healthier than those whose air contained none of the contaminant, says Dr. Henry E. Swann Jr., senior staff scientist.

In the study, four groups of 30 guinea pigs each were placed in atmospheres ranging from no sulfur dioxide to 5.0 parts per million, about the sulfur dioxide level in Chicago. The experiments, which lasted up to 18 months, showed that those pigs which breathed the air with the highest content of sulfur dioxide had a higher survival rate.

Dr. Swann says that at the 5-parts-per-million level it is possible that the sulfur dioxide either destroys the bacteria in the lungs or renders them inactive. At higher levels than that, sulfur dioxide may be harmful, but most city atmospheres do not even reach the 5-parts-per-million concentration.