

by Abraham Lincoln in 1863. It now comprises over 650 members of the nation's most distinguished scientists elected from all branches of the natural sciences. In an Act of Incorporation passed by the U.S. Congress at the time of its founding, the Academy was specifically called upon to be the official adviser, upon request, to the

U.S. Government in all matters of scientific and technical interest.

Dr. Seitz will maintain his relationship with the University of Illinois but will give full time to his new office, at least for the next two, and probably for the next four years.

• Science News Letter, 81:275 May 5, 1962

MEDICINE

Pain in Internal Organs

► THERE ARE TWO KINDS of pain. While injuries to the skin are immediately painful, internal organs such as the brain, heart, stomach and intestines are relatively insensitive unless stimulated by chemicals. Internal organs can be cut, crushed or burned without causing pain, Dr. Robert K. S. Lim of Miles Laboratories, Elkhart, Ind., told the 99th annual meeting of the National Academy of Sciences in Washington, D. C.

The aches, cramp, piercing or burning pain that man suffers internally is associated with inadequate blood flow, inflammation or disease, Dr. Lim explained.

He described work with certain chemical substances formed in the body, such as histamine, acetylcholine, serotonin and bradykinin. Each chemical was injected into animal arteries supplying the skin and various organs, with resulting "vocalization" and other signs of pain. No pain occurred when these chemicals were injected intravenously.

Dr. Lim said that the difference was due to the fact that substances injected into

arterial blood reach nerve endings, or receptors, in a high enough concentration to cause stimulation.

Bradykinin, or a similar substance, was the most powerful of the chemicals. It can cause the principal signs of inflammation, namely heat, redness from congestion of blood vessels, swelling from increased permeability of the capillaries, and pain from increased sensitivity and stimulation of the receptors.

Working with animals, Dr. Lim and his associates used bradykinin as a visceral pain provoker, then showed that the narcotic drug morphine alleviated pain by "blocking" it in the central nervous system, regardless of the location of the nerve endings.

Aspirin, which is not narcotic, blocks both the nerve endings in the central nervous system and in the periphery. The peripheral action is somewhat greater.

"Aspirin is important as a pain reliever as well as an anti-inflammatory agent," Dr. Lim said.

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MEDICINE

Doctors Are Reading—

► PRECANCEROUS lung conditions are being detected by a relatively new technique called the sponge biopsy. Biopsies of this kind are advised for chronic coughers, especially if there is a change in their cough habits, two Arlington, Va., pathologists reported in the *Journal of the American Medical Association*, 180:248, 1962.

Cigarette smoking, they said, will not disappear from the American scene in spite of reports incriminating it as a cause of lung cancer, which now causes more deaths among men than any other form of cancer.

The sponge biopsy technique, formerly used only during autopsy, is now believed superior to the Papanicolaou technique, whereby bronchial washings are stained. The sponge is inserted by a flexible carrier that gets at hard-to-reach areas.

Drs. John J. Nolan and William F. Enos of the Northern Virginia Doctors Hospital reported the study, which included a report of sponge biopsies from 100 bronchoscopic examinations, none of which showed lesions with X-ray or ordinary bronchoscopic examinations.

Unusual Fingerprints

Patients with schizophrenia, the most common form of mental disease, have a

high incidence of unusual fingerprints, Dr. Theophile Raphael and Louise G. Raphael of the Ypsilanti, Mich., State Hospital reported (p. 215).

Increased whorls, lines that make almost complete circles, and arches, lines that rise to a peak (particularly the sharper peaks), were revealed in a comparison of fingerprints of 100 male patients with fingerprints at Scotland Yard.

The investigators believe their findings raise the possibility of detecting vulnerability to various abnormalities and disorders.

Polio Vaccine for Infants

Infants should be immunized against polio when other immunization procedures are being performed, at six weeks, 12 weeks and 18 weeks of age, two Vanderbilt University researchers recommended in the *AMA Journal*. An additional dose of trivalent vaccine would then be given later.

Live weakened poliovirus vaccine (Sabin) was given to 90 infants, six weeks old, in study groups reported by Drs. Randolph Batson, Amos Christie and William J. Cheatham of Vanderbilt University School of Medicine, Nashville, Tenn. (p. 193).

The researchers pointed out that although the effectiveness of Sabin vaccine in pre-

venting polio is generally accepted, the need for all possible information with regard to the use of this vaccine in young infants is important. Infant response to antigens may be different from that of adults, and the "placentally transferred maternal antibodies" might influence active immunity.

• Science News Letter, 81:276 May 5, 1962

Lettuce plants in Salinas Valley, Calif., where rainfall is very low, are provided with a moist environment by the regular occurrence of fog.

Hexafluorobenzene is probably the most stable organic fluid since it is resistant to radiation, oxidation and temperatures higher than 1,200 degrees Fahrenheit.

Phosphors luminesce when acted upon by beta radiation from tritium.

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