

## MEDICINE

# Study Pitcher's Shoulder

A PITCHER'S shoulder should be examined carefully before he is placed under contract by a major league team.

Pitchers can develop "baseball shoulder," a condition that should be recognized as early as possible, said Dr. Rex L. Diveley, an orthopedist and consultant to the Kansas City Athletics.

He told a symposium on sports injuries at the American Medical Association meeting in Atlantic City, N. J. that the clubs can protect or reduce training costs by insisting on a thorough examination of players before they are hired.

If an X-ray or examination reveals a mineral deposit, fragmentation or tenderness of the joints, the club should not encourage the player to be a pitcher. Instead, the man should be trained to play some other position, where his shoulder condition will not be irritated.

Careful, early treatment and observation can salvage many shoulders before the condition becomes chronic, Dr. Diveley said.

Usually such shoulders and elbows are treated with injections of hydrocortisone in the injured area.

Earlier, doctors agreed also that the in-

tense competition of Little League baseball and the dangerous contact sports, such as football, are bad for growing youngsters.

Little Leagues, where a young boy is called upon to play a man's game according to men's rules, may destroy his health and actually pressure him into hysteria.

Football and boxing were cited as examples of sports that could seriously, and perhaps permanently, damage the tissue of growing bones in youngsters.

Dr. Robert A. McGuigan, medical adviser to the Evanston, Ill., public schools, insisted that tackle football be banned absolutely in all junior high schools. Furthermore, he said, interscholastic sports should be greatly de-emphasized at the high school level.

Little Leaguers are the worst at building up emotional tensions, he said. Some coaches get their teams so keyed up that the children vomit before a crucial game.

Dr. McGuigan and the other doctors called for a healthy, broad program of intramural sports for all youngsters, a reasonable amount of competition, and an avoidance of injury-producing games.

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## BIOCHEMISTRY

# Corn Yields Tooth Clue

A TEN-YEAR-OLD discovery, that Texas has something New England lacks, has revealed a significant new approach to the prevention of tooth decay, the use of phosphorus.

Dr. Robert S. Harris of the Massachusetts Institute of Technology, who made the discovery, found that hamsters fed on Texas corn and milk developed 40% less dental decay than those raised on the New England foods.

After a long series of experiments with the little animals, Dr. Harris concluded that the anti-decay factor was phosphorus, a simple abundant chemical.

He has achieved 100% effectiveness in decay prevention among hamsters given four times the amount of phosphorus naturally present in the Texas foods. In addition, he told SCIENCE SERVICE, "the teeth grew in pearly white, lustrous and better shaped."

A Swedish dentist, Dr. Allen Stralfors of the Royal Dental Institute at Malmo, has obtained a 50% reduction in decay in the first human trial on 2,000 children.

The first United States trial is soon to begin among Indian children in South Dakota.

Dr. Harris, a 54-year-old biochemist, is presently working under a Naval Research Laboratory grant assisted by a dentist, Dr. A. E. Nizel.

After his initial discovery of the potency of the Texas-produced corn and milk, Dr. Harris took these steps:

He burned the food, collected the ash, and added the ash to more food. Hamsters on this "reinforced" diet were almost entirely free of tooth decay.

Dr. Harris analyzed the ash, finding a number of chemicals, including phosphorus. Then he made a synthetic ash with the same chemicals and obtained the same results with hamsters. By leaving certain substances out of his synthetic ash, he narrowed the anti-decay factor down to phosphorus.

He tried various phosphorus-containing compounds and in differing amounts. The best results have been attained with metaphosphoric acid in four times the amount present in the Texas foods.

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## PHYSICS

# French Scientists Build A Protonic Microscope

FRENCH SCIENTISTS have built the first protonic microscope, an instrument capable of penetrating much deeper into the unknown than ever before.

The microscope, a complex structure standing about eight feet high in a metal case, was shown for the first time recently.

So far, scientists have studied only the structure of certain crystals under the new microscope. But they expect to be able to see six times deeper into the microcosm with it than has hitherto been possible with

the most powerful modern electron microscopes.

The new feature of the instrument is that it uses protons instead of electrons. Specialists from the National Research Center of France, where the new microscope was built, explained that ordinary microscopic observation is limited by diffraction. This barrier was penetrated when the very short wavelengths associated with the electron, much shorter than light waves, were used in the electron microscopes developed after World War II.

The best of these, however, was limited by technical difficulties to a separating power of six Angstrom units, the scientific unit for expressing wavelengths of light, ultraviolet radiations and X-rays, and named after the Swedish physicist, A. J. Angstrom (1814-74).

By using the proton, which has an even shorter associated wavelength than the electron, French scientists have now overcome these difficulties.

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## PUBLIC HEALTH

# Coming: Public Health On Punched Cards

PUBLIC HEALTH on punched cards is in store for the nation.

Instead of being concerned solely with communicable diseases and with data on births and deaths, public health officials are broadening the area of their interests, largely with the help of computers.

High-speed information retrieval and large-scale data processing mean that researchers can have a "broad interdisciplinary approach to preventive medicine," Dr. Frederick J. Moore of the University of Southern California told scientists meeting in Poughkeepsie, N. Y.

In the Los Angeles area alone, he told a medical symposium on the use of computers, there are many medical, social, economic, psychological, nursing, counselling and detention services for hundreds of thousands of persons. Computers are invaluable in providing for communication between these numerous, administratively independent agencies, Dr. Moore explained. (See SNL June 27, p. 403; July 4, p. 2.)

With these machines it is possible to have complete information on patients' histories available easily and quickly. Previously unsuspected relationships between the individual, his illnesses and symptoms, services and community can be studied.

Basic research gains through use of computers, also, Dr. Moore said. As an example, he mentioned that it becomes possible to explore the "differential diagnostic" problem. The researcher can feed the computer symptoms and other data and get out a kind of profile of cases characterized by a given set of symptoms. He can see the relationships between symptoms and diagnosis of a disease.

The symposium was held at the Education Center of the International Business Machines Corporation, which sponsored the meeting.

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