

BIOCHEMISTRY

Mercapto Chemicals

More powerful drugs for fight against tuberculosis may come from series of mercapto chemicals that have slowed progress of the disease in mice.

► **MORE POWERFUL** drugs for curing tuberculosis may be coming from a series of new chemicals reported in the *Journal of the American Chemical Society* (July 20).

The chemicals have already proved effective in slowing the progress of tuberculosis in mice. Whether they will be more or less active against TB in humans will not be known until trials now under way have been completed.

The new compounds belong to the ethyl mercapto class of chemicals. Two of them are reported more effective than either PAS (para aminosalicylic acid) or pyrazinamide, two drugs now used in treating tuberculosis.

Discovery of the potential value of the ethyl mercapto chemicals as anti-TB drugs is reported by Dr. John H. Quastel of the Research Institute of Montreal General Hospital, Montreal, Canada; Dr. Horace D. Brown, Alexander R. Matsuk, Harold J. Becker, Dr. John P. Convere and Dr. James M. Constantin of Merck & Co., Inc., Rahway, N. J., and Dr. Morris Solotorovsky, Seymour Winsten and Elliot J. Ironson of the Merck Institute for Therapeutic Research, Rahway. The last three are bacteriologists.

One of the new substances has been shown to be active against strains of bacteria that are resistant to the well-known isoniazid drugs. The possible therapeutic effects were discovered during recent experiments with bacteria that fix nitrogen in the soil, the report says.

On the basis of data obtained by direct comparisons in mice, it may be said that S-ethylcysteine, one of the series, is at least twice as active as pyrazinamide and several times more effective than para aminosalicylic acid. Furthermore, these compounds are said to be of a low order of toxicity.

Just as PAS and pyrazinamide are used chiefly in combination with isoniazid drugs, it is suggested that possibly some of the new compounds may be used to enhance the anti-tubercular activity of isoniazid or streptomycin.

During previous tests by Dr. Quastel and others on chemical processes carried out by bacteria in the soil, they observed that the growth of certain soil organisms was inhibited by several alkyl mercapto acids, which are members of the family that includes the ethyl mercapto class. This observation led to the testing of these acids for their action against various bacteria.

Strangely, the acids had only a slight effect against bacteria in laboratory test tubes, but in experimental animals infected with a human type of tuberculosis, they gave definite protection, the scientists report.

This protection was given when the acid was mixed in the diet of the animals in the amount of only two-tenths of one percent. The fact that, of the 350 related chemicals examined to date, more than fifty ethyl mercapto compounds have shown effectiveness at this level in the diet opens up a "broad horizon" for the study of these agents.

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EDUCATION

Train "Data Processors" At Harvard University

► **HARVARD UNIVERSITY** this fall will start to train graduate students in a new field, called "Data Processing," leading to the degree of Master of Science.

Data processing concerns using automatic computing machinery, the so-called giant "brains," to work on industrial problems where storage and handling of large amounts of information are required.

In business, its aim is the automatic office, with customer billing and inventory control done entirely without human aid. Life insurance companies, large retail stores and public utilities are believed to be among

those that could use digital computers for such functions to great advantage.

In industry, data processing looks toward the day of the automatic control of factory operations. Chemical and oil industries have already made a start toward automation in this field.

A specialized group of graduate students will be selected by Harvard for the new degree, the first such to be offered in the United States.

Graduates of the one-year course are expected to have a knowledge of engineering, electronics and mathematics as well as of business procedures. The course is being started just ten years after the world's first automatic digital computer, Harvard's Mark I, was installed and dedicated.

It results, said Prof. Howard H. Aiken, director of the Harvard Computation Laboratory, from an "increased demand for computing machine scientists."

Digital computers, he pointed out, are being accepted "for an extreme variety of uses" in everyday business and industrial life.

Scientists at the Computation Laboratory are currently investigating several different data processing applications, ranging from a study of Greek manuscripts of the New Testament to determine which were original and which were copied, to a detailed analysis of possible adaptations of the computer system to customer billing for a public utility company, to the possible design of an automatic dictionary for the Russian-English language.

They are using both the ten-year-old Mark I and the more recently built Mark IV for these studies.

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THE BIBLE AND MARK IV—The Rev. John W. Ellison, who is using Harvard University's automatic digital computer to determine original Greek New Testament manuscripts, examines an electronic component with Dr. Anthony Oettinger of the University's Computation Laboratory.