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## Iowa State Studies Medicine from Mold

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# Iowa State Studies

## Medicine from Mold

*Helen James tells of the research project being conducted at Iowa State with the miracle drug, penicillin*

**P**ENICILLIN, the miracle from mold, which is saving the lives of thousands of our fighting men, is one of the vital research projects being studied in the Department of Bacteriology at Iowa State.

The nature of the action of the drug is one of the mysteries which scientists in this laboratory are seeking to dispel. At this time there is no conclusive evidence as to whether the drug is actually a bacteriacide or merely inhibits their growth.

In the Iowa State laboratory, an enzyme known to render penicillin ineffective has been isolated. By experimenting with this enzyme, it can be learned whether or not bacteria which have been treated with penicillin can stage a come-back once the drug is removed.

Iowa State bacteriologists, having at their disposal the finest laboratory equipment for the study of bacterial metabolism, are studying other problems in relation to penicillin. Although all specific details and results of the work they are now doing are secret, it is known that research is being conducted on the factor which must be present in the culture medium on which the mold is grown and the methods of increasing the yield of penicillin.

Since the time of Pasteur, scientists have realized that certain organisms inhibit the growth of others. It was in 1929 that an English bacteriologist, Dr. Alexander Fleming, accidentally discovered that the mold *Penicillin notatum* possessed this power and the active principle was named penicillin. Although Fleming published his results with the hope that there would be further investigation, little interest was aroused until the advent of the present war. With this as a stimulus, scientists experimented and discovered it to be "the most powerful therapeutic substance yet used to defeat bacterial infections in the human body."

An intense search began to learn the chemical structure of this powerful bactericide that it might be synthesized and made available to all who need it. Crystalline penicillin is now a reality, but any progress toward its synthesis remains a government and commercial secret for the present.

Because its production still rests on the uncertain yield of a temperamental mold, the supply is insufficient to even meet the needs of our armed forces. However, it is predicted that by spring or summer a limited amount may be available for civilian use.

On one point experimenters are all agreed—penicillin is highly effective. Dilutions up to one part per million have been shown to completely exterminate a culture of staphylococcus in two hours. Experimental evidence also indicates that penicillin is not poisonous to the human body.

Whereas an overdose of the sulfonamides may make the patient wish he had been allowed to die of the disease, an overdose of penicillin is merely an extravagance. Another advantage penicillin has is that it is effective against disease organisms even after they have developed a resistance to the sulfas.

The list of diseases which penicillin can cure is a constantly growing one. It includes types of blood poisoning, gas gangrene, gonorrhoea, pneumonia and osteomyelitis. Before penicillin, many of these were considered incurable, especially in advanced stages. Osteomyelitis, for example, is a disease of the bone marrow which was fatal almost without exception. Although the drug is not a cure-all, its discovery has opened a new source of medicine to science.

*A laboratory technician examines streak cultures she has prepared during her experimentation with penicillin*

