THE GOLDEN MOULD

Robert Oppenheimer
Lederle Laboratories Division, American Cyanamid Company
Pearl River, New York.

Moulds were used as home remedies as far back as the middle ages. Husbands injured during hunting trips on feudal game preserves had their wounds treated with their wives' favourite hot poultice of yeast and mouldy bread, or sprinkled with powdered punks (mushrooms) in an attempt to stop the flow of blood. It is doubtful whether these crude treatments had much medicinal effect, because gradually they lost favour and for many years little was thought of any members of the entire mould family in connection with medicine.

But in recent years, following the development of penicillin from a mould, interest in moulds has a re-birth with scientists intensively seeking new mould-derived drugs. A reflection of this was the bringing of Dr. Benjamin M. Duggar to Lederle Laboratories at Pearl River, N.Y. as consultant on mycology or the study of fungi (moulds). Shortly after his arrival at Lederle, Dr. Duggar, restless with consultation duties alone, began an attempt to develop a superior antibiotic. Antibiotic, in a medical sense, is defined as: A substance produced by the growth of moulds and bacteria, this substance being effective in the treatment or control of one or more germ diseases. Penicillin and streptomycin, the first two antibiotics to achieve medical importance, were soon to be joined by Dr. Duggar's superior, more versatile antibiotic which is now called Aureomycin.

Dr. Duggar and his associates, from earlier work in the field, felt that one of the lesser studied families of moulds (Actinomycetes) might furnish a valuable antibiotic. Since moulds are members of the plant kingdom and are inhabitants of the soil, the Lederle researchers began their project by gathering more than 600 soil samples from all over the United States. They probed these samples for strains, belonging to the actinomycete family, that would be effective against organisms upon which penicillin and streptomycin had proved to have little effect. The task was an intensive one — that of weeding out the non-producing strains, for although more than 3,400 strains showed promise, more than ten times that number were examined and rejected as inferior or as being obviously duplicates.

Those moulds tentatively approved were tested for potency by putting them on laboratory plates along with specific bacteria and watching the ability of the moulds to prevent the growth of these bacteria. Any mould with the capacity to produce a promising antibiotic substance was then carried further, and, if it passed other tests, ultimately went to the Pharmacology Department for toxicity tests — to find out if it was safe to use.

Of the entire group, Mould No. 377, producing a golden-colour substance proved to be the safest and most effective of the 3,400 strains. This was called Aureomycin, a name derived from the Latin word, aureus—meaning gold; and from the Greek form, myco — meaning fungus.

Investigators soon began to find out many wonderful things about Aureomycin. Penicillin is effective against one class of disease-producing bacteria, streptomycin largely against another sort. Aureomycin, on the other hand, battles with much success against both types of germs. Among the bacterial infections conquered by this new drug are Undulant Fever, Ratbit Fever; infections of the eye, the skin and the urinary system.

control the next smallest class of disease producing agents — the rickettsia. Rickettsial diseases such as Rocky Mountain Spotted Fever, Q Fever, Typhus, Parrot Fever, and a venereal disease call Lymphogranuloma Venereum all are brought under control quickly by Aureomycin, effecting recoveries that amaze the medical profession.

Perhaps, the most spectacular results with Aureomycin have been achieved against so-called "virus" pneumonia against which doctors were helpless. Physicians speak of "virus" pneumonia as Primary Atypical Pneumonia, and while it is seldom fatal, this common respiratory infection, before Aureomycin, usually caused many days of high fever and even longer convalescent period. But after a few golden capsules of Aureomycin were taken, fevers as high as 105 vanished after 24 to 48 hours, painful coughs became non-existent, and many a patient who might have been hospitalized for weeks was up-and-around and fully recovered 7 days after treatment with Aureomycin was started.

One of the greatest advantages of Aureomycin is that it is taken by mouth, a few capsules daily, thus relieving hospital congestion and demands on the nursing staff, when frequent injections are necessary. Another advantage is that it does not build up resistant strains of germs which make diseases harder to fight, nor does it frequently cause allergic reactions. Early batches caused some nausea, but Lederle experts have now improved Aureomycin so that the discomfort it previously produced is eliminated. In addition to the wonder-working capsules which control internal infections, Lederle recently introduced an ointment which shows amazing results in clearing up bacterial skin infections, among them impetigo, a nasty, quick-spreading, festering disease which heretofore took weeks to cure.

Day by day, more evidence of the effectiveness and the versatility of Aureomycin is being added to its clinical score. There are hopeful indications that the discomforts of certain infectious diseases typical of childhood — mumps — may be lessened by Aureomycin, and reports have been received that amoebic dysentery succumbs to this great drug. Recently, its effectiveness against whooping cough and infectious mononucleosis has ben shown.

Because Aureomycin has made such vital conquests in the battle against disease, the medical profession is today inspired with the greater hope that the viruses — a class of germ still baffling to science — may in time be fought successfully with antibiotics.