

COLOGNE CATHEDRAL

Once more thy spires and turrets may uplift
 Their never conquered heads into the sky.
 What act of God caused turmoil's storm to shift
 And let thee 'scape the fate of those so nigh?
 O Phoenix of this war torn modern world,
 Thou seemed to rise from rubble at thy feet.
 Around thy knees the tides of war have swirled,
 Remain untouched thy pillars, by defeat.
 The throngs who used to pray within thy nave
 Now stand and watch exuberant conquerors kneel.
 Their homes rebuild, their wounded brethren lave,
 Their faces not expressing what they feel.
 Majestic shrine chosen by God to be
 A symbol of His power and sanctity.

—JOSEPH J. MacDONALD, '46

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THE WONDER OF GREEN MOULD

When the country lad rubs soft mud on a bee sting the apparent relief may be more imaginary than real, but at the same time he may actually be handling healing agents more wonderful than may be imagined. Since perhaps the latter part of the last century man has known that mud is the breeding ground of countless specimens of microscopic living organisms or bacteria, some of them among those most dangerous to human life. What was not so soon suspected or at least not proved is the fact that some species of these micro organisms war to the death upon one another. Still longer were scientists in finding those rare soil micro organisms which while warring on man-infesting bacteria, are not toxic to the human body itself. However, in very recent years medical research scientists have extracted from certain micro organisms of the soil chemicals which possess previously undreamed of medical powers.

The latest and by far the most important weapon available to man in his fight against bacterial invasion of the body is the product of the lowly mould fungi of a species belonging to a special group of moulds known as "penicillium notatum", whence comes the name of this new wonder drug,

Penicillin. Members of this general group of fungi are common in soil and air and wherever decay processes are found. It is rather remarkable that the mould found on two of man's foodstuffs, the green moulds found on Roquefort cheese and on decaying citres, belong to the same group. How truly has Divine Providence bound up the least things in this world with the greatest.

It was in 1929, that Professor Alexander Fleming, working in the laboratory of St. Mary's Hospital, London, noticed that a culture plate of Staphylococci germs became contaminated with green mould. This in itself was not surprising. What amazed him was the fact that the area immediately surrounding the green mould was completely free of the dreaded Staphylococcus germ. Surmising that the green mould had produced some antibacterial substance, he grew the mould by itself and experimented with it. He found that it excreted a substance which was extremely effective in preventing the growth of a great variety of micro organisms and which appeared nontonic for animals even when administered in large doses.

Fleming published the results in 1929, but soon afterwards the advent of the revolutionary sulfonamide drugs virtually monopolized the attention of medical research men. But these latter drugs lacked one important property; they were not entirely nontonic; and in 1936 Professor H. W. Florey of Oxford University, remembering that Fleming had found Penicillin to be nontonic, began to cooperate with him in further study which was to lead to isolation of the new drug in partly pure form.

The publication of an extensive report of their findings in 1941, which included a report of their success in quickly and successfully treating a number of infections of the human body, aroused the interest of the medical world. The United Nations were at war and an intensive search was being made for more effective healing agents with which to treat war casualties actual and imminent. Accordingly the Rockefeller Foundation, which had previously given financial support to the investigations of Florey and his co-workers, invited them to the United States. Here in the laboratories of the Department of Agriculture they found that steep liquors, a by-product of the cornstarch industry, greatly increased the production of "penicillium notatum".

But the scientists were running into many difficulties in their efforts to develop a process for producing Penicillin quickly and cheaply. They found that it must be produced under the most sterile conditions and the it was adversely affected by heat. Chemical manufacturers have now produced a number of somewhat different processes for producing the "penicillium notatum" and for extracting Penicillin from its secretion. The final stage in nearly all processes is the same: the solution is put into ampules, frozen, and dehydrated from the frozen state in low-temperature, high-vacuum dryers. The finished product is a brown colored powder which, because of the intricate process of production, is probably far beyond the means of the average person.

Penicillin is unique among other chemotherapeutic agents in being nontoxic to man. It has proved effective against infections produced by staphylococci, streptococci, pneumococci, meningococci, and gas gangrene causing clostridia, and the indications are that it will prove effective against many more infection causing bacteria. With it some infections which proved completely immune to the strongest sulfanamide drugs can often be effectively treated in a period of hours or days.

At the present time many of the most reliable pharmaceutical houses throughout the United States, Britain, and Canada are working full time at the request of their governments on the production of Penicillin for the armed forces. As the supply increases and the needs of the services are taken care of, we may reasonably expect that more and more will be available for use in the treatment of civilian patients. But there is still a long way to go. With the present cumbersome and extremely expensive method of production it can hardly be hoped that it will be within the reach of everyone who needs it after the war. But already many improvements have been made; the present product, for example, is ten times as potent as that with which the Oxford investigators experimented. It may be expected that our scientists who have produced a host of synthetic chemicals which previously had been rarities, who reduced the cost of many of the vitamins from many hundreds of dollars an ounce to just a few pennies, will succeed in producing Penicillin in sufficient

quantities and at reasonable cost. Then will a milestone of immeasurable importance have been reached in man's ceaseless fight against the insidious powers of the invisible germs that are ever in our midst waiting to destroy us.

—CHARLES MacDONALD, 48

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MUSIC IN THE HOME

One of the great problems which confronts us today is that of juvenile delinquency. Its cause has been traced to a lack of training and discipline in the home. The reason for this lack of training is that children are not home very much to receive it. They have no love for their home because they have to go outside of it to find their amusement, and look upon it as just a place to eat and sleep.

In order to combat the disintegration of the home, a love for home must be fostered in the children. This can best be done by making home a happy place, a place where children can bring their friends and be sure of having a good time. The best way for young people to have a good time is for them to have plenty of music, not the canned kind one hears over the radio every day, but real music that the children make themselves.

There is some musical talent in almost everyone. At any rate, there is the ability to appreciate music in almost everyone. The music need not be of a high quality at all. You do not have to be a Meredith or a Goodman to make music that is enjoyable to yourself and others. Nor does it have to be the music of any particular instrument. Many a dull evening has been changed into an enjoyable one by dancing to the music of a mouth organ, or by singing "Come all ye" songs to its accompaniment.

In a home where there is no music, young folks usually have a dull time. They get tired of card-playing and small talk, and, since there is nothing they can do to enliven the party, they get bored. The home suffers as a result because young folks do not usually return to a place where they have had a dull time before. And if the young people stop coming to visit the children in their home, the children will not be found there very often either.