

thorities and the medical profession are to be congratulated upon their success in keeping the death rate of the country at a point so closely approaching the record for the best years of its history.

A matter of special satisfaction is the fact that tuberculosis apparently continues the uninterrupted downward course that it has pursued since the influenza epidemic of 1918-1919. While complete figures are not as yet available, it seems clear from those which are at hand that the mortality from this disease will be lower this year than that reported in 1935, even though during the latter part of 1936, the tuberculosis mortality record was not as good as that for the earlier months.

In contrast with our remarkable success against tuberculosis and the communicable diseases of children, we have an unenviable smallpox record this year. Despite the known ease with which this pestilential disease can be controlled, we continue to report each year between six and seven thousand cases of smallpox. Countries like Germany, Belgium, Sweden and Switzerland rarely report a case, and in several other countries the total is less than ten cases per annum.

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#### ARCHAEOLOGY

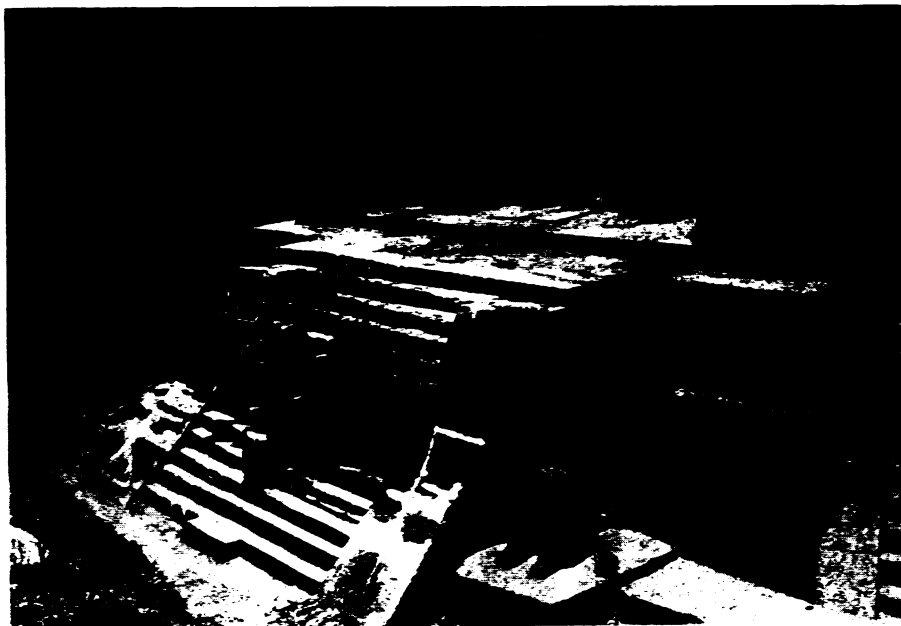
### Temple Carved from Rock Excavated in Mexican Town

**B**UILDINGS chopped from a single piece of solid mountain form the strangest ancient ruins ever found in Mexico.

They cover an entire summit overlooking the present town of Malinalco, whose name means Place of Twisted Grass, and which is in the state of Mexico, westward from Mexico City.

One structure completely excavated now—the usual temple-topped pyramid—has broad stairs on one side, the steps and wide stone balustrades likewise part of a single piece. Only here and there, where the rock would not reach some far corner of the projected building, did the ancient mason have to fill in nature's lack with artificially cut stone block.

A number of features make this building unusual. One walks into the temple on top through an uninviting door formed by the yawning mouth of a giant stone snake. The temple itself is round, a shape rare in Mexico and one generally associated with the Wind God. A low stone bench follows the wall around inside. The roof, probably of perishable stuff like wood, is gone.



CARVED FROM ROCK

For trimming, this one-piece structure has mainly tigers, snakes and eagles. A carved stone tiger sits on a pedestal by the side of the stairs, his head missing. On either side of the snake-mouth door are carved eagle- and tiger-knights, such as represented the two old Mexican Indian military orders. The one is on a *buehuell*, or wooden war drum; the other, on a snake's head. In the middle of the round room

of the structure are eagle-head carvings.

Further excavations are now being made at this novel site of Malinalco. These are under the direction of Jose Garcia Payon, Mexican archaeologist, who is finding various other buildings like this one. Some of the stairways still have traces of ancient paintings. This very odd monolithic "city" has ancient drains and sewers which used to protect the buildings when it rained.

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#### BACTERIOLOGY

## New Knowledge to Fight Germ Of Boils and Food Poisoning

### Bacteriologists Hear of New Research on Bone Disease, Undulant Fever and Rating of Germicides

**N**EW knowledge that may help in the fight on the germ of boils, carbuncles, food poisoning and other serious infections was reported at the meeting of the Society of American Bacteriologists in Indianapolis.

The germ is the staphylococcus, a small, spherical micro-organism that is found everywhere. Symptoms of staphylococcus infection are due to specific poisons which the germ sets free in the body, Dr. C. E. Dolman of the Connaught Laboratories at Vancouver, B. C.,

pointed out. Certain laboratory animals can be given resistance, by vaccination methods, to doses of this germ that would kill unprotected animals.

For treating generalized infections with staphylococcus Dr. Dolman advises prompt use of antitoxin in order to neutralize the rapidly formed and rapidly spread poisons before they can do fatal damage. The problem of vaccinating against local infections with this germ, such as boils, is complicated by the fact that there (*Turn to page 12*)

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is constant danger of reinfection with more germs, since they are so widely distributed.

### Cause Bone Disease

Staphylococci can cause the serious bone disease known as osteomyelitis. A patient suffering from osteomyelitis of the spine recovered completely following treatment with a combination of human immune serum and staphylococcus toxin, Dr. Earl L. Burky of Wilmer Institute, Johns Hopkins University and Hospital reported. He finds that the poison from this germ which is fatal to rabbits produces in humans, when injected under the skin, an increase in the body's disease-fighting antibodies and in its ability to neutralize the substance in the toxin that kills rabbits.

A new way of distinguishing between strains of staphylococci that cause disease and those that do not was found by Dr. L. A. Julianelle of Washington University School of Medicine, St. Louis. The method depends on extracting the carbohydrates or sugars in the germs' bodies. Different kinds of sugars were found in the different strains of the germs although the proteins in the nuclei of the germs are the same in different strains of the same species of staphylococci.

### Volunteers Eat Germs

The need for a method of distinguishing between strains of staphylococci was brought out in the report of Drs. G. M. Dack and William E. Cary of the University of Chicago.

Dr. Dack has shown that staphylococcus can cause food poisoning, but the problem of showing that this germ is the cause of a particular outbreak of food poisoning is complicated, he explained, by the lack of a simple method of determining which strains are of the food poisoning type. Since no laboratory animal is as susceptible as man to the poison of this germ in food, Drs. Dack and Cary were obliged to use human volunteers in their studies.

By feeding these volunteers food contaminated with staphylococci or doses of the germs themselves, the Chicago scientists got a clear picture of the symptoms of food poisoning due to staphylococci. This should help doctors and health officers to distinguish between outbreaks of food poisoning due to staphylococcus and those due to other causes.

Two other important findings from

their studies are that some persons are much more susceptible to the poison of this germ than others but that one bout of poisoning does not give any immunity to subsequent attacks.

Arthritis due to staphylococcus infection of a joint is really a disease of the entire body, not just a local infection, and may end fatally in a short time, Drs. Robert L. Preston and Marjorie B. Patterson of New York Post Graduate Medical School and Hospital, Columbia University, emphasized. By studying this disease in rabbits, they learned the importance of treating the general disease rather than the local joint infection. In cases in which the joint infection has spread and there are multiple abscesses of internal organs, bones and joints, specific bacteriophage should be injected into the veins in order to prevent or check the spread of the germs through the blood. Cases in which there is no blood infection and only the joints and internal organs are affected should be treated by specific antitoxin.

### New Undulant Fever Danger

A new source of dangerous undulant fever has been discovered in horses. The case of two children who developed serious undulant fever following contact with an infected horse, were presented by Drs. Charles M. Carpenter and Ruth A. Boak of the University of Rochester School of Medicine and Dentistry. These scientists and Dr. A. W. Deem of Ohio State University reported finding signs of undulant fever in horses.

Undulant fever, known also as Malta fever, infectious abortion of cattle, and, according to latest scientific terminology, brucellosis, is a serious, sometimes fatal malady characterized by the fact that the fever goes up and down in waves—hence the name undulant. Symptoms are weakness, tiredness, general aching, loss of appetite and chills and fever. The disease starts gradually and tends to become chronic. The loss of weight, weakness and anemia, which may last for many months, have a wearing effect on the body and produce degenerative changes of important organs.

Man gets the disease by drinking unpasteurized milk from infected cows or goats, or from contact with cattle, goats or swine or their secretions. Sheep, dogs and fowl, even though they may become infected with the undulant fever germs, probably rarely are sources of the disease in humans, Dr. William A. Hagen of New York State Veterinary College, Cornell University, stated, but he also pointed out the importance of horses as

a source of undulant fever cases in humans.

A serum for treating the disease was reported by Dr. Lee Foshay of the Cincinnati, Ohio, General Hospital. Fifty-five patients treated with this serum all recovered, he stated. These patients were suffering from the acute form of the disease, none of them having had it longer than seven months. In chronic cases, lasting longer than this, the serum is also helpful, though not so much so as in the acute form of the disease. In a series of ten chronic cases, six patients completely recovered following serum treatment, but the other four did not make satisfactory progress and one of them died.

### New Test for Germicides

A new method of rating the efficiency of disinfectants as germ-killers was proposed by Dr. A. J. Salle of the University of California.

Commonly used disinfectants, according to the new method, rate in the following order: first iodine, then iodine trichloride, followed by bichloride of mercury, Hexylresorcinol, Metaphen, carbolic acid, potassium mercuric iodide, Merthiolate, and Mercurochrome.

Dr. Salle's method of rating is based on the effect of the germicides on the growth of living embryo tissue as well as their ability to kill germs. He divides the highest dilution of disinfectant required to prevent the growth of embryonic tissue by the highest dilution of the disinfectant required to kill a specific disease germ. This figure is called the toxicity index. Theoretically, the smaller the toxicity index, the more nearly perfect is the disinfectant for its purpose.

This method of Dr. Salle's is intended for rating disinfectants or germicides that must be given internally or used on mucous surfaces such as the lining of the mouth or nose. Disinfectants are generally rated by comparing their efficiency with that of carbolic acid. This, Dr. Salle points out, is all right if the disinfectant is to be used for sterilizing non-living material, such as surgical instruments, or on the skin. But for other purposes, there is no advantage in using a disinfectant ten times as efficient as carbolic acid if it is also ten times as poisonous. The new rating method takes this factor into account.

Need for improvement in chlorine-containing compounds used to sterilize glasses and table utensils in eating and drinking places was stressed by Dr. Don C. Lyons of Jackson, Mich. Compounds now on the market are relatively unstable and deteriorate after the package

has been opened, he found. As a result many rinse solutions are not up to standard even when prepared according to directions on the package. He also found that restaurant and tavern operators need to be educated as to the necessity of changing chlorine rinse solutions frequently.

Hypochlorites of low alkalinity are more effective germicides than those of high alkalinity, it appears from the report of Dr. S. M. Costigan of the Research Department of the Pennsylvania Salt Manufacturing Co., Philadelphia. The strongly alkaline hypochlorite is more effective against the type of organisms known to bacteriologists as Gram-negative than against Gram-positive organisms. The hypochlorite of low alka-

linity, however, is more effective against both types of organisms, Dr. Costigan found, than the strongly alkaline hypochlorite.

The Idaho potato rates high from a culinary standpoint, but the Wisconsin potato, and especially the kind that is apt to turn black on boiling, is better food material for the human tuberculosis germ, it appears from studies by Drs. Janet McCarter and E. L. Tatum of the University of Wisconsin. The substance in the potatoes that makes them blacken when boiled is probably the factor that stimulates greater growth of the human tuberculosis germ when it is cultivated on a medium made from Wisconsin potatoes.

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hunting for the Old Stone Age in America is a "lost cause," on evidence that a wide zone across the Old World was unused by man until after the last continental ice sheet melted. Ancestors of the first American immigrants must have entered this great zone, 1,000 miles deep and stretching across northern Asia, in order to approach the entrance to America via Bering Strait. Throughout the time the zone was blocked or unused, Dr. Spinden concludes, there was no immigration to the New World.

Citing the suggestion by Prof. E. A. Hooton of Harvard that America's Indians have some traits suggesting infusion of white races, as well as Mongolian, Dr. Spinden said that a mass migration of different culture elements may explain how America was peopled. Such a mass migration could have been started by the invasion of northern Europe by Germanic peoples. These displaced peoples already living in the north, and they moved eastward, finally spilling over into America. Spread of desert conditions in central Asia may have been another factor urging migration.

"But this mass migration," said Dr. Spinden, "could not have taken place until northern Europe and Asia were themselves occupied."

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#### ANTHROPOLOGY

## African King Criticized for His Having Only 75 Wives

### King of Babudja Must Follow Advice of Priestess; Anthropologists Urged to Give Up Very Old American

**T**ROUBLES of kings in Africa held attention of the American Anthropological Association at their meeting in Washington, D. C.

One king of the Yoruba tribe, West Africa Slave Coast, has 75 wives and has lost prestige among his 60,000 people, the anthropologists were told by Rev. Edward Ward of the Catholic University of America. Criticism leveled against this ruler is that he should have more wives for sake of appearances. One of his chiefs, with 205 wives, far outshines the king in that region where wives are a badge of wealth and general importance.

Eight reasons for the custom of marrying many wives in Yoruba land have been found by Father Ward, but wealth is the main factor that determines how much of a harem a man can undertake.

A king of the Babudja tribe, in Southern Rhodesia, has to take advice from a council of elders, and in addition to that, he must get approval of a mysterious and powerful priestess on every important decision that is made, Heinz Wieschhoff of the University of Pennsylvania reported.

Mr. Wieschhoff himself made every effort to see this powerful political figure, the priestess. But although he passed the mountain on which he was

told she lived, nobody dared lead him near her. The Charewa, as this priestess is called, approves the king's choice of a wife, and even chooses the names of the king's children.

#### No Old Stone Age Americans

Anthropologists were asked by the president of their association to give up their 50-year hunt for Old Stone Age inhabitants in America.

The theory that America had human inhabitants before the last Ice Age has not been proved, and it should be "pronounced legally dead," Dr. Herbert J. Spinden declared in his presidential address before the Association.

It was understandable, he said, that science should have hunted in America for the stone fist axes and scraping tools of the Old Stone Age when these relics of prehistory first came to light in Old World countries over 50 years ago; but even then the odds seemed against the search. All prehistoric people ever found in North America, he added, have proved to be no earlier than the Neolithic, or New Stone Age.

"Of course," added Dr. Spinden, "revolutionary new evidence would justify reconsideration of even the deadest theory."

Dr. Spinden based his decision, that

#### SEISMOLOGY

## Quake Records "Fuzzed," So Epicenter Is Mystery

**T**HE EXACT location of the earthquake that ruined San Vicente in Salvador will probably remain a permanent mystery. Earthquake-detecting instruments in American and Canadian seismological observatories for some reason forsook their wonted accuracy in this very critical moment, and sent in conflicting data which the scientists of the U.S. Coast and Geodetic Survey could not bring to a satisfactory pinpoint on the map.

Part of the difficulty came from microseisms. These are tiny earth tremors that go on constantly, but sometimes increase their amplitude greatly in what are called microseismic storms. Such a storm, of unusual proportions, swept over a large part of the United States during the time of the Salvador shocks, and "fuzzed up" several of the earthquake records badly. Microseismic storms often coincide with severe weather disturbances, though it is not certain that they are causally connected.

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