PHYSIOLOGY

Deadly Radiations Produced From Living Human Body

German Scientist Working at Cornell Kills Yeast In Five Minutes With Radiation From Finger Tips

EVIL RAYS emitted from human blood, finger tips, the ends of noses or flashed from eyes, which have been discovered at Cornell University to kill yeast and presumably other microorganisms, may have an influence on studies of germ diseases.

As yet these studies of baneful effects, of human radiation are in their preliminary stages but Prof. Otto Rahn, eminent bacteriologist, has carried them sufficiently far to become convinced that his findings are worthy of more extended investigation.

Prof. Rahn, who formerly worked in Germany and is now professor of bacteriology at Cornell University, Ithaca, aroused great interest among scientists attending the meeting of the American Association for the Advancement of Science and the Society of American Bacteriologists in Syracuse by announcing experiments that seem to parallel scientifically in some respects old superstitions that the human body can exert an evil influence on its surroundings.

Yeast, such as is used in making bread, was killed in five minutes merely by the radiation from the finger tips of one person. When a quartz plate a twelfth of an inch thick was placed between the finger tips and the yeast, it took fifteen minutes for the yeast to die.

In experiments completed this week Prof. Rahn also found that the end of the nose and the eye produce the yeast-killing radiation. The effect of the rays from the eyes is strangely reminiscent of the "evil eye" of superstition, so far as yeast is concerned. The human chest does not produce the radiation, however. In the tests of fingers it was found that the right hand was stronger than the left even in the case of lefthanded persons.

Prof. Rahn's experiments show that the blood and saliva produce the radiation, but that with different people the rays emitted vary greatly. Some people have the power of producing effective radiations and others do not, while it varies with the same person under different conditions.

It was also demonstrated that the human body as a whole sends out rays.

The exact nature of the radiation is not yet determined but it may be some variety of ultraviolet rays, the invisible radiations of wavelengths shorter than visible light. This seems probable because the human rays are effective, as are ultraviolet rays, after being passed through quartz.

Four years ago German and Russian investigators discovered that active muscles of the human body emit a very weak ultraviolet radiation which stimulated the growth of microorganisms, especially yeast. They found that resting muscle and most of the other body tissues did not produce the rays, but that blood from healthy, normal people did radiate.

Tissue from human carcinoma growths or cancers showed strong radiation properties in these early experiments, while, unlike normal blood, the blood from cancer patients did not have the power of radiation.

Prof. Rahn explained that another investigator several years ago found that the blood of women at certain periods sent out a radiation that killed or damaged microorganisms.

These human ray discoveries recall the controversy over radiations given off by onion roots and other growing plant tips. Some scientists have reported the detection of ultraviolet-like rays from growing plants while others have been unable to confirm the phenomenon.

Prof. Rahn in stressing the need for further research on the human rays declared that they are "doubtless a physical influence."

Other investigators of human radiation, he explained, found it to be short-wave ultraviolet radiation of about two thousand angstrom units. There are still many puzzling features about human radiation for it is mostly destructive, while mitogenetic radiation from plants is found to be mostly stimulating

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GEOLOGY

1200-Foot Hole Will Seek Geological Evidence

A 1200-FOOT hole will be drilled down through the soil and rocks of New Providence Island in the Bahamas by an expedition from Princeton University, during the early part of August. The hole is to be made in the interest of geological research; it will yield a core which will tell hitherto unknown facts about the structure and ancient history of the islands. The core is to be shared between the British Museum and Princeton University, and kept as a permanent museum record.

The expedition is to be under the leadership of Dr. Richard M. Field and Dr. Harry Hess of the department of geology.

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AVIATION

600 Miles Per Hour is Limit Of Speed for Present Planes

"SPEED" and "air" are words that have a bond of association like "red" and "blood." Man's speediest travel, if we ignore his hurtling through space as a part of earth, solar system, galaxy and universe, is in a racing airplane at 406.9 miles per hour. How much faster can he go?

Physicists of the National Advisory Council for Aeronautics asked this question of the world's highest speed wind tunnel at Langley Field, Va., in which air can be made to rush at 800 miles per hour, which is faster than the speed of sound.

When a racing airplane wing section of conventional form was tested in this air stream, it was discovered that at around 600 miles per hour, the drag or the resistance of the wing to the air increased enormously. It will be almost impossible to supply enough power to the airplane above that speed to drive it through the air. Unless some new and

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unusual type of wing is invented, 600 miles an hour is as fast as airplanes can hope to travel. Racing pilots still have 200 miles per hour or so more of speed to conquer.

Even a transport airliner plowing through the air at about a hundred miles an hour has part of it traveling at 600 miles an hour. This is the tip of its propeller turning 1800 revolutions per minute. Such speed is wasteful if the propeller section is not correctly designed. Tests in another N. A. C. A. wind tunnel show that the tip of the propeller at near the velocity of sound is holding the plane back rather than helping it forward. Gearing the propeller so that it turns over once while the engine turns over twice, will increase propeller efficiency.

To the delicate mechanism of the human body which must be able to withstand high air speeds, not speed but changes in speed and direction are dangerous. It is doubtful if a pilot could stand more than 300 miles an hour on sharp turns. Much higher straight-away speeds would be safe if acquired and lost gradually.

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HYDRODYNAMICS

Boats Could Double Speed Skimming Surface of Water

SMALL BOATS are given wings under water to double their speed without increasing power consumption in a suggestion made before the meeting of the American Society of Mechanical Engineers at New Haven, Conn., by Dr. Oskar G. Tietjens, research engineer of the Westinghouse Electric and Manufacturing Co.

Frictional resistance in water is 800 times the wind resistance of the same surface in air, Dr. Tietjens said, because water is 800 times as dense as air. For the same reason the lifting force of a plane under the water is 800 times that of the same surface in the air, he stated.

Hence, with small underwater wings or fins, Dr. Tietjens proposes to lift almost the entire craft out of the medium of high resistance into that of little resistance. He calculates that two steel planes, each eight inches wide, one located just forward of amidships and the other just in front of the propeller, would be adequate for a twelve-foot boat. and he thinks such a system practicable for boats from twelve to fifty feet long.

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PHYSIOLOGY

Old Age May Be Postponed By Calcium And Phosphorus

EATING simple salts of calcium and phosphorus to build strong healthy bones may also lengthen the prime of life and delay the onset of old age, Prof. Victor K. LaMer of Columbia University, New York, has determined from a review of the work of other scientists.

If the proper amounts of calcium phosphate, a chemical now added to common salt to prevent it from caking in moist atmosphere, were eaten, life might be prolonged some ten per cent. Those who would normally die at 70 might continue to live until 77, Prof. LaMer believes. The specter of old age, the appearance of senescence, would be pushed farther into the future.

Young people, mothers and those in the prime of life will also be benefited by these essential mineral salts in their food. Experiments on rats by Prof. H. C. Sherman and Dr. Louise Campbell of Columbia, with whom Prof. LaMer has been working, have shown that rat mothers, and presumably human mothers, produce babies earlier and longer and raise more children when given a proper amount of these salts in the form of milk powder.

By building strongly calcified bones such as result from a high intake of calcium and phosphorus in the diet, the prime of life can also be prolonged, Prof. LaMer contends.

Calcium and phosphorus can best be supplied to the body by eating liberally of milk and leafy vegetables but it has also been shown that certain inorganic salts of the two elements can function as well as organic forms, such as occur in foods, in meeting the deficiencies of these elements.

Prof. LaMer and associates have worked out a "solubility product principle" by which it may be determined in just what proportion the two elements should enter into the diet to give the best result. Both calcium and phosphorus must be added as the inclusion of just one element may cause trouble.

Decay in teeth may be caused by inadequate amounts and proportions of these two vital bone-building elements. Prof. LaMer recalled the work of Prof. E. V. McCollum of Johns Hopkins on tooth decay in rats.

It is to be expected that some sort of calcium phosphate will in the future be added to common table salt just as iodine is now added to salt in regions where ordinary food is lacking in this element essential to prevention of goiter.

Growing children require twice as much calcium in their food as a normal adult, and mothers need three times that required by other adults.

Prof. LaMer warned that improper bone formation can not always be detected by body weight, and malformed bones may be affecting health for long periods without the person's realizing his condition.

Although important, vitamin D and ultraviolet light can not substitute for the proper amounts of calcium and phosphorous in the diet, Prof. LaMer explained.

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ORNITHOLOGY

Rooster Saves Self By Leading Band of Quail

A ROOSTER designed for the frying pan instead has become the proud leader of a band of Gambel quail, according to Custodian Martin L. Jackson of the Montezuma Castle National Monument, Arizona.

Mr. Jackson, craving a feast of fried chicken, purchased a nice young fowl. A little fattening seemed necessary, so the young bird was given a respite. His growth was rapid, and soon, because of resemblance to a comic strip character, he became known as Gump the Rooster.

At first all the feathered inhabitants of the Montezuma Valley seemed to fear Gump. Luckily for him, however, before his frying-pan zero hour arrived the Gambel quail made advances, found him friendly, and adopted him as their natural leader. Soon about 35 quail were observed feasting in the edge of a creosote bush thicket near Mr. Jackson's home with Gump in their midst.

Mr. Jackson now has given up all designs upon Gump's life.

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