

## PHYSIOLOGY

# Ultraviolet Rays, Heat and Calcium Salts Cause Cataract

## Protein of Eye Lens is First Denatured by the Ultraviolet, Then Coagulated by the Other Factors

ULTRAVIOLET rays, heat, and calcium (lime) salts are three inter-related factors in the production of cataract, Dr. Janet Howell Clark, of the Johns Hopkins School of Hygiene and Public Health, has reported to the Society of Hygiene of the Johns Hopkins University and the American Physiological Society.

How the cataracts of old people and of workers in certain industries develop may now be explained on the basis of Dr. Clark's research.

Cataract is an opacity of the eye lens or its capsule. Because one cannot see through an opaque lens, blindness results.

The protein of the eye lens and other protein solutions are denatured or changed by the action of ultraviolet light, Dr. Clark found. When this light-denatured lens protein is heated, or if a small amount of calcium or lime salts is present, the protein coagulates and becomes opaque.

The initial process of light denaturation may occur in the lens protein without any visible opacity, because normally only potassium salts are present and calcium salts are not, Dr. Clark reported. Presumably, although she did not make the point, this is the reason why not everyone develops cataract as a result of the everyday exposure of the eyes to some ultraviolet light from sunshine.

"There is probably always some denatured protein present in the lens as the result of exposure to sunlight," Dr. Clark stated, "and the amount may increase with age owing to the lowered metabolism of the lens. This denatured protein does not precipitate in the presence of potassium, but a calcium concentration as low as five-hundredths of one per cent. in the lens is sufficient to precipitate it at body temperature."

An accumulation of denatured protein in the lens in old age, combined with a higher amount of calcium in the blood, may therefore be responsible for senile cataract, Dr. Clark suggested.

The coagulation of light-denatured proteins is greatly hastened by heat. It

is probable, therefore, that the larger number of cases of cataract in workers with molten glass and metals is due to an increased rate of precipitation of light-denatured protein when the lens is heated above body temperatures by exposure to large sources of heat such as these workers experience.

To prevent the denaturation of the lens, which seems to be the first step in cataract formation or production, Dr. Clark warns that the eyes should be protected from radiation or light containing even moderate amounts of ultraviolet rays.

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## ARCHAEOLOGY

## Oldest Bible Fragment May be By St. John

HAVE scholars at last recovered some of the original Bible record about Christ written by Saint John himself, author of the New Testament Gospel of St. John?

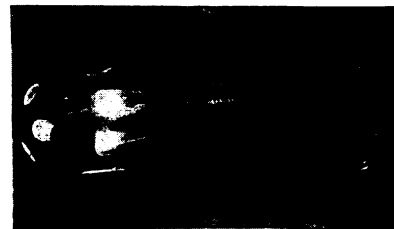
Possibility that the extremely old Bible manuscript which has come to light in Rylands Library, Manchester, may have this astonishing significance is seen by a London archaeologist who is keenly interested in the discovery.

That the small fragment of papyrus is the oldest New Testament manuscript ever discovered is agreed by British experts.

Suggesting additional importance for the ancient fragment, Sir Frederick Kenyon, former director of the British Museum, and authority on Biblical research, stated in an exclusive interview.

"I have little doubt that the fragment dates from the second century, possibly the early half. Allowing about a generation of time for making this copy in Egypt, one would suspect the Gospel written about the year 90 to 95 A.D. This does not exclude the possibility that St. John the apostle himself was the writer.

"Naturally, the only way to date the fragments is by an examination of the writing, but several experts on ancient



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manuscripts are satisfied that it is correctly described."

How the ancient fragment reached Manchester is not yet known, but it may have come from Oxyrhynchus, in upper Egypt, where sayings of Jesus were discovered in 1897. The section of the Book of John now discovered deals with Christ's appearance before Pilate. It consists of verses in Greek from the eighteenth chapter—parts of verses 31 and 33 on one side and verses 37 and 38 on the other. It was written in book form, not in a rolled manuscript.

The fragment's estimated age sets it 200 years earlier than the famous Codex Sinaiticus, which is a fourth century Greek Bible consisting of the entire New Testament and less than half of the Old Testament. It is also earlier than the Bible pages known as the Chester Beatty papyri, which have recently been coming to light in Egypt and acquired eagerly by British and American scholars. Leaves of this Bible manuscript are not generally believed to be earlier than 200 A.D.

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## ZOOLOGY

## Wisconsin Trades Beavers For Illinois' Turkeys

TURKEYS were swapped for beavers, in an inter-state trading match between Wisconsin and Illinois, engineered by the U. S. Forest Service office at Milwaukee, Wis. Wild turkeys were extinct in Wisconsin, and Illinois had not had any beavers for many years.

But each state had what the other lacked. So a Forest Service truck carried twenty beavers across the line into northern Illinois, where they were "planted" on the small streams. On the return trip, the truck brought back fifty Illinois wild turkeys and turned them loose in the Wisconsin woods.

Both states regard it as a "fair trade."

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