

rect adjustment to the spectra they transmit. In this way the spectra of whole star clusters can be photographed at once, instead of just one star at a time.

At the same time, the actual image of the star itself is photographed on the same plate, using parts of the lens not covered by the gratings. The star-images and their spectra can even be superimposed if desired. Thus a "mass production" method of obtaining important astronomical data may be developed, replacing the older method of one-by-one production.

*Science News Letter, May 5, 1934*

## BIOLOGY

## Anesthesia Produced By Distilled Water

**D**ISTILLED WATER, replacing ordinary tap water containing its usual quota of highly dilute mineral substances, produces anesthesia in plant cells, seemingly by dissolving out of them some unknown organic stuff.

This observation was presented to the National Academy of Sciences by Dr. W. J. V. Osterhout and Dr. S. E. Hill of the Rockefeller Institute for Medical Research.

Degrees of sensitivity and of its opposite, anesthesia, in living cells can be measured by suitably arranged delicate electrical apparatus. When very long cells of the water plant *Nitella* are placed in distilled water they presently become completely anesthetic, transmitting no nerve-like variations in electric potential along the protoplasm. This loss of sensitivity is hastened by the addition of acids or alkalis, but slowed by the addition of calcium. The anesthetic state passes off again when the cells are replaced in tap water.

"The simplest explanation," suggested Dr. Osterhout, "is that an organic substance, which we may call R, is dissolved out of the surface by distilled water, and this takes place more rapidly in the presence of acid or of alkali but more slowly in the presence of calcium."

This anesthetic state in plant cells has been observed in nature at certain times of the year, Dr. Osterhout added. This would lead to the supposition that the R substance is produced more slowly than it is dissolved out by the pond water.

"It seems possible," he concluded, "that other cases of anesthesia may be due to the fact that substances are removed from the cell."

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## MEDICINE

# Relief of Pain on Thyroid Removal Due to Cutting Nerves

**T**HE PAIN of angina pectoris and congestive heart failure may be relieved in some patients immediately after operation for complete removal of the normal thyroid gland, Dr. H. L. Blumgart of Harvard Medical School and Beth Israel Hospital, Boston, reported at the meeting of the American Society for Clinical Investigation.

Surgeons should not be misled by this immediate relief of pain, since its cause is temporary. Permanent relief cannot be had until there has been time for the metabolic rate to be reduced as a result of removal of the thyroid, Dr. Blumgart emphasized.

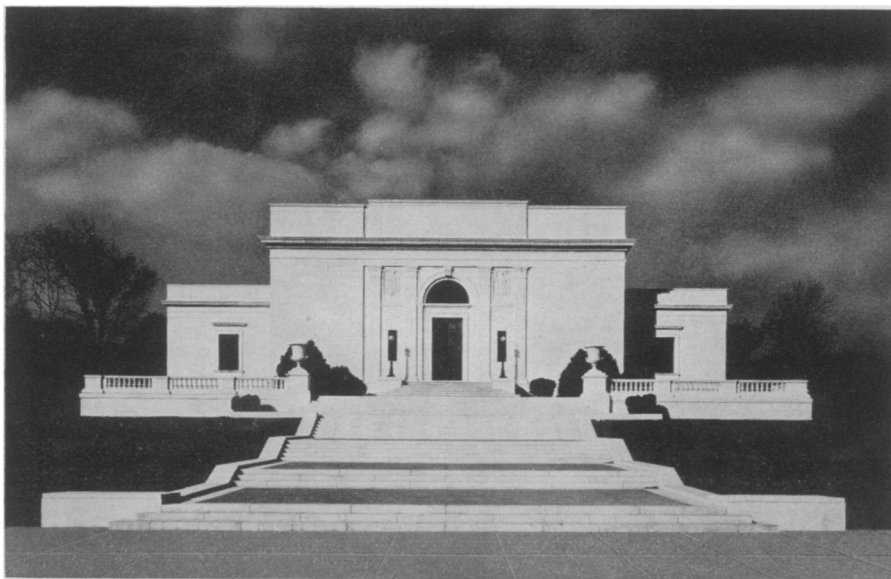
This now famous operation was devised by Dr. Blumgart and Drs. S. A. Levine and D. D. Berlin to lessen the load of the overworked heart or weakened arteries in pumping and carrying the mass of blood to the tissues. The amount of work the heart must do depends primarily on the call of the tissues all over the body for oxygen. This in turn is governed by the thyroid gland which determines the metabolic rate or the rate at which the body processes requiring oxygen go on.

When this rate has been reduced consequent on removal of the thyroid, permanent relief of the pain is achieved, but until tests show that the rate has been lowered, patients should be kept at rest in bed, even though they feel much better, Dr. Blumgart said.

This permanent relief was expected to follow complete thyroid removal, but relief was experienced by the patients much sooner than expected. Dr. Blumgart and Drs. A. A. Weinstein, D. Davis and J. E. F. Riseman have spent over a year studying this aspect of the treatment. They found that the immediate relief was due to the fact that the surgeon, in removing the thyroid gland, interrupts nerve pathways which carry painful sensations from the heart to the central nervous system.

"With this early relief that occurs before the metabolic rate becomes lowered there is probably no fundamental change in the heart condition," Dr. Blumgart explained. "So the importance of keeping patients in bed after the operation, in spite of their sense of well being, until the metabolic rate falls, is to be emphasized."

*Science News Letter, May 5, 1934*



### AMERICAN INSTITUTE OF PHARMACY

*This beautiful edifice just completed stands on Constitution Avenue in Washington, next to the National Academy of Sciences. It will be dedicated "to those who have given of their thought and endeavor to the improvement of public health and to the further advancement of science in pharmacy" during the meeting of the American Pharmaceutical Association May 7 to 12, 1934.*