



—Courtesy Carnegie Institution of Washington.

#### THE FLAT-IRON PHOTOGRAPH

—on the right was made with ordinary light while the one at the left was made in total darkness with a plate sensitive to infra-red rays. In taking the latter, the iron was heated in the usual way and produced the picture by its own radiation. Note the appearance of the ink spots in the two pictures.

#### PHYSICS-PHOTOGRAPHY

### Heat Rays Take Picture Of Ink-Spotted Flat-Iron

**P**HOTOGRAPHIC plates that record invisible heat rays have allowed Dr. Harold D. Babcock of the Mount Wilson, Calif., Observatory of the Carnegie Institution of Washington to make a new test of the famous law of heat emission and absorption that Kirchhoff derived in 1859.

A used electric flat-iron on whose smooth working surface some black drawing ink was spotted was photographed with an ordinary photographic plate and with one of the new infra-red sensitive photographic plates recently developed by the Eastman Kodak Company. In the photograph made by ordinary visible light, the ink spots appeared black as they did to the eye. But in the heat rays photograph the lamp-black ink spots showed up brighter than the rest of the hot iron, indicating that they were giving off heat faster than the smooth metal.

This verifies Kirchhoff's law, one of the broad generalizations of physics, which says, in effect, that things which readily absorb a large amount of the light and heat that fall on them are good radiators while those that absorb little give off small amounts.

The heat sensitive plates used must be kept in an ice-box until used in order to prevent ordinary room temperature from fogging them.

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#### CHEMISTRY

### German Scientist Confirms Existence of Neutrons

**B**OTH NEUTRONS and gamma rays are given off when the metal beryllium is bombarded with the hearts of helium atoms, Dr. F. Rasetti of the Kaiser Wilhelm Institute for Chemistry in Berlin, Germany, has concluded after repeating the experiments of Drs. W. Bothe and H. Becker, German physicists, Mme. I. Curie-Joliot and Prof. F. Joliot, French experimenters, and Dr. J. Chadwick of Cambridge, England, which had been interpreted both as artificial radio-activity and as demonstrating the existence of the neutron, close combination of electron and proton. The neutrons are detected most readily in an ionization chamber and the gamma rays, like those from radium, are detected by a counting tube.

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#### BOTANY-PHYSIOLOGY

## Drug Made From Indian Plant Produces Movie-Like Visions

**D**RIED specimens of an Indian plant, from which a drug can be made that produces magnificent and terrifying visions in motion picture form, have recently been received at the U. S. National Museum. The plant, known as yage, comes from southeastern Colombia.

Indians in the region where the plant grows make a beverage by boiling it for a day in earthenware vessels. Leaves and young shoots of certain other plants are added and a sort of liquid, like the syrup of sugar cane, is obtained, according to Guillermo Klug, of Iquitos, Peru, who sent the plants to the museum.

After about two pints of the liquid have been consumed over a period of two hours, the continuous, movie-like illusions are experienced by the drinker. Under the influence of the drug, all objects appear to have a strangely blue halo about them.

The Indian addict soon falls into a profound sleep during which he is in a state of complete insensibility and anesthesia. At this point his subconscious mind conjures up swiftly moving

dreams of extraordinary precision and clearness. The intoxicated person, so Mr. Klug says, is given the power of double vision and of seeing things at a distance, like mediums in a trance. Upon awakening the Indian retains a clear impression of his fantastic experiences. It may be, Mr. Klug states, that the drug has the power of developing psychic faculties.

The drug was taken experimentally by a Colombian scientist, who reported the unusual hallucinations and of being able "to see objects in the midst of the most complete obscurity." Yage was also found to produce extreme excitation in horses and dogs, a large dose causing them to lose their equilibrium. The drug was also reported by persons of education as being a complete cure for malaria.

Notes giving information on yage have been prepared by C. V. Morton of the U. S. National Museum and communicated to the Washington Academy of Sciences.

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