

## STUDY FINDS LATER LAWS

PASADENA, Cal. (AP)—Scientific research in electronic activity, conducted at the California Institute of Technology under the direction of Professor Robert A. Milliken, who was awarded the 1923 Nobel prize for physics, has resulted in two important discoveries, scientists declare.

The first discovery, expected to clarify the Compton-Heisenberg controversy, is that light energy travels in definite amounts and obeys the same laws that govern matter.

About a year ago Professor A. H. Compton advanced his theory that it is free electrons, instead of photons torn out of parent atoms and roaming in space, that cause the scattering of X-rays. He predicted that the wave-length of the scattered quanta of X-rays, the smallest unit of X-ray that can take part in a reaction, would be determined by what they struck. Compton was successful in giving a physical

demonstration of his theory in his own laboratory.

Then Professor William Duane of Harvard University, the pioneer investigator of X-rays in this country, announced after a long series of experiments, that he was unable to obtain the "Compton shift." Professor Compton went to Harvard and repeated his experiments without success, although he had no trouble at home. It was at this stage that the work at the California Institute of Technology was undertaken by Dr. J. A. Becker, national research fellow in physics, and his assistants.

Dr. Becker's experiments indicated that both Compton and Duane were right. He says that Duane probably failed to get the "Compton shift" because he used X-rays of too low an intensity. The Pasadena scientists were able to obtain both results on the same photographic plate.

"In further experiments," said Dr. Becker, "we hope to be able to tell more about the way in which electrons are torn out of their parent atoms, how they roam about between the atoms before they are captured by another atom, and some of the rules of the game being played in nature between radiant energy and matter."

"One of the rules these experiments have confirmed is that radiant energy, light waves, does not travel in continuous streams, but that it goes along in minute bundles of energy called quanta and that when these quanta meet with resistance they act much the same as a tiny chunk of matter."

The second discovery, made by Dr. Russell M. Otis, national research fellow in physics, and his assistants, relates to penetrating radiations and promises to be of great value in solving some of the problems confronting wireless and radio communication. The import of this becomes apparent when it is realized that it is believed to be gamma rays, coming from radioactive substances, that interfere considerably with aerial communication.

The first step was to check the statement of Professor Kolhorster, the German scientist, that the penetrating radiations, or nature's X-rays, grow more intensive at high altitudes. Extensive tests were made with the aid of an electronic instrument for measuring radiations. Experiments made in an army plane by Dr. Otis at various altitudes up to 19,000 feet proved that the German scientist was correct, but did not disclose the source of the radiations.

Observations made on the summit of Mount Whitney, the highest peak in the continental United States, resulted in the discovery that radio-activity did not come from the sun.

"We found," said Dr. Otis, "that radio-activity was just as strong at night, when the sun was directly under us, as it was in the daytime." As the result of these observations, this group of scientists have come to the conclusion that radioactive particles probably come from clouds of "star dust," heavenly wanderers that accompany the earth on its journey through space.

**Bungalows and Golf Links**  
Menace Towns of Post Gray

STOKE POGGS, ENG. (AP)—The natives of this parish, famous for its connection with the Penn family, founders of the state of Pennsylvania, and also its association with the poet Gray, are disturbed because of the march of progress.

The pretty neighborhood has recently attracted golfers and others as an ideal spot to build labor-saving bungalows, and these are gradually increasing in numbers and getting closer to the churchyard containing Gray's monument and tomb. As the 12th century church body needs repairing a fund has been opened for its restoration, and also to purchase several acres of surrounding land, so that Gray's tomb will not be overshadowed or swamped, as the fund promoters put it "by the tide of modernism" in the shape of up-to-date cottages.

**New Zealand Sheep Do Better.**  
WELLINGTON, N. Z. (AP)—There has been an increase of 200,000 in the number of New Zealand sheep, thereby assuring a good and cotton export. While this is considered to be satisfactory, the total of 22,722,000 sheep is still far below the record year of 1915, when it was 26,558,502.

**Women Closely Watch Weight.**  
NEW CASTLE, Penn. (AP)—Women weigh themselves more frequently than men, the New Castle city council has discovered. Penny weighing machines maintained by the city disclosed this fact when the receipts were counted. Machines located where women use them showed nearly four times as much income as men more available for the use of men.

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## CUBA ENDURES LABOR UNREST

HAVANA, (AP)—The greatest number of strikes in its history have been recorded in Cuba during the past winter season, culminating in a general strike in Havana that practically paralyzed the city's business.

On different occasions the island's three principal railroads have been tied up for days at a time and the without have extended to almost every industry. Bombings of street cars, wrecking of trains and shootings accompanied by loss of half a dozen lives have marked the clashes.

Only in 1920 was there anything like the 1924 situation and 1920 was the year of the "Dance of the Millions," as the Cubans termed the boom three years after the world war and it also was a presidential year. Prosperity, the fact that this also is a presidential year, better organization of labor and an influx of Spanish and Italian immigrants containing a large radical element, are blamed for the 1924 strikes by government officials who have studied conditions.

When sugar sells around five cents a pound the island is rolling in prosperity and labor wants more, and with elections coming on labor expects more consideration by government officials and politicians in general, they say.

Carlton Lovera, chief of the im-

migration bureau of the department of agriculture, commerce and labor, who has investigated many of the strikes and successfully mediated in some of them, threw up his hands when asked how many there had been this year. But he rapidly ran through a list of industries and found hardly one missing and hardly a town of any size that had not been involved.

Railroad workers, port workers, cane cutters, sponge fishers, brewery workers, carpenters, bakers, street car men, taxicab drivers, delivery men, chocolate factory workers, employees in the building trades and the retail industry were among those mentioned. Labor won some signal victories and lost disastrously in other cases. The employees of the United Railways of Havana tied up the road completely for three days and won their demand to affiliate with the general railroad brotherhood. In the other two railroad strikes the men got practically nothing. Street car men in Santiago stayed out for more than a week and gained nothing, but in Camaguey they compromised on a 15 per cent wage increase. Union recognition was lost in both of these strikes. The general strike called in Havana to support dock workers collapsed after four days without their gaining a point, but in the various smaller strikes labor won many victories in its demands for the eight-hour day and higher wages, and United Railway employees, by threatening a second strike recently, obtained a wage increase.

The Havana dock strike was marked by the government putting convicts to work on the wharves under soldier guard and by city policemen in uniform driving trucks

that hauled freight to and from the docks.

**Old-Fashioned Square Dances Brought Back By the Radio**

CHICAGO, (AP)—The Saturday night barn dance may be associated with social events of the past, but if an ear is given to the hundreds of letters station WLS here has received from both old and young radio fans throughout the country, the outdances and quadrilles still are in popular favor, and growing.

The station has established a weekly barn dance feature in its programs, with a famous old error from "loway" doing the calls. While it has been on the air but a few weeks, the managers of the station have received more comment on this feature than most of the others.

"It's like being sixteen again to do the old square dances to the music made for them," "We all like it from grandmother to the kiddies," "The old time music is the best," are expressions under which many replies could be grouped.

**JAPANESE LIGHT CRUISERS SHOW DEFECTS ON TRIALS**

TOKYO, (AP)—Japanese naval authorities are anxious about the performances of some of their newest light cruisers, which are being launched at the rate of ten a year by domestic shipyards. Newspaper reports of defects are substantially confirmed by well-informed experts.

The light cruiser Tama, 5,500 tons, developed engine trouble recently during her trials. It is understood, and a few days previously the smaller cruiser Yahara showed similar defects in her trials.

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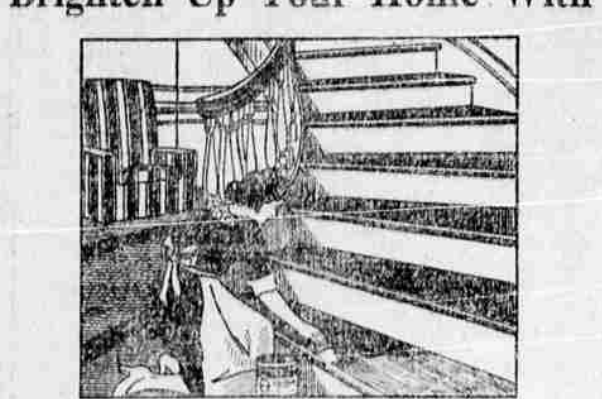
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