

PHYSICS

# Michelson-Morley Experiment Under Fire in Discussion

## Practically Unknown Canadian Mathematician Gives New Formula That Shakes Foundations of New Physics

**A** KEEN-MINDED, elderly Canadian mathematician from Montreal, lacking what is commonly regarded as accepted academic affiliation, wrote abstract mathematical formulae on the blackboard in the lecture room of Columbia University's Michael Pupin Laboratory of physics, and presented evidence that seriously challenges some of the basic concepts of twentieth century physics. The challenging report was presented before the American Physical Society meeting.

Reading like a roll call of famous scientists were the names drawn into the discussion of the mathematical symbols, for behind the cryptic chalk marks on the blackboard were implications which seem to challenge, clarify and yet support in a most paradoxical fashion the work of such men as Einstein, Michelson, Morley, Miller, Lorentz and Fitzgerald.

Except to a physicist those names may mean but little, yet they represent the men who by experiment and theory were instrumental in creating Einstein's special theory of relativity in 1905.

The symbols on the blackboard aroused the discussion because they raise once again the question of the validity of the theories on which the classic Michelson-Morley experiment to determine the ether drift was based. When one recalls that the Michelson-Morley experiment served as one of the inspirational "springboards" from which Einstein started his special theory of relativity the importance becomes clear.

Is Einstein's relativity wrong or is it strengthened? Has the Michelson-Morley experiment and its many repetitions been a mere scientific mirage? Was the ingenious hypothesis of Lorentz and Fitzgerald to explain the negative results of Michelson and Morley's experiment mere needless speculation? Those are some of the questions which scientist are trying to puzzle out from the chalkmarks of the Canadian mathematician.

Who is this man who, with his equations, may potentially clear up a forty-year old scientific problem?

He is William B. Cartmel, from the University of Montreal, and a fellow of the American Physical Society.

For years Mr. Cartmel has been working to find out what possible reason there might be for the great discrepancy between the negative results of Michelson and Morley in their ether drift experiment and the definite positive results obtained by Prof. Dayton C. Miller over a period of many years.

Prof. Miller's results stand alone, like a high mountain in a flat plateau country, among the results of the original experiment and the many repetitions since then. If Miller's results are right, then Einstein's relativity theory of 1905 is wrong. If Miller's results can be shown to be consistent with those of all the other investigators, then the theory of relativity is strengthened, for one of the biggest experimental objections will have been removed.



**MOTHER AND DAUGHTER**  
In a pose of affection stand these first ladies of Egypt of almost 5,000 years ago.

Mr. Cartmel claims that his mathematical interpretations account very well for the results of Prof. Miller, and account at the same time for all the other results obtained from the original Michelson-Morley experiment right down to the present. That is his claim, and today scientists are puzzling over his equations and the basic postulates which underlie them to see if Cartmel's claims are valid. If they are one of the biggest science stories of the last forty years can be told. If not, Cartmel will be just one more name added to the sizable and distinguished list of those who have tried to crack one of the most difficult problems of physics.

*Science News Letter, March 7, 1936*

ARCHAEOLOGY

## Restored Statuette Holds Unique Royal Portraits

**E**XPERTLY restoring a shattered stone statuette from Egypt, the Boston Museum of Fine Arts finds itself possessing a unique portrait group of two historic queens.

The figures, cut out of yellow limestone by a master sculptor, represent Queen Hetep-heres II, who was the daughter of Cheops of pyramid fame, and her daughter Meresankh III. They were first ladies of Egypt almost 5,000 years ago.

Mother and daughter turn slightly toward each other, in this ancient stone version of the modern family photograph. The left arm of the mother queen is back of her daughter's neck. The only paint left on the statuette is black, on such features as hair, eye brows and pupils. Dresses were probably white. Natural yellow of the stone may have been left uncolored to represent flesh, since artists in Egypt regularly colored a woman's skin yellow.

The fragments were discovered by the Harvard University-Boston Museum of Fine Arts Expedition to Egypt, in the royal cemetery at Giza in 1927. Identity was proved only a few months ago, when cleaning revealed an inscription on the base, and efforts to reconstruct the figures were made.

"That the statuette is an important addition to existing works of the Fourth Dynasty there is no doubt," declared Dows Dunham, assistant curator of Egyptian art. "Its place of origin, and date are accurately known. It represents historical personages, and it is unique in pose and grouping."

*Science News Letter, March 7, 1936*