reports were, "No, this is not the writer."

When I computed the factor of certainty for the documents identified as written by Hauptmann, on a very conservative rating, I found the fraction to have one as a numerator over 3 followed by 19 ciphers as the denominator. This, from a mathematical standpoint, confirms the identification "beyond all reasonable doubt."

Clear Up Threats

Other kidnaping cases, especially threats of kidnaping, have been brought to us with requests for a study of the handwriting. For instance, a woman known to many Washington people received a note demanding $5,000, and containing a threat to get a member of her family if the money was not paid.

One man attributed this note to an aged friend of the family, frequently guilty of playing jokes on his friends. But the note had none of the elements of the writing of an aged person. It did not convey the style of writing taught 70 or 80 years ago. In fact, it bore abundant evidence of a young man's writing.

Further investigation showed that the writing of a servant, 22 years old, matched the threatening note perfectly. When he was confronted with an exhibit showing how the writing of the threatening note agreed with his own, this young man admitted his guilt.

In identifying handwriting, in order to determine whether the same person wrote two or more items, it is necessary to keep in mind all rules or landmarks of identification. I have named a few of these. The handwriting expert must have a grasp of all. Instantly, he must recognize what is significant in a piece of writing given him for study.

Ignorance Causes Error

Failure to master and recognize these enables many amateurs and charlatans to appear as handwriting experts and to support, with incomplete testimony, whichever side seeks their services. The mathematical theory upon which handwritings are identified is sound, and must be mastered and properly applied if one hopes to keep his record clear of blunders or errors.

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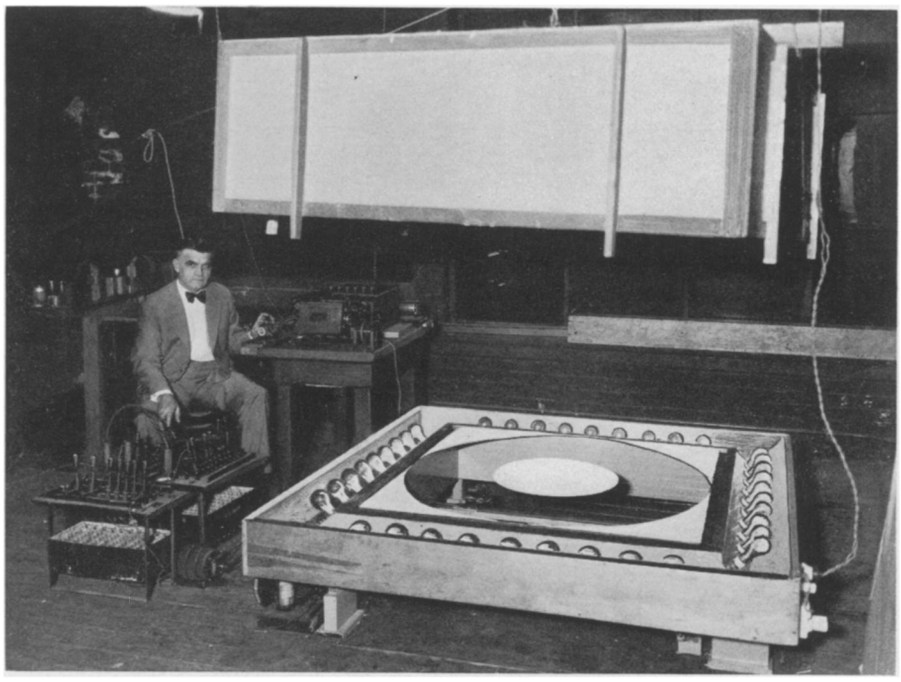
Most members of the ladybird family eat insects; but a ladybird beetle from tropical America that eats beans—any kind of beans—is now an established pest in New York State.



ROOM-LIGHTING TESTER

With upper section raised to show its inner structure, is the new device at the University of Michigan with which scientists can test the effect on a given room of different lighting arrangements. Prof. H. H. Higbie, department of electrical engineering, is at the controls of his apparatus. In use, the upper hood is lowered so that it reflects light into the model room which is bounded with the electric lights. Illumination of the room is changed by varying the size and shape of the ceiling apertures through which the light is admitted. A photo-electric cell carriage, traveling back and forth through the room and measuring the light intensity, can be seen at the left.

ENGINEERING

Lighting Systems Can Be Tested Before Installation

A MODEL room for the accurate testing of lighting adequacy under any given conditions is now available to architects or builders in the illumination laboratory of the University of Michigan. This apparatus, the only one of its kind in the world, will make it possible for architects to determine in advance the exact performance of any lighting system which they may design, according to Prof. H. H. Higbie, department of electrical engineering.

By changing the ways in which light is admitted, and by varying the kinds of paint on the ceiling, floor, and walls of the model room, any lighting conditions may be reproduced to solve specific problems of illumination. The accuracy of the apparatus is insured by a complete check before each test is made. Numerous tests in full-size rooms have verified the applicability of the data obtained with the aid of this device.

A photo-electric cell, mounted on a carriage, moves back and forth, so that an accurate survey of the whole room may be made. The current generated in this "electric eye" is amplified, then recorded by means of an oscillograph. A beam of light, developed in the oscillograph, falls on a moving strip of photographic paper, thus making a graphic record of the trip of the "electric eye" about the room.

If it were not for reflections, this complicated apparatus would be unnecessary, since illumination could be calculated by mathematical means. The troublesome reflection difficulty, however, is solved by covering the "electric eye" with a diffusing glass, which catches light from all angles and transmits it to the photo-electric cell.

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