

PHYSICS

Device for Rapid Sectioning Will Aid in Detecting Crime

Three-Inch Tool Makes it Possible to Cross Section Hair or Fibers Without Crushing in But Ten Minutes

A DEVICE having almost unlimited possibilities in many fields, including crime detection, the fur industry, textile manufacture, and agriculture, has been invented by Dr. J. I. Hardy, fiber technologist of the U. S. Department of Agriculture. The invention makes possible the rapid cross-sectioning, microscopic study, and photographing of the delicate inner structure of hair, wool, fur, silk, cotton, and other fibers without injury. Very thin cross-sections can now be made in ten minutes. Formerly it took several hours to obtain less satisfactory results.

Realizing its application to the Department of Justice's attack on the racketeer and gangster, J. Edgar Hoover, director of the Federal Bureau of Investigation, has caused a careful study of its uses to be made.

"Our technical experts are studying this device to determine whether it can be utilized as a new means of examining fibers and hairs. The simple and rapid method is the sort of technique well adapted to the needs of investigators seeking to solve crime where time, detail, and accuracy are of the utmost importance," he said.

Besides its use to cross-section quickly any hair or tuft of clothing a criminal might leave behind him, the invention promises to be of value in detecting misrepresentation of quality of clothing or furs, a common practice of the fur-racketeer. It should also have its use in legitimate comparison of quality, as well as aiding stockmen and cotton growers to know what types of plants or animals produce the fibers most demanded by industry for high-quality products.

Three metal parts make up the device, which is three inches long altogether. By means of a screw-controlled plunger, fibers are moved in a tiny slot 0.0085 of an inch wide and made to project slightly while held tightly together in proper alignment. A drop of quickly-drying celluloid on the projecting fibers "fixes" them so that they can be sliced off crosswise in any thickness desired down to one ten-thousandth

of an inch. Even such hairs as those of the deer, hollow inside, are not crushed or injured, due to the celluloid.

Photographed after being magnified 500 times, cross-sections show almost as many different designs as snowflakes. Rayon fibers in cross-section look like animal crackers. A hair of the vicuna, a llama-like South American animal inhabiting the Andes of Ecuador and Bolivia, frequently resembles a four-leaf clover.

Study of hair brings out interesting contrasts. Curly human hair is usually oval in cross-section, while straight hair is more circular. Hair of the land otter is of exceeding fineness, and the hair from an elephant's tail resembles a tooth-pick more closely than anything else.

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MEDICINE

Danger of Snakebite Is Greater Than Supposed

THE chances of being bitten by a poisonous snake are considerably higher in the United States than most people have comfortably supposed.

The pleasant tradition that about 24

species of poisonous snakes roamed their peaceful way in the United States, only seldom crossing the path of a startled human and striking him, is based on nothing more substantial than a lack of information, is shown by Dr. Thomas S. Githens of the Mulford Biological Laboratories of Sharp and Dohme Co., Glenolden, Pa.

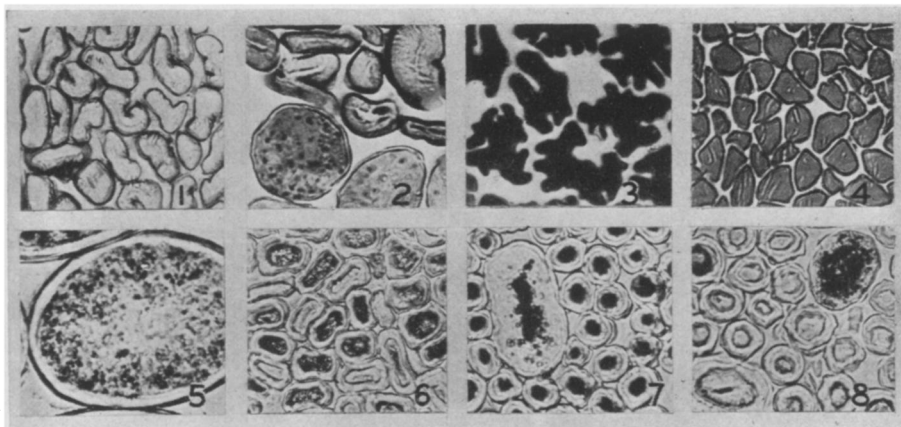
Dr. Githens reports to the *Scientific Monthly* that he has recorded 2,376 cases of snake bite in this country in the past eight years. And this is obviously a far from complete accounting. Only such cases as physicians reported to the laboratory, by filling in a report form accompanying each package of anti-venum, and such cases as could be found in newspaper items were available for the survey.

Expressing surprise at the "unexpectedly large number" of cases thus revealed, Dr. Githens believes there may be 1,500 to 2,000 cases of snake bite each year in the United States.

Heretofore the most complete investigation of the subject was made in 1908, when reports of snake bites for almost a century back were counted and only 740 found. The investigator thereupon announced the annual number of poisonous snake bites "excessively small" and growing less as the vipers were being "slowly but surely exterminated." Wrong on both counts, Dr. Githens finds.

Rats and mice increase rapidly when wilderness country is converted into farm land, the biologist points out. And all snakes, including the poisonous ones, become more abundant through this turn of affairs, only thinning out when a community grows into a thickly settled city.

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SLICES OF FIBERS

A new device makes it possible to cut hairs quickly into thin cross sections like these for microscopic examination. Cotton is shown in the first view; number 2 shows a comparison of cotton, above, with wool; 3 is rayon; 4, silk; 5, human hair; 6, rabbit fur; 7, muskrat fur; and 8, fox fur.