

file with Chron 30 Sep 64

# NUCLEAR 'PRINTS' USED AS EVIDENCE

## New Type of Analysis Helps Police Identify Clues

NY 7 25 MAY 68

By JOHN NOBLE WILFORD

Atomic "fingerprinting" was reported here yesterday to be gaining wide acceptance by law-enforcement officers in making positive identification of incriminating evidence, even if it is only a strand of human hair or a tiny speck of paint, soil or gunpowder.

In an Illinois courtroom next week, the method is expected to be put to a new test. Experts are set to testify there on the results of such atomic analysis in determining if batches of animal feed contained poison.

The method, called neutron activation analysis, has already been used in at least 1,000 cases in the United States, leading in many instances to convictions for moonshining and bootlegging, burglary, rape and murder.

The latest results with the crime-detection technique were described at a symposium at the Overseas Press Club on the practical uses of nuclear energy. Participants included officials of the Atomic Energy Commission, the Internal Revenue Service and private industry.

Dr. Vincent P. Guinn of Gulf General Atomic, Inc., a manufacturer of nuclear reactors, said that for many purposes the atomic analysis "is 100 to 1,000 times more sensitive than the most sensitive of the analy-

tical methods usually available in crime laboratories."

These include examination of samples through x-ray analysis and the separation of components in a solution.

As manager of the company's activation analysis program, Dr. Guinn has run atomic tests on evidence in a number of cases recently. He will take the stand in the Illinois animal-poisoning trial.

Gulf General Atomic is a wholly owned subsidiary of the Gulf Oil Corporation. It is based in San Diego.

Atomic fingerprinting is a refined analysis of chemical elements in any material, whether natural or manufactured. It is based on the idea that materials of a common origin have not only the same components but also the same impurities.

To make an analysis, Dr. Guinn explained, the sample is placed in a small plastic container and bombarded with neutrons in a research-type nuclear reactor.

This renders the elements in the sample radioactive, thus making it possible to identify them by the distinctive gamma rays they emit. It is even possible in this way, Dr. Guinn said, to measure the amounts of the elements present.

The technique has already been used to identify minute traces of gunshot residue, enabling the police to determine whether a suspect had recently fired a gun and whether a tiny lead fragment was a bullet fragment—and, if so, what type of bullet.

Three laboratories — at Gulf General Atomic, the United States Internal Revenue Service and the Federal Bureau of Investigation—now use the method regularly on evidence samples involved in criminal cases.