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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

M. Edwin O'Neill

Experiments with Time Bombs

In the recovery of suspicious packages by police department investigators, it is common procedure to submerge such a package in heavy oil with the idea that this oil will stop any clock mechanism if the suspected package is a time bomb.

An article entitled "Laboratory Experiments with Time Bombs," published in the April-May, 1942 Police Chiefs' News Letter, gives an account of the results of experiments conducted under the direction of Chief Michael F. Morrissey, Indianapolis Police Department, in which ordinary alarm clocks of an inexpensive make were wrapped in various protective coverings and submerged in different types of liquids.¹ The results of the tests have been summarized in the accompanying table, and it is thought that these will be of help to police departments who may be called upon to deal with suspicious packages which may or may not contain time bombs.

The writer believes that a word of caution is in order, namely, that the package should be examined before being moved, using a stethoscope, since, if the package contains a clock mechanism with an escape wheel, the stethoscope will probably detect the sound produced by such a clock mechanism. It should not be assumed, however, that a time bomb will only depend upon the clock mechanism to set it off. Various chemical devices can and have been used for this purpose. In addition, it is possible that a secondary means of ignition or detonation might be included in the package so that if the suspected package is submerged in water, the bomb will function as intended. This is the reason that packages of this type should be submerged in oil and never in water.

Too much caution cannot be given in the matter of handling packages of this type. The person who handles these packages usually makes only one mistake. It is hardly necessary to point out that the handling of such instruments of destruction as time bombs is the most hazardous occupation that can be imagined, since the bomb may take almost any form as dictated by the ingenuity and mechanical ability of a warped mind.

The author of the article quite correctly states that the approximate time required for stopping a clock in the experiments will in all probability vary somewhat with different makes of clocks which have springs of different strength. In addition, it should be pointed out that for a given make of clock the adjustment of the pivot bearings and the deepthing of gear trains and bearing clearances will also materially effect the results that could be expected to be obtained with the given clock mechanism.

The results of these tests will be of interest to police technicians who are concerned with the examination of packages suspected of containing mechanical time bombs.

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Ocular Stability in the Detection of Deception

Most workers in actual crime detection work, employing instruments for the detection of deception, tend to limit their thinking as well as their technique to the conventional three indices; blood pressure recordings, respiration

¹ Police Chiefs' News Letter 9 (4-5): 14. April-May, 1942.

Experiment No.	Type of Liquid	Clock Condition	Wrapping or Covering	Results
1	Used Lubricating Oil (Drainage Oil)	Clock works only No Case	None	Stopped immediately upon being submerged Started upon being removed.
2	Clean gasoline	Clock works only No Case	None	Ran until spring was practically run down.
3	Diluted—used Lubricating oil 2 of oil to 1 of gasoline	Clock works only No Case	None	Stopped within 3 minutes. Started upon removal from oil.
4	Used Lubricating Oil (Drainage Oil)	Clock intact (with case)	Only clock case	Stopped almost immediately upon being submerged. Started again upon being removed.
5	Used Lubricating Oil (Drainage Oil)	Clock intact (with case)	Placed in wood cigar box, wrapped in double thickness of brown wrapping paper.	Stopped in 22 hours.
6	Same as 3	Clock works only	Wood cigar box wrapped with double thickness of paper.	Stopped in 7 hours. Started upon being removed.
7	Water	Clock intact (with case)	None	Ran until spring was practically run down.
8	Mineral Oil	Clock intact (with case)	None	Stopped immediately.
9	Carbon Tetrachloride	Clock intact (with case)	None	Results same as No. 2.
10	1 part Carbon Tetrachloride to 4 parts Mineral Oil.	Clock intact (with case)	None	Stopped immediately.
11	Same as No. 10.	Clock intact (with case)	Cardboard box wrapped in double thickness of brown wrapping paper.	Stopped in 6 minutes.
12	Same as No. 10.	Clock intact (with case)	Placed in unsealed wooden cigar box with double thickness of brown wrapping paper.	Stopped in 7 minutes.

recordings, and some form of the electro-dermal response recording. These indices, originally the product of pure research, have proved their worth in actual police work. Our confidence in them is well placed. However, it may well be that other indices, other techniques, may come to be evolved which may prove to be of excellent supplemental value, if not of replacement value of the conventional three (blood pressure, respiration, electro-dermal).

A step in that direction has been taken by Professor F. K. Berrien of Colgate University in his article "Ocular Stability in Deception" appearing in the February, 1942 issue of the *Journal of Applied Psychology*.²

The ordinary citizen has long felt that shifty eyes proclaim the deceiver. Although many police workers have a legitimate bias against some garden variety of deception indices, there have been no careful scientific studies of the relation of eye movements to deception until this study of Professor Berrien.

A standard ophthalmograph (American Optical Co.) was employed for recording stability of visual fixation during the "question period" and during the "silent period." The subject looked at a designated spot on an otherwise blank card held 16 inches from the eyes during these periods. Crucial and noncrucial questions (3 "crucial," one "non-crucial") about a "laboratory crime" were asked during the question period (approximately 70 seconds), following the questioning period, a rest period (60 seconds) and then the "silent period" (60 seconds), during which time no questions were asked or expected, but the subject again fixated the same point as during the "question period." The recordings of the subject's visual fixation during the question period and the silent period, were the data of these subjects. However, since no significant differences were present between "crucial" and "non-crucial" questions in the question period, a comparison between the question period and the silent period was made as well as a study of the silent period records.

The study of records of 40 subjects (male) equally divided as to guilt and innocence with respect to the perpetration of a "laboratory crime" revealed as the most significant feature a change in stability during the silent period. "Persons without special training in judging the records have been able to diagnose guilt and innocence from the records with accuracies ranging from 64 to 74 per cent. When the final diagnosis of a given record depended upon the consensus of opinion of a group of six judges, the accuracy of the method has been shown to reach 80 per cent. Neither a period of delay between commission of the offense and examination nor hearsay knowledge of the offense appears to have adverse effects on the method's validity."

The subjects of a university laboratory and the subjects that one encounters in police work are differently motivated; the one group with a desire to help the examiner, the other with a keen desire to "fool the examiner." Differences in education and mental status are also present. There are other technical and physical difficulties to be considered as well. Not to be overlooked is how a defense attorney might describe this "ordeal" to a jury. In spite of all these shortcomings, however, a useful piece of research in a new aspect of detection of deception technique has given to the field of scientific crime detection a definite indication that may well be the beginning of a new era. To Colgate University and Professor Berrien workers in the police field may well extend their appreciation for this timely research.

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² Berrien, F. K., "Ocular Stability in Deception." *Journal of Applied Psychology* 26 (1): 55-63. February, 1942.

Police Problems in War Zones

Because of the changing functions of a police department located in a war zone, reports of police activities in the Territory of Hawaii are being received with great interest by police officials on the mainland, although a complete exposition of these activities will no doubt be withheld until the end of the war. The May-June issue of this Journal contained an article by Chief W. A. Gabrielson of the Honolulu Police Department describing police problems in Honolulu under attack conditions. That the war has greatly affected the rural areas of the Hawaiian Islands is indicated by the following excerpt from a letter to the Journal dated April 4, 1942, from George Larsen, Jr., Chief of Police of the County of Maui, T. H.:

"Many new and interesting problems have been placed on the list of police duties as a result of the war, and particularly those police departments which are in the combat area. It will be interesting some day to recount the way these problems have been met, and the unique activities which have resulted. Under Martial Law certain police functions have virtually ceased, while others have been augmented and increased. This Department is now a semi-military organization, with personnel increased to about 600% of its size before war struck. Military orders have priority over existing statutes and ordinances, with a definite emphasis on internal security. The arrest and detention of military prisoners, operation of a complete observation and reporting network, increased responsibility for inter-district communications, are some of the main additional functions."