

my life and one that has been a primary concern of my Department for a good many years. I suppose that many of you would like to know why our neighboring states were so anxious to help us in trying to eliminate the pollution of the Ohio River. I am sure the paramount thought behind the decision of our neighboring states to help in this great cause was the fact that the Ohio River is very valuable to each of our states for commercial navigation. Tonnage moving on the river during 1955, as reported by the U. S. Corps of Engineers as being 71,500,000 tons (as a matter of orientation the total tonnage moving through the Panama Canal is about 45,000,000 tons annually and through the Suez Canal about 118,000,000 tons annually) so you can readily see the vast importance of this great waterway. In the past 10 years the U. S. Corps of Engineers records show 111% increase in the amount of tonnage hauled on the Ohio River. I believe that another important thought in the minds of our neighbors when they came to our rescue was the importance of the river from a recreational standpoint as measured by the small boat use which is of considerable portion. In the Cincinnati area alone newspaper surveys show an estimated 14,000 pleasure boats of all kinds. Most of these are 14 feet or under in length, fitted with outboard motors and a great many of them are kept at the owner's home and moved to and from the river. Data are yet too sketchy to make an estimate of the total of the number of small boats using the Ohio River. However, in 1956 tabulations of the U. S. Corps of Engineers shows that there are at least 102 small boat harbors and 25 improved public landings and each year there is an appreciable increase for permits to install launching ramps. Another important aspect of having clean water in the Ohio River, and this is true of any other stream, is the growing demand of agriculture for water for irrigation purposes. The growth pattern of irrigation is very rapid. Professor John R. Davis of Purdue University in his report in the 1956 Journal of the American Waterworks Association on page 982 reports that 1,124 farms in the Ohio River Compact states were irrigating 20,330 acres. In 1954 the number of farms had increased to 3,727 and the acreage irrigated reached a total of 66,980. In summing up, the records show that we have made a good start in my state and in the Ohio Valley in the control of all types of waste going into our public streams. But, in the end terms of necessary accomplishments is still a long way off. This does not mean that you and I working in our respective states should show any disposition to be less aggressive in pursuit of our ends, and in making this statement, I am assuming that most of you are charged with the enforcement of your pollution laws. It is simple knowledge that the scope and magnitude of this task will require relentless efforts. Many of the industries in the Ohio Valley, a few from the sense of public responsibility, some from a proper self-interest in waste conservation and water quality protection, and others as a result of prodding from control agencies have taken steps to reduce pollution. Much more needs to be done, but some and something must be done by all."

THE VALUE OF THE LABORATORY TO THE ENFORCEMENT OFFICER

By J. WILLIAM MAGEE, Ph.D.

FBI Laboratory
Washington, D. C.

INTRODUCTION

Evidence in criminal cases may be regarded in the same light as money. The mere collection of money does not make a person wealthy. He must have the power to spend or use the money before he realizes its value. So it is with evidence. The enforcement officer must collect the evidence in such a fashion that it can be used to its fullest advantage. When this is done and when the officer goes to court, he is indeed "wealthy" in so far as a particular case is concerned.

It has been said that there is no substitute for victory. We in the FBI believe there is no substitute for expert laboratory examination of evidence found at

the scene of a crime or in the possession of a suspect. It is through the means of expert laboratory examination that a piece of evidence is developed to its fullest possible value and it is then that it becomes useful to the enforcement officer.

If a police officer wants to know how much alcohol is in a person's blood, he doesn't guess, he has the blood or breath examined in order to get the answer. If a conservation officer finds blood in the trunk of a car, he must not guess. He, too, is entitled to expert advice and we think he should have it examined in order to get the answer.

The fact that the laboratory is of value to the enforcement officer is certainly not in doubt. There may be some instances, however, where enforcement officers are not aware of the extent of the facilities of the FBI Laboratory and availability and the diversity of examinations that are made for conservation officers.

COLLECTION AND PRESERVATION OF EVIDENCE

Before an officer collects evidence at the scene of a crime, he must be prepared to collect and preserve it properly. He should be acutely aware of what is or may be evidence and how it must be collected, preserved and identified so that it will be useful at a later date. The officer's initials or name should appear on each piece of evidence or its container. It would be impractical to try and list all of the "do's and don'ts" for all types of evidence but the following will serve as a guide:

1. Objects containing bloodstains should be air dried and never heated.
2. Fresh blood samples should be refrigerated. Add no preservative. Submit via airmail special delivery.
3. Meat samples should be frozen.
4. Small objects containing blood should be submitted for examination. Do not remove stains.
5. When it is necessary to submit scrapings of blood, put them in a pillbox. Never use an envelope.
6. Soil samples containing blood are properly placed in an ice cream container and not an envelope.
7. Hair specimens may be placed on a piece of plain white paper which is then carefully folded and placed in an envelope.
8. Bullets should be identified on the base or nose and placed in a small container with cotton. Bullets should not be carried in the pockets.
9. Cartridge cases should be marked in the mouth of the cases and preserved in cotton.
10. Submit samples of unusual ammunition for test purposes.
11. If weapon or any other evidence is to be processed for latent fingerprints, protect the evidence and so advise in the letter of transmittal.
12. Unloaded firearms may be shipped via registered mail. Live ammunition must be sent via railway express.
13. Plaster casts of shoe prints and tire treads should be well packed to prevent breakage.
14. Each article of evidence in a package should be separately wrapped in order to prevent one article from contaminating another.
15. Good common sense should prevail regarding collection, preservation and identification of evidence. The enforcement officer must take what measures that are necessary to insure that he can testify concerning the identity of the evidence and that the evidence is preserved in such a fashion that it is suitable for subsequent laboratory examination or presentation in court.

HAIR EVIDENCE

Illegal killing of game cases received in the FBI Laboratory are usually concerned with some member of the deer family or antelope and occasionally with bears. Hairs found in a car trunk, on a suspect's clothing, in a dwelling, et

cetera, are submitted for identification. Hairs from a member of the deer family can normally be identified as deer, moose, elk, or caribou. White tail deer and mule deer cannot be distinguished on the basis of individual hairs. Sometimes when only small hairs from the lower leg or face are present, the hairs can be identified only as deer family and not as to genus or species. Hair examinations cannot determine the length of time since the animal's death, nor can the season in which the animal was killed be determined by hair examinations.

Examination of hairs sometimes reveals that things are not always what they seem. During the early part of 1958, a conservation officer for the State of Maine investigated a case involving a man who admitted possession of deer meat before the deer season opened. This man stated that he had purchased the meat from another individual who allegedly had sold out-of-season deer meat on previous occasions.

A piece of this meat was submitted to the FBI Laboratory for examination and it was found to have a number of horse hairs clinging to it. Serological examination verified the fact that it was indeed horse meat.

Very often samples of submitted meat are found to have adhering hairs which afford valuable clues to the source of the meat. For this reason, precautions should be taken to insure that such hairs are not lost during the collection and packaging of the evidence. When submitting small samples of meat taken from larger pieces, it is advisable to remove any hairs adhering to the larger meat portions and submit them to the laboratory together with the smaller samples of meat.

BLOOD EVIDENCE

Approximately twenty years ago the writer testified that deer blood was present on a knife which a conservation officer took from a subject near Bronson, Florida. When the officer arrived at the scene, he found the bleeding carcass of a doe deer at the feet of the subject who disclaimed any knowledge of the matter. The officer saw the subject put his hand in his pocket from which the knife was retrieved. A shotgun shell found at the scene, the subject's double-barrel shotgun and pocketknife were submitted for examination. After testimony was presented at the trial that the shotgun shell was fired in the left barrel of the gun and that the blood on the knife was of deer origin, the jury deliberated five minutes and the defendant was acquitted.

Twenty years later another sample was received from that area. The examiner testified in Bronson that stains from the trunk of a subject's car were determined to be of deer family origin. We have been advised that the trial resulted in the first conviction for a game violation in Levy County in twenty years.

FIREARMS EVIDENCE

We all know that firearms play a dominant role in many violations of the game laws. Much of the evidence collected in such cases is of necessity of a circumstantial nature. This fact need not be a deterrent to the successful conclusion of these type cases. The case history that follows illustrates the point.

While patrolling the area adjacent to a United States Wildlife Refuge Reservation near Spokane, Washington, a State Game Warden heard some shots and subsequently located two men, one of whom admitted having fired his shotgun recently, but in another area of the state. A careful crime scene search within the confines of the reservation revealed several shotgun cases and shotgun wadding. The subject's gun, live ammunition and evidence from the scene were submitted to the FBI Laboratory where the cases were identified as having been fired in the gun and the wadding was similar to that in the live shells. After the FBI expert testified, the defense counsel petitioned the court with a motion for acquittal. In denying the motion, the Judge remarked "this is the best circumstantial evidence case I have ever seen in my life." The defendant was found guilty.

METALLURGICAL EVIDENCE

A trained metallurgist can be of assistance in situations that may confront the conservation officer. This type of work includes restoration of numbers on

guns, boats, motors, tools, sporting goods gear, such as binoculars and many other objects.

At the request of the Fish and Wildlife Service, Department of the Interior, the FBI Laboratory conducted tests to determine the best method of restoring worn-off information on the leg bands recovered from migratory birds. Quite often the normal wear will result in making the stamped data on the aluminum tags illegible. An etching process was developed for the Fish and Wildlife Service so that they could handle their own restoration work.

FIBER EVIDENCE

Evidence of this type may be no larger than a few strands of cloth recovered by the officer from a barbed wire fence. Examination and comparison of this evidence with clothing of the suspect may assist in placing him at the scene of the crime. On the other hand, fiber evidence may be much larger and the examination of it has been useful in convicting a game law violator.

One afternoon, Inspectors of the Maryland Tidewater Fisheries Commission observed an oyster boat being operated in the illegal dredging of oysters. When the Inspectors pulled alongside the boat and identified themselves, one of the operators of the oyster boat cut the rope line from the boat to the dredge, remarking as he did so, "Now, you have no evidence."

The operators of the oyster boat were placed under arrest and dragging operations were begun to recover the dredge.

After recovering the dredge, the rope tied to it, as well as the rope tied to the bow of the oyster boat, was submitted to the FBI Laboratory for examination and comparison.

The Laboratory was able to fit together the cut ends of the two pieces of rope, and to state that they were originally one rope. This was possible because of the paper tracer within the rope, which, when joined, completed one of the words of the manufacturer's inscription.

Testimony of the Laboratory examiner at the trial of this case materially assisted in the conviction of the defendants.

BONE EVIDENCE

A game and conservation officer from Harrisonburg, Virginia, submitted to the FBI Laboratory a roasted leg of meat which he believed to be deer meat. The heat from the roasting process rendered the meat unsuitable to test serologically. However, the meat was submitted to one of the FBI's contacts who removed the meat from the bone of the roast and determined that the bone was from the leg of a deer. The anthropologist was scheduled to appear as a witness in court against the defendant, who entered a plea of guilty before the date of the trial.

SOIL EVIDENCE

The examination of soil from a suspect's shoes, clothing or automobile and the comparison of this soil with numerous samples from the scene of a crime have led to court testimony by our experts in this field of science and subsequent prosecution of violators of many of our laws.

This type of evidence has even been used when it was necessary to prove where the crime was committed. An Inspector of the State of Maryland Department of Tidewater Fisheries found in an oysterman's shed in St. Mary's County a large number of undersized oysters. According to law, only five percent of a catch from a Chesapeake Bay bar may be under three inches. He found that twenty-seven percent of this catch was under the limit.

The oysterman claimed, however, that the undersized shellfish came from his leased bed in St. Patrick's Creek and not from a Chesapeake Bay bar. It's perfectly legal, he pointed out, to take undersized oysters from a leased bed.

The Inspector, being dissatisfied with the explanation, brought three buckets of the shellfish to the FBI Laboratory in Washington, D. C.—one bucket from the oysterman's shed; another from his leased bed; and the third from the Chesapeake Bay bar.

The Laboratory showed beyond doubt that the undersized oysters could not have come from the leased bed but could have come from the Chesapeake Bay because of the similarity of the sediment and soils adhering to the shells.

The Laboratory expert who made the examination testified to these facts at the oysterman's trial at Leonardtown, Maryland, and the fisherman was convicted and fined.

CHEMICAL EVIDENCE

It was somewhat of a revelation to learn that hypnotics and soporifics find use by those who are bent on evading the game laws of this country. I do not refer to narcotic addicts. I refer to a case submitted to us by a conservation officer who had examined a baited area frequented by Canadian geese. He found several small mounds of yellow corn with which there were mixed several small yellow capsules. The contents were identified as a barbiturate, the class of drugs known as "sleeping pills."

DOCUMENT EVIDENCE

If the game warden encounters problems involving licenses, permits, written or printed matter, paper, ink, signatures, et cetera, I suggest that the FBI Laboratory may be able to assist you. Similar assistance was rendered to the Game Warden in Douglas, Wyoming, when he submitted the deer coupon from the hunting license of Virginia Gruver. The bloodstained coupon was taken from the carcass of a deer. Gruver claimed she had signed the coupon as required by law but she used the soft point of a caliber .308 bullet as a writing instrument. The Laboratory was able to discern enough of the signature to suggest the possibility that the coupon was properly signed.

SPECIAL PROBLEMS

If you have a problem, something out of the ordinary, that relates to a criminal case and the solution of the problem is a bit elusive, perhaps one of the experts in the FBI Laboratory may be able to be of some assistance to you.

Illustrative of the types of problems that have been submitted is one that came to us from the Bureau of Sport Fisheries and Wildlife at Laurel, Maryland. That organization wanted us to furnish any information that could be used for tracing the diurnal distribution of blackbirds. After this problem was considered, it was suggested to the authorities at Laurel that a daylight fluorescent material could be sprayed on the birds at night and could be seen in the daytime because these materials are much brighter than the brightest of ordinary colors and can be seen at great distances.

Another problem came to us from the Enforcement Agent of the U. S. Fish and Wildlife Service at Dillingham, Alaska, who submitted fourteen beaver skins to the Laboratory for examination to determine whether or not the beavers had been illegally taken by shooting and to determine whether or not they had been taken during the hunting season.

We have examined trout for the Colorado authorities in an effort to determine whether or not the fish had eaten horse meat. This fact was pertinent to a determination whether or not certain trout taken from a fisherman came from a stocked pool where the fish were fed horse meat.

PROCEDURES AND SERVICES OF THE FBI LABORATORY

A. *Criminal Investigations:*

The facilities of the FBI Laboratory are available without charge to all duly constituted State, county, and municipal law enforcement agencies of the United States and its territorial possessions. Examinations are made with the understanding that the evidence is connected with an official investigation of a criminal matter and that the laboratory report will be used for official purposes only, related to the investigation or a subsequent criminal prosecution. Authorization cannot be granted for the use of the laboratory report in connection with a civil proceeding.

B. *Examinations by Other Experts:*

It is the long-established policy of the FBI Laboratory not to make examinations if any evidence in the case has been or will be subjected to the same type of technical examination by other experts. This policy has been found desirable not only to eliminate duplication of effort but also to insure the examination of evidence in its condition at the time of recovery, enabling the proper interpretation to be placed on the examiner's findings and the proper subsequent court presentation and testimony.

C. *Expert Testimony:*

When expert testimony is desired for a trial, the court appearance of the FBI Laboratory examiner should be requested for the actual date on which it is anticipated that his testimony will be needed, rather than for the date on which the trial is to begin. It is realized that the exact date on which the examiner's testimony may be required cannot always be predetermined. However, if it can be expected that such testimony will not be needed on the first day of the trial, but rather on some subsequent day, the FBI Laboratory should be so advised in order that every effort may be made to insure that the examiner's absence from headquarters is held to a minimum.

D. *Submitting Evidence:*

Since in making examinations it is necessary to know that the policies are being followed, it will facilitate the making of examinations and eliminate the necessity for inquiry if the following is complied with:

1. Mark the communication and evidence for the attention of the FBI Laboratory.
2. Set forth the name of the suspect where known.
3. Set forth the type of criminal violation involved, listing the evidence and method of transmittal. State the types of examinations desired.
4. State whether any evidence in this case has been subjected to the same type of technical examination as that requested; also furnish any information that would be of assistance to the examiner or pertinent to the making of such examination, such as any other examinations made or to be made.
5. Make reference to any previous correspondence or reports, if there have been any.
6. Submit the letter in duplicate in addition to the copy accompanying any evidence sent under separate cover.

OUTSTANDING OFFICER SELECTION

By DAVID SWINDELL

Florida Game and Fresh Water Fish Commission

As a preface to this paper, I would like to state that the information which is presented as to the methods used by the various states of the Region in the selection of an Outstanding Officer delegate was secured by a mail questionnaire sent out in September. Due to this fact, I may have inadvertently misinterpreted the details of the selective procedures employed in some cases.

Since this is the first year of the operation of our "Outstanding Officer" program, I am sure that many of the other states were, like Florida, faced with the problem of arriving at a method for selecting the individual to attend this conference. When the plan was adopted last Fall, it seemed to us that we had ample time to work out our procedure, but it turned out that our Secretary-Treasurer was asking for the name of our representative long before he had been selected. The result was that we had to base our selection upon a modification of another selective program.

Of the states which submitted information on their selective processes, seven considered both supervisory and non-supervisory officers in making their selections, three considered only non-supervisory personnel, and one selection was