

• *Restricted to the Use of Law Enforcement Officials*

# FBI

## *Law Enforcement*

# BULLETIN



1953

MARCH

Vol. 22 No. 3

**Federal Bureau of Investigation**  
**United States Department of Justice**  
**J. Edgar Hoover, Director**

# FBI Law Enforcement Bulletin

MARCH 1953

Vol. 22 No. 3

## CONTENTS

	Page
<i>Statement of Director J. Edgar Hoover</i> . . . . .	1
<b>Feature Article:</b>	
State Police Work in Delaware Shown Through Television, by Col. Harry S. Shew, Superintendent, Delaware State Police . . . . .	2
Suggestions on Maintenance of Police Automobiles, by Sgt. Walter G. Esplin, Salem, Oreg., Police Department . . . . .	5
<b>Traffic:</b>	
Citizens Traffic Committee Honors El Paso Officers . . . . .	11
Lafayette Police Use an Emergency Wagon . . . . .	12
<b>Communications and Records:</b>	
A Modus Operandi Index for Use in Modern Police Work . . . . .	13
Police News and Views in Montgomery, Ala. . . . .	16
<b>Police Personalities:</b>	
FBI Inspector Egan Retires After 30 Years of Service . . . . .	17
Chief Lawrence H. Shores . . . . .	18
Chief Earl P. Bradbury . . . . .	18
<b>Scientific Aids:</b>	
They Write Their Own Sentences (Documentary Evidence) . . . . .	19
<b>Identification:</b>	
Questionable Pattern . . . . .	Back Cover
<b>Other Topics:</b>	
Good Health Practices for Police Officers, by Dr. Charles M. Bauman, Acting Director, Medical Division, St. Louis Police Department, St. Louis, Mo. . . . .	23
Ten Latent Prints Make Full Set, by E. F. Phipps, Chief of Police, Richmond, Calif. . . . .	24
How To Obtain Copies of Interesting Articles . . . . .	(Inside Back Cover)



The *FBI Law Enforcement Bulletin* is issued monthly to law-enforcement agencies throughout the United States. Much of the data appearing herein is of a confidential nature and its circulation should be restricted to law-enforcement officers; therefore, material contained in this Bulletin may not be reprinted without prior authorization by the Federal Bureau of Investigation.



Published by the **FEDERAL BUREAU OF INVESTIGATION, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D. C.**





United States Department of Justice  
Federal Bureau of Investigation  
Washington 25, D. C.

March 1, 1953

TO ALL LAW ENFORCEMENT OFFICIALS:

This month the FBI National Academy opens its fifty-first session of studies for law enforcement officers, continuing a program of nationwide police instruction which began with the establishment of the academy in July, 1935. The new class will run for the customary twelve-week period and will be attended by approximately eighty officers, each chosen by his department. The purpose continues to be that of training police executives and instructors for better law enforcement.

Our interest in providing professional training for police officers is not limited to the FBI National Academy. Over a period of many years we have sponsored and participated in thousands of other schools requested by police departments and sheriffs' offices as a means to improve the quality of law enforcement work performed by their agencies. The curricula have included fingerprint classification, firearms training, court testimony, methods of investigation, scientific techniques and a wide variety of other subjects. These courses are taught principally by experienced police officers, sheriffs and Special Agents of the FBI. Judges, attorneys, pathologists and other experts in matters closely related to police work teach special subjects. The result is a system of professional training, professionally taught.

Police work without training is as obsolete as the practice of medicine by sorcery. Every head of a law enforcement agency has an obligation to both his own officers and the public to see that the proper training is provided within his own agency.

Very truly yours,

A handwritten signature in dark ink, which appears to read "J. Edgar Hoover", is written over the typed name.

John Edgar Hoover  
Director





## FEATURE ARTICLE

# State Police Work in Delaware Shown Through Television

by COL. HARRY S. SHEW, *Superintendent,  
Delaware State Police*

The Delaware State Police have supplemented their already well-rounded public relations program by means of the far-reaching medium of television. This is a complete innovation, and it is deemed a most important addition to the public relations program. It has many advantages, since it provides a method of bringing our work to the attention of those citizens who would otherwise have little contact with, and, therefore, slight knowledge of, the manner in which their State Police serve them. In Wilmington and rural New Castle County, the most heavily populated areas of the State, an approximate ninety per cent of the citizens have access to television sets. In order to reach them effectively, a television program is almost a necessity.

Our programs were televised on WDEL-TV, channel 7, located in Wilmington, but having State-wide coverage. An estimated 15,000 sets were tuned to the first program, with an average viewing audience of three persons per set.

Through these programs the citizens of Delaware were given an opportunity to meet face to face the police officials who are responsible for administration of the State law enforcement agency and for formulating police policies and putting them into effect. By covering the numerous phases of police activity, we were able to show the average citizen that the present-day policeman not only protects him on the highways, but also performs many other duties and responsibilities beyond the scope of traffic patrol.

### ***Administration and Training***

In all, there were seven programs, the first of which featured administration and training. The part dealing with administration was developed through my narration of the history of the department, its present organization, and its relation to allied divisions of the State highway Department was explained.

The second portion of this program dealt with our training program. The basic qualifications of a trooper prior to his acceptance were de-

scribed, such as physical requirements, residence in the State and good character proven by a thorough investigation. Following a brief résumé, the basic recruit course, the advanced recruit course, and field training were discussed. Each step in the 18 weeks training required for recruits was explained.

This program also covered the in-service training schools. It was pointed out that the Delaware State Police organization has for the past 11 years held annual in-service training schools for the duration of 1 to 2 weeks, and that members of this department have attended many specialized schools, including the Northwestern University Traffic Institute, specializing in traffic training; the FBI National Academy; the Harvard Medical Seminar, which specializes in legal medicine; and Purdue University's school on arson investigation. Also, several officers in the department have attended schools specializing in various phases of civil defense in which the Delaware State Police play an important role.

### ***The Polygraph***

The second program was devoted to the use of the polygraph, an instrument in which the public at large has always been greatly interested, having heard so much and yet actually knowing so little of it. Its operation was illustrated in detail using the moderator as the subject. Several questions were asked, followed by control questions, and the resultant chart was shown in a camera close-up with full accompanying explanations as to the relations between the questions and the reactions shown on the graph. This gave a vivid and accurate demonstration of the manner in which this highly sensitive instrument records even the slightest deviation, as the questions put to the subject were of necessity on the casual side. During the course of this program, as well as on the final program, a generally overlooked fact (by virtue of the term "lie detector" and its implications being fixed in the public mind) was stressed—that the polygraph serves a twofold purpose: it not



only assists in the detection of the guilty but also performs the equally beneficial service of removing the stigma of suspicion from the innocent.

### ***Traffic Control***

The third program was that of the traffic division. In this program the director of the traffic bureau explained the aims and goals of the division and its many and varied activities, concentrating especially on the three E's—engineering, education, and enforcement, and giving the reasons behind them. The planning and putting into effect of enforcement programs were explained, making it clear that the purpose of these is the reduction and prevention of accidents, as reflected in the volume of arrests, and that accident investigation is one means of accident prevention. The traffic program included, also, an actual demonstration of the recently adopted radar instrument and the Intoximeter, both of which evoked much interest from the audience.

### ***Identification Facilities***

The fourth program was concerned with criminal identification. The various functions of the criminal identification division of the Delaware State Police were discussed and depicted, including, in addition to its other duties, those of gun registration; fingerprint classification (which was further clarified by having the camera focused on a blown-up photograph of a print so that the filing system used might be more readily understood); nickname files and the photographic laboratory. Actual cases which had been solved as a result of the painstaking work of the criminal identification division were cited.

### ***Criminal Investigation***

The fifth program was that of the criminal investigation division. The director of the division explained the activities and functions of this branch and recounted many of the more interesting cases, especially those involving technical knowledge and leads or evidence of a technical nature wherein the laboratory was called on to assist the police. The assignment of criminal division personnel was explained, as was the history of this department, with especial reference to the 1951 record of complaints solved through investigation and arrests—one of the highest in the Nation.

---

## **TV Finds Fugitive**

On September 18, 1952, the FBI arrested its first subject identified by television. The subject's photograph was shown on a program featuring FBI fugitives, produced as a cooperative service by Station WGAL, Lancaster, Pa.

The telecast brought a telephone call to the Philadelphia office in which the caller advised that the fugitive was employed as a butcher in a Lancaster supermarket. Special agents and a Lancaster officer verified this information and placed the fugitive under arrest. He had been wanted nearly 8 months on the basis of a Federal warrant issued in South Carolina.

---

### ***Communications***

The sixth program was on communications and driver improvement. The communications set-up of the Delaware State Police was thoroughly explained, showing how each station ties in with the other and how we communicate from car to car, car to station, and station to car. We also



*Lt. William H. Horney describes firearms.*



illustrated the tie-in with local police, local fire companies, and State police departments of adjoining States for complete coverage in any emergency. This instills in the mind of the citizen a realization of extremely adequate protection, and, therefore, a feeling of security. The teletype system of the department was explained, including many of the specialities and responsibilities of the communications division such as maintenance of pack sets. It was also explained how the pack sets are used in a wooded area where evidence may possibly be hidden. An officer planted there with a pack set can call in cars waiting in the vicinity when a subject approaches.

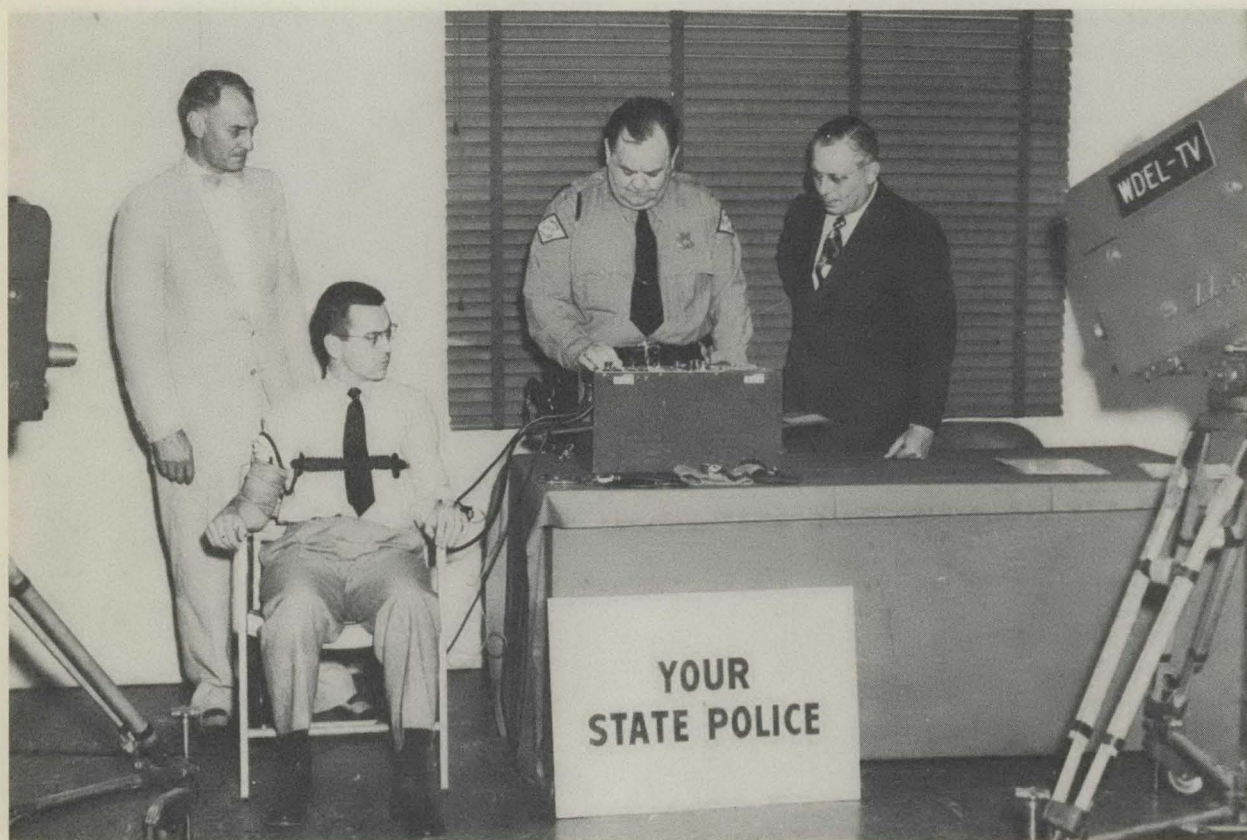
The second portion of this program was concerned with the driver improvement program. We believe this is one of the outstanding programs of any State police organization in the country. The State police, closely allied with the motor vehicle department, review the files of erring drivers. Should the driver's record indicate that he has accumulated a sufficient number of reprimands, or traffic arrests, or has been involved in repeated accidents so as to place him in the class of unsafe drivers, he is called in and given a re-examination.

This was thoroughly explained to the audience, and the activities of the police in this program were brought forward so as to acquaint the public not only with the restrictive nature of law enforcement, but also to bring home to them the fact that it includes anything which can be done to improve an erring driver.

In the seventh program, the chairman of the State highway department and the superintendent of the State police, together with the directors of the traffic and criminal divisions, sat as a panel while local newsmen interviewed them concerning the aims of law enforcement and the responsibilities and services which they desire to render to the citizens.

The concluding program was in a lighter vein than those preceding, but the occasional injection of humor served its purpose well. Through the questions put to the panel, many widespread misconceptions were revealed. This gave the panel the opportunity of correcting erroneous impressions, some of which contained implied elements of criticism. It undoubtedly promoted a better police-public relationship.

*(Continued on page 10)*



*Demonstrating the polygraph to the television audience. From left to right: Col. Harry S. Shew; Mr. James Adshead (moderator); Lt. Cazenove C. Seitz; and Maj. Carl Schnetter.*





## FEATURE ARTICLE

Due to the increased cost of new cars and higher maintenance costs, the following information is suggested as a guide to getting the best service from police vehicles now in operation.

It is not the intention of the writer to find fault with any particular make of automobile, accessory, or equipment. Adaptability to the police service is the principal consideration given specific items. In this respect it is important to point out that police automobiles operating in cities are subjected to much different driving and operating conditions than privately owned cars. Some of these conditions have a tendency to lengthen the life of the car if it is properly driven and maintained. On the other hand some troubles develop which are peculiarly limited to cars operating in heavy traffic at low speeds and under all kinds of adverse weather conditions. There is also the problem of several drivers using one car. The education of police patrol car drivers in the proper handling of the autos they drive is one of the most important factors to be considered.

The task of driver education is a difficult one due to the fact that the average person is familiar with autos and has come to accept them as part of his everyday life. The young men from whom recruits are drawn for the police service almost without exception consider themselves good drivers and also pride themselves on their mechanical knowledge. Unfortunately, a great deal of misinformation is passed around by people who are unqualified in this field. Even among automobile mechanics there are many individuals who have little knowledge of the actual causes of wear and failure of parts. The average mechanic is primarily concerned with the repair of the car rather than with trying to help the owner get more service at less cost.

This article is intended to apply to the stock cars in common use under average police service. Some of the data given may not be pertinent for unusual conditions or on special equipment in use by some departments. Normal wear of the several thousand parts will not be discussed. The tech-

## ***Suggestions on Maintenance of Police Automobiles***

by SGT. WALTER G. ESPLIN, *Salem, Oreg.,  
Police Department*

nical information set forth has been simplified as much as possible for easier and better understanding and may vary slightly from a scientific approach.

### ***Break-in Period***

The manner in which a new car is driven for the first few hundred miles will have considerable effect on the amount of use before an overhaul becomes necessary. This fact is common knowledge but, nevertheless, many cars are not broken in properly. The manufacturer's manual furnished with the car should be referred to and the recommendations therein carefully followed. In this respect it is pointed out that the maximum speed during the first 500 or 1,000 miles is given as the speed which should not be exceeded and not as the speed at which the car should be continuously driven. Driving at lower speeds with an occasional increase will give the moving parts of the engine an opportunity to wear in at lower temperatures and pressures.

When the engine is first started it should be allowed to warm up a few minutes before the car is driven. Attention should be directed to the oil-pressure gage to see that the proper pressure exists. This should be a habit with the good driver regardless of the age of the car. After the engine has warmed up, the car should be started in low gear and, without rapid acceleration, brought up to about 20 miles per hour in second gear. The car should not be driven at too low a speed as the engine may overheat. In no event should the car be allowed to stand with the engine idling except as necessary at traffic lights, etc. The subject of excessive idling will be fully discussed in another section.

The water and oil levels should be checked at frequent intervals. A new engine may use considerable oil for the first 2,000 or 3,000 miles due to the fact that the piston rings have not seated or "lapped" in. It should also be noted whether the engine is losing oil around any of the gaskets.



All new cars come with special oil in the crankcase and this should be left in only for the time recommended by the manufacturer. The importance of using good oil of the proper grade thereafter should not be overlooked.

One simple and inexpensive way to protect a new car engine during the break-in period is to have a copper or brass gasket with an opening smaller than the carburetor throat installed between the carburetor and the mounting pad on the intake manifold. The use of such a gasket will serve as a governor due to the fact that it limits the amount of air which can be drawn through the carburetor. This device can be used over and over in new cars and can be installed in a few minutes. It will not alter the fuel-air ratio as the carburetor meters the fuel flow in the proper proportion to the amount of air flowing across the discharge nozzles which are located ahead of the restriction imposed by the gasket. The diameter of the opening in this gasket should be approximately  $\frac{5}{8}$  to  $\frac{3}{4}$  inch to limit the engine speed although the size of the engine must be considered as pertinent. In the light car engine this size will keep the top speed down to 40 to 50 miles per hour.

## **Tires**

The most important factor in obtaining satisfactory mileage from tires is proper inflation. The low-pressure tires in use today should be kept inflated to specified pressures. This is particularly true for the front tires. This will make the car ride somewhat harder than with the 21 to 24 pounds often used but will greatly increase tire life. It is also possible to improve front tire mileage to some extent by reducing the camber of the front wheels to  $0^{\circ}$  but this has the disadvantage of giving poor steering characteristics at high speed.

Striking curbs, rocks, and holes will cause some tire failures. It should be impressed upon patrol-car drivers that it is important to report striking anything with unusual force. This is particularly true in the case of hitting curbs as the side walls of the tires can be cut or bruised quite easily in this manner. It is also possible to destroy the front wheel alignment if the wheels were in a cramped position as in making a reverse turn or if the car slid sideways into the curb. The reason for this is that while the front end can stand terrific shocks without damage if they are caused

by normal obstructions or holes in the street, due to the cushioning effect of the tires, springs, and shock absorbers, a shock to the side of the tire or wheel delivers a sledgehammer blow directly to the wheel and the supporting members and can cause the wheels to be knocked out of line or may even result in a structural failure of some part. The same is true, to a lesser degree, in regard to the rear wheels although in the case of rear wheels the force required to cause damage is much greater.

The use of "Polar Grip" retreads in the winter appears to be practical under some conditions. They will improve traction on packed dry snow or ice and also increase the braking power. On wet pavement or melting snow or slush the performance is very little, if any, better than ordinary tires. They have the advantage of decreasing driver discomfort and strain encountered with the use of chains. They will give good service in cold weather but must be removed as soon as the temperature rises in the spring as they will not stand heat. Under severe winter conditions in an area having considerable snowfall it appears that chains are more practical.

## **Clutches and Transmissions**

Due to the continuous stop and go driving encountered in city police work there is considerable wear on the clutch. Most of this can be eliminated by good driving habits. The driver who continually slips the clutch, rides the clutch pedal, or uses too much throttle when starting can wear the clutch facing out in a short time. Riding the clutch pedal takes some of the tension off the springs in the pressure plate and may cause the clutch mechanism to wear rapidly.

Another common mistake is the practice of starting in second gear. Shifting from high gear into second for the purpose of obtaining rapid acceleration without completely releasing the clutch will also impose a strain on the entire driving assembly. Since the cars built today all have synchromesh transmissions (except those with some type of automatic transmission) and can be shifted from high to second without the gears clashing, the practice of double clutching seems to be a rare thing unless the driver has had some experience with trucks or busses. Many drivers are careful to start their car without racing the engine or slipping the clutch to any great extent and then will turn around and shift from high to second at



speeds of 30 miles per hour or more to get rapid acceleration without double clutching with the result that the clutch will engage with a jerk that may make the rear wheels slide on the pavement before the idling engine develops a speed comparable to the car speed. Needless to say this type of service is harmful to the clutch and may cause failure of the transmission or differential.

The clutch pedal should be kept adjusted to manufacturer's specifications. This allows the pressure plate to exert the maximum pressure when it is fully engaged. Allowing it to get out of adjustment until the pedal rides against the floor boards interferes with the tension and should be avoided.

The most common type of gear failure is that of breaking or stripping of teeth off the countershaft gear and/or the second gear. This is usually caused by the previously discussed practice of improper gear shifting or by failure to move the shifting lever far enough to mesh the gears completely. The latter is very easy to do, particularly if the driver is attempting to shift rapidly from one gear to another and inadvertently engages the clutch too quickly. If the gears are not completely meshed the load is taken on only a part of the tooth area rather than a normal mesh contact area.

If the proper grade and quantity of lubricant is used in the transmission and differential there should be very little difficulty experienced with normal use of these units.

### **Cooling System**

The cooling system is one of the most important systems in the automobile and one which probably gets less attention than any other. The average person adds water from time to time and forgets it. When it becomes clogged with rust and boils over it is usually too late to avoid damage.

The radiator of today's cars may have to dissipate enough heat to warm a six-room house in the dead of winter and the water pump may be called upon to circulate up to 4,000 gallons of water per hour through the system. From this it can be readily understood that any restriction of the flow of water through the system will quickly cause trouble.

Starting when the car is new, some reliable brand of rust preventative should be added to the water. The radiator should be drained and flushed at regular intervals. In the winter only a



*Sgt. Walter G. Esplin.*

well-known brand of noncorrosive antifreeze should be used. Whether the antifreeze should be drained in the summer and saved is debatable. It is probably more practical to throw it away and use fresh antifreeze each year. The better brands of antifreeze have a rust preventative added to them and it is not advisable to use additional chemicals. By way of illustration of the efficiency of a good type, the writer has knowledge of a 1939-model car which was completely filled with a high quality antifreeze when it was new and which still has the original liquid in the system. The inside of the radiator of this car has absolutely no rust visible after 12 years' service during which it has been driven over 80,000 miles.

One point in regard to radiators which is rather confusing is the proper procedure in case the radiator overheats and boils the water off. The only safe way to add water to an overheated radiator is to shut the engine down and let it cool off for a few minutes. If the hood is raised to allow heat to escape freely the engine will cool in a short time to a safe temperature. During this cooling-off period it might be advisable to crank the engine over a few turns with the starter to minimize the danger of the engine "seizing."



If a car has been parked for some time in freezing weather and does not have antifreeze in the system, it is advisable to check to see if the water pump is frozen before trying to start the engine. This can be done by moving the fan by hand. The water pump will freeze very easily and the blades of the pump can be sheared off if the engine is started.

The condition of radiator hoses and thermostats should be checked periodically as they can be a source of trouble.

The engine troubles resulting from the formation of rust in the cooling system are many and often will not be noticed until it is apparent rust has clogged the radiator. The water passages in the cylinder head and block may be closed to such a degree that insufficient cooling is provided to the valves and valve guides, resulting in warped or burned valves or scored valve guides. This excessive temperature probably will not show on the water temperature gage. The result may be loss of power, sticking valves, or increased oil consumption and in any event will certainly necessitate expensive repairs which will very likely be laid to some other cause.

The formation of rust can take place very rapidly in a car which is in constant use. It appears that the number of miles the car has been driven has more bearing on this than the age of the car.

## **Engines**

The engines in police cars and particularly those used in traffic work are subjected to severe operating conditions at times. Some of this hard use is unavoidable and some of it is unnecessary abuse. A few of these mistakes can and should be corrected.

When the engine of a modern car is allowed to idle for long periods of time it will almost certainly overheat due to the fact that the air scoop or grille construction is such that when the car is not moving there is an insufficient flow of air through the radiator. This is further aggravated by the solid, ventless hood design used today. In addition, the automatic spark control devices will retard the spark, causing the engine to run hotter. If it is necessary to let an engine idle for a long time, the hood should be raised. This will usually provide enough air circulation to keep the temperature down.

Another common difficulty traceable to excessive idling is the fouling or burning of spark plug

electrodes. Most of this trouble is caused by the low combustion chamber temperatures which permit the formation of deposits of lead and carbon on the electrodes. These deposits are byproducts of combustion which are normally carried off in the exhaust. If an engine is being operated properly and trouble is still encountered, it is possible that spark plugs in the wrong heat range are causing it. A "hotter" type plug should be used to correct fouling and a "colder" type if the electrodes are burning off too rapidly. A related source of difficulty is burned or pitted breaker points. This is usually caused by weak condensers. As the two greatest enemies of any electrical device are heat and oil, any unnecessary heating of the engine subjects the entire distributor assembly to abuse. Misfiring at high speed or backfiring are sure signs of this type of trouble.

Overspeeding the engine should be guarded against. In low or second gear it may be possible to exceed the revolutions per minute for which the engine was designed. The revolving and reciprocating masses in the engine can build up forces which will create bearing loads and temperatures which will damage them. The result may be excessive oil consumption, rapid wear, or failure of a part. This kind of damage to the engine may not be apparent for some time.

Overloading the engine is another common mistake made by many drivers. This is usually done in one of three ways: Starting in second gear, using full throttle to accelerate in high gear from low speed, and by driving up steep grades in high gear until the engine "lugs" down. An indication of overloading which can be recognized by anyone is "pinging" of the engine. This in itself probably will do no harm unless it continues for some time; however, if the overload is great enough detonation may result and this can do great damage. Detonation can be detected by a dull pounding in the engine. This sound is created by the force of the explosions of fuel in the combustion chamber. Instead of the fuel burning at a normal rate of about 25 to 75 feet per second the mixture literally explodes with the speed of the flame increasing to a rate of several hundred feet per second, creating pressures many times greater than normal.

## **Electrical Systems**

Due to the heavy drain on the battery of a radio-equipped car it is usually necessary to provide a



heavy-duty commercial-type battery and a high-output generator. The standard 35-ampere generator must run at full capacity all the time and then probably will not keep the battery fully charged. Investing in the proper battery, generator, and voltage regulator will prove cheaper in the long run. A good generator will outlast several cars and, though the first cost is high, the long life and better service provided make them indispensable.

There are several types of generators available. One type requires a rectifier and is rather expensive. It should have a very long life and has the ability to produce the full charging rate at low speed. With the 60-ampere model it is necessary to use care in the matter of the driving belt. The type of fan belt which has serrations around the inner circumference appears to be a good one. Another type which gives promise is the very narrow one used at the present on some makes. This narrow belt looks almost inadequate but is very flexible and apparently runs cool, has good traction and is reasonable in cost. Of course this narrow type could not be used on other makes of cars unless the crankshaft and water-pump pulleys were changed. With the 45- or 50-ampere, direct-current generators no special fan belt is necessary for satisfactory service.

If an ammeter is provided with the generator to indicate the actual charging rate, this instrument should be mounted where it can be observed easily by the operator. If a high-charging rate is registered for any considerable length of time the system should be checked for malfunctioning. A 60-ampere rate of charge for 2 or 3 hours can burn the battery up or burn out some other part of the electrical system.

A battery operating under constant high loads will use a great deal of water, particularly in the summer months. Consequently, the level should be checked at least twice a week. The driver should use care in checking the water level with anything except a flashlight or electric light with a protected bulb. During the charging process in a storage battery hydrogen gas is formed. This is explosive and severe injury can be sustained with possible loss of sight if some of the acid is blown into the eyes.

## Brakes

It is obvious that police automobiles, particularly those cars used in traffic-control work, must have

effective brakes at all times. It is therefore important that the driver be able to recognize the symptoms of weak or defective brakes.

Since more than half of the braking effort is applied to the front wheels of the modern car the front wheel brakes will ordinarily wear out first. The front wheels should be removed and the brakes inspected from time to time at the service period. This practice should eliminate scoring of the drums caused by allowing the lining to wear down to the point where the rivets are exposed. It is very easy to score the drums to the extent that they must be machined or possibly replaced. This can be expensive in the case of the front wheels as the drum is usually attached to the hub with "shrunk fit" studs, in which case it may be necessary, and probably will be as cheap, to buy the entire assembly. The same scoring of the drums will result from wearing the lining down too far if it is of the bonded type.

The brakes should be kept adjusted so that the brake pedal does not come closer than 2 inches to the floor board when the car is at rest. When making a stop from high speed the brake drums and lining get extremely hot. The rate of expansion of the brake drum will usually be higher than the brake shoes, which accounts for the "fading" sometimes encountered. This is the reason the brake pedal can be pressed down further when making a stop from high speed than when the car is parked and the brakes are cold.

A rather common source of trouble is the master cylinder, which may become scored. Oil will leak past the plunger slowly when the pedal is depressed. This condition can be easily detected before it becomes dangerous by pressing the pedal down very slowly and without building up pressure until it is observed that it is solid. If the cylinder is scored or the plunger gaskets are worn, the oil will seep slowly past the plunger and allow the brake pedal to be pressed to the floor board.

During wet weather it sometimes happens that the brakes on one wheel or more get wet if the car is driven through surface water on the street. When the brakes are applied they will probably be uneven and may cause the car to swerve. The good driver should anticipate this condition and warm his brakes by applying them a few times after driving through water. This will dry them out, ordinarily, and in any event the driver will be aware of the fact that his car is going to pull to one side if an emergency stop has to be made.



The emergency brake system should be kept in good working order. This is very simple since the linkage is mechanical and there are very few parts. On those cars having this brake on the driveshaft care should be taken that grease and oil from the transmission do not destroy the effectiveness of the brake. The emergency brake should be kept adjusted and the ratchet locking device inspected from time to time. This ratchet will wear and may be the cause of an accident if it should release while the car is parked on a grade.

### **Gasoline and Oil**

Regular-grade gasoline is usually satisfactory for use in stock-model cars. Premium-grade fuel has some desirable qualities but the added cost is a factor to be considered. The term "ethyl gasoline" as applied to premium fuel is misleading as all regular brands of automotive gasoline contain tetraethyl lead which is a knock inhibitor composed of tetraethyl lead, ethylene dibromide and a small amount of coloring. The ethylene dibromide is added to prevent the formation of lead deposits in the engine as it is volatile at combustion chamber temperatures and carries the lead off in the exhaust gases. The additional amount of tetraethyl lead in premium-grade gasoline gives it a higher antiknock rating. This simply means that the fuel mixture will stand higher cylinder temperatures and pressures before detonating. After an engine has been operated for some time considerable carbon will have been deposited in the combustion chambers and a higher compression ratio will now exist than in the new engine. It follows that an old engine in good condition needs premium fuel more than an engine in a new car. In general, if the engine operates without excessive pinging or detonation, premium gasoline is not required. There will be no great difference in the mileage obtained from "regular" and "ethyl" gasoline.

A good grade of engine oil should be used. This oil should meet the car manufacturer's recommendation as to weight and grade. The use of a detergent-type oil will keep the formation of carbon down to a minimum but at the present time some of these oils have a washing action which seems to produce excessive cylinder wear. The engine oil should be changed at regular intervals. During the operation of an engine the oil is subjected to temperatures which have a tendency to

break it down by a process of decomposition which eventually causes the formation of a sticky, gum-like sludge. This matter is carried in suspension in fine particles in the oil for some time but finally will be deposited in the oil filter and around the valve gear in excessive amounts. Regular changing of the oil at 1,000 to 2,000 miles will eliminate much of this trouble. The formation of carbon in an engine is normal. Actually the material commonly called carbon is perhaps 5 percent carbon. The rest is lead from the gasoline, dirt drawn into the engine from the air, metallic particles from the bearings, etc.

The oil level should be properly maintained. When measuring the oil level the engine should be shut down for a few minutes, particularly overhead valve types, to allow the oil to drain back to the crankcase before checking it.

---

## **Delaware State Police**

*(Continued from page 4)*

The presentation of the programs was not in the somewhat stilted form of a lecture. They tended to the less formal but equally informative and of a far more audience-attracting nature, with the moderator's questions being of the kind the man in the street would ask. Charts, photographs, and statistics were used when required for emphasis of the matter at hand, but they did not predominate.

### **Better Understanding Created**

It is felt that as a result of these programs all of our citizens have a more understanding attitude toward the State police and realize they are an organization of service, not only willing but anxious to serve the public in any way possible.

This series of programs was moderated by Mr. James Adshead of the local television station. He was acquainted with each program prior to its start, and did an outstanding job. We have been informed by the officials of the studio that many favorable comments were received from the TV audience, and the Delaware State Police feel that the citizens will now have a desire to cooperate more willingly and are wholeheartedly behind our organization. This has been a very important adjunct to the public-relations program, and one which is expected to be continued.





## ***Citizens Traffic Committee Honors El Paso Officers***

Public interest in the traffic problems of El Paso, Tex., has been stimulated by means of a citizens traffic committee formed in July 1951, by Chief of Police Roy Vinson and the former mayor of the city. This group, under the leadership of Mandeville H. Zabriskie, chairman, was developed to consult with members of the traffic division of the El Paso Police Department on traffic problems of general concern in the city.

Functions of the citizens traffic committee have been extended beyond the original scope to include other aspects of police work. From this move has come a system of selecting the two most outstanding men in each division to receive an award for work performed during the past year.

In drawing up a set of rules it was first decided that the award winners could not be above the rank of patrolman or detective. Members of the committee then asked the sergeants of each division of the El Paso Police Department to select those men whom they thought should be considered. The men selected by the sergeants were screened by the lieutenants and final approval was made by the captains of the divisions. A list of names of the men approved by the captains was then forwarded to the citizens traffic committee to be finally selected in secret by members of this committee.

The members of the committee not only took into consideration the efficiency with which the officer performed his duty but also considered his background, family life, and contribution to the community as a private citizen. The names of the men selected were kept secret until the awards were presented at a banquet which was attended by members of the El Paso Police Department and their wives as well as representatives from other law enforcement agencies and interested businessmen in the community.

In order to finance the prizes and the banquet, the citizens traffic committee solicited the cooperation of local businessmen. Tickets were sold for the banquet and local business firms were requested to purchase two of the tickets for their use and two extra tickets to be given to a police-

man and his wife toward attending the banquet. The business firms purchasing the tickets were requested to place the firm name on the ticket. Letters were prepared by the El Paso Police Department addressed to the business firms which had purchased tickets and these letters were signed by the officers who had used the tickets, thanking them for the tickets.

At the banquet held on May 22, 1952, at the El Paso Police pistol range, awards were made to Detectives Pete Escajeda and Earl L. Chokiski; Radio Patrolmen M. L. Murray, and E. R. Mark; and Traffic Officers Jack Morris and Eduardo Carreon. Winners of the first prize were Detective Escajeda and Officers Morris and Murray.

First prizes consisted of a \$100 suit of clothes, and second prizes consisted of a wrist watch, all of which were contributed by El Paso businessmen. In addition to the awards to the individual officers, a plaque was presented to the division of the El Paso Police Department considered to be the most outstanding. This plaque was presented to the detective division, under the supervision of Capt. Ralph Lessor.

Through the organization of the citizens traffic committee, the interest of the public has been



*From left to right: Radio Patrolman M. L. Murray, Motorcycle Officer Morris and Detective Pete Escajeda.*



aroused in the El Paso Police Department, and through the efforts of the committee, the work being accomplished by the police department has been called to the attention of the public. This committee has also created a friendly competitive spirit between officers and divisions of the El Paso Police Department, which has resulted in the greater efficiency of the police department as a whole and has benefited greatly the morale of the officers.

## **Lafayette Police Use an Emergency Wagon**

The Lafayette, Ind., Police Department recently acquired a new cream-colored ranch wagon to be used as a combination emergency and traffic enforcement vehicle. This will be used for both traffic enforcement and emergencies; it is fully equipped to handle almost any emergency which may arise.

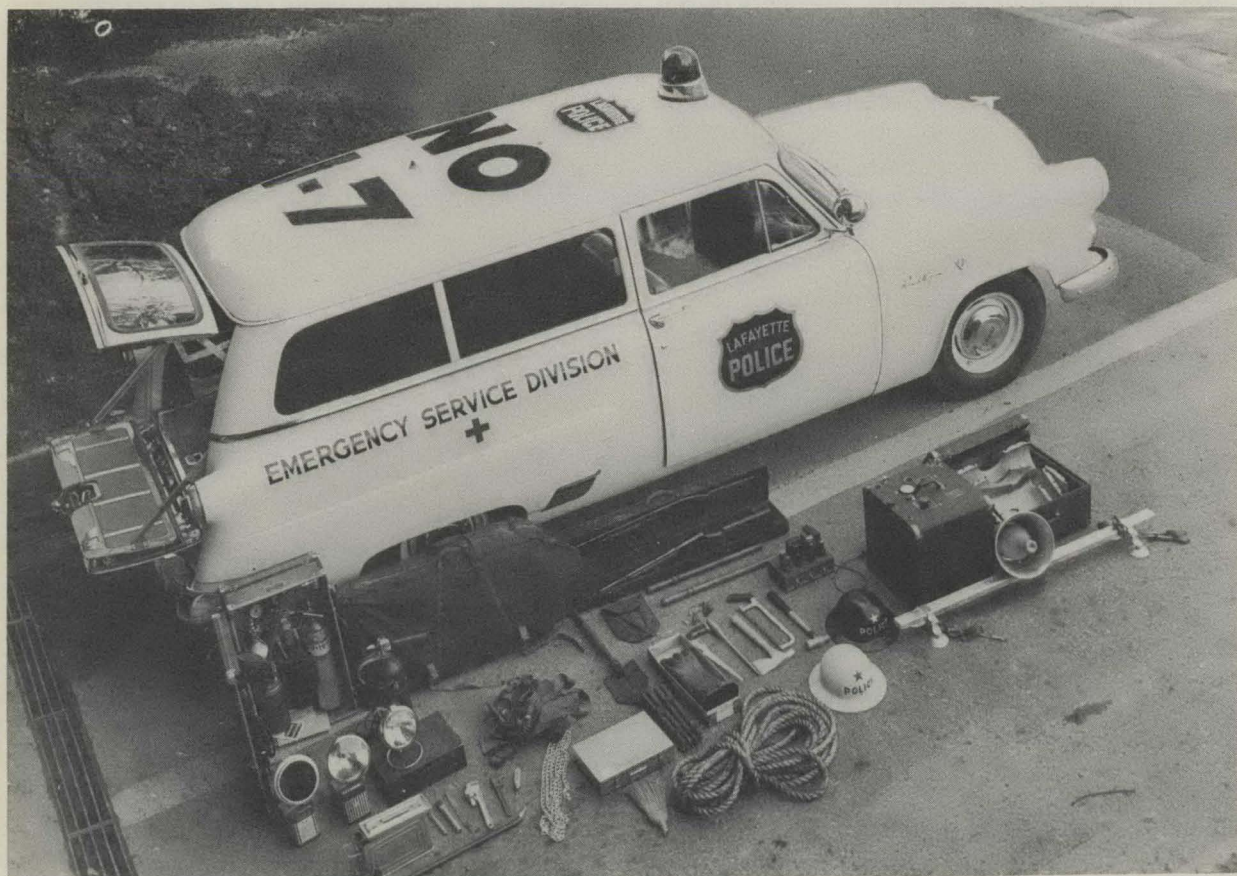
The car is assigned to the traffic department. It cruises the city streets from 8 a. m. to midnight, and from midnight until 8 a. m. it is under the

supervision of the night lieutenant. The car is equipped with a two-way radio and can be immediately put into service for accidents where injuries are reported.

Equipment installed in the vehicle includes a stretcher, first aid materials, riot gun, ammunition, two floodlights, portable spotlight, camera, accident investigation kit, sledge hammer, a pair of heavy gloves, carbon dioxide fire extinguishers, installation for portable iron lung, rifle, fuses, rubber gloves, blankets, rope, wrecking bar, folding cot stretcher, gas mask, steel helmet, axe, and resuscitator with oxygen.

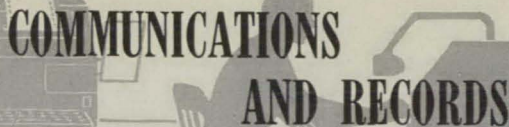
The official emblems of the Lafayette Police Department and the Red Cross appear on the outside, together with the usual red warning lights. There are additional markings on the top for easy spotting by aircraft should this become necessary.

Chief of Police Kenneth T. Bowman feels that the addition of this piece of equipment, which was purchased for the police department by the Lafayette Board of Works at a cost of approximately \$2,000, will assist in giving more complete service to the 35,000 citizens of his city.



*The Lafayette Traffic Enforcement and Emergency Vehicle.*





## COMMUNICATIONS AND RECORDS

Psychologists tell us we are creatures of habit. William James, in his "Principles of Psychology," points out that few men can tell off-hand which sock, shoe, or trouser leg they put on first, but they unthinkingly follow the same pattern.

Police have capitalized on this knowledge. "Criminals, if they will pardon me for saying so, show a strange want of originality," politely stated Sir Henry Smith, former commissioner of the City of London, England.

We are indebted to L. W. Atcherly, who, as a colonel of the West Riding Constabulary in England, perceived the possibility of recording the modus operandi clue for future reference. He noted, in his study of the habits of criminals, that in many instances the criminal was to a surprising degree a victim of habit and superstition.

Most police departments in the United States have some file they refer to as their "M. O.". Often this consists of photographs of known criminals. Again, you will find a bogus check squad or forgery detail which has evolved a file based in part on the "M. O." principle. Or, the department may have an "M. O." index limited to "trade-marks" of safe crackers or robbers.

A few departments have undertaken a true "M. O." file with a complete cataloging of the more serious crime classes.

A type of crime index or crime classification index and its extension to include certain "M. O." index characteristics were discussed and illustrated in the *FBI Law Enforcement Bulletin* in June 1948. Reprints of that article may be obtained upon request.

The present article brings together the possibilities of accomplishing or approaching the "M. O." index idea in police work.

### **Type of Crime File**

A type of crime file is a simple form of a true modus operandi file. Index cards are prepared from all reports relating to felonies, major misdemeanors, the loss, theft, or destruction of prop-

## **A Modus Operandi Index For Use In Modern Police Work**

erty, or injury to the person. These cards, when properly executed, are filed by type of crime.

Guide cards for the type of crime index may be prepared by referring to the headings on Return C opposite page 16 of the Uniform Crime Reporting Handbook, with additional subdivisions as the need is indicated along the lines suggested by the Supplement to Return A, opposite page 12. The handbook may be obtained from the FBI.

For at least the first seven classifications it is suggested that the cards be segregated as to cleared and unsolved cases; for instance, behind the guide card entitled "robbery" would appear all the unsolved robberies subdivided by highway (city streets, alleys, etc.), commercial house, hotel, chain store, residence, bank and miscellaneous. A second major guide card would be entitled "robberies—cleared" and behind it would be placed all of those index cards on cases cleared by arrest. These cards should bear the name of the arrested person.

This type of file would be of value in the selection of any particular type of pending cases concerning which a subject in custody should be questioned. The file will also furnish a department with suspects. For example, suppose many burglaries are being committed. Through a search of the type of crime index cards, all known individuals who have been arrested in the past by the department whose method of operation is similar to that indicated in the current offenses would be brought to proper attention.

### **Criminal Specialty Photographs**

A second type file used by many departments as a modus operandi file is a criminal specialty photograph file. In this file are placed the photographs of arrested persons, filed by criminal specialty or by the type of crime. Of course, in this file only the known persons are listed and the primary use would be in the case of repeaters. That is to say, if an offense is committed, photographs of persons known to have committed that type of crime would be shown to witnesses in an attempt to effect an identification.



In a criminal specialty file photographs are filed first according to criminal specialty. Within each crime classification the photographs should be further subdivided according to the personal description. The photographs would be subdivided by height in groups of 3 inches. It is important to emphasize that a criminal specialty file is of particular value in those cases in which the victim has had an opportunity to see the perpetrator. A further discussion and illustration of such a file begin on page 4 of Arrest and Identification Records in the October 1948, issue of the *FBI Law Enforcement Bulletin*. Reprints are available upon request.

### **Modus Operandi File**

The third type of criminal operations record is a true modus operandi file. In the operation of a modus operandi index it is first necessary to have a form which will provide the essential information in order to classify the index card. Every investigation should have the full particulars of who, what, where, when, why, and how.

It is highly important that the officers who make an investigation at the scene of a crime have an appreciation of the information necessary in order to maintain a modus operandi file. Very careful attention must be given to including specific and accurate information under the modus operandi headings on the report form.

Next in importance to the obtaining of complete and accurate information for inclusion in the index is the fact that the person responsible for its maintenance must thoroughly appreciate the possibilities and the limitations of the file. He should be alert in all cases not only to see that a fund of information is incorporated in the file but also to insure that all possible similar crimes and any indicated suspects are brought to the attention of the investigating officers as a matter of routine.

There are no satisfactory figures available on which to base an estimate of the value to be derived from maintaining a modus operandi file. In one department it was indicated that the detectives were successful in solving cases in many instances based on leads from the modus operandi index. However, due to their reluctance to give credit to the index it was impossible to give an evaluation of its effectiveness. Officers who have indicated that such a file is indispensable are in departments on the West Coast where the modus operandi files are utilized to some extent.

The impetus to the development of the modus operandi files in California may be due in part to a State law requiring an interchange of such information.

One department in the central part of the United States prepared an exhaustive study of the results which might be expected by the installation of a modus operandi file. This was based on a study of the cases for several years' time. The conclusion reached by this department was that the results to be obtained did not warrant the maintenance of a modus operandi index. However, the report pointed out that the findings of this department should not be considered as conclusive and might only be applicable to the department in question.

### **Establishing Index**

The modus operandi index may be established by use of punched cards where tabulating equipment is available. Otherwise, typewritten cards may be used. By use of tabulating cards one card is prepared for each offense. The cards may be run several times through a sorting machine to select cards.

Where tabulating equipment is not available, it is possible to adopt either of two procedures involving the use of typewritten cards as indicated below.

In establishing a modus operandi file by means of a minimum number of index cards, the subdivisions in the file may be highly refined so that one card could be filed for one offense with reference to the general modus operandi. In burglaries, subdivisions might be made by having the first main heading "Property Attacked" with subheadings by the various types of property. Then, within each of these subheadings, additional divisions could be made by the various headings under "How Attacked," then by "Means of Attack," and further subdivided under each of the indicated headings by "Object of Attack."

An additional card might be filed by the description of any suspect or possibly by the various headings which may be made under "Trade-mark." It appears that the danger of this type of breakdown is that if the criminal commits additional offenses and in each one some single factor is different, the cards pertaining to these crimes might be widely separated in the index, thus defeating the possibility of noting certain similarities in each of the crimes committed by the same person.



One police department uses a minimum number of cards by combining certain outstanding modus operandi factors in one break-down. These headings seem to be a combination of selected characteristics under "How Attacked" and "Means of Attack." For burglary, this department uses the following subdivisions, with one index card prepared for each offense:

*Burglary—Residence (except safe burglary)*

Attics and verandas	Jimmy
Breaking glass	Pliers for turning keys
Climbing pipes, etc.	Removal by truck
Cutting and drilling panels	Secreting on premises
Drilling sash	Skylight
False keys	Window catch slipped
Transom or grating	General
Hooking door catch	

*Burglary—Nonresidence (except safe burglary)*

From adjoining premises	Ladders or ropes
Breaking or removing glass	Padlocks forced or re-
Breaking glass (smash and	placed
run)	Roof cutting
Brickwork removed	Bars removed or bent
Cellar grating or trap door	Secreting on premises
Climbing, pipes, etc.	Skylight
Cutting or drilling panels	Sticky substance
False keys	Removal by truck
Transom	General
Jimmy	

*Safe Burglary*

Bursting by blows	Jimmy or chisel
Cutting by acids	Removal by car
Cutting by acetylene, etc.	Sawing
By explosives	Tools on premises
Filing rivets	Other means

Under the above system an additional card or cards might be filed by the general description of a suspect who may have been seen by witnesses.

A second type of modus operandi file involving the use of index cards is as follows: In carrying out the modus operandi index in order to derive the fullest benefits, several cards are made for filing under the various main modus operandi headings. For example, a one-family residence is entered through an unlocked second floor window by means of a ladder. Men's suits and other furnishings were stolen. The burglar left burnt matches at the scene. A witness observed a small, dilapidated, black sedan in the vicinity. Based on information available in this case it appears that cards may be prepared for filing as follows:

1. Property attacked—one family residence
2. How attacked—unlocked second floor window
3. Means of attack—climbing ladder

4. Object of attack—clothing
5. Trade-mark—burnt matches
6. Vehicle—small sedan, black, dilapidated

The guide cards in the index with reference to burglaries together with an indication of the place where the cards would be filed might be as follows:

Burglary—Breaking or entering  
Residence (Property attacked)  
Apartment  
Boarding house  
Duplex  
Hotel  
House, one-family residence

(No. 1 card filed here)

How attacked  
Attic  
Ceiling  
Door  
Transom  
Window, front  
Window, rear  
Window, second floor

(No. 2 card filed here)

Means of attack  
Bolt cutter  
Brace and Bit  
Climbing, adjoining premises  
Climbing, fire escape  
Climbing, ladder

(No. 3 card filed here)

Object of attack  
Bedding  
Clothing

(No. 4 card filed here)

Trade-mark  
Ate food  
Burnt matches

(No. 5 card filed here)

Vehicles

(No. 6 card filed here)

It will be noted that the above subdivisions under the various headings are not all inclusive. It would be possible to further extend the subclasses under any heading as the need for such additional refinement is noted.

It is suggested that guide cards be prepared for inclusion in the file as the need is indicated, rather than attempting to prepare a complete set of guide cards covering all possible classes under each modus operandi heading.

(Continued on inside back cover)



## Police News and Views in Montgomery, Ala.

Police authorities in Montgomery, Ala., are now publishing a monthly pamphlet designed to increase the efficiency of the department and improve relations between the officers and the public.

The pamphlet is edited by Assistant Chief of Police W. M. Stanley and Miss Janet Bell, secretary to Chief Goodwin J. Ruppenthal. News and other articles are divided into one section each for the detective, service, traffic and patrol divisions. Editorial plans call for articles by the chief of police, assistant chief of police, police commissioner and the mayor in each issue. There is also a feature article each month in which a citizen of the community sets out his observations concerning the police department and its work.

Items appearing in the publication will emphasize What Your Public Thinks, New Ordinances and Rules, and Procedure and Protocol. The first subject is a collection of letters from citizens who either praise or criticize the department, its personnel and methods. The second is a current

summary of new laws and regulations. The third is in the nature of police training, i. e., an explanation of procedures, courses of study and similar matters. This carries out the suggestion of Police Commissioner Earl James that the pamphlet should be a training manual through which the personnel can improve their work as well as a source of information on the latest developments in the department. Each issue reviews the work of the organization and discusses any criticism which has been made.

Suggestions, stories and comments are solicited from the members of the department. The first issue was published unnamed, holding out an award of an extra day off the following month to the officer whose suggestion for a name was accepted. The contest was won by Officer Jack Townes who suggested "The Police Round-up" as an appropriate name in view of the fact that livestock marketing and meat packing have made Montgomery known as the "cow town."



*Chief Ruppenthal (center), Assistant Chief Stanley and Miss Bell plan the next issue.*



## POLICE PERSONALITIES

### ***FBI Inspector Egan Retires After 30 Years of Service***

Inspector James S. Egan retired from the Federal Bureau of Investigation on December 31, 1952, after completing more than 30 years' service.

Born in Omaha, Nebr., in 1890, Mr. Egan received his early education in the public schools of his native city. After leaving high school, he turned to accountancy. He attended and was graduated from a local accounting school in his home town and later taught accounting in an Omaha night school for 3 years. For a time he was also a golf professional at a Nebraska country club and as such traveled extensively in Nebraska and Iowa. For 9 years he served in the capacity of a public accountant.

Prior to entering on duty with the FBI in June 1922, Mr. Egan was chief accountant and investigator for the State of Nebraska, a position which brought him in close contact with law enforcement. In this capacity, he assisted in a series of prosecutions under the blue sky laws in an effort to curb widespread frauds in Nebraska. These prosecutions, while successful, were unsatisfactory since the short sentences imposed had no deterrent effect. An appeal to the Federal Government for assistance resulted in a recommendation for Federal prosecutions by the United States attorney on the condition that Mr. Egan take over the investigations. Consequently, on June 6, 1922, he entered the service of the FBI as a special agent assigned to Omaha.

Following the completion of his assignment at Omaha, Mr. Egan received assignments in Indianapolis, Pittsburgh, Los Angeles, Atlanta, and New York. By this time the FBI had been reorganized by its present director and in 1926 Mr. Egan was recalled to Washington and made an inspector—the first man to hold that position in the FBI. His first task was to inspect the units at the seat of Government and then those in the field. Inspector Egan efficiently carried out a system for uniformity of operations and in placing this plan into operation he laid the groundwork for the inspectional procedures which are in effect today. He authored the early Manual of Rules and Reg-

ulations and Instructions utilized by the agents of the FBI. In addition, Inspector Egan has been extremely active in the International Association of Chiefs of Police organization.

Inspector Egan has had an enviable record and will be missed by all his associates in the FBI as well as by the many police officers throughout the country who have had occasion to work with him.

Inspector Egan plans to spend his retirement quietly. After a short rest, he contemplates a motor tour throughout the United States.



*Inspector James S. Egan.*



## Chief Lawrence H. Shores

Chief Lawrence H. Shores, Upper Moreland Township Police Department, Willow Grove, Pa., is known throughout his State as the "Praying Policeman." He has officiated as chaplain of the Pennsylvania Chiefs of Police Association for the past 9 years and he gives the blessing at all meetings of the Southeastern Chiefs of Police Association, Montgomery County Police Chiefs Association, and at meetings of numerous civic and fraternal groups throughout the southeastern section of Pennsylvania.

Shores first came to Willow Grove from Monie, Md., in 1930, with the intention of entering the trucking business. The police department was expanding at the time and Shores took the examination, qualified, and became a patrolman in 1931. He attended and received certificates from many police training schools which enabled him to develop a well-rounded knowledge of law enforcement methods and procedures. In 1936 he was appointed chief of his department.

Chief Shores' favorite hobby is photography, a talent which he has applied successfully in many criminal cases. On one occasion, called upon to investigate a robbery, he took a photograph of the room in which the robbery was perpetrated. Showing the photograph to a suspect in the case,

Shores suggested to the man that if he would look hard at the photograph, he would see something in it that would connect him with the crime. The suspect, upon scrutinizing the picture, admitted that his knife was on the floor of the room.

Shores is a past president of the Montgomery County Police Chiefs Association and the South-eastern Police Chiefs Association.

## Chief Earl P. Bradbury

Chief Earl P. Bradbury, Brewer, Maine, was elected president of the New England Association of Chiefs of Police, Inc., at the October 5-7, 1952, convention held at Poland Spring, Maine.

The New England chiefs' association consists of chiefs of police from the States of Connecticut, Rhode Island, Massachusetts, Maine, New Hampshire, and Vermont and represents a majority of the more important and active police organizations in the entire New England area.

Chief Bradbury, a native of Lovell, Maine, has been chief of police at Brewer for the past 20 years.

He has served as a member of the Brewer City council and presently holds the position of president of the Maine Association of Chiefs of Police as well as that of New England. He is a member of the Brewer Kiwanis Club.



*Chief Lawrence H. Shores.*



*Chief Earl P. Bradbury.*





# SCIENTIFIC AIDS

# FOURTH OF A SERIES

## They

# Write

## Their Own Sentences

### FBI LABORATORY'S DOCUMENT SECTION

## ***Documentary Evidence***

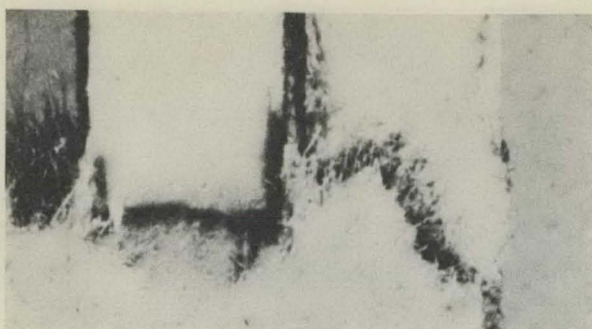
THE THREE PREVIOUS ARTICLES in this series on the Document Section of the FBI Laboratory, which appeared in the April, July, and October 1952 issues of the *FBI Law Enforcement Bulletin*, dealt primarily with the submission of evidence to the Laboratory, the obtaining of known specimens and the various types of examinations which could be made in fraudulent check cases. Of course, many of the techniques used in the examination of checks are equally applicable to documentary evidence which may appear in dozens of other types of criminal violations. In all these cases—extortions, robberies, kidnappings, murders and many others, as well as the less sensational check cases—the document examiner uses his technical skill and scientific knowledge to uncover by impartial examination of a questioned document every fact which may help to bring an investigation to an equitable conclusion.

### ***Submission of Evidence***

In certain types of cases the presence of evidence which lends itself to a document examination may not be as obvious as in cases such as those involving fraudulent checks or anonymous letters. However, the law enforcement officer should keep in mind during all his investigations that almost any

type of evidence, even the most unlikely appearing, may be susceptible to some sort of laboratory examination and may disclose an unexpected fact without which the solution of the case would be extremely difficult or even impossible. For example, a burnt paper match—a seemingly trivial bit of evidence which could easily have been overlooked was picked up at the scene of a crime and





**Figure 1.**

was later shown to have been torn from a folder of paper matches found in the possession of a suspect. Figure 1 is an enlarged photograph of part of the matchbook, showing how the irregular tear at the base of the burnt match fitted the stub still remaining in the folder.

The method of submission of checks and other documentary evidence to the FBI Laboratory was discussed in the first article of this series, and only a few additional points applying to certain types of evidence need be mentioned. Documentary evidence requiring a latent fingerprint examination should be placed in a suitable container such as a cellophane envelope or a paper envelope which can be sealed. Charred paper should be loosely packed between layers of cotton in a strong rigid container, and should not be moistened or flattened. Paper bearing indented writing, or evidence bearing questioned features which might be altered by friction or wear, should not be folded and should be packed so as to avoid heavy pressure or rubbing.

### ***Types of Examinations***

Document examinations generally fall into certain broad classifications, such as examinations of paper, writing instruments, handwriting, obliterations and alterations, or other primary groups. However, it is almost impossible to set out specifically all of the kinds of documentary examinations which can be made, or what may be disclosed through such examinations, because each piece of evidence may often present its own individual problems. Therefore, when making an examination the document examiner considers not only the obvious aspects of the evidence, but also looks for the more obscure factors which may be highly important in determining its significance.

Examinations of paper or paper products are made in order to determine the original source or

manufacturer of the paper, to prove or disprove the genuineness of a document, to connect a questioned piece of evidence directly with known evidence, or for other purposes. These determinations may be made in many ways, depending on the character of the evidence itself. A watermark in paper is one of the best methods of tracing the manufacturer, since watermarks are registered with the United States Patent Office by companies which manufacture paper or use watermarks for identification. The Document Section's Watermark File, which contains photographs and brand names of watermarks, is a valuable source of information for determining the origin of paper containing a watermark.

If the date of a document containing a watermark is in question, this watermark may indicate when the paper was manufactured, thus tending to prove or disprove the document's authenticity. Occasionally the year of manufacture may be incorporated into the design of the watermark itself, or changes in the design of a particular watermark may give a clue as to the date of its use. However, a watermark is only one way of determining the authenticity of a document through its date. Other ways may involve examinations such as typewriting or printing-type comparisons. Examinations of inks or paper sizing and fibers may also furnish leads, but these examinations are usually not conclusive. Inks may be affected by storage conditions of the document, the temperature and humidity to which it was exposed, and other variable factors. Paper sizing and fibers have become so standardized among paper manufacturers over the past several decades that positive determinations are not often possible unless the span of time in question is very wide.

As an example of the use of a typewriting examination in uncovering a fraud, a West Virginia law enforcement agency sent to the FBI Laboratory some deeds which had been purportedly admitted to record in 1910, 1913, and 1918. It was determined that all of these deeds were typed on the same machine, and when the style of type was compared with the Document Section's Typewriter Standards File it was discovered that this particular style of type was not in use until 1927.

Another case illustrating the possibilities of determining the genuineness of a document by its date occurred during World War II, when a Selective Service Board in an Alabama town learned that the sons of a local farmer had not



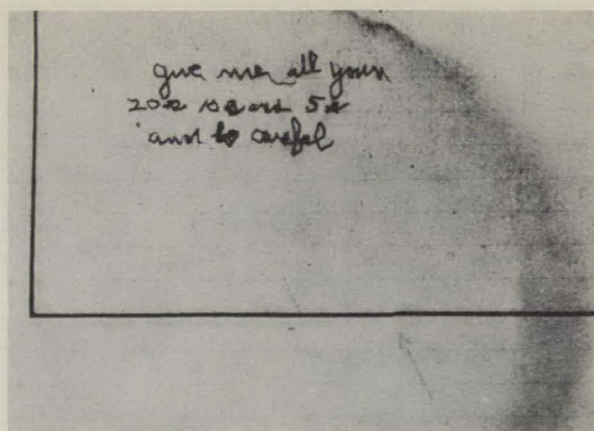
registered. The parents contended that the boys were too young to register and produced delayed birth certificates issued solely on the basis of records in a "family Bible" to show that their sons were born in 1928 and 1930. Examination of this Bible by the FBI Laboratory showed that it had been artificially aged and that the license to print this particular Bible was not issued until 1939, thereby completely disproving the parents' claim that their sons' birth dates had been written in this Bible a few days after the births in 1928 and 1930.

An attempted fraud which was exposed by an examination in the Document Section concerned a document purportedly written almost 200 years ago. However, analysis of the paper fibers disclosed the presence of chemical wood pulp, which was not used prior to the middle of the nineteenth century. Furthermore, the ink writing on the note was still a fresh blue color, quite different from the faded yellowish-brown it should have been, and the pen nib marks were of the type made by a fountain pen or a steel pen, not the quill pen of the eighteenth century.

### **Physical Characteristics**

Examination of the physical characteristics and chemical composition of paper evidence may furnish investigative leads as to its original source, may prove valuable in comparisons with known evidence, or may uncover other facts pertinent to the case under investigation. However, unless otherwise authorized by the contributor, the FBI Laboratory makes only such examinations as will not change the original appearance of the evidence. Most of the chemical tests, and a few of the physical tests, will change the evidence to varying degrees, but many tests can be made which will not. These include determinations of dimensions, weight, texture and color; microscopic, spectrophotometric, ultraviolet and soft X-ray examinations, and others. Such examinations as determination of fiber content, sizing tests, artificial aging tests or spectrographic examination will alter the evidence or destroy small portions of it.

In addition to the properties of paper evidence which are inherent in the paper itself, there are the more-or-less "accidental" properties—tears or cuts, stains, serrated edges (such as those on postage stamps or checks and check stubs), irregular nicks caused by the manufacturer's paper cutting knife, and many other individual peculiarities



**Figure 2.**

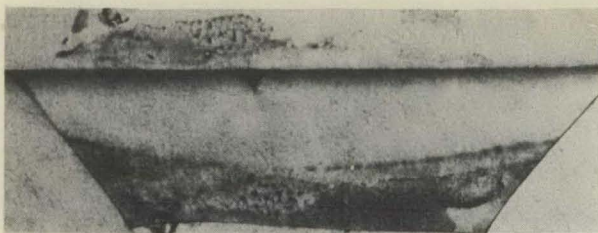
which are extremely valuable in a comparison with known evidence. As an illustration of the possibilities of such individual characteristics, a California bank was robbed by a man who handed the teller a note reading "give me all your 20's, 10's, and 5's and be careful." A suspect was arrested, and in his home was found a notebook containing paper similar to the demand note. This notebook, the robbery note and samples of his handwriting were sent to the FBI Laboratory. An examination showed not only that the suspect had written the note, but that the paper on which it was written had been cut from a page still in his notebook. This was proved by the fact that the two cut edges of the note matched in microscopic detail with the cut edges of the remainder of the page, and that a portion of a stain on the note matched the remainder of the stain on the page. Figure 2 is a reduced reproduction of the note and a portion of the remainder of the notebook page (separated by a black line), showing the matching of the two cut edges and the dark stain.

The examination of serrated or notched edges has previously been mentioned in the October 1952 article of this series, in connection with identifying a fraudulent check with a checkbook stub from which it was torn. This type of examination may also be necessary for other types of evidence, such as postage stamps, "saw-toothed" paper bags or



**Figure 3.**



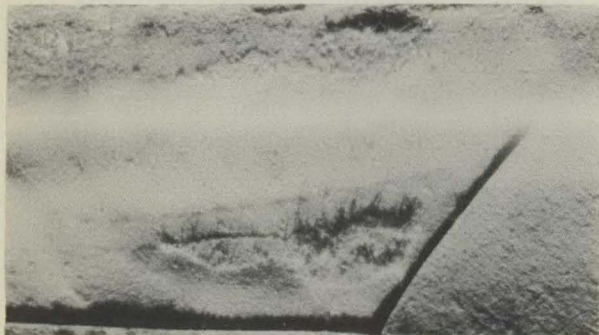


**Figure 4.**

wax paper torn on a notched metal edge. As a rule, the examination of serrations is necessarily microscopic in nature, and extreme care should be taken in handling such evidence in order that the edges may be disturbed as little as possible.

As an illustration of a postage stamp examination, a threatening letter was received by a man in Alabama. A suspect was apprehended, and specimens of his handwriting, along with stationery and postage stamps found in his possession, were sent to the FBI Laboratory. In addition to identifications of the handwriting and stationery, the strip of three stamps on the envelope was proved by a comparison of the serrated edges to have been originally connected to the stamps found in the suspect's possession. As further proof, special photography showed that both the known and questioned stamps had come from the same vending machine, as revealed by the indentations on the stamps caused by the machine.

The matching of torn or cut edges (such as those illustrated by figs. 1 and 2), like the matching of serrated edges, requires an examination which is primarily microscopic. This type of examination often proves to be extremely valuable, not only in identifying questioned evidence with known, but in other situations as well. For example, in a case involving several documents sealed with cellophane tape, the sequence of the sealing of the documents became important. By examining the torn ends of each piece of tape it was possible to match them, one after the other, thus showing the exact



**Figure 5.**

order in which each piece had been torn from the roll of tape. Figure 3 is a photomicrograph of portions of two strips of tape, showing the matching ends.

Various types of examinations of the inherent and accidental properties of paper evidence, in addition to the more usual one described above, are often necessary. As stated previously, it is almost impossible to describe all the possibilities which may arise in examining paper evidence, since the type of examination often depends on the individual evidence itself. However, two cases may serve as examples of the type of situation the document examiner often faces. One case concerned a man suspected of arson in the burning of a store in North Carolina. Several paper bags found at the scene of the fire were sent to the FBI Laboratory, along with some paper bags found in the suspect's car. The known and questioned bags were found to be similar in every respect—physical characteristics, edges, foldings and other features. In addition, it was possible to prove by an examination of certain individual peculiarities that all of the bags had actually been made on the same machine.

The second case involved a Colorado woman who had been receiving threatening letters from a former suitor. However, only one of the letters had been postmarked. When the man was interviewed, he admitted writing this letter but denied mailing it. He claimed that he had personally placed it in the woman's mailbox, and that she had then put it in an envelope in which he had previously mailed an innocuous letter to her, in order to frame him on a Federal charge. The questioned letter and envelope were sent to the FBI Laboratory to attempt to determine whether the letter had actually been mailed in the envelope. An examination revealed that some of the glue on the flap of the envelope had stuck to the letter in such a manner that when the envelope was opened some of the paper fibers from the letter were torn off and adhered to the envelope flap. In addition, other portions of the glue on the flap adhered to the letter. Thus, it was possible to state definitely that the threatening letter was in the envelope at the time it was sealed. Figure 4 is a photograph of portions of the envelope (lower) and letter (upper), showing how the spots of glue match. Figure 5 is an enlarged photograph of portions of the envelope and letter, showing how the paper fibers adhering to the flap match the torn portions of the letter.





## OTHER TOPICS

This is not a statistical report on the health problems of the St. Louis Police Department but rather an over-all picture as we see them from day to day. I will, therefore, be brief in covering the more important ones.

### **The Common Cold**

The common cold or virus infection, as it is now sometimes called, causes more disability than any other disease. Until about 7 years ago the common cold was epidemic only during the winter months but the virus infection is endemic with frequent epidemics so that we are confronted with the problem all year round. The virus infection manifests itself in nausea, vomiting, diarrhea, sore throat, and muscle pains. It is of only a few days duration with no after effects. With few exceptions there has not been any effort on the part of the police officers to prevent this condition by inoculations, proper clothing, etc. The incidence of these conditions would not be so great if they sought medical advice at once, rather than resorting to self-medication, especially nose drops. Of course there is not too much that can be done aside from rest and medication to prevent complications. One other factor, especially among traffic officers, is reinfection. Some few sterilize their whistles each night and this no doubt has some effect on the number of colds they have.

Inoculations against virus A and B seem to the few that avail themselves of it to be very good.

### **Overweight—A Problem**

Although police officers are prone to overweight very few try to do anything about it. The scout car is responsible for an increase in weight in recent years because of lack of exercise. I have attempted to put many officers on diets but after a few weeks they give it up and go back to their old habits. It is only when they develop diabetes, hypertension, or some other condition which may be attributed to overweight that they are sincere in trying to reduce.

## **Good Health Practices for Police Officers**

by DR. CHARLES M. BAUMAN, *Acting Director,  
Medical Division, St. Louis Police Department,  
St. Louis, Mo.*<sup>1</sup>

In some districts the commanding officers relieve those in scout cars for several hours a day. This is a great help in keeping weight down. I feel that weight should be kept below 15 percent over the standard for height and age.

### **Heart Disease**

Hypertension and cardiovascular disease play a great factor in health of those past 50. It is far greater out of proportion than is found in other walks of life. It manifests itself mainly in hypertensive heart disease, coronary disease, and apoplexy. We experience a great many cases of coronary thrombosis in otherwise healthy officers and it is surprising the number who return to regular duty.

### **Drinking No Problem Here**

Inebriety is seen very little in an official capacity. In fact, the sobriety of the police department is very high. The old-timers thought nothing of drinking while on duty but the younger men, many of whom were subjected to military discipline and a splendid course in the police academy, are aware of their responsibilities and all are very anxious to do good police work. Hence, there is very little drinking.

### **Periodic Physical Examinations**

There are no rules governing periodic examinations. It is up to the individual officer to have this done. I encourage the officers, especially those past 40, to have a checkup at least once a year. The checkup consists of blood pressure, examination of the heart, urinalysis, and other tests which seem indicated.

<sup>1</sup> Dr. Bauman who has been on the medical staff of the St. Louis Police Department since 1941 received his doctor of medicine degree from St. Louis University in 1911. Engaged in the general practice of medicine and as referee for the larger life insurance companies since 1919, he also served as a captain in the Medical Corps of the United States Army during World War I.



In April 1949 the department required an examination of those over 65 years. The examination consisted of the usual physical examination, plus electrocardiogram, and chest plate. There were 67 examined, 7 of whom did not pass because of abnormal electrocardiogram. These examinations should be confidential and no information is disclosed without the consent of the individual. Because of existing laws none could be retired before age 70.

The department is very thoughtful of the individual and frequently requests the medical staff to report on the health of certain officers, especially after a severe illness or injury, as to where he is best fitted. There are a number of positions not only in the department itself but also in other State and city offices which require a police officer on duty. These men are placed there until they are fit for full duty. This works out very well.

Of course we have the usual run of all diseases. One worthy of mention is the low back pain. There is scarcely an officer above 40 who has not experienced this at one time or another. As a rule it is not disabling and responds well to heat and exercise. To my surprise there are practically no complaints about flat feet.

### ***Absenteeism Kept to a Minimum***

The matter of sick leave comes up under each new board of police commissioners. They are all successful businessmen and some feel that the department is much too liberal.

An article in the *Journal of Criminal Law, Criminology, and Police Science* several years ago on sick leave indicates that a survey of the various plans in force in different cities revealed that the more liberal the sick leave the less time is lost by absenteeism. In some cities where sick leave is accumulative for only a year the personnel take advantage of it and take off the number of days they feel they have coming. This does not pertain to St. Louis.

In St. Louis the length of time of sick leave is left entirely to the medical staff—up to 180 days—which is allowed before the officer is asked to retire. St. Louis was high among the cities showing less absenteeism in this survey.

### **CRIMES ON INDIAN AND GOVERNMENT RESERVATIONS**

Numerous offenses which occur on Indian and Government reservations are within the scope of the FBI's jurisdiction.

## **Ten Latent Prints Make Full Set**

*by E. F. Phipps, Chief of Police, Richmond, Calif.*

Through the means of a fingerprint file, composed entirely of known burglars, car thieves, and petty thieves, Richmond, Calif., Police Department's criminologist has cleared 97 felonies over a period of 2 years, felonies in which there were no suspects prior to identification. Thirty-one felonies were cleared when fingerprint evidence was used against suspects prior to identification. The story of the most outstanding of all these cases is an interesting one.

The arrest of the subject on May 26, 1952, ended a 14 months' search for the person responsible for committing 25 known burglaries over that length of time. Many men from both the regular force and the reserve force had spent much time trying to apprehend him. Since his first operations were in the homes of the East Richmond residential section, he was called the "East Richmond Burglar."

The story of the apprehension is a story of Richmond's crime laboratory. It was through diligent searching for evidence that the subject was brought to justice. He was tricky and never took chances which would lead to his identification, except for one thing—wherever he went, he left his fingerprints and if one of his jobs was covered by the crime laboratory those prints would be found.

It was possible to anticipate to some extent his future movement but twice he escaped apprehension when extra men were assigned to the area where it was believed he would work. One night he was walking down the street, just after being frightened out of a house, but an officer who drove by and looked him over from the car failed to interrogate him. Another night he escaped apprehension by working 4 hours later than anticipated—the only burglary he committed after midnight. This offense involved one of eight business houses where it was believed he would work.

The subject first worked homes only and money was his primary object. He almost never took anything else. Once he took a ring and other times a similar piece of property for his own personal use. Next, he started working schools and then he turned to cafes and similar establishments where a coin machine would be found. His modus operandi on each type of job would remain constant but his big mistake was in leaving prints.



As the prints piled up and adjacent fingers were found, the criminologist, Hillard M. Reeves, was able to start assembling a fingerprint card of 10 fingers on him. Finally the subject hit a school in El Cerrito, Calif., and the department of that city obtained enough prints to finish the 10 fingers and a classification was determined. A search of Richmond's files produced no results so San Pablo, Calif., police gave us access to their files where the criminologist was sure a card would be found. San Pablo had made the only arrest on this man in California which was for a curfew law violation, and the search produced his fingerprint card. A quick check on the subject disclosed that he was in the stockade at Camp Stoneman.

The subject readily admitted the burglaries for which he was arrested and, in addition, pointed out 24 more for a total of 49 in Richmond. El Cerrito was able to clear three offenses in their city.

## How To Obtain Copies of Interesting Articles

Articles carried in the *FBI Law Enforcement Bulletin* are listed in a cumulative index in the December issue of each year and those believed to have a permanent value in police work are reprinted. These reprints are available for distribution to law enforcement officers desiring such copies. In requesting them, please refer to the article by title and month of publication.

## WANTED PERSONS

Each year thousands of badly wanted persons are located from information furnished local officers as a result of a search in the Identification Division files. If a person is wanted, a department should submit the complete name, FBI number, local arrest number, or copy of the fingerprints of the subject. Wanted notices are posted upon request and information on the whereabouts of those sought is sent by collect telegram to interested agencies. It would be appreciated if the Wanted Notice (Form 1-12) is used whenever possible in submitting requests for the placing of wanted notices.

## WOOD EXAMINATIONS

Examination and comparison of wood specimens are handled in the FBI Laboratory. A reference file of standard North American woods is maintained by the FBI Laboratory.

## Modus Operandi Index

(Continued from page 15)

It will be noted that a break-down similar to the above would be possible with reference to non-residence burglaries. An index with reference to robberies is suggested in part by the following headings:

### Robbery:

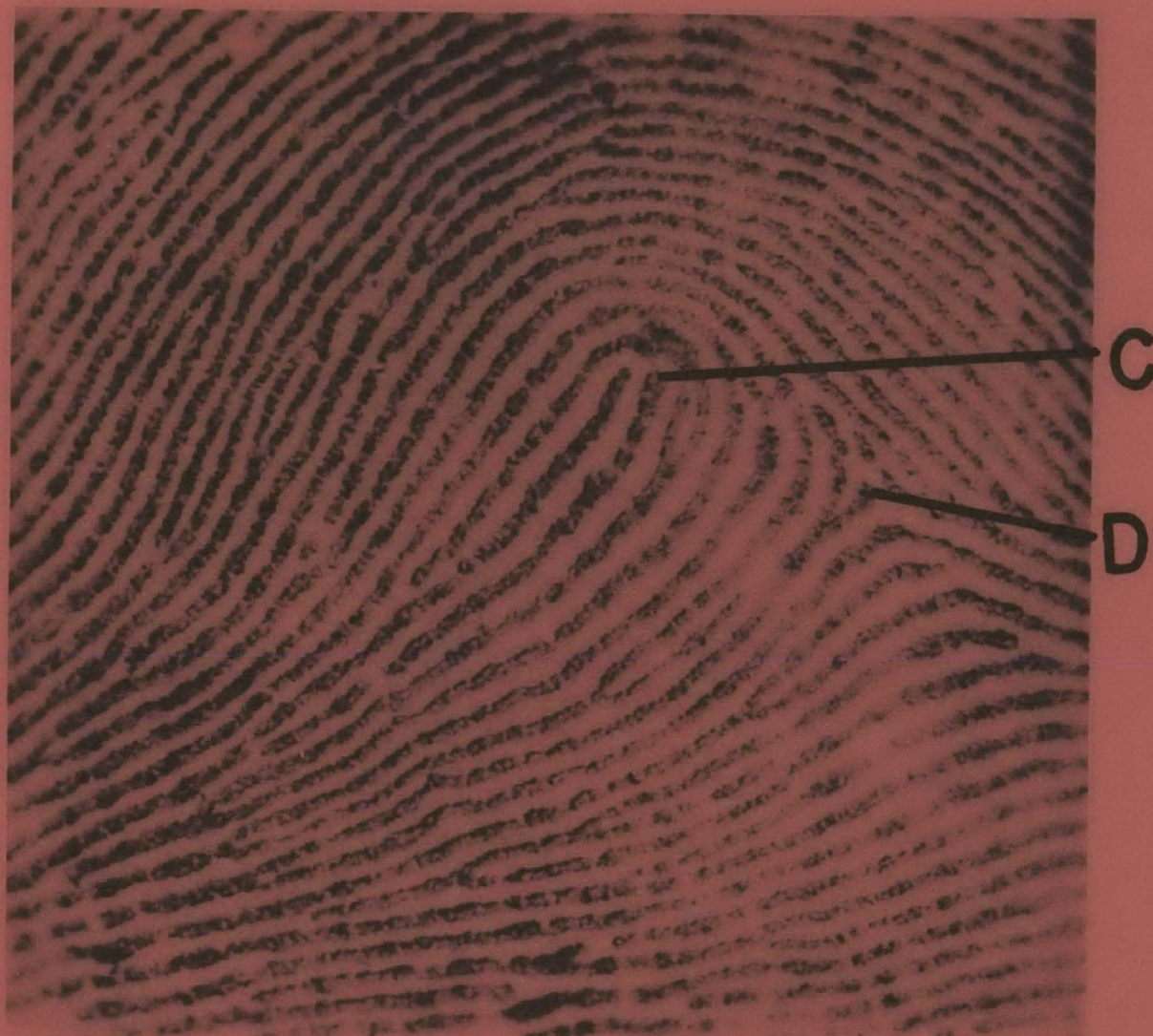
- Persons attacked
  - Cab drivers
  - Bank messengers
  - Florists
  - Housewives
- How attacked
  - Beating
  - Binding
  - Cutting
  - Drugging
  - Threatening
- Means of attack
  - Blackjack
  - Bodily force
  - Brass knuckles
  - Revolver or automatic
    - Small, short barrel, black
    - Small, long barrel, black
    - Small, short barrel, nickel
- Object of attack
  - Cash
  - Clothing
  - Jewelry
- Trade-mark
  - Assaults female
  - Brutal
  - Cool
  - Cuts telephone wires

Physical descriptions are, of course, helpful in identifying suspects. Photographs and accompanying descriptions are filed by criminal specialty in many departments for this purpose. When reference to available photographs does not lead to a tentative identification of a suspect, provision may be made for filing the description of the unknown suspect. This may be done by preparing a 3 by 5 card containing all available descriptive data and a reference to the related case file. The card may then be placed in a subdivision of the file for unidentified suspects. This will provide a means of matching descriptions of unidentified suspects as a further possibility in connecting crimes where the data are similar. As indicated, the modus operandi index should contain cards with reference to current crimes as well as those which have been cleared by arrest.



## *Questionable Pattern*

# FINGERPRINTS



This month's pattern is a loop with six ridge counts. The location of the core presents the problem in this pattern.

Since there is an odd number of rods as

high as the shoulder inside the innermost sufficient recurve, the core is located on the center rod C. The delta is indicated by the letter "D."