



JULY-SEPTEMBER, 2009

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## Editorial

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Left wing extremism (LWE) is fast emerging as the biggest internal security threat. This has been acknowledged by Prime Minister, Manmohan Singh during the DGP/ IGP Conference held in New Delhi from September 14-16, 2009.

While addressing the Conference, the Prime Minister observed that "... Left wing wextremism poses, perhaps, the gravest internal security threat that we face. We have not achieved as much success as we would have liked in containing it." As a part of a multi-pronged strategy to contain LWE, development measures like implementation of NREGA, National Rural Health Mission, rural employment schemes, protection of forest rights of tribals and rehabilitation of surrendered Naxalites as well as information campaigns are being undertaken. Alongside, surgical operations to neutralise LWE are being carried out.

However, it should be a continuous process supplemented with transformative policy and distributive justice. Though there is no justification for violence and mayhem in a democracy. It should be countered with equal force. Yet, the link between lack of development, an equal and just social order as envisaged by our Constitution and the emergence of LWE in areas where the State has failed to deliver the good cannot be overlooked. Along with surgical operations, development of these areas should be given priority. Investment in rural infrastructure and development should be accelerated on war footing. There should also be concerted efforts to wean away the gullible and idealistic youths among LWEs.

Nevertheless, security experts and anti-terrorist sleuths believe that terrorism, insurgency and extremism by the Left or the Right are going to be a part of our life. So, counter-terror or counter-insurgency or containment of Left or Right wing terrorism, which must be pro-active, preventive and aimed at rooting out the causes that give rise to terrorism, insurgency or extremism must be carried out in a sustained manner.

There is consensus among policymakers, security experts, paramilitary forces and other stakeholders regarding pro-active and preventive approach to contain terrorism. However, the consensus has been eluding in respect of the causes of terrorism. The causes may be subjective or having some emotional underpinning or based on false perception. Whatever be the cause — perceived or imagined, real or fictional — mayhem, bloodshed and loss of innocent lives cannot be justified on any ground.

It is heartening to note that the world in general and India in particular has woken up to the necessity of having sound counter-terror policy, and initiatives in this regard have been galvanised. The first step taken by the Government of India in this regard was to establish a Multi-Agency centre (MAC) to neutralise terrorists and insurgents with a mechanism for intelligence sharing and operational coordination among the police forces of the country. It has a network of 29 Subsidiary MACs (SMACs) spread all over country. Now 24x7 control rooms in all 29 SMACs have become operational. Moreover, data centres are also being created in state capitals and MAC, SMACs and special branch units are being e-connected.

In the DGP/ IGP Conference, Union Home Minister, Shri P Chidambaram announced his plans to create a "first rate" National Counter Terrorism Centre (NCTC). It would supplement MAC and analyse the intelligence collated by it and prepare operational plans. Besides, mechanisms such as Crime and Criminal Tracking



Network System (CCTNS) and NATGRID are being implemented. Other counter-terror measures to be implemented by the government include recommendations of the National Police Missions, enactment of a Model Police Act, pushing mega-city policing, upgrading forensic science laboratories to global standards and prison reforms.

As counter-terror presupposes a synergised and well-coordinated approach among stakeholders, the government of India has asked the states to raise their counter-terror capabilities by implementing measures initiated by the Centre. These include filling up vacancies in their respective forces; raising more battalions and creating more police stations, retraining of existing personnel; acquiring better arms, communication equipment and developing infrastructure. The emphasis is on the use of technology as a force multiplier, to bolster the counter-terror measures.

However, any counter-terror or counter-extremism or counter-insurgency strategy is incomplete without the active support and participation of community. Every section of the society must be involved in counter-terror campaigns and they should act as bulwarks against any major terrorist attack. An alert and sensitised society helps forces to foil any possible terrorist act. So, community policing should be given priority and synergised with counter-terrorism efforts to achieve the mark of zero terrorist incident.

In a paper on LWE, “*Analysis of Operational Strength of LWEs*”, Shri Rakesh Kumar Singh has rightly said that the competence of Naxalites to mobilise hundreds of people to attack security forces reflects that extremists have been successful somehow in meticulously planning attacks and achieving their targets. “In order to counter this threat, an appreciative inquiry into their competence is imperative, so that the security forces can tilt conflict dynamics in their favour.”

On the other hand, counter-terrorism involves more than putting up a rapid and well coordinated counter-terror strategy and infrastructure. It should be characterised by what Dr SDS Rajadhevan in his article, *Terrorism Vs Counter-terrorism*, called the “killer instinct”. In addition, it is required to ‘give life to the dormant Narasimhan Police Commission recommendations including depoliticisation of police and Subramanian Post-Kargil Commission’s findings of intelligence cum security safeguards which urge immediate reforms and overhauling of the state police, central police, paramilitary police and the IB, the RAW and the CBI’.

It would be not an exaggeration to say that counter-terrorism should not and must not be only the government’s concern. Other sections of the society should also contribute to this endeavour. Shri Rajadhevan has rightly observed: “Apart from the government spending, the private sector, merchants, traders, industrialists, temples, mosques, churches and banks — all units must spend for taking security measures.”

It is heartening to note that our counter-terror policy is taking shape with the required urgency and deliberations. It should be a continuous process without any slackening, any letting down of guards and any compromise. In this issue of the Journal (July-September, 2009), we have featured LWE and counter-terrorism as the lead article. Also, other aspects of policing and internal security that directly or indirectly touch our counter-terror or LWE efforts have been discussed.

**Gopal K.N. Chowdhary**

Editor



## Abstracts & Key Words

### **Analysis of Operational Strength of LWEs.**

*Rakesh Kumar Singh*

#### **Key Words**

Security Threats, Tactical Adoptability, Terrain, Swarming Attacks, Explosive, Cadre Mobilization, Managing Perception, Intelligence Networks, Frontal Organization, Linkages.

#### **Abstract**

Left wing extremism is posing substantial threat to internal security of the Nation. The competence of naxalites to mobilize hundreds of people to attack security forces and killing them in every conceivable way reflects that the Left Wing Extremists are somehow able to meticulously plan their attacks and achieve their targets. In order to counter this threat, an appreciative inquiry into their competence is imperative, so that the security forces can tilt conflict dynamics in their favour. The restoration of feeling of security among common man in the naxal-affected area is another aim for analysis of their strength so that realistic strategic efforts are made in the right direction.

### **Terrorism Versus Counter-terrorism**

*Dr. S.D.S. Rajadhevan*

#### **Key Words**

Terrorism, Counter-terrorism, Dare-Devilry, Police & Army killer, Depolitisation of Police, Political Will, Duty-concious Bureaucary, Grass-root Intelligence, Point Book, Security & Intelligence concious Government.

#### **Abstract**

We have to give life to the dormant 'Narasimhan' Police Commission recommendations of depolitisation of the Police, etc. and the 'Subramanian' Post Kargil Commission's findings of Intelligence-cum-Security Safeguards, plus the lessons we have learnt from the incident of Mumbai in the event of the common--people reverting to the routine and running to earn their bread, fast forgetting the Devilish incident and also in back drop of the still poverty-stricken and illiterate and hence security unconscious gullible public, moving about in a non-chalet manner, the inertia-ridden, un-coordinated and non-motivated Police forces, who are largely politicized and rooted to the ground realities of the local soil, we need immediate reforms and overhauling of the State Police, Central Police, Paramilitary Police and the various wings of the Army, Navy and Air Force, the IB, the RAW and the CBI. And also, we must constitute an 'FBI' for India - a Federal Investigating Agency, as the CBI is over-worked and not meant for such coordinated federal and specialized investigation.

### **Policing Without Using Force: The Jalpaiguri Experiment**

*Tripurari, IPS*

#### **Key Words**

Police Reform, Transparency, Fairness, Alogrithm Extralegal, Professionalism, Selective Registration, Jalpaiguri Experiment, Cognisable Offences, Arbitraniness, Nefarious, Nexsus, Burking of Crimes Golden practice, Minimum Irreducible Force.



## Abstracts & Key Words

### Abstract

The first and probably the most important stage where this rule of law stands negated is the time when the cognizable complaint is not registered at the police station, thereby endangering and compromising the right to life, liberty and honour of almost every individual. The hollowness created by the absence of rule of law may be filled up by the 'rule of personality', which creates more dilemmas and complications in the process of administration of justice. The Jalpaiguri experiment has successfully accomplished the first step of the criminal justice system, by curbing the menace of burking of crimes at the police stations, and simultaneously reduced to a great extent the misuse of power of arrest by the police. The experiment also tried to evolve an algorithm in order to bring in uniformity in day-to-day policing. Its effect was manifested not only in the remarkable changes in the various crime-related figures but also a perceptible change could be noticed in the overall behaviour of the police personnel and the public as well. This article would be discussing all these associated facets of the Jalpaiguri experiment along with the ideal underlying this experiment i.e. 'Policing without using force'.

### Conviction Rate

*Prof. (Dr.) A.S. Deoskar, and A. Dutta*

#### Key Words

Conviction Rate, Buzzword, Parameter, Derivatives, Complex Equation, Mean Derivation, Prosecution, Convicted Cases, Rollover, Carry Forward, Reflective, Empirical Data .

#### Abstract

Conviction Rate, as envisaged, is not just a simple percentage as calculated in the prevailing sense. In its enormity, it encompasses various parameters

and derivatives. Putting it in other words what is suggested that the calculation of conviction rate should be able to suggest the performance index of Criminal Justice System. Meaning, it should be reflection on performance of police, Public prosecutor, courts and their inter-dependability. The three wings work in coordination to get a conviction or otherwise. It is endeavoured to evolve a much reflective empirical formula.

### Human Rights Constitutional Perspective

*Vishwanath Paranjape*

#### Key Words

Human Rights Concept , Magna Carta, US Bill of Rights, UN Declaration of Human Rights, European Commission of Human Rights, Human Rights in Indian Constitution, Right to Life, Liberty, Equality , Safeguards Against Arbitrary Arrest and Detention, Human Rights of Prisoners, Speedy Trial, Bar on Handcuffing of Offenders, Prohibition of Use of Third Degree, NHRC and State Human Rights Commission, Human Rights Courts.

#### Abstract

The flagrant violations of human rights during the Second World War in 1940's brought to fore the devastating effect on humanity and disregard to human dignity. It, therefore, generated a wave of global concern for the protection and preservation of these valuable rights by concerted efforts at international level. The Declaration of Human Rights proclaimed by General Assembly of United Nations on 10<sup>th</sup> September, 1948 was a step forward towards developing human rights consciousness among states. The inclusion of Bill of Rights in the American Constitution was a hallmark in recognition of human rights.



## Abstracts & Key Words

Taking note of the increasing incidents of human rights violation around the world, the founding fathers of Indian Constitution in their wisdom not only recognised, but also included human rights in the form of Fundamental Rights in Part III of the Constitution.

The provisions relate to equality before law and equal protection of law, protection against discrimination on the ground of race, caste, sex, place of birth, social and economic status, etc.; Right to freedom of speech and expression, association, movement, equality of opportunity in the matters of public appointments, etc are some of the Constitutional mandates which seek to protect and promote human rights of the people. Besides, Right to life enshrined in Article 21 is, in fact, a treasure house of a bundle of human rights, including Right to education, livelihood, speedy trial, free legal aid to poor, right to medical care and nutrition, pollution free environment, etc which are essential for every individual to develop his personality.

### **Bloodstain Patterns at Crime Scene Vital Clues for Investigation of Violent Crimes**

*Dr. B.P. Maithil and Dipanshu Kaabra*

#### **Key Words**

Bloodstain, Bloodstain Pattern, Violent Crime, Blood Source, Bloodshed, Blood Droplet, Blood Trails, Blood Spatter, Target Surface, Crime Scene, Victim, Surface Tension, Reconstruction.

#### **Abstract**

Crime scene investigation is the foundation of all violent crimes, especially homicides. When a violent crime is committed, it is quite usual for the participants to be injured, the victim in particular. When the such injuries are accompanied by the flow of blood, distinctive bloodstain patterns may take place. These patterns certainly provide vital clues and investigative information about the activities that

occurred during the commission of the crime at the scene of occurrence. The analysis of these patterns may help the investigator in establishing the level of force applied to put the blood in flight, the direction of blood flow, the exact location of the victim and his movement during and after bloodshed. The bloodstain patterns and related information may also be significant to reconstruct those events which led to the deposition of the stain and patterns associated with a crime scene. Bloodstain size, quantity, shape, distribution, relative location, angle of impact and target surface character are some of the valuable informations which give insight into the events that took place at the scene. Stains indicating movement of or masking by an object and transfer of blood between persons or objects would be observed, studied and documented to establish any probative information available. The objective of this article is to promote awareness among the investigators and forensic personnel, who often visit crime scenes and prosecutors about bloodstain spatter interpretation, and better crime scene evaluation, evidence collection and proper documentation.

### **Poroscopy in Personal Identification Authenticity and Acceptance**

*S.P. Singh*

#### **Key Words**

Dermatoglyphics, Friction Ridge, Poroscopy, Personal Identification, Latent Prints, Third Level Details, Standardization Committee, Positive Identification.

#### **Abstract**

Sir Francis Galton proved that papillary ridges are persistent from birth until they are decomposed and destroyed after death. Dr. Harris Hawthorne Wilder studied morphology, the methodology of plantar & palmer dermatoglyphics, and along with Bert Wentworth re-authenticated that friction ridges are formed on the hands of fetus, from the fourth month

## Abstracts & Key Words



of intrauterine life. The Science of Personal Identification using ridge characteristics is based on two primary factors, uniqueness and permanence. Usual method of individualization from impressions of ridges lies in finding identical ridge characteristics or Galton details in their relative positions in two prints. The number of ridge characteristics required for establishing identity conclusively varies from country to country, in India 8 (eight) points are needed to prove positive identity in the court of law. Forensic Identification specialists continually encounter friction ridge impressions of varying degrees of clarity and difficulty, and when there are insufficient numbers of 'Galton points' in relative position to prove positive identity, fingerprint examiners fail to get the culprit convicted, in such situations third level details are of great help. Poroscopy is one such independent method of identification, which uses comparison of the impressions of sweat pores, present on friction ridges of palmer and plantar surfaces. The method was discovered and developed by Dr. Edmond Locard of Lyons, France in 1912. Although poroscopy is an independent and full-fledged scientific methodology for individualization, it can also be used as an aid to reinforce identifications, using the ridge characteristic method when the numbers of ridge characteristics were low.

### **Detection of Latent Fingerprints A Review**

*G.S. Sodhi and Jasjeet Kaur*

#### **Key Words**

Fingerprints, Forensics, Fluorescence, Powders, Fuming Methods

#### **Abstract**

It may be claimed that there is no more effective deterrent to crime than the certainty of detection. Equally true is that there is no surer way of establishing identity than by fingerprints. The science of fingerprints is based on the premise that no two persons and no two fingers of the same person have identical design of ridges on their fingertips. The detection of latent fingerprints at the scene of crime and their subsequent development is, therefore, one of the most powerful tools available in casework investigations. Different methods of fingerprint detection are reviewed in this article.

### **Fingerprints-Footprints: Useful for Solving Identification Problems**

*Brij Bala*

#### **Key Words**

Forensic Science, Identification, Quality of Evidence, Science of Footprint, Science of Fingerprint, Revolutionising Advancement, Superior Method.

#### **Abstract**

The most important use of Fingerprints lies with the new technique of crime investigation. It is so advanced that detection through the use of Fingerprints and Footprints which have no papillary ridges is now considered as one of the soundest methods of identification and crime detection. Indeed, the courts all over the world have now begun to give credence to this system of identification and investigation.



## Key Words

Security Threats  
Tactical  
Adoptability  
Terrain  
Swarming Attacks  
Explosive  
Cadre Mobilization  
Managing Perception  
Intelligence Networks  
Frontal Organization  
Linkages

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# Analysis of Operational Strength of LWEs

Rakesh Kumar Singh \*

## Introduction

Left wing extremists (LWEs) continue to inflict violence and miseries on the people in its area of influence. The law and order problems being posed by naxalites are much more serious now-a-days than it had ever been posed earlier by any other militant/insurgent group. The naxalism even after 40 years is surviving and growing. As per conservative account, it is now spread over 182 districts of 16 states. Movements are still growing and in varying degrees it has made its presence felt in many other states too.

The threat from naxals to our internal security has acquired dangerous proportions, especially in Chhattisgarh, Orissa and Jharkhand states. Naxalites after being effective in running their writ to the rural and hilly areas, have now reached up to the peripheral areas of cities. The violent incidents caused by naxalites in 2007 have risen to 1565, resulting into death of 36 police personnel and 460 civilians. These factors obviously indicate that they have developed certain tactical and strategic strength, which are either intrinsic due to their basic concepts or via-a-vis security Forces *and* their mode of operability. For the second time, the naxalites had blown up a mine-protected vehicle (MPV) in Malkangiri district of Orissa on 16<sup>th</sup> July, 2008, killing all 17 personnel. Previously, they had killed 24 CRPF personnel in Narayanpur police district of Chhattisgarh on 3<sup>rd</sup> September, 2008 by blowing up MPV. The attack on elite Greyhound party and killing 36 of them on Orissa-AP border area (July, 2008) is another pointer, which reflects that the naxalite violence is becoming bloodier day by day.

A few areas where strength of the naxalites is quite remarkable are discussed below:

## Strategic Advantages

***(Terrain, in-depth knowledge & familiarity with area, tactical adoptability)***

Naxalites have strategic advantages in their area of operation. The Maoists are pursuing their policy in various stages, right from preparing perspective report of a specific area to make it a liberated *one*. They penetrate the local population, study the problem areas, convince them to shout against government and finally secure their support against attacks on government agencies. Since detection of such design at early stages is not forthcoming from intelligence agencies, therefore, the naxalites have strategic advantages.

They are making use of all possible tactical initiatives. Terrains are tough. It is mostly arduous mountains and forest area totally unknown and unexplored by SFs or personnel from state administration. Thus, well-secured in such cocoon they develop in-depth knowledge of locality and fully familiarize themselves with the area. The familiarity with the area is biggest advantage for them during their actions against Police/SFs. The judicious adoption of various warfare tactics as well as inventing a few to counter SFs tactics is their forte. This approach of tactical adoptability of naxalites along with their familiarity provides them surprise and opportunities for offensive attacks. The SF's efforts to chase and search them often end fruitless due to difficult and hostile terrain as well.





### Effective/Tactical Evolution of Operational Imperatives

*(Surprise and deceptive tactics, mobility, coordinated planning, effective recede, learning from mistakes, no hurry in operation and ability to adopt field craft tactics)*

Naxalites, in order to pursue their plan to wage protracted people's war through armed struggle, always keep on improving upon their war tactics. Their constant efforts are reflected in improvisation of tactics, learning from mistakes, recede of the area and meticulous planning as well as adopting deceptive tactics. They are also focusing on organizing their military set up. They have reportedly upgraded the military expertise and formed armed Coys to wage war. Blasting of MPV in Dentewara in September, 2005, and Errabore incidents of 2007 are a few examples in which 24 and 26 lives of security force personnel were respectively lost.

The MPV blasts and ambush of CRPF parties were well-laid tactics naxalites evolved from their learning from past experiences. On 18 May, 2005, the MPV of CRPF was blasted but without much impact. Thus, on 3<sup>rd</sup> September, 2005 the explosive used to blast MPV was increased substantially, resulting in loss of 24 lives. Similarly, again observing the similar pattern of Orissa police movement, their MPV was blasted on 16 July, 2008 killing all 17 personnel in vehicle. The ambush on CRPF party on 9<sup>th</sup> July, 2007 was a totally different tactics in which the Force was trapped with seemingly achievable result just ahead. Then the whole party was trapped at convenient place at Orpulmeta and their ammunitions were exhausted by naxalites tactics of being seen and spotted in various direction and few shots at short intervals from different direction, resulting in excessive firing by SFs and thus exhausting their ammunition.

### Capability of Swarming Attacks/Cadre strength

*(Cadre mobilization, Age profile and co-ordination)*

The naxalites have impeccable competence to mobilize cadre systematically from its different area of influence, which they keep on increasing along the way towards target. Recently, they targeted greyhounds team in Orissa and inflicted heavy casualties. Similarly, they killed 55 police personnel at Rani Bodli. They ensure that their supporters are all along their route to attack various SFs camps and numbers are with them to overawe the forces. Naxals are assigning task to the cadres according to their capability. The younger lots generally below the age of 30 are used for military (armed) operations against Forces or for destroying Government buildings, roads, etc. That means they are used for demonstrative violent action. Once they grow older, their job profiles are changed. They are used for mobilization of cadres, extortion, courier, etc as well as for propaganda against government. They are used as conduits for their political activities as well. Literate people are made members of frontal organizations. A few are used for gathering intelligence. It is taken care by Maoist leaders that people are effectively used to meet the objectives as per their age profile and skills.

### High-Tech and Trigger Happy

*(Indiscriminate use of explosives, mining of the area, advance weaponry, modern communication systems)*

Naxalites are extensively using explosives against their target. They are using claymore mines, IEDs, etc at possible ambush places against SFs. The roads are mined thus, completely blocking the movement of SFs. The mining of the area has hampered quick reaction from Police/ SFs in case of incidents as they can move on foot only. Vehicular movements are full of danger. This has also alienated the civil administration from these areas. No body is ready to work in such area where roads are mined. Pressure bombs have been planted even on kachha tracks.

## Abstract

Left wing extremism is posing substantial threat to internal security of the Nation. The competence of naxalites to mobilize hundreds people to attack security forces and killing them in every conceivable way reflects that the left wing extremists are somehow able to meticulously plan their attacks and achieve their targets. In order to counter this threat an, appreciative inquiry into their



competence is imperative, so that the security forces can tilt conflict dynamics in their favour. The restoration of security of common man in the naxal-affected area is another aim for analysis of their strength so that realistic strategic efforts are made in the right direction

## Analysis of Operational Strength of LWEs

Along with the use of explosives, the naxalites have now substantial stock of advance weaponry. They had already looted a lot of armouries, explosives stocks from Police/ SFs. Recovery of rockets in Hyderabad and grenade launchers dyes in Bhopal a few months back indicates naxals' expertise in developing advance weaponry at their own. The communication means had already been upgraded with the use of cell phones, computer and internet as well as use of modern sophisticated wireless, sets and interceptors. They have successfully converged the technologies also and these expertise are evident in various mechanism of remote controlled IED.

### **Aim, Loyalty and Goal-Oriented**

**(Picking up issues closely related with people like land & forest)**

The naxalites are fighting for a section of people, that is very big, poor and deprived but innocent. Most of the development agencies are not able to effectively take out the benefits of governance to them. Thus, this movement has successfully built up very loyal and dedicated cadres. Though it is well known that their so-called fight for the deprived people are loaded with their own vested interest in politics and with an aim to establish their own rule. Yet the way they have impressed upon their cadres, sympathisers and party members is credible. Maoists have used all means to win the focus of its members towards the party's objective. These people put up hard resistance towards government initiatives to break naxal extremism.

The Maoists pick up the issue carefully. Mostly the issues for confrontation with the government are related with the deprived classes of society like land and forest. It speaks of ban on sale of tribal lands, forest produce for locals only, oppose the setting up of heavy and ultra modern industry in backward areas like Bastar, etc. Although the motive of naxalites are not very genuine nor sincere, yet these issue on its own are very sensitive. People often get carried by sentiments and align themselves with them. These groups are no ordinary group but the group of hardcore loyalists.

### **Competence of Managing Perception**

**(Media management, motivating people, cultural advantage, coercion/violence used to secure support)**

Maoist ambition is manifested in the affected states through escalation of violence, especially now by the way demonstrative act of violence or swarming attacks as well as overt mobilization. The mobilization strategy of Maoists includes managing the perception of people by propagating government as anti-poor people and the tyrant lot who are not taking care of the landless and deprived sections. The naxalites are using various means to spread and impress people that only they can be judicious in dispensing socio-economic parity as well as equality in political power. The poor people are often made to believe all these by continuous persuasion. The local party members take advantage of being culturally close to the group with whom they are working. The systematic perception management efforts with long-term strategy have effective impact on people's psyche. Simultaneously, if needs are felt, they mercilessly terrorize and coerce unwilling people to join their cause. They are beaten publicly and even killed on suspicion of being police informers. People in villages are forced to provide shelter and food. These violent actions instill fear among people of the Maoists. Thus, a good number of strength mobilization is done by coercion and violence also.

### **Broader Intelligence Networks**

Naxalites have cultivated its cadres in such a way that flow of *relevant* information in real time is always there. It ensures clinical execution of communication particularly of *movement* and operations launched by Police. The leadership of Maoists, before entering the conflict dynamics with administration/ SFs, conducts the mapping of the environmental and non-environmental terrain. This helps them in analysis of the situation for launching appropriate operation and creating *conducive* conditions for executing plans as per exigencies of their ideology. The extremists also optimize the advantage of lack of inter-state coordination against them, particularly at lower *level* police functionaries of police stations at state borders.

## Analysis of Operational Strength of LWEs



The naxalites recruits manpower from every potential village in their respective areas. Sangham members are the local cadre responsible for propagating their ideologies and assisting the party in all possible way. They bring *movement* and mobilization of security forces to their notice. The detailed study and surveillance over police/SFs are maintained through these well-knit cadre's network.

### Effective Political and Military Set Up and Linkages

*(Regional & national linkages, nexus with criminals and politicians, international networking)*

The merger of various factions of naxalites in September, 2004 has consolidated the CPI (Maoists) and provided broader platform for their operations. It has made the spatial spread effective and unified leadership provides clarity of tasks to be executed by its cadres. Their focus on organizing on military line is with the view to terrorize the security forces in the jungles. Multiple and simultaneous attacks, explosion of mine with fierce firing on patrol and exploding vehicles are certain tactics which they are increasingly resorting to immobilize the swift actions by SFs/Police. The CPI (Maoists) maintains linkages with CPN-M and various terrorists groups of eastern and northeastern part of India. This provides them advantage in execution of operation against SFs.

### Easy Accessibility to Police/SFs/ Administration

The Police stations, government offices and Security Forces camps can not be made inaccessible for common man. Tougher security measures will alienate the people from administration, which will further deepen their resentment and frustration. Naxals are taking advantage of this situation to gather intelligence, receive and attack such institutions.

The government of states had initiated a lot of developmental works in the naxal-infested area. The development means redressal of grievances of people and thus, their distancing themselves from naxalties ideology/movement.

Therefore, naxalites are making all efforts to terrorise civilian staffs of the government, private contractors and ambushing security forces parties. Many efforts of constructing roads and bridges have been hampered in this way. Through deception and cheating, the accessibility of public servants has been immorally exploited by naxalites.

### Effectiveness of Frontal Organizations

*(Propaganda, recruitment, legal battles, defaming SFs, etc)*

The naxalites have floated almost 140 frontal organizations for propaganda against government and pursue legal battles and human rights violation charges against politics/SFs, etc. It has also linkages with several fronts like CCOMPOSA (Coordination Committee of Maoists Parties and Organization of South Asia), RIM (Revolutionary International Movement), etc. The CPI (Maoists), through its frontal organizations and associations with others, is striving for ideological synergy and opening up fronts against their enemies to enhance their battle and bargain ability. These efforts consolidates their position and are major irritants for the agencies fighting against them, particularly security Forces.

### Conclusion

The aspects deliberated upon above are a few areas where the left wing extremists are focusing and striving to enhance their capability. Analysis of these aspects will definitely provide direction to the response pattern of security forces. The Security forces need to develop the competence of their manpower and enhance capability through rational equipment profiling, by evolving strategic response to counter the strength vectors of left wing extremists as discussed above. It is pertinent to mention here that before any attempt on our part to subdue any extremism/terrorism is made, it is imperative to analyse the competence and capabilities of our enemies/adversaries in minute details to formulate counter measure.



## Key Words

Terrorism  
Counter - terrorism  
Dare Devilry  
Police & Army killers  
Depolitisation of Police  
Political Will  
Duty-conscious Bureaucracy  
Grass-root Intelligence  
Point Book  
Security & Intelligence  
Conscious Government

\* Mr. Rajadhevan is a senior former Police officer and now a practising advocate of Madras High Court, who was Prof. of Management for a few years after his retirement and obtained a PhD in management.

# Terrorism Versus Counter-Terrorism

Dr. S. D. S. Rajadhevan\*

## Prologue

I will take you to the Scene of the Tamilnadu Special Task force- Commando force - Annual Day in Chennai which took place some sixteen years ago, when I had a chance to witness a thrilling Scene, is - it - true- or - a -dream one? - wherein the present Director General of Police and the Director of the Central Police Training College, Hyderabad, stood in the battlefield, albeit a demonstration, with an apple on his head and asked an Inspector of Police-an Ace Prize-winning shooter-to shoot at the apple! Mind you, the man's life will be extinct, owing to a minor error, human or mechanic, taking place! Yet, hats off to the youthful, energetic, risk-taking and dare-devil, Mr. Vijayakumar, who, perhaps, was self-motivated to achieve something striking, matchless and magic like! He is a directly recruited Indian Police Service Officer who happens to be the son of Mr. Krishnan Nair, my erstwhile Special-Branch when I was managing the sleepy, yet problematic, far off, composite Dharmapuri district in 1970s. A matchless Malayalee, indeed!

I, for one, could not control my feelings on seeing the Apple-shooting on a live target and almost cried "haa ...", when the middle-level Police officer shot at the apple perching on the bare head of the top-class Police officer! Ya ... it happened .... the apple fell down being fired at, and the man - the ADGP in flesh and bone waved his hands in victory and walked triumphantly, as if he were the 'Samson' of Greek fame! Oh! Wonderful ... really marvelous it was!

I am narrating this incident in the back drop of the siege of Mumbai by the foreign young terrorists who were trigger-happy and well-trained and who killed nearly two hundred innocent people: Indians, Americans, Jews and others! Being an erstwhile senior Police officer with more than three decades of field work in the 'warrior-like' Police force, and now being a Social activist and a practising lawyer at the High Court with a tilt towards Judicial activism-cum 'PIL' ventures, I could not but make a study of the incessant Electronic and detailed Print-media coverage of the said Terrorism of course, superimposing my erstwhile field experience in Anti-hijacking and security work at the Madras Airport and as a voracious reader of espionage and counter espionage and other Intelligence literature; and as a research scholar on Police management, leading to obtaining a PhD in management from Pondicherry Central University, I was really pained and rudely shocked at the 'free-for-all' shooting spree, which was obviously meticulously planned and militarily executed Terrorists killing at Mumbai on "26/11" (2008)!

## Police Chivalry

Now, I take you to the Scene, where the dreadful Forest Brigand Veerappan, who had killed many Police and forest officers and endless elephants and was like a Monarch of the forests who was overpowered and killed in an encounter by a band of dedicated and (trigger happy) Police officers and men, of course, headed by our hero - Mr. Vijayakumar, IPS. Forget the mechanisms, mind only the

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results! The deadliest devil - Forest Brigand Veerappan-who was a living and vibrating threat to the State of Tamilnadu, Karnataka and Kerala over many, many years and who could not be deterred even by the Central Police helicopters, was killed by the Tamilnadu Police Task Force, thanks to the Political will of the State! It was an excellent instance of not only rare Police Chivalry but also systematic intelligence gathering and using, coupled with meticulous planning and professional execution with matchless masterliness!

### Dare Devil Police & Army

It is not as of the alleged "yes, we received some message ... but it was not marked as 'urgent' or special" attitude of Maharashtra Police! To master the killers, we need equally dare-devil Police and Army killers, no matter what the law lays down, what the Human Rights pray and all that: A killer has to be killed willy-nilly, somehow or other! No weighing in golden scales of the necessities of legality or illegality! The Human lives of the masses are as precious as those of the VIPs and VVIPs. That should be the spirit !

### Immediate Police Reform

In the context of the Post-mortem of the Mumbai-terrorists killings, we have to give life to the dormant 'Narasimhan' Police Commission recommendations of depoliticisation of the Police, etc. and the 'Subramanian' Post Kargil Commission's findings of Intelligence-cum-Security safeguards, plus the lessons we have learnt from the incident of Mumbai in the event of the common people reverting to the routine and running to earn their bread, fast forgetting the Devilish incident and also in back drop of the still poverty-stricken and illiterate and

hence security unconscious gullible public, moving about in a non-chalet manner, the inertia-ridden, un-coordinated and non-motivated Police forces who are largely politicized and rooted to the ground realities of the local soil, we need immediate reforms and over-hauling of the State Police, Central Police, Paramilitary Police and the various wings of the Army, Navy and Air Force, the IB., the RAW and the CBI. And also, we must constitute an 'FBI' for India - a Federal Investigating Agency, as the CBI is over-worked and not meant for such coordinated federal and specialized investigation. In fact, this idea was mooted in my paper I presented at the Indian Society of Criminology Conference held a few years ago at New Delhi and the Society, interalia, included this recommendation also as one of the suggestions submitted to the Central Government. I was happy to follow it up, at least from the newspapers, that it was taking shape, though as a conceiving concept but not taking any concrete shape, but thanks to our Prime Minister's efforts to evolve to Federal System of Investigations in the Post-Mumbai incidents.

### Political will

To achieve this, there must be a "Political Will" at the Centre and States, and accountable, vibrant and duty-conscious Bureaucracy at all levels, on all days, a committed judiciary at all levels, on all days and an over-all security and 'vigil', conscious "aam-aadami" common masses. India is mighty - "Mahan" nation and it can and will achieve this! But it should be started immediately and it should be done in a day-to-day, sustained manner at all levels consciously .. , and even unconsciously, automatically, endlessly!



## Abstract

We have to give life to the dormant 'Narasimhan' Police Commission recommendations of depoliticisation of the Police etc. and the 'Subramanian' Post Kargil Commission's findings of Intelligence-cum-Security safeguards, plus the lessons we have learnt from the incident of Mumbai in the event of the common people reverting to the routine and running to earn their bread, fast forgetting the Devilish incident and also in back drop of the still poverty-stricken and illiterate and hence security unconscious gullible public,



moving about in a non-chalet manner, the inertia-ridden, un-coordinated and non-motivated Police forces who are largely politicized and rooted to the ground realities of the local soil, we need immediate reforms and over-hauling of the State Police, Central Police, Paramilitary Police and the various wings of the Army, Navy and Air Force, the IB, the RAW and the CBI. And also, we must constitute an 'FBI' for India - a Federal Investigating Agency, as the CBI is over-worked and not meant for such coordinated federal and specialized investigation.

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### Training & Retraining

For achieving this goal, the mission and vision there must be training, retraining, training the trainer and around training and all-the-time training. It may cost millions and billions: yes, we must do it as we spend for the Armed Force. The internal security is as important as the external threats and war-cries! There should be sophisticated technology, logistics and professionalism in countering the terrorists and all the sections of Society must be educated to be conscious, alive and be reporting to the Authorities and the media, at all levels, all the time of anything out-of-the-way or strange things happening.

### Community Participations

In this connection, the students of elementary, high school, college, and university must be educated, so also the office-goers, the paper-pickers, the vegetable vendors, hawkers and everyone. The governments at the Centre and the States must provide Budgetary and non-budgetary and even secret funds for all these programmes, to be implemented, together with amply, adequately and timely 'Informers'. In this connection, the police must activate their village and town vigilant committee's members as well as Informants and pay them

then and there for any information they, through monetary and non-monetary methods give, however trivial it may be. Then only the informant system will be alive and vibrant!

Not only this, in these days of speed and sophisticated police systems with many two wheelers, Jeeps and Cars, we should not forget to send foot police beats so as to study the ground realities and gather grass-root intelligence. The olden days beats and patrols both by day and night -keeping 'point book' at vantage points to be signed by visiting Beat Police, must be revived and activated, though you may march two wheeler or car patrols if need be.

### 'One' Nations' 'One' Voice

Apart from the governmental spending, the private sector, the merchants, the traders, industrialists, electoral institutions, temples, mosques, church and banks - all units of the society must spend for taking security measures! India should rise as "one" nation, "one" people, "one" voice! Then only we can rout the terrorists - psychologically, professionally, politically and logistically. A security and intelligence - conscious government and people is the need of the hour!



# Policing Without Using Force: The Jalpaiguri Experiment

Tripurari, IPS

## Introduction

The transparency and fairness in the functioning of the police stations is the core of any police reform. Arbitrariness by the police displayed, more often than not, at the time of registration of a cognizable offence, makes it almost difficult proposition to put into practice the rule of law as enunciated in u/s 154 Cr.P.C, consequence of which the foundation of the criminal justice system gets severely damaged. The first and probably the most important stage where this rule of law stands negated is the time when the cognizable complaint is not registered at the police station, thereby endangering and compromising the right to life, liberty and honour of almost every individual. The hollowness created by the absence of rule of law may be filled up by the 'rule of personality', which creates more dilemmas and complications in the process of administration of justice.

The Jalpaiguri experiment has successfully accomplished the first step of the criminal justice system, by curbing the menace of burking of crimes at the police stations, and simultaneously reduced to a great extent the misuse of power of arrest by the police. The experiment also tried to evolve an algorithm in order to bring in uniformity in day-to-day policing. Its effect was manifested not only in the remarkable changes in the various crime-related figures, but also a perceptible change could be noticed in the overall behavior of the police personnel and the public as well.

This article would be discussing all these associated facets of the Jalpaiguri experiment along with the ideal underlying this experiment i.e. "Policing without using force."

## Beginning of Experiment

An initiative was undertaken on 28<sup>th</sup> Jun, 2007 in a crime conference held at Jalpaiguri, to make possible the recording of all cognizable offences at the police stations, strictly, as per the sec 154 (1) Cr. P.C, which says that:

"Every information relating to the commission of a cognizable offence, if given orally to an Officer-in-charge of a Police Station, shall be reduced to writing by him or under his direction, and be read over to the informant; and Every such information, whether given in writing or reduced to writing as aforesaid, shall be signed by the person giving it, and the substance thereof shall be entered in a book to be kept by such officer in such form as the State Government may prescribe in this behalf."

The Government of West Bengal has prescribed W.B.P form number 27 called FIRST INFORMATION REPORT, which starts like this:

"First information of a cognizable crime reported under section 154 Cr.P.C at P.S."

Moreover, the apex court, time and again, has interpreted the meaning of section 154(1) Cr.P.C and has established beyond doubt that the police have no authority to refuse the recording of FIR.

## Key Words

Police Reform  
Transparency  
Fairness  
Algorithm  
Professionalism  
Selective Registration  
Jalpaiguri Experiment  
Cognisable Offences  
Arbitrariness  
Nefarious Nexus  
Burking of Crimes  
Golden Practice  
Minimum Irreducible Force.  
Extralegal

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## Abstract

The first and probably the most important stage where this rule of law stands negated is the time when the cognizable complaint is not registered at the police station, thereby endangering and compromising the right to life, liberty and honour of almost every individual. The hollowness created by the absence of rule of law may be filled up by the 'rule of personality', which creates more dilemmas and complications in the process of administration of justice. The Jalpaiguri experiment has successfully accomplished the first step

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The crime conference began with the question: How many cases minimum could be disposed off on an average by an investigating officer in a month? Though the answer of the majority was eight, the officers-in-charge of the police stations were asked to dispose off only five cases in a month per investigating officer. It was accepted unanimously.

Immediately thereafter, they were instructed "All the cognizable offences must be entertained in the Police Station without going into the merits of the complaints at the time of recording of the FIR". They were told that explanation would be sought from the concerned officer-in-charge in case of registration of any court complaint case u/s156 (3) Cr.P.C. This instruction astonished all the police officers, since it was believed to be too impractical to be implemented.

It was further clarified that "the proper recording of crime under proper section of law is the first step towards prevention and detection of crime which is the primary responsibility of all the police officers. So, all the complaints which contain an element or ingredient of a cognizable offence have to be registered immediately."

### "Golden Practice"

It was well understood that the implementation of this instruction would not only increase the workload of each investigating officer, but also make them vulnerable to bad remarks and punishments from the superior officers, and the hon'ble courts on the ground of huge number of pendency of cases. It may be mentioned here that the number of cases pending for investigations is, most of the time, used as a thumb rule to measure the efficiency and capability of any police officer. Less number of pending cases is correlated as a reflection of good police work whereas their large number is equated as a failure on the part of the police officers. A general temptation of attaching undue importance to the number of pending cases sometimes compels the

police officers to indulge in all sorts of extra-legal activities, so that the number of pending cases could be restricted to a minimum possible level.

In this regard, the "golden practice" prevalent is to ensure that the present pending figure remains less than the corresponding figure of the last period. Since the number of pending cases being directly proportional to the number of cases recorded, all available means are adopted to avoid the recording of cases. The local nexus involving police and various other interest and pressure groups plays a major role at this stage. The complainant is sometimes influenced so that the gravity of offences could be minimized, for example, from dacoity to robbery, from robbery to burglary, from burglary to theft, from theft to missing, etc. In a nutshell, the process of law is subverted to achieve the target of less number of pending cases. Most of the police officers usually find themselves stifled between the two opposing interests: enforcing the rule of law and, at the same time, managing the crime figure at low level. This predicament is one of the main reasons for the suppression and minimization of the crime figure at the police stations.

### Confusion and Fear

In order to remove this dilemma, no target was given in the conference to manage the pending figure below any certain level. Instead, as stated earlier, "all the Investigating Officers were given targets to dispose off, at least, 5 numbers of cases at the end of a month." At the same time, all the supervisory officers were advised that "they should not get concerned if the number of pending cases shoots up as the present implementation process will invariably entail".

In spite of all the theoretical assurances and instructions, none of the police officers present in the conference were convinced about the whole idea, as it was quiet alien to their practice. Moreover, these instructions caused a lot of nervousness and



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uneasiness amongst them for quite obvious reasons. They were asked to tread a path which not only remained the path least treaded upon, but also a path full of apprehensions because of its probable ramifications in the political, social and administrative arena. They were also entertaining the doubts of getting victimized due to more number of cases pending for investigation, if not now, then, may be in future, by one authority or the other. Amidst such apprehensions, they left the place with the solace that this initiative would not last for more than a month, so it would be rather wise to give it a try than to incur the displeasure of SP. (The author was posted as Superintendent of Police, Jalpaiguri, from 16 Jun, 2006 to 17 Aug, 2008).

Nevertheless, their doubts or apprehensions were not at all ill-founded. They were witnesses to many such instances when the police officers were punished because of the practice of selective registration of the cognizable offences. At the same time, they were also held answerable whenever the crime figure went up. Likewise, the police officers were also held accountable for failing to meet the expectations of the public for not delivering the instant justice and, at the same time, they were criticized severely whenever the human rights of any person got violated because of the police action taken in haste. Police are supposed to be strict and firm while observing their duty, but quite often, they do earn a lot of compliments from some quarters of vested interests, by displaying unjust discretions which thrive upon the non-observance of the procedure established by laws.

### Paradoxical Situations

In view of such state of affairs, it was immensely important to remove various apprehensions arising out of the paradoxical situations. The first and foremost requirement was to make the police officers aware of their basic responsibility. A clearly defined and distinct responsibility may be handled

in a better manner than the obscure and boundless responsibility. A police officer with limited resources and limited authorities may not handle the unlimited responsibilities effectively. In the instant case, they were sensitized to give more credence to the procedure in accordance with the law to achieve the result – rather to devise some extra-legal means as per their convenience and choice to achieve the same. Under the existing circumstances, the higher crime figure may be inevitable unless the process of selective registration of cognizable offences is resorted to. After all, the police alone need not be blamed for the rising number of violations of laws. Prevention of offences ought to be not the sole prerogative of police. Instead, it needs to be the prime objective of the society and the state involving all the three organs of the democracy viz. legislature, executive and judiciary.

### Orientation

Accordingly, in order to achieve the desired objective of the free registration of all cognizable offences, it was prudent that all the police officers, working at the police stations, were made fully aware of the whole concept. So the author visited all the police stations and briefed the police officers, of and above the rank of assistant sub-inspectors, making them aware of their legal responsibility to record all the cognizable offences, failing which they would be held personally responsible. Also, at the same time, they were assured that nobody would be held accountable and no explanation would ever be sought for growing number of cases pending for investigation. They were instructed in clear terms that their responsibilities would rest only with 'following the procedure' established by laws and not with the final result. For the time being, as discussed before, their responsibilities were limited to recording all cognizable offences and disposing off of minimum five cases in a month per investigating officer. In this way, these two



of the criminal justice system, by curbing the menace of burking of crimes at the police stations and simultaneously reduced to a great extent the misuse of power of arrest by the police. The experiment also tried to evolve an algorithm in order to bring in uniformity in day-to-day policing. Its effect was manifested not only in the remarkable changes in the various crime – related figures but also a perceptible change could be noticed in the overall behaviour of the police personnel and the public as well. This article would be



discussing all these associated facets of the Jalpaiguri experiment along with the ideal underlying this experiment i.e. "Policing without using force."

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instructions laid the foundation of the "THE JALPAIGURI EXPERIMENT" which was started with effect from 1<sup>st</sup> July, 2007 in the Jalpaiguri District of West Bengal.

### Evolution

Once it began, several problems, as anticipated, started pouring in. The concerned officers-in-charge of the police station got puzzled at times, when they came face to face with a complaint disclosing commission of a cognizable offence and at the same time involving some influential person. Those were the testing times for the experiment. It would be worth to mention here that the experiment would not have survived a day, if the discretion of suppressing or minimizing of the offence had been exercised even once.

Another problem, which came up almost instantly, was related to arrest. The police, in some cases, started using their power of arrest rather indiscriminately. This problem would have jeopardized the whole initiative, had it not been addressed to in the beginning itself. The power of arrest vested in the police officers is often used in a very arbitrary manner. The author also noticed the same when the police officers began arresting the persons whenever any FIR was recorded against them. To put a check over such arbitrariness, all the police officers were instructed as "only on the basis of FIR, arrest should not be made. Arrest should be made after going into the merit of FIR and after establishing the prima facie charge against the accused."

It was a very uncommon and unheard type of the instruction when the police officers were told to keep the lock-up of the police stations empty, except under the unavoidable circumstances. Thus, the offenders were offered the chance to appear before the court of law. However, if someone had to be arrested, the arresting officer would have to be convinced about the genuineness of the arrest. More importantly, the police officers were told not to

arrest the FIR-named persons immediately, unless warranted. As a result of this instruction, it became transparent and fair for everyone to seek the protection of law at the police stations. Therefore, the fear of becoming victims of arbitrary arrest was reduced. There were several examples wherein the FIR-named persons, too, visited the police stations to lodge their complaints. These all attracted many remarks, though the new practice was in conformity with the observation of the apex court vide its judgment dated 25/04/94 vide 1994 AIR1349 1994 SCC (4) 260. The order of the apex court runs like this:

"The existence of the power to arrest is one thing. The justification for the exercise of it is quite another. The police officer must be able to justify the arrest apart from his power of arrest to do so. Arrest and detention in a police lock-up of a person can cause incalculable harm to the reputation and self-esteem of a person. No arrest can be made in a routine manner on a mere allegation of commission of an offence made against a person. It would be prudent for a police officer in the interest of the protection of the constitutional rights of a citizen and perhaps in his own interest that no arrest should be made without a reasonable satisfaction reached after some investigation as to the genuineness and bona fides of a complaint and reasonable belief both as to the person's complicity and even so as to the need to affect arrest. There must be some reasonable justification in the opinion of the officer affecting the arrest that such arrest is necessary and justified. Except in heinous offences, an arrest must be avoided if a police officer issues notice to person to attend the station house and not to leave the station without permission would do."

The first one-month of the experiment cleared almost all the doubts existing in the minds of the police officers. They might have observed that they were never asked uncomfortable queries whenever more number of cases was registered at the police stations

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or when no immediate arrest was made even in case of any serious or heinous offences. At the same time, in a solitary example of its type, the duty officer of a particular police station was held responsible for refusing the complaint involving an offence of wife harassment and he was closed to the police line accordingly. This set an example for others to follow the instructions without demur and convinced them about the author's conviction also.

### Impact

The effect of the experiment was visible from the first day itself. The instant remarkable change was noticed in the crime figure of the district, which went up by more than four times. The monthly average of number of recorded cases went up from 249 in the pre-experiment phase (i.e. pre-July 2007) to 1060 in the post-experiment phase (i.e. post-July 2007). This sudden rise in the crime figures was almost uniform across all the seventeen police stations of the district (Table 2). Earlier also, these many incidents used to take place and used to be attended by police stations, but were never reflected through crime figures. Now the crime figures have become the true mirror of the society. The police resources and energies, which were engaged for suppression and minimization of crime and thus for obstructing the process of law, were being utilized in furtherance of the rule of law which resulted in a better rate of disposal of cases per month, which went up by more than double i.e. from 230 in the pre-experiment phase to 561 in the post-experiment phase.

The experiment also highlighted the fact that the degree of suppression of cases was more significant in case of offences like theft (51 to 219), crime against women (49 to 180) and crime against person involving simple hurt and wrongful restraint in comparison to the major offences like murder (8 to 11), dacoity (remained 1 only), robbery (1 to 5) and burglary (2 to 9). This reinforces the fact that the major offences are less susceptible to suppression

or minimization because they happen to draw more attention of the media and public. The minor offences, if not dealt properly, at the earlier stage, emboldens the petty criminals to commit bigger and serious crimes, thereby creating more law and order problem in future.

(N.B. –the figure in parenthesis denotes the number of cases recorded per month during pre-experiment and post-experiment phase, respectively,).

### Startling Facts

The analysis of the spectrum of the crime pattern of the Jalpaiguri district in the post-experiment phase presented many startling facts. It revealed that almost half of the offences (48 %) belonged to the category of the offences against person involving simple hurt, grievous hurt, wrongful restraint, criminal intimidation, etc arising out of neighborhood and social skirmishes. 17 % offences were crime against women, thus totaling 65 % offences wherein the offenders were known to the victim and residing with or in close vicinity of each other. Only 2 % offences belonged to the category of murder, attempt to murder and culpable homicide. 23 % was the crime against property out of which only 1 % belonged to dacoity, robbery and burglary and rest 22 % belonged to theft. 6 % was of road accident and the rest 4 % was of miscellaneous type involving criminal breach of trust, cheating, forgery, etc. The spectrum of the crime pattern indicates that the proper implementation of law by the police may prove to be more effective and beneficial in the prevention of the offences rather than use or demonstration of force by the police.

The general belief that the free registration of FIR would open a Pandora's Box and it would be giving a golden opportunity to the mischief makers to get their frivolous complaints registered, thus causing harassment to the innocent individuals was proved to be unfounded. There were less than one percent complaints whose final report were submitted as





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either false or mistake of fact. The percentage of the submission of final forms as charge sheet was 74 %, while that of the submission of final forms as true (FRT) was 25 %. Nevertheless, the misuse of this provision of law by mischief maker may not be ruled out completely. The solution lies in ensuring fair and just investigation of the FIR. The provision does exist to prosecute a person u/s 211 IPC for giving false complaint. In view of this, the selective registration of FIR after 'filtration' is against the spirit of law and it can never be the solution to the problem.

Another noticeable feature was reduction in the number of NON-FIR prosecutions u/s 34 Police Act, 290 IPC, and 107 Cr.P.C, 109 Cr.P.C, 110 Cr.P.C, etc. The pre-experiment arrest u/s 34 Police Act was 326, which got reduced to 121 in the post-experiment phase. The number of arrest u/s 290 IPC got reduced from 779 to 161. Similarly, in respect of 107 Cr.P.C, the number of prosecutions came down from 593 to 263. The number of prosecutions, mainly consisting of prosecutions u/s 109 Cr.P.C, 110 Cr.P.C, BCLA (Bengal criminal law amendment act), and MV (Motor vehicle) act etc, decreased from 230 to 65.

### FIR vs Non-FIR

The power of arrest in case of the NON-FIR provisions was susceptible to maximum misuse by the police as these were often applied without proper accountability and responsibility. These sections were quite often pressed into service to suppress or minimize the actual cognizable offences, in order to maintain the crime figures at low level. Sometimes, it was argued that the NON-FIR prosecutions could take care of the things, so why to increase the workload unnecessarily. The FIR and NON-FIR both being separate entities, the NON-FIR provisions need not be used to replace the provisions of FIR. It is not only wrong practice but illegal also, though this practice may seem to be producing the same result temporarily. The moot point is not of the end result, but following the procedure established by law. The ratio of the

number of cognizable offences recorded as FIR and that of the number of NON-FIR prosecutions could be one of the parameters to determine the extent of burking of crime at any particular place.

### Reduction in Court Cases

Another noticeable feature was reduction in the percentage of court complaint cases u/s 156(3) Cr. P.C. It got reduced from 6.37 % to 0.63 %. This feature could be a litmus test to know the vibrancy of police-public relationship and also to ascertain the extent of burking of crime at any particular place. If this percentage is more than one in a year, it may be safely presumed that the door of the police station is not completely open for everyone and at all times, and people do fear approaching the police for recording their complaint.

### Rise in Surrender

Another discernible characteristic of this experiment was the rise in the number of persons surrendered before the court of law. It went up by more than four times, from 113 persons per month in pre-experiment phase to 496 persons per month in post-experiment phase. The number of persons arrested did not show significant increase between the two phases. It showed a marginal increase from 396 in pre-experiment phase to 437 persons in post-experiment phase per month. This comparison demonstrated the fact that the majority of the offenders might be willing to surrender before the court of law, if they were given the chance to avail this facility. The use of recently amended Sec 174 A IPC made the job of the police officers easier in this endeavour. The fear of being declared as proclaimed ones vide provisions of this act may compel the offenders to surrender before the court of law early. In this way, the police can save a lot of their energy from getting wasted in legal formalities associated with the arrest of any individual like preparation of arrest memo, conduct of medical examination, furnishing



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information of the arrest to the relative or friend, preparation of diet bill, providing guard and escort to the arrested person, etc. The energy-thus-saved may be utilized in arresting the dreaded or absconding criminals who are not conforming or surrendering to the laws of land.

### Better Conviction Rate

The overall manifestation of this experiment was also noticed in the improved conviction rate which got increased from 10 persons per month in the pre-experiment phase to 22 persons per month in the post-experiment phase. The number of petitions from National Human Rights Commission and West Bengal Human Rights Commission came down from 22 petitions per month to 10 petitions per month. The number of visitors and the number of phone calls to SP became very less, rather rare.

All these symptoms prove that when the doors of the police stations remain open for everyone and at all times, and if their complaints are processed as per the provisions of law, the people, at large, may

not like to visit the offices of the superior officers/ NHRC/WBHC/courts and other legal and extra-legal institutions. The police stations, being closer to them than any other institutions, ought to be naturally the first responder to protect their human rights.

The post-experiment crime figures of Jalpaiguri may also be analyzed to gauge the degree of burking of crimes prevalent at other places (Table 1).

This comparison is based upon the assumption that the number of the theft of automobiles did represent a realistic figure to the extent that it was beyond the suppressing capacity of the police officers. The ratio of the theft of non-automobiles to automobiles may be one of the parameters to adjudge the degree of burking. Similarly, the ratio of minor offences (in this case, the number of theft of non-automobiles) to major offences (in this case, the crime figures related to dacoity, robbery and burglary combined together) may be another parameter to determine the degree of burking of

**Table 1**  
**Degree of Burking of Crimes**

Name of the Cities (1)	Total Theft* (2)	Theft of auto-mobilies* (3)	Theft of Non Automobilies* (Col 1-col 3) (4)	DRB (dacoity, robbery and burglary)* (5)	Ratio of non-automobile theft and automobile theft (6)	Ratio of theft of non-automobiles and DRB (7)
Amritsar32.04	15.82	16.22	14.44	1.03	1.12	
Hyderabad	115.10	44.15	70.94	33.87	1.61	2.09
Bangalore	139.28	66.31	72.97	44.51	1.10	1.64
Ahmadabad	142.92	61.46	81.46	26.45	1.32	3.08
Jaipur155.49	83.81	71.68	31.54	0.85	2.27	
Delhi 178.23	95.40	82.83	25.52	0.87	3.24	
Mumbai98.07	29.81	68.26	28.81	2.29	2.37	
Kolkata56.02	12.68	43.34	3.86	3.42	11.23	
Chennai56.05	8.33	47.72	14.78	5.73	3.23	
Jalpaiguri(Pre- exp 2007)	14.61	1.97	12.64	1.41	6.42	8.96
Jalpaiguri(Post- exp 2007)	77.36	1.97	75.39	5.56	38.27	13.56

\*Figures are in no of FIR/lakh of population in a year

Source: 1. Crime in India 2006 National Crime Record Bureau, 2. Census 2001, 3. District Crime Record Bureau Jalpaiguri



## Policing Without Using Force: The Jalpaiguri Experiment

crimes. Some empirical deductions need to be adduced by the statistical analysis of crime data in a similar manner, which may facilitate in examining the degree of burking of crime prevalent at any place in India.

### Metamorphosis

Besides the above mentioned changes which have been projected through the objective analysis of the relevant crime statistics or its related data, the advantages of the free registration of FIR could be perceived in the day-to-day policing as well. The interference or influence from the vested interest groups or pressure groups at the time of recording of FIR vanished completely. The trauma of the police officers, due to the suppression or minimization of the offences, was reduced or removed altogether. There was no reason for them to undergo sleepless nights over these issues. The nefarious nexus between police, lawyer, politician and touts, operational at the police station level and deciding the fate of almost 80 % cognizable offences which used to go unrecorded, became redundant. The distinction between the rich and the poor became non-functional at the time of recording of FIR. The free registration of FIR implied that there was no need to form a group before visiting a police station for lodging a complaint, thus, giving less opportunity to the public to assemble against the police and to create law and order problem. There was no need for the police personnel to display bad behavior against public, as they had been left with no discretion to refuse any complaint.

The FIR became the most powerful weapon for the police officers to fight crime and to maintain law and order, unlike earlier, when its higher number quite often used to generate a lot of anxiety and fear among them. The free registration of FIR started bearing a very good impact over general law and order in the district as the fear of law was instilled in the minds of trouble mongers and their leaders. Majority of the trouble mongers were taken care of during their

honeymoon phase only. It may be noticed that the criminals also start their learning phase by indulging in minor offences like wrongful restraint, threatening, slapping, molestation, etc and slowly they graduate themselves when they begin committing major offences like murder, rape, dacoity etc. This experiment reiterated the fact that there was no one above the law who could provide shelter to any offender, thus minimizing the chances of becoming self-proclaimed *dada* or don of the area.

This experiment tried to instill the professionalism in the police whose job is to enforce the laws of the land as per the procedure established by laws and not as per the consideration of extraneous factors like caste, sex, religion, economic status, political status or individual likes and dislikes.

### Stumbling Block

These all were few subjective advantages perceived by the author against only one disadvantage, which was because of the poor strength of the police that had been proved too inadequate to handle the increased number of cases. Where are the resources to investigate so many cases? This, indeed, was and still remains the real challenge and the main stumbling block against the experiment. However, it needs to be emphasized here that the answer never lies in the suppression or minimization of FIR. Rather, the government of the day and the policy makers of the nation ought to be presented with the true images of the society through real crime figures, to enable them to diagnose the things in correct perspective. The non-appreciation or mis-appreciation of the real facts may lead to grave disorder.

This experiment attracted several other related remarks also. Some of them were like these:

- There would be lack of supervision of cases.
- The quality of investigation of cases would be compromised.
- There would be hardly any benefit to the public by only recording of the cases.

## Policing Without Using Force: The Jalpaiguri Experiment

- ❑ The innocent persons might be victimized.
- ❑ The lawyers would be benefitting at the cost of poor persons.
- ❑ The criminals would be roaming freely due to no fear of arrest.
- ❑ The police supremacy would be vanished because of *Gandhigiri* policing.
- ❑ The non application of mind while recording the FIR and the lack of instant justice would be causing harassment to the poor segment of the society.
- ❑ It would be causing unnecessary work load upon the limited number of police officers.

Though all of these remarks may be very pertinent for the time being, yet it needs to be admitted that the police are given no option but to follow the procedure established by laws. Moreover, the police can not stop or obstruct the process of law on any ground whatsoever it may be. It needs to be remembered that the journey of a hundred miles can not be completed without the accomplishment of the first step taken in the right direction.

### Conclusion

The Jalpaiguri experiment was an expression of the fact that the policing, strictly in accordance with the procedure established by laws, would be the most practical and the effective way of implementation of the rule of law.

After the completion of one year on 30 June, 2008, the experiment got a much desired boost when the Supreme Court of India vide its SC WRIT PETITION CRL. NO.68 OF 2008 DT 14/07/2008, in a Lalita kumari case, ruled that: "In case FIRs are not registered within the aforementioned time, and/or aforementioned steps are not taken by the police,

the concerned Magistrate would be justified in initiating contempt proceeding against such delinquent officers and punish them for violation of its orders if no sufficient cause is shown and awarding stringent punishment like sentence of imprisonment against them inasmuch as the Disciplinary Authority would be quite justified in initiating departmental proceeding and suspending them in contemplation of the same."

This experiment becomes much more relevant in the present scenario, especially after the recent amendment in the sec.41 Cr.PC, which has tried to restrict the arbitrary use of the power of arrest by the police in connection with offences punishable with imprisonment of 7 years or less.

The policing is a law-enforcing process wherein the use of "minimum irreducible force duly sanctioned by law", sometimes, becomes inevitable under some unavoidable circumstances. It may be needless to mention here that the force which has got no sanction of law should never be used for policing for quite obvious reasons. The frequent use of even the "minimum irreducible force" in a day-to-day policing may not be a desirable thing for a civilized society. The frequency of the 'use and demonstration of force' for policing may be a barometer to measure the presence of rule of law in a particular society at any particular time and place. The lesser the frequency, the better it is and the ideal situation may be envisaged as of "policing without using force". The Jalpaiguri experiment is just a demonstration of this idea on a very small scale. A paradigm shift in the concept of policing may be noticed in the Jalpaiguri Experiment based upon the concept "let the Law take its own course".

**(The views expressed in the article are solely personal views of the author.)**





Policing Without Using Force: The Jalpaiguri Experiment

Table 2

**Sudden Jump in Police Station-wise Crime**

2007												
NAME OF PS.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KOTWALI.	23	24	33	32	26	37	154	149	145	139	155	134
RAJGANJ.	7	8	10	10	8	10	35	32	47	44	28	27
BHAKTINAGAR	53	36	49	48	55	67	162	135	128	114	130	132
MALBAZAR	17	13	8	11	14	18	51	69	97	78	69	90
MATELLI	7	6	7	6	9	6	33	40	23	19	12	20
NAGRAKATA	6	9	2	5	3	5	28	27	25	26	30	27
MAYNAGURI	26	24	28	20	23	28	48	34	44	45	26	34
DHUPGURI	7	12	13	10	10	22	64	59	42	33	28	34
BANARHAT	12	6	12	10	12	15	27	35	47	40	30	22
BIRPARA	8	12	6	11	4	8	33	31	20	23	17	44
MADARIHAT	5	6	6	1	8	6	39	38	31	32	16	14
FALAKATA	16	18	22	23	20	21	36	60	50	75	58	77
KALCHINI	2	8	7	11	5	12	38	34	27	45	36	31
JAYGAON	6	10	8	10	9	12	56	47	39	60	39	50
KUMARGRAM	6	12	10	5	9	14	42	27	30	36	33	21
ALIPURDUAR	15	17	25	18	26	32	88	54	80	82	68	55
SAMUKTALA	10	4	7	6	9	8	21	35	34	21	20	20
<b>TOTAL</b>	<b>226</b>	<b>225</b>	<b>253</b>	<b>237</b>	<b>250</b>	<b>321</b>	<b>955</b>	<b>906</b>	<b>909</b>	<b>912</b>	<b>795</b>	<b>832</b>

Table 2 contd.



Policing Without Using Force: The Jalpaiguri Experiment



NAME OF P. S.	2008					
	JAN	FEB	MAR	APR	MAY	JUN
KOTWALI.	163	175	216	192	236	226
RAJGANJ.	62	45	93	87	91	99
BHAKTINAGAR	174	150	228	196	228	170
MALBAZAR	102	123	151	151	166	119
MATTELI.	26	23	33	25	58	49
NAGRAKATA	27	22	31	24	46	20
MAYNAGURI	39	46	75	64	85	88
DHUPGURI	31	30	45	32	45	32
BANARHAT	30	30	42	35	59	30
BIRPARA	29	34	54	55	52	47
MADARIHAT	44	46	58	51	54	20
FALAKATA	27	25	23	22	35	65
KALCHINI	52	42	50	41	60	39
JAYGAON	44	61	47	32	78	59
KUMARGRAM	74	73	92	94	147	62
ALIPURDUAR	22	27	55	66	79	121
SAMUKTALA	28	37	33	43	70	79
<b>TOTAL</b>	<b>974</b>	<b>989</b>	<b>1326</b>	<b>1210</b>	<b>1589</b>	<b>1325</b>



## Key Words

Conviction Rate  
Buzzword  
Parameter  
Derivatives  
Complex Equation  
Mean Derivation  
Prosecution  
Convicted Cases  
Rollover  
Carry Forward  
Reflective  
Empirical Data .

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# Conviction Rate

Prof. (Dr.) A.S. Deoskar,\* and A. Dutta\*\*

## Introduction

Improving conviction rate is a buzzword in the police circle. As a student of mathematics, the Rate word struck me and I started to think from the beginning. I didnot know the mathematical formula devised to calculate the Buzzword. I spent a few days to understand the parameters and derivatives and constraints governing the numerator and denominator quotient to calculate the Rate. I came out with a solution, which was very close to my knowledge of Iterative method used to calculate optimum solution of a Simplex equation. But that was frightening. Police department is already facing lots of complexities and I should not burden myself further with this Complex equation. I said burden myself because at the end of the day I would be the only reader of my mathematical write-up.

I made fresh attempt with several assumptions and axioms. I assumed that many of the Parameters are simple algebraic functions: Derivatives are functions with a limit value of zero and Constraints are functions with a limit value of Infinity. Means Derivatives have zero values and constraints have infinity value. It means constraints can hardly be overcome and derivatives are attributions on police department and are therefore, insignificant if police alone is to be blamed.

Having assumed that, I approached the problem with an Axiom that Conviction rate would be of that of a particular year with no effect of carry forward and rollover cases. Approaching more simplistically, I referred the prevailing calculation method.

## Prevailing Method to Calculate Conviction Rate

It may be defined as the disposal by courts resulting into conviction, with respect to total number of disposal of cases in a given calendar year.

Or,

It is the ratio of conviction to prosecution

Or,

Conviction Rate is average probability that a prosecution results into conviction

So,

**Conviction Rate of 2006 is:**  $\frac{[\text{Convictions in 2006}]}{(\text{Convictions in 2006} + \text{Acquittals in 2006})}$

Where,

Conviction in 2006 means total number of cases taken up by all courts for trial but resulting in conviction in the calendar year 2006

Similarly, acquittals in 2006 means total number of cases taken up by all courts for trial but resulting in acquittal in the calendar year 2006

This method seems most obvious and correct for the calculation of Conviction Rate and this is accepted method of the calculation. This method fails to represent true character of Conviction rate and thus, the result is mere reflection of stastical performance of courts, as far as, cases resulting into conviction or acquittal are concerned.

This result hides more than it reveals. The result so calculated does not take into account the rollover or carry forward cases. It does not reflect the true quality of prosecution of that particular year as it encompasses the pending cases of past several years as well.

## Conviction Rate



### Case Study : Nagpur City

In Nagpur city following is the result of study on Session commit cases-Year= 2006

Total no. of session commit cases = 470

Total no. of cases taken on trial = 409

Total no. of convicted cases = 45

Total no. of acquitted cases = 262

Conviction rate as prevailing method =  $\frac{45}{45 + 262} \times 100\% = 14.66\%$  ----- (A)

Year= 2007

Total no. of session commit cases = 405

Total no. of cases taken on trial = 391

Total no. of convicted cases = 49

Total no. of acquitted cases = 248

Conviction rate as prevailing method =  $\frac{49}{49 + 248} \times 100\% = 16.5\%$  ----- (B)

One may attempt to study these results and try to draw some inference from these two sets of data. As evident, it is a futile exercise. The above two sets of data show no correlation at all, which should otherwise have. There is no semblance of relationship, as rollover and carry forward data are turned redundant.

Further study reveals following set of data:

Year= 2006

Out of the 45 convicted cases, in 2006 cases were 12, in 2005 were 11, in 2004 cases were 7, in 2003 cases were 4, while in 2001 & 1997 were 2 each and in 1995, 1998, 1999, 2000 cases were 1 each.

Year= 2007

Out of the 49 convicted cases, in 2007 cases were 11, in 2006 cases were 11, in 2005 cases were 10, in 2003 cases were 8, in 1997 cases were 3, and in 1990, 1989, 1996, 1998, 1999, 2001 cases were one each. Data for convictions in the year 2003, 2004 & 2005 is indicated in Appendix-v.

### Analysis of Prevailing Conviction Rate

Conviction Rate, as envisaged, is not just a simple percentage as calculated in the prevailing sense. In its enormity, it encompasses various parameters and derivatives. Putting it in other words what is suggested that the calculation of conviction rate should be able to suggest the performance index of Criminal Justice System. It means that this should be reflection on performance of police, Public prosecutor, courts and their inter-dependability. The three wings work in coordination to get a conviction or otherwise. It is endeavored to evolve a much reflective empirical formula. While doing so, following terms would be defined first, which are being used in later paragraphs.

### Parameters

To calculate conviction rate following two parameters are of utmost importance:

- a) Total no of cases taken for calculation is all the charge-sheeted cases put together.

For calculation of CR, all the cases, inclusive of I to V & part VI should be considered. Part VI cases include cases made out under few sections of IPC and cases made out under minor acts and special acts.

- b) Registrations of cases are free.

The probability of conviction varies between 0-1. The probability of cases resulting into conviction for Session trial cases, particularly 302, 307, 376 IPC are higher and probability is closer to 1. Whereas, for other cases like Hurt, H.B.T., Accidents the probability is very low, closer to 0.

There are places in the country or for that matter there are few states where registrations of cases are not relatively free. Evidentially, the places where registration of cases are relatively free, the respective probability of conviction is lower. Hence the overall CR is pulled down due to larger number of acquitted cases.

### Abstract

Conviction Rate, as envisaged, is not just a simple percentage as calculated in the prevailing sense. In its enormity it encompasses various parameters and derivatives. Putting it in other words what is suggested that the calculation of conviction rate should be able to suggest the performance index of Criminal Justice System. Meaning,



it should be reflection on performance of police, Public prosecutor, courts and their inter-dependability. The three wings work in coordination to get a conviction or otherwise. It is endeavoured to evolve a much reflective empirical formula.

## Conviction Rate

### Derivates

These are the functions, which would reflect the coordination quotient among Police, Public Prosecutors and Defence lawyers. These functions mainly attribute to the delay factor involving in each case and subsequent dilution of the prosecution strength. These derivatives can be represented mathematically and will contribute negatively to the overall performance index.

Few examples of these derivatives are as followed -

- Rollover cases, Carryforward cases
- Quality of service of summons by police to witness.
- PP- police co-ordination, PP- defense lawyer co-ordinations in respect of taking up cases and taking adjournment.
- Withering of commitment of complainant and witnesses, timing of trial (business time, harvesting time, festival time etc.)
- Distance of trial-courts for witnesses
- Hostility of accused and the meekness shown by the complainant party.
- Availability of Police witnesses i.e. availability of I/O at the time of trial
- Merit of acquitted cases - technical, or otherwise.

### Constraints

There are various constraints, which are in the purview of formation strength of Criminal Justice System. These serve as the infrastructure support for the CJS. These are as followed:

- ☆ Number and Quality of courts  
Quality means fast track courts, Special courts, and formation of various special courts.
- ☆ Numbers and Quality of Public Prosecutors
- ☆ Numbers and Quality of Experts  
—Handwriting, CA, Ballistic, Forensic, Anatomy experts.

The opinions received should be timely and unambiguous.

- ☆ Provisions of Evidence Act in concurrence with Criminal Procedure Code. This is the touchstone for cases resulting in conviction or otherwise.

### Analysis of Reflective Empirical Formula

To overcome complexities such as derivatives within the constraints, Conviction Rate is calculated with a fresh approach, which is an empirical calculation.

Let us say, Conviction Rate for the Base Year 1990 is desired to be calculated. And this calculation is made in the year 2000.

**Axiom 1:** All the cases are put together i.e. Cases made out and charge sheeted with CC No. in the year 1990 and cognizance is taken by the court

**Axiom 2:** Disposal of all the cases is complete at different courts

**Axiom 3:** Pending is Zero, Rollover is Zero and Carry forward is Zero

Every year the cases that were charge sheeted in the year 1990 but disposed in future subsequent year would be taken yearwise. All disposed cases of 1990 resulting either in conviction or in acquittal would be added respectively.

So, in 1991 i.e. in the first year,

$$\text{C.R.} = \frac{\text{Total Convicted cases (x)}}{\text{Total Convicted (x) + Total Acquitted (y)}}$$

Then, CR of 1990 in any year is  $\frac{x}{x+y} \times 100\%$

Where, x = no. of convicted cases with CC no. of 1990

y = no. of acquitted cases with CC no. of 1990



## Conviction Rate

Suppose by the year 2000, all the charge sheets cases are disposed off. Then, only in the year 2000, one will be able to accurately calculate the CR of 1990. *The CR calculated till the year 2000 is reflection of Quality of cases made out in 1990 and the quality of prosecution till the year 2000. Every year after 1990, cases resulting in conviction should be added to arrive at the total figure of convicted cases which were charge sheeted in 1990.*

Thus, the conviction rate of 1990 so calculated in year 2000 will be as:

$$\frac{X_{1990} + X_{1990|1991} + X_{1990|1992} + \dots + X_{1990|2000}}{[X_{1990} + X_{1990|1991} + X_{1990|1992} + \dots + X_{1990|2000}] + [Y_{1990} + Y_{1990|1991} + Y_{1990|1992} + \dots + Y_{1990|2000}]}$$

- Where,  $X_{1990/1991}$  = 1990 cases taken on trial and resulting in conviction in 1991
- $X_{1990/2000}$  = 1990 cases taken on trial and resulting in conviction in 2000
- $Y_{1990/1991}$  = 1990 cases taken on trial and resulting in acquittal in 1991
- $Y_{1990/2000}$  = 1990 cases taken on trial and resulting in acquittal in 2000

**Alternatively,**

For subsequent years derivatives will come in picture and CR in the year 2000 will be function of parameters, Derivatives in the limits of constraints. A formula needs to be devised which will extrapolate the values for subsequent years. In general form, the formula will look something like:

$$CR_{2000} = \frac{x}{x+y} \cdot 100\% \text{ _ fn (derivates) | Constraint 1,2,3,4}$$

If each derivative were devised in the limits of constraints, the calculated CR in any year would encompass its totality. And, the result so obtained would be close to reality.

Or, otherwise one may be able to give CR2000 accurately only in the year 2010; assuming that all Axioms are fulfilled and the result is calculated using empirical formula.

**General Reflective Empirical Formula for Calculation of CR**

Suppose 1990 is Base year for which Conviction Rate is to be calculated in the year k

General formula will be as under

$$CR_{1990,k} = \frac{\sum X_{1990,k}}{\sum X_{1990,k} + \sum Y_{1990,k}}$$

Where,

- $X_{1990,k}$  = 1990 cases taken on trial and resulting in conviction in k year
- $Y_{1990,k}$  = 1990 cases taken on trial and resulting in acquittal in k year

More general formula will be:

For Base year j taken on trial, and disposed in k year

$$\therefore CR_{j,k} = \frac{\sum_{i=1}^k X_{i,k}}{\sum_{i=1}^k X_{i,k} + \sum_{i=1}^k Y_{i,k}}$$

Where,

1. k = Year in which respective CR is being calculated
2. j = year for which CR is being calculated



## Conviction Rate

3.  $X_{j,k}$  = No. of convictions obtained in the year k for all the cases charge sheeted in the Base year j.
4.  $Y_{j,k}$  = No. of acquittals obtained in the year k for all the cases charge sheeted in the Base year
5.  $CR_{j,k}$  = CR of the Base Year j, calculated in the year k

This is the general **reflective empirical formula** for Calculation of CR

If for every state, parameters are same and Calculation formula is universal, CR of different states will be comparable. If not so, result will be erroneous.

OR, otherwise the conviction rate will be merely a data indicating performance of courts in the current year, revealing nothing.

### Improving Conviction Rate

As the general formula suggests the result can be achieved through reducing acquittals and by increasing convictions. In Theory, one can have following targets :

- + Complainant should be targeted to remain interested in the disposal of the cases. In our criminal justice system, once a case is charge sheeted, it is the accused party, which is calling the shots. Accused may use all his resources to fight out his case in the court of law. For this, he tries to hire best of the defence lawyer, tries to win over the witnesses and the complainants. He just has to succeed in raising doubts in the prosecution theory. On the other hand, prosecution has to prove the case beyond reasonable doubts. So, winning a case in conviction is relatively very tough task. It is proposed that in the interest of justice, the complainant party should also be at liberty to engage private prosecutors. This practice though allowed by the Govt. in certain cases has not evolved as an institution. There can be

an institutionalized body of Private Prosecution analysts who would analyze the proceedings in the court on daily basis and take all necessary steps to win a case in conviction.

- + **Reducing Time delay** in taking up the case for trial and reducing time at trial stage. This can be achieved through special courts, formation of fast track courts, alternate courts.
- + **Grouping of cases** : A study reveals that cases that are trivial in nature are higher in number and the probability of conviction is almost 0. These cases form almost 2/3<sup>rd</sup> of the total charge sheeted cases. E.g. 324 IPC offences invariably get charge sheeted but conviction in any year is almost 0. Easy Procedure, such as Plea-bargaining at trial stage may improve the status, giving more certainty of punishment. At the stage of investigation, a simpler method of evidence collection may be adopted e.g. names of witnesses, complaint copy, and medical report should be enough to initiate the process of plea-bargaining. Similarly, property crime can be dealt separately. In future, these will help the user to understand the grey areas and help him in evolving a method to improve CR.
- + Calculation of Conviction Rate should be different for different types of offences. Such as, for Body offences, Property offences, Minor Acts, etc. These various sets of Conviction Rates will reflect the health of our Criminal Justice System. One will be able to point out about the ailing wing in a professional way.
- + Start prosecution with recent charge sheet cases; not in the oldest first, pending list order. Mark Courts to take up recent cases charge sheeted 3 months back.
- + Dispose long pending cases at regular courts and through fast track courts.
- + Prosecutors should have essentially two roles to play. One, to convince the courts to convict

## Conviction Rate



criminals and second, deciding which cases to prosecute. In the effort of doing so, prosecutors should have incentives in getting conviction for the cases.

### Conclusion

- Above study indicates that conviction in recent cases is always high, refer case study for Nagpur City. This means, it is not the *poor* quality of investigation but the time-delay in taking up the case for trial that pulls down the conviction rate.
- Quality of investigation has not deteriorated alarmingly but remained consistent.
- Quality of prosecution has remained consistent. [Inference has been drawn based on statistics; for recent cases conviction percentage are comparable for data analysed for five years. It is a myth that quality was better in old days. Ratio of Acquittal to Conviction for respective calendar year is reasonably comparable]
- It is not the police singularly that is to be blamed for poor conviction rate.
- A chart may be prepared containing information on progress of Conviction Rate for every consecutive year with respect to a Base year. For every lapsed year, overall conviction rate gets poorer.
- It is not good to make comparative comments in regard of respective conviction rates of different states as the parameters for calculation; formula for calculation may differ from states to states.



## Conviction Rate

### APPENDIX I- IV

#### INFORMATION ABOUT CASES DECIDED & PENDING IN SESSIONS COURT FOR YEAR 2006

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided C.R. No. & Section	Conviction	Acquittal	Disposed
Sitabuldi	09	03	197/05 u/s 307 IPC 219/04 u/s 307 IPC	02	—	00
Dhantoli	08	26	—	01	03	00
Ambazhari	11	11	—	00	02	01
M.I.D.C.	14	10	173/06 u/s 395 IPC 65/06 u/s 376 IPC	02	06	00
Sonegaon	02	02	117/06 u/s 395,452 IPC	01	00	00
Ajni	19	19	00	02	07	00
Pratap Nagar	10	06	197/06 u/s 307 IPC	01	05	00
Sadar	16	12	758/97 u/s 307 IPC, 3167/01 U/S 7 P.O.C., 170/03 u/s 302 IPC	03	08	00
Gittikhadan	13	13	St.No. 174/06 U/S 363, 364,302 IPC, 2. 328/06 U/S 147,149,302IPC	02	11	03
Wadi	18	04	00	00	00	00
Jaripataka	65	54	191/05 u/s 302 IPC	01	36	
Panchpoli	58	58	6189/03, 6367/04, 192/05, 6057/05, All NDPS 28/05 U/S 489 (B) IPC 379/04 U/S 307 IPC, 346/98 u/s 302 IrC	07	51	00
Koradi	09	09	104/05 u/s 304 B IPC	01	08	00
Kotwali	26	26	6035/06 U/S 20 NDPS	01	03	22 Pending
Lakadganj	36	36	404/04 u/s 302 IPC	01	34	01
Tahsil	27	27	335/99 u/s 302 IPC, 2. 6074/05, 6057/01, 68/97, 6116/03, 6123/03, 6115/04, 6202/05 All NDPS- ACT	08	19	00
Kalamna	45	09	3129/06 184,185 m.v.,Act, R/w 3 MPDP, 319/06 u/s 302 IPC	03	08	
Ganeshpeth	17	17	6016/06 N.D.P.S., 6056/06 N.D.P.S.	02	01	14 Pending
Sakkardra	51	51	882/00 u/s 304 B, 306 IPC IPC 230/04 u/s 302 IPC, 222/04 u/s 302 IPC, 259/05, 646/05 All U/S 302 IPC 550/05, U/S 309 IPC	06	45	00
Immamwada	16	16	6122/04 u/s 21 NDPS.	01	15	00
<b>TOTAL</b>	<b>470</b>	<b>409</b>		<b>45</b>	<b>262</b>	



## Conviction Rate



### INFORMATION ABOUT CASES DECIDED & PENDING IN SESSION COURT FOR YEAR 2007

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided C.R. No. & Section	Conviction	Acquittal	Disposed
Sitabuldi	10	05	6020/07 NDPS	01	04	00
Dhantoli	07	26	—	01	03	
Ambazhari	12	05	---	00	03	
M.L.D.C.	10	05	—	Nil	01	
Sonegaon	07	03	10/07 U/S 376,354 IPC	01	Nil	
Ajni	08	08	13/06 u/s 376 IPC, 403/05 U/S 302 IPC, 372/06 U/S 302 IPC	03	01	
Pratap Nagar	05	01	85/07376IPC	01	00	
Sadar	14	16	465/06307,397,34IPC	01	15	00
Gittikhadan	07	07	Nil All Pending			
Wadi	20	08	135/06 u/s 302, 2. 177/06 u/s 399 IPC	02	00	
Jaripataka	32	77	87/97 u/d 20 NDPS, 432/04 u/s 307 IPC, 3277/06 u/s 135 Electric Act, 307/05 U/S 302,307 IPC, 250/05 U/S 307,302 IPC, 484/06 U/S 307 IPC, 193/04 U/S 20 NDPS, 6038/06 u/s 20 NDPS, 6068/03 U/S 20 NDPS -	09	50	
Panchpoli	58	58	82/04 u/s307, 6054/07 u/s 21 NDPS, 88/97 u/s 20 NDPS, 208/04 u/s 302 IPC, 47/96 u/s 18 NDPS, 6007/07 u/s 27 NDPS, 205/89 u/s307 IPC, 294/06 u/s302 IPC, 6116/05 u/s 20NDPS	09	48	
Koradi	15	15	45/05,49/99 All 302 IPC	02	13	00
Kotwali	15	15	All 13 Pending	00	02	
Lakadganj	30	30	301/04 U/S 302 IPC, 242/05 u/s 307 IPC, 136/04 U/S 498 A, 306 IPC, 466/05 U/S 302 IPC, 160/05 U/S 302 IPC, 429/05 U/S 307 IPC, 177/04 U/S 420,489 B IPC,	07	23	
Tahsil	27	27	St. No 15/07 U/S 307 IPC, 10/90 U/S 22 NDPS, 6018/07 NDPS, 6055/06, 6073/07 NDPS	05	22	00
Kalamna	51	08	141/05 u/s 302 IPC, 25/07 302 IPC	02	05	
Ganeshpeth	15	15	14 Pending	00	01	
Sakkardra	48	48	435/06 u/s 307 IPC, 92/97 U/S NDPS 6063/,306 IPC -01,399 IPC —01	04	44	
Immamwada	14	14	30/06 U/S 302 IPC	01	13	
<b>TOTAL</b>	<b>405</b>	<b>391</b>		<b>49</b>	<b>248</b>	



## Conviction Rate

### Cases Convicted in 2006

Year	SLNo.	No. of Conviction	Police Station	C.R.No.	Section
1995	1	1	Panchpoli	192/95	20 NDPS
1997	2	1	Sadar	758/97	307IPC
	3	2	Tahsil	68/97	—
1998	4	1	Panchpoli	346/98	147,148,149,302 IPC
1999	5	1	Tahsil	335/99	302 IPC
2000	6	1	Sakkardara	882/00	304(B)]306,498(A) IPC
2001	7	1	Sadar	3167/01	7,13 POC Act 1988
	8	2	Tahsil	6057/01	NDPS
2003	9	1	Tahsil	6116/03	NDPS
	10	2	Tahsil	6123/03	NDPS
	11	3	Sadar	170/03	302 IPC
	12	4	Panchpoli	6189/03	20 NDPS
2004	13	1	Sitabuldi	219/04	376 IPC
	14	2	Panchpoli	6367/04	21 NDPS
	15	3	Panchpoli	379/04	307 IPC
	16	4	Tahsil	6115/04	NDPS
	17	5	Sakkardara	230/04	30,307 IPC
	18	6	Sakkardara	222/04	3.02,34 IPC
	19	7	Immamwada	6122/04	21,29 NDPS
2005	20	1	Sitabuldi	197/05	307 IPC
	21	2	Panchpoli	28/05	489(B)(C) IPC
	22	3	Panchpoli	6057/05	20 NDPS
	23	4	Koradi	104/05	498 A, 304 B IPC
	24	5	Lakadganj	404/05	302 IPC
	25	6	Tahsil	6074/05	NDPS
	26	7	Sakkardara	259/05	302,34 IPC
	27	8	Sakkardara	646/05	302,307 IPC
	28	9	Sakkardara	550/05	309,304 IPC
	29	10	Tahsil	6202/05	20 NDPS
	30	11	Jaripatka	191/05	302 IPC
2006	31	1	MIDC	173/06	395 IPC
	32	2	MIDC	65/06	376 IPC
	33	3	Sonegaon	117/06	452, 392, 395, 34 IPC
	34	4	Kalmana	3129/06	184,185 M.V. Act r/w 3 MPDP
	35	5	Ganeshpeth	6016/06	20 NDPS
	36	6	Ganeshpeth	6056/06	20 NDPS
	37	7	Kotwali	6035/06	20 NDPS
	38	8	Pratapnagar	197/06	302 IPC
	39	9	Gittikhadan	328/06	147,149,302 IPC
	40	10	Gittikhadan	S.T.N. 174/06	363, 364, 302 IPC
	41	11	Kalmana	319/06	302 PC
	42	12	Kalmana	/06	NDPS

Foot Note: Dhantoli - 1 Conviction}

Ajni — 2 Convictions} Yet Cr. No. & u/s is not received.

Total Convicted Cases: 45

Cases Convicted in 2007

(Total Conviction 49)

Conviction Rate



Year	SLNo.	No. of Conviction	Police Station	C.R.No.	Section
1989	1	1	Panchpoli	205/89	307,34 IPC
1990	2	1	Tahsil	10/90	22 NDPS
1996	3	1	Panchpoli	47/96	18 NDPS
1997	4	1	Jaripatka	87/97	20NDPS
	5	2	Panchpoli	88/97	20NDPS
	6	3	Sakkardra	92/97	NDPS
1998	7	1	Sakkardra	6040/98	NDPS
1999	8	1	Koradi	49/99	302 IPC
2001	9	1	Sakkardra	6063/01	NDPS
2003	10	1	Jaripatka	6068/03	20 NDPS
	11	2	Lakadganj	136/04	498 A, 306 IPC
	12	3	Lakadganj	301/04	307,302 IPC
	13	4	Panchpoli	208/04	302 IPC
	14	5	Panchpoli	182/04	307,304 IPC
	15	6	Lakadganj	177/04	420,489 IPC
	16	7	Jaripatka	432/04	307,34 IPC
	17	8	Jaripatka	193/04	20NDPS
2005	18	1	Ajni	403/05	302 IPC
	19	2	Sakkardara	550/05	309,304 IPC
	20	3	Panchpoli	6116/05	20 NDPS
	21	4	Koradi	45/05	302 IPC
	22	5	Lakadganj	242/05	307 IPC
	23	6	Lakadganj	160/05	302 IPC
	24	7	Lakadganj	429/05	307 IPC
	25	8	Lakadganj	466/05	302 IPC
	26	9	Jaripatka	307/05	307, 302 IPC
	27	10	Jaripatka	250/05	307,302,34 IPC
2006	28	1	Panchpoli	294/06	302,34 IPC
	29	2	Jaripatka	3277/06	135 Electric Act
	30	3	Jaripatka	6038/06	20NDPS
	31	4	Jaripatka	484/06	307 IPC
	32	5	Ajni	13/06	376 IPC
	33	6	Sadar	465/06	307,397 IPC
	34	7	Wadi	135/06	302,34 IPC
	35	8	Wadi	177/06	399 IPC
	36	9	Ajni	372/06	302 IPC
	37	10	Imamwada	30/06	302 IPC
	38	11	Sakkardra	435/06	306, 34 IPC
2007	39	1	Sitabuldi	6020/07	20 NDPS
	40	2	Sonegaon	10/07	376, 354, 511 IPC
	41	3	Pratapnagar	85/07	302 IPC
	42	4	.Panchpoli	6054/07	21 NDPS
	43	5	Panchpoli	6007/07	21, 27 NDPS
	44	6	Tahsil	15/07	307 IPC
	45	7	Tahsil	6018/07	NDPS
	46	8	Tahsil	6055/07	NDPS
	47	9	Tahsil	6073/07	20 NDPS
	48	10	Kalamna	141/07	302 IPC
	49	11	Kalamna	25/07	302 IPC



## Conviction Rate

### APPENDIX - V

#### INFORMATION ABOUT CASES DECIDED & PENDING IN SESSIONS COURT FOR YEAR 2003

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided	Conviction	Acquittal	Disposed
			C.R. No. & Section			
Sitabuldi	07	03	68/01 U/S 307 IPC	01	01	01
Dhantoli	05	02	1. 254/02 U/S 366,509,511 IPC	01	02	00
Ambazhari	11	11	1. 301/03 u/s 302 IPC	01	05	00
Pratap Nagar	13	07	1. 11/03 u/s 302 IPC 2. 43/03 u/s 302 IPC	02	04	00
M.L.D.C.	05	01	1. 91/03 u/s 498,306 IPC 2. 176/03 u/s 302 IPC	02	01	01
Sadar	11	03	1.225/02 u/s 302,307, 34 IPC 2.439/99 u/s 377,506 IPC 3.258/97 u/s 306,34 IPC	03	00	00
Panchpoli	61	00	1. 436/01 u/s 307 IPC 2. 445/01 u/s 302,324 IPC 3. 143/02 U/S 302 IPC 4. 83/01 u/s 302 IPC 5. 305/99 u/s 307 IPC 6. 117/99 u/s 399 IPC 7.402/98 u/s 302 IPC 8. 72/98 u/s 307 IPC 9. 10/02 U/S 326,302 IPC 10.20/00 u/s 336 IPC 11. 347/02 U/S 399 IPC	11	53	00
Jaripataka	21	12	-----	00	16	01
Wadi	03	03	-----	00	00	00
Gittikhadan	17	01	6017/01 U/S 20 NDPS	01	00	00
Kotwali	19	19	07/03 U/S 302 IPC	01	02	00
Ka1ammna	17	26	1. 17/98 U/S 498 IPC 2. 6072/01 u/s 20 NDPS 3. 164/02 U/S 302 IPC 4. 270/00 u/s 302 IPC 5.174/01 u/s 141,364,120 B,34 IPC 6.268/02 u/s 395,396,398,397 IPC	06	21	00

Contd.

Conviction Rate



**APPENDIX - V**

INFORMATION ABOUT CASES DECIDED & PENDING IN SESSIONS COURT FOR YEAR 2003

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided	Conviction	Acquittal	Disposed
			C.R. No. & Section			
Ganeshpeth	15	15	1. 30/00 u/s 302,323 IPC 2. 299/01 u/s 302 IPC 3. 6005/02 u/s 20 NDPS 4. 446/88 U/S 5(1),5(2),34 IPC	04	11	00
Sakkardra	29	42	1. 228/98 u/s 304 IPC 2. 582/00 u/s 304 B IPC 3. S1, No. 513/02 u/s 398 IPC 4. 297/98 u/s 307,324 IPC	04	28	00
Immamwada	26	26	84/99 u/s 498A, 304B, 306 IPC	01	25	00
Ajni	14	09	1. 155/03 u/s 302 IPC 2. 113/02 u/s 395,452,342 IPC 109Crpc	02	07	00
Sonegaon	06	06	-----	00	03	00
Koradi	09	00	1. 58/03 U/S 307,34 IPC 2. 95/03 U/S 307 IPC	02	01	00
Lakadganj	31	00	1. 131/03 u/s 302 IPC 2. 293/03 u/s 302,34 IPC 3. 237/03 U/S 376 IPC	03	10	00
Tahsil	00	14		00	13	01
<b>TOTAL</b>	<b>320</b>	<b>200</b>	-----	<b>45</b>	<b>203</b>	<b>04</b>



### Conviction Rate

#### Information About Cases Decided & Pending In The Sessions Court For The Year 2004

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided C.R. No. & Section	Conviction	Acquittal	Disposed
Sitabuldi	07	10	1. 380101 u/s 302 IPC 2. 6070102 U/S 20 NDPS 3.6081/02 u/s 20 NDPS	03	01	00
Dhantoli	08	08	1. 107/04 u/s 307,147,148,149 IPC, 135 BP Act	01	05	00
Ambazhari	12	12	315/04 u/s 302,34 IPC	01	03	00
Pratap Nagar	17	06	191/04 u/s 302 IPC	01	05	00
M.L.D.C.	13	01	376/04 U/S 302 IPC 2. 173/04 u/s 498,306 IPC	02	08	02
Sadar	11	03	1. 233/00 u/s 302,201,34 IPC 2. 34/97 U/S 306 IPC 3.255/93 u/s 7,12,13(D) ACB.	03	01	00
Panchpoli	71	00	1. 156/00 u/s 307,34 IPC 2. 553/02 U/S 307;34 IPC 3.448/99 u/s 302,324 IPC 4. 249/02 U/S 302 IPC 5. 70103 u/s 302,34 IPC 6.545/02 u/s 376 IPC 7. 162/02	07	67	00
Jaripataka	18	23	-----	00	20	01
Wadi	08	08	-----	00	00	00
Gittikhadan	18	19	1. 246/0 1 u/s 436 IPC 2. 89103 u/s 307,302 IPC 3.270101 U/S 363,366 (A) IPC 4. 42/03 U/S 302,323,325 IPC 5. 8/03 u/s 302,34 IPC 6.57/02 U/S 376 rpc 7. 141/01 U/S 354,376 IPC 8. 308/02 u/s 498 A, 306 IPC 9.269/02 U/S 363,366A,376 IPC	09	10	00
Kotwali	21	21	-----	00	12	00

(Contd.)

Conviction Rate



Information About Cases Decided & Pending In  
The Sessions Court For The Year 2004

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided	Conviction	Acquittal	Disposed
			C.R. No. & Section			
Kalamna	15	28	1. 206/99 u/s 302 IPC 2. 135/02 u/s 3761PC	02	26	00
Ganeshpeth	24	24	-----	00	22	00
Sakkardra	32	98	1. 291/01 u/s 307 IPC 2.561/03 U/S 399,402 IPC 3. 123/03 U/S 498,109 IPC	03	59	00
Immamwada	28	28	1. 132/02 u/s 376 IPC 2. 82102 u/s 498,306 IPC	02	26	00
Nandanwan	00	00	-----	00	00	00
Sonegaon	04	04	1. 50104 u/s 395,457,380,511 IPC 2. 98/04 u/s 376,363,366 IPC	02	01	00
Ajni	13	12	1.261/03 u/s 302,34 IPC 2. 197/04 U/S 307IPC	02	10	00
Koradi	03	00	-----	00	02	00
Lakadganj	24	01	1. 301/04 u/s 302 IPC 2. 404/04 u/s 302 IPC	02	06	00
Tahsil	00	26	1. 363/00 u/s 498,306 A,34 IPC 2. 111/99 u/s 436,427 rpC3. 141/02 u/s 376 IPC 4. 394/02 u/s 302,324 IPC, 4+25 Arm's Act., 5. 208/02 u/s 302 IPC, 4+25 Arm's Act	05	21	00
<b>TOTAL</b>	<b>347</b>	<b>332</b>	-----	<b>45</b>	<b>305</b>	<b>03</b>



### Conviction Rate

#### Information About Cases Decided & Pending In The Sessions Court For The Year 2005

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided C.R. No. & Section	Conviction	Acquittal	Disposed
Sitabuldi	11	02	38/02 u/s 365,377 IPC	01	01	00
Dhantoli	11	11	162/04 u/s 307,324,452,34 IPC 2. 281/04 U/S 307,34 IPC R/W 4+25 Arm's Act	02	02	00
Ambazhari	09	09	-----	00	04	00
Pratap Nagar	06	03	307/05 u/s 302 IPC	01	02	00
M.L.D.C.	26	15	-----	00	07	04
Sadar	04	08	1. 371/01 U/S 498,307,302 IPC 2. 39/97 u/s 7,12,13 (D) ACB	02	00	00
Panchpoli	47	00	1. 6054/03 u/s 20 NDPS 2.265/02 U/S 354 SC/ST Act 3.255/02 U/S 363,302 IPC 4.104/04 u/s 363,376 IPC 5.6110/04 u/s 20 NDPS	05	45	00
Jaripataka	25	10	266/03 u/s 307,302 IPC 2.238/03 U/S 307,302 IPC 3. 14/03 U/S 302,209,279,337 IPC	03	18	00
Wadi	05	05	-----	00	01	01
Gittikhadan	23	08	1. 221/02 U/S 147,148,149,302 IPC 2.91/03 u/s 324,307,448 IPC	02	06	00
Kotwali	14	14	172/05 U/S 302 IPC	01	05	00
Kalamna	32	21	1. 21/04 U/S 306,34 IPC 2. 156/04u/s376 IPC 3. 190/03 U/S 376 IPC 4. 84/03 U/S 302 IPC 5.171/02 U/S 306 IPC 6. 338/03 u/s 302 IPC	06	17	00
<i>(Contd. )</i>						



Conviction Rate



Information About Cases Decided & Pending In  
The Sessions Court For The Year 2005

Police Station	Cases Committed In Sessions Court	Cases Brought on Board	Cases Decided	Conviction	Acquittal	Disposed
			C.R. No. & Section			
Ganeshpeth	25	25	1. 6102/03 u/s 20 NDPS 2. 174/04 U/S 399,379 IPC 3. 6028/04 U/S 20 NDPS 4. 358/99 U/S 397 IPC	04	20	00
Sakkardra	40	69	1. 59/02 U/S 498,306 IPC 2. 341/03 U/S 302,498 IPC 3. 6084/03 u/s 20,29 NDPS 4. .. 80/95 U/S 20 NDPS 5. 551/04 u/s 304 IPC 6. 312/03 u/s 307 IPC	06	63	00
Immamwada	20	13	1. 206/01 u/s 448,304,323 IPC 2. 41/98 U/S 306 IPC 3. 6037/00 u/s 20 NDPS	03	10	00
Nandanwan	00	00	-----	00	00	00
Sonegaon	03	03	16/05 u/s 302 IPC	01	02	00
Ajni	20	13	1. 343/04 U/S 302 IPC 2. 64/05 u/s 324, 306, 452, 506B,34 IPC	02	11	00
Koradi	11	00	1. 45/05 U/S 302,34 IPC 2. 104/05 u/s 304B,498,34 IPC	02	06	00
Lakadganj	47	00	1. 160/05 u/s 143,147,148, 149,302 IPC 2. 466/05 u/s 326,34,302 IPC	02	10	00
Tahsil	00	15	-----	00	15	00
<b>TOTAL</b>	<b>379</b>	<b>244</b>	-----	<b>43</b>	<b>245</b>	<b>05</b>



### Conviction Rate

Sr. No.	Conviction in 2003		Conviction in 2004		Conviction in 2005	
	Year	Cases	Year	Cases	Year	Cases
1	1988	01	1991	00	11991	1100
2	1991	00	1992	00	1992	00
3	1992	00	1993	01	1993	00
4	1993	00	1994	00	1994	00
5	1994	00	1995	00	1995	01
6	1995	00	1996	00	1996	00
7	1996	00	1997	01	1997	01
8	1997	01	1998	00	1998	01
9	1198	05	1999	03	1999	01
10	1999	04	2000	03	2000	01
11	2000	04	2001	05	2001	02
12	2001	08	2002	15	2002	06
13	2002	10	2003	07	2003	12
14	2003	12	204	10	2004	10
15					2005	08
<b>16</b>	<b>Total</b>	<b>45</b>		<b>45</b>		<b>43</b>



# Human Rights: Constitutional Perspective

Vishwanath Paranjape\*

## Introduction

Human rights have now been universally accepted as rights to which a person is entitled by virtue of being a member of human society irrespective of caste, creed, religion, sex, nationality or social or economic status. These are those minimal rights which are considered as inalienable "Rights of Man", which require a person to be treated as equal and protected against injustices, and inhuman acts of the state, public authorities as also the fellow persons.

## Concept

Every person born in this world has a right to live with human dignity and develop his capabilities. The concept of human right has its roots in recognition of this right by the people all around the world. The foundation of human rights was formally laid by the *Magna Carta* of June 15, 1215 which was a historic charter of civil liberties and political rights granted to the people of England by King John. The charter demanded the ruler to respect the rights of common man. Later, this concept extended across other regions of the world and incorporated in the American Declaration of Independence, 1776 which were subsequently adopted as Bill of Right in 1791. The National Assembly of France declared that individual's right of equality, liberty, freedom of opinion and, property were inalienable and imprescriptible.

## Development of Human Rights' Jurisprudence

The first half of the twentieth century witnessed a large scale destruction and violation of human rights, and the devastating effects of the two World Wars fought between the militarily mighty nations aggravated people's sufferings. The atomic bombings in Hiroshima and Nagasaki in 1945<sup>1</sup> caused mass destruction of man, material and animal and plant life, and these two islands were virtually reduced to ashes. The fascist Government of Germany and the communist countries had scant regard for human rights and indulged in acts of oppression and atrocities in utter violation of the right of life, liberty and freedom of the people. These anti-people developments compelled the member nations of the United Nations to draft a charter for the protection of basic rights of the people. Consequently, a Commission on Human Right was established by the Social and Economic Council of U.N in 1946, embodying a declaration on the essential rights of men, which was later adopted as the Universal Declaration of Human Rights on December 10, 1948. However, this declaration was a mere guideline for the member nations and was not enforceable among them.

With the rapid changes in the socio- economic and political scenario around the world, adherence to fundamentals of human rights became a global necessity. Therefore, two important covenants, namely, the International Covenant on Economic,

## Key Words

Human Rights Concept  
Magna Carta  
US Bill of Rights  
UN Declaration of Human Rights  
European Commission of Human Rights  
Human Rights in Indian Constitution  
Right to Life, Liberty, Equality  
Safeguards Against Arbitrary Arrest and Detention  
Human Rights of Prisoners  
Speedy Trial  
Bar on Handcuffing of Offenders  
Prohibition of Use of Third Degree  
NHRC and State Human Rights Commission  
Human Rights Courts.

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## Abstract

The flagrant violations of human rights during the Second World War in 1940's brought to fore their devastating effect on humanity and disregard to human dignity. It, therefore, generated a wave of global concern for the protection and preservation of these valuable rights by concerted efforts at international level. The Declaration of Human Rights proclaimed by General Assembly of United Nations on 10<sup>th</sup> September, 1948 was a step forward towards developing human rights consciousness among states.

## Human Rights: Constitutional Perspective

Social and Cultural Rights (ICESCR), 1966 and the International Convent on Civil and Political Rights (ICCPR), 1966 and Optional Protocol to the Political Rights (OPCPR) were adopted and the member-nations were addressed to implement them through local legislations. Later on, several other covenants and declarations in specific areas like racial discrimination, treatment of prisoners and undertrials protecting them against torture, inhuman and oppressive acts of prison authorities, etc. were adopted to prevent violation of these human rights.

The development of human rights jurisprudence in Europe commenced with the European Commission of Human Rights<sup>2</sup>. Subsequently, United States also set up a Inter-American Commission on human rights in 1969, which sought to protect 26 rights recognised as human rights by the Commission<sup>3</sup>. Thereafter, Inter-American Court of human rights was set up in 1978 which dealt with cases on human rights violations submitted to it by the Human Rights Commission. Unlike the European Court of human rights, the American court of Human Rights has wider powers of adjudication and execution. It also exercises advisory jurisdiction on matters concerning protection of human rights<sup>4</sup>.

### Human Rights: Indian Scenario

Even before the Indian Independence, the framers of the Indian Constitution, while drafting it had taken note of the basic human rights of all human beings and embodied them in the Preamble and Part III of the Constitution. Besides the right to justice - social, economic and political; liberty of thought, expression and belief; equality of status and opportunity and fraternity ensuring dignity of individuals; right to freedom of speech, expression, profession, religious faith, association, etc<sup>6</sup> are also incorporated as fundamental rights of the citizens of India. These are considered as founding pillars of Indians democracy which the people of India are solemnly resolved to

follow. The basic purpose of the Preamble is to ensure protection of rights and freedoms of all citizens without any discrimination whatsoever. The contents of the Preamble substantially resemble the Article 1 of the Declaration of Human Rights adopted by U.N. which, *inter-alia*, says, "all human beings are endowed with reason and conscience and, therefore, act towards one another in a sprit of brotherhood".

The Part III of the Constitution of India embodies fundamental rights which are certain elementary rights available to the people of India. The Supreme Court, in its historic judgment in *Maneka Gandhi Vs. Union of India*<sup>7</sup>, observed that fundamental rights represent the basic values cherished by people of India and ensure to protect the dignity of the individual and create conditions in which every human being can develop his personality to the fullest extent. They are a "pattern of guarantee" on the basic structure of human rights and impose negative obligations on the State not to encroach upon individual liberty in its various dimensions.

### Right to Equality

Article 14 to 18 of the Constitution guarantee right to equality to every citizen. Article 14 provides that "state shall not deny to any person equality before law and equal protection of law within the territory of India". The provision embodies the basic principle of civilized society that no person should be punished without legal justification and no one can be spared for any act involving violation of law irrespective of his social or economic status. Thus, law extends protection to all citizens without any discrimination and it applies to all citizens who are placed in similar circumstances.

Article 15 directs the State not to discriminate against citizens on grounds of religion. It prohibits citizens as well as the State and public authorities, discrimination with regard to access to shops, hotels

or places of public entertainment, resorts, wells, lakes, rivers, roads etc.,. Thus in *State of Rajasthan Vs. Pratap Singh*<sup>8</sup>, the Supreme Court invalidated a notification made under the Police Act, 1857 which declared certain areas disturbed and made the inhabitants of those areas to bear the cost of additional police stationed there but exempted harijans and muslims from such liability. The Court held that since the exemption given to these communities was based on caste and religion, it was violative of Art. 15(1) of the Constitution.

### Right to Life & Liberty

Article 15 (3) further mandates the State to make special provisions for the protection of women and children because of their physio-biological attributes and social security considerations.

'The right to life', being the first and foremost of all human rights, is protected under Article 21 of the Constitution, which provides that no persons shall be deprived of his life or personal liberty except according to the procedure established by law. This, in other words, means that right to life and personal liberty of a person may be curtailed, if there exists a valid law for the protection of the society. But the procedure prescribed by that law must be just, fair and reasonable<sup>9</sup>. The word 'life' used in Art. 21 is not to be interpreted in its literal sense meaning 'animal existence', but it extends to all those faculties by which life is enjoyed such as right to live with human dignity and all that goes along with it, namely, adequate nutrition, clothing, shelter and facilities for reading, writing and expression, freely moving and mixing up with the fellow beings<sup>10</sup>. The human rights philosophy ingrained in Art. 21 inspired the Apex Court to widen the scope of right to life to include within its ambit right to livelihood<sup>11</sup>, right to speedy trial<sup>12</sup>, free legal aid to indigent litigants<sup>13</sup>, pollution - free environment<sup>14</sup>, right to education<sup>15</sup>, etc.

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Though Art. 21 ordains the State not to deprive a person of his right to life, what if a person is bent upon to end his own life by attempting to commit suicide in utter disregard to God's creation? The Supreme Court in its decision in *Gyan Kaur Vs. State of Punjab*<sup>16</sup>, has ruled that right to life under Art. 21 of the Constitution does not include right to die i.e, to end one's own life. Explaining the reason for its verdict, the Court observed that right to life is a natural right that God has bestowed on human beings and suicide being unnatural termination or extinction of life, it is incompatible and inconsistent with the concept of protection of life. Commenting on euthanasia or mercy- killing, the Court made it clear that right to life includes right to live with human dignity, which implies existence of such right up to the end of natural life-span and, therefore, it does not include right to die an unnatural death curtailing one's natural span of life.

Article 21 also confers the right of liberty to every person along with the right to life. The term 'liberty' used in the Article is also very comprehensive and includes all the acts of person which are lawful and do not obstruct or infringe the freedom and liberty of others<sup>17</sup>.

### Human Rights of Prisoners

The protection of Art. 21 also extends to prisoners and undertrials in jail. Though the prisoners and convicts imprisoned in jail may be deprived of their personal freedom like right to move freely within India or to practise a profession, etc., but they cannot be deprived of their right to life and personal liberty or dignity. Thus in *D.B.M Pataki Vs. State of Andhra Pradesh*<sup>18</sup>, the petitioners who were naxalite undertrials contended that police guards around the jail and live-electric wire at the top of the roof was an infringement of their right to life and personal liberty guaranteed under Art. 21. Rejecting their plea, the Supreme Court observed that the jail inmates



The inclusion of Bill of Rights in the American Constitution was a hallmark in recognition of human rights. Taking note of the increasing incidents of human rights violation around the world, the founding fathers of Indian Constitution, in their wisdom not only recognised, but also included human rights in the form of fundamental rights in Part III of the Constitution. The provisions related to equality before law and equal protection of law, protection against discrimination on the ground of race, caste, sex, place of birth, social and economic status, etc.;



Right to freedom of speech and expression, association, movement, equality of opportunity in the matters of public appointments, etc are some of the Constitutional mandates which seek to protect and promote human rights of the people. Besides, Right to life enshrined in Article 21 is, in fact, a treasure house of a bundle of human rights, including Right to education, livelihood, speedy trial, free legal aid to poor, right to medical care and nutrition, pollution free environment, etc which are essential for every individual to develop his personality.

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were not deprived of any of their fundamental or human right as the deployment guards and live wire at the top of the jail were only security measures meant for the safe custody of the inmates.

### **Prem Shankar Vs Delhi Administration**

Yet another aspect of humanising the prison reforms relates to ban on handcuffing of prisoners. The Supreme Court in *Prem Shankar Vs. Delhi Administration*<sup>19</sup>, held that handcuffing of prisoners and undertrials should be resorted to only when there is 'clear danger of escape', breaking out the police control and for this, there should be substantial ground and not merely an assumption or possibility. According to the Court, handcuffing is *prima facie* inhuman and, therefore, unreasonable, harsh and arbitrary. However, in extreme cases where handcuffing of a person is necessary, the escorting authority must record reasons for doing so, failing which the entire procedure would become arbitrary and contrary to law.

### **D.K. Basu Vs State of West Bengal**

The Supreme Court in *D.K. Basu Vs. State of West Bengal*<sup>20</sup>, held that custodial death is perhaps the worst type of crime and human right violation in a civilized society governed by the Rule of Law. The Court reiterated that any form of torture whether during investigation, interrogation or custody would squarely fall within the inhibition of Art. 21 of the Constitution. The fundamental right guaranteed under Article 21 cannot be denied to convicts, undertrials detenus or prisoners in custody except according to the procedure established by law. These observations of the Apex Court clearly reflect India's commitment for the observance of the international norms of human rights<sup>21</sup>. In *People's Union for Civil Liberties Vs. Union of India*<sup>22</sup>, and *Nilibati Behra Vs, State of Orissa*<sup>23</sup>, also the Supreme Court emphasised the need for the observance of the international human right norms by the law enforcement agencies.

In *Kishore Singh Vs. State of Rajasthan*<sup>24</sup>, the Apex Court held that use of third degree methods by police for interrogation is violation of Art. 21 and directed the Government to take necessary steps to educate the police force so as to inculcate in them respect for human dignity.

### **Safeguard Against Arrest & Detention**

Article 22 of the Constitution further provides safeguards against arbitrary arrest and detention of a person. Article 22(a) envisages the right of a person to be informed about the grounds of his arrest or detention so as to enable him/her to prepare his/her defence. The Supreme Court, in *Jogender Kumar Vs. State of UP*<sup>5</sup>, laid down certain guidelines governing arrest of a person during the investigation. The Court reiterated that as soon as an arrest is made, a near relative or friend of the arrested person should be informed about the arrest stating grounds and place of detention. There must be an entry in the Police diary as to who was so informed. The Magistrate before whom that arrestee/detenu is produced, should satisfy himself about the compliance of this mandatory provision of law. Art.22 (a) envisages right of a person to be defended by lawyer of his own choice and the arrestee must be produced before the Magistrate within 24 hours of his arrest.

### **Conclusion**

These constitutional provisions are sufficient enough to protect the human rights of people in India. Our country, being a signatory to U.N. Declaration of Human Rights, has sought to protect the right of equality, right to life and liberty, etc. through Fundamental Rights enshrined in Part III of the Constitution. Besides these constitutional provisions, the National Human Rights Commission (NHRC) and the State Human Rights Commissions as also the Human Rights Courts set up under the Protection of Human Rights Act, 1993 (Act 10 of 1994) are not only engaged in preventing flagrant human rights

violations but also trying to make these rights more accessible to the people. The contribution of media is no less important in generating awareness among the common men about their basic human rights and need to approach the proper forum for redressal in case of violation of these rights by the State, public authorities or even a private person.

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- 1 World War I ( 1914-19) ; World war-II (1939-45) . The World War II ended on June-26, 1945.
- 2 The European Commission on Human rights came into existence on September 3, 1953. A Court of Human Rights was also established in 1953 under Art. 48 of the European Convention on Human Rights.
- 3 Art. 44 of the Inter American Convention on Human Rights, 1969
- 4 *ibid.* Art- 61.
- 5 Preamble of the Constitution of India.
- 6 Art. 19 (1)
- 7 AIR 1978 SC 597 8 AIR 1960 SC 1208
- 9 Menaka Gandhi Vs. Union of India, AIR 1978 SC 597 10 Francis Coralio Vs. Union of India, AIR 1981 SC 746
- 11 Olga Tallis Vs. Bombay Municipal Corporation, AIR 1986 SC 180
- 12 Hussainara Khatoon Vs. State of Bihar, (1980) 1 SCC 89; Common Cause Vs. Union of India, ( 1966) 4 SCC 33 etc.
- 13 Free Legal Aid Cell Vs. N.C.T. Delhi, AIR 2001 Del. 455
- 14 Narmada Bachao Andolan Vs. Union of India AIR2002 SC 3751 15 Unnikrishnan J.P.V s State of Andhra Pradesh, AIR 1993 SC 2178
- 16 AIR 1996 SC 946
- 17 Udai Mohan Lal Acharya Vs State of Maharashtra, 2001 Cri L.J.1832 (SC); Rural Shah Vs. State of ; Bihar, AIR 1983 SC 1086 etc.
- 18 AIR 1993 SC 2086
- 19 AIR 1980 SC 1535
- 20 AIR 1997 SC 610
- 21 Arts. '6, 9, 10, 11 and 15 of International Convention on Human Rights.
- 22 AIR 1997 SC 1203
- 23 AIR 1993 SC 1960
- 24 AIR 1981 SC 625
- 25 (1994) 4 SCC 260

### Human Rights:Constitutional Perspective





## Key Words

Bloodstain,  
Bloodstain Pattern,  
Violent Crime,  
Blood Source,  
Bloodshed,  
Blood Droplet  
Blood Trails  
Blood Spatter,  
Target Surface  
Crime Scene,  
Culprit Viscosity,  
Surface Tension,  
Reconstruction.

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# Bloodstain Patterns at Crime Scene Vital Clues for Investigation of Violent Crimes

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## Introduction

Bloodstain pattern interpretation is an important field of crime investigation. It is not a new concept because it has been in practice at the crime scene for long ago since early nineties of the 19<sup>th</sup> century. It relies mainly on the fact that blood being a fluid, follows certain basic and physical laws, therefore, produces certain patterns under different set of identical circumstances. During the reconstruction of the crime scene, if the original environment and condition are reproduced, the blood certainly will follow the same pattern against the forces and actions similar to that originally used in the crime. No doubt, the investigating officer and forensic expert will be able to identify those forces and actions to solve the case up to some extent. The reproducibility of bloodstain pattern does not depend much on age, sex, physical condition of the subject. The bloodstains pattern analyst makes a study of various forces and activities influencing the formation of the bloodstain patterns, so that he can reach a reasonable conclusion on the basis of his experience and various observations made as a part of the crime scene investigation.

## Types of Bloodstain Patterns

Bloodstain pattern analysis requires to study how different forces and activities influence the formation and appearance of such patterns, shape and size of stains, distance between the blood source, the target and location of the blood source, so that these can

be interpreted as an effective part of the investigation. There are various types of patterns encountered during the crime scene investigation.

**Impact Patterns:** Such patterns result when static blood is imparted on the target surface. The energy of the impact is transferred to the blood and it breaks up into droplets, which subsequently are propelled through the air. These bloodstain patterns are affected by the force of the impact, amount of blood, nature of the target surface, and characteristics of the blood source. Such patterns will have round bloodstains, close to the source but longer and narrower at the distant areas.

**Cast-off Patterns:** These patterns are observed when liquid blood is deposited on an object in swinging motion. Bloodstains in such patterns line up with one another and give a linear appearance which may be affected by the surface characteristics of the object as well as the speed and motion of the swing. Such patterns usually occur only during the back swing away from the bloods source. The bloodstains close to the start of the swinging motion will be round, whereas those at the distant end will be oval.

**Projected Patterns:** These patterns are produced when the blood is propelled forward against a target surface. In this situation, both the force and the blood in flight travel in the same direction. The arterial injury is the best example of this kind of pattern. When an artery is cut, the blood will be forced out due to high pressure and strikes a target surface.





On the target surface, the blood is broken into large number of droplets which are splashed outward at certain angle to the target surface. Hundreds of secondary bloodstains are created with long, narrow and spindly in appearance.

**Falling Patterns:** When a large volume of blood falls on the surface, a large central stain is formed along with several secondary spatter stains around it. The appearance of bloodstain pattern depends upon height and distance to which the blood falls to the target surface. The velocity of falling blood increases due to gravitational force and continues to increase until it reaches to the surface. Blood which falls from a short distance impacts the target surface at a low velocity, causing a less forceful splash and secondary spatter. As the velocity increases, it impacts the surface with greater force and causes more secondary spatter, and bloodstains may start becoming longer and spindly.

**Contact Patterns:** These are patterns which are produced when a bloody object comes into contact with the unstained surface leaving its pattern. Such contact patterns may be nondescript with characteristics of the origin or exhibit some of the object's features. These characteristics features can be compared to the object of interest. Bloody fingerprints, footprints, shoeprints, tyre-marks are some common examples of this kind of blood patterns. Such patterns are extremely important because these can be used to identify, and link the culprit and his presence to the crime scene.

**Blood Trail Patterns:** When blood drips from an open wound, injury or from an object containing blood with horizontal movements, blood trails will occur. These blood trails are characterized by large blood drops in a linear pattern that has been deposited on a horizontal surface while dripping from the blood source. This linear pattern is due to the horizontal movement of the blood source above the target surface, while the blood drips due to the pull of gravity. The shape of the bloodstains and the degree of secondary spatter associated with the stains will be

affected by the distance the drops fall and the speed of horizontal movement for the source of the dripping blood. These patterns can provide information about movements during and after bloodshed. Stains in a blood trail may show the direction of horizontal motion of the blood source. If the direction of travel can be determined, the trail can also be followed. It is also useful when an injured individual leaves the crime scene. Trails can also provide valuable information concerning the sequence of events at the crime scene or assist in locating important evidence. Trails can also be characterized by drag marks rather than droplets of blood, when a blood-coated object is dragged over a surface or the object is dragged through blood on a horizontal surface, a trail of smeared blood will result. The direction of the horizontal motion can also be determined by examining the detail of the pattern.

#### Characteristics of Bloodstains Patterns

Blood is a complex fluid that makes up about 1/13<sup>th</sup> or 8 percent of the total weight of the human body. Its viscosity usually ranges from 4.4 to 4.7 and has direct effect on damping of oscillations in blood droplets. Since it has an adhesive quality, therefore, makes pattern on all types of surfaces at the crime scene. The followings are the main factors which influence the bloodstain characteristics:

- ⌘ When blood passively drips off a surface and falls on to a smooth and hard horizontal surface, the resulting bloodstain will be round, but if falls through the air, it takes the shape of an oscillating sphere.
- ⌘ When normal gravitational force alone is involved, the blood droplets will not break up in the air. However, if additional force is applied, then the droplets may break up when strike the target.
- ⌘ The diameter of the bloodstain depends on both the distance the drop falls to the horizontal surface and the volume of the blood drop. With the increase in distance of fall, the diameter of

## Abstract

Crime scene investigation is the foundation of all violent crimes, especially homicides. When a violent crime is committed, it is quite usual for the participants to be injured, the victim in particular. When the such injuries are accompanied by the flow of blood, distinctive bloodstain patterns may take place. These patterns certainly provide vital clues and investigative information about the activities that occurred during the commission of



the crime at the scene of occurrence. The analysis of these patterns may help the investigator in establishing the level of force applied to put the blood in flight, the direction of blood travel, the exact location of the victim and his movement during and after bloodshed. The bloodstain patterns and related information may also be significant to reconstruct those events which led to the deposition of the stain and patterns associated

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the blood stain also increases until it reaches a maximum diameter, which usually occurs after the drop has fallen approximately six feet.

- ⌘ The volume of the blood drop affects the diameter of the bloodstains; therefore, as volume increases, accordingly the diameter of the resulting bloodstain will also increase. The average volume of a drop of blood is about 0.05 ml which varies and depends on the surface features of the object that the blood drips from. When the volume of the blood drop increases to a certain level where the gravitational force overcomes the viscosity of the blood and allows the surface tension to break, the drop falls off.
- ⌘ The shape and finishing of the surface the blood falls from also affects the volume of the blood drop, which is required to break the surface tension and allows it to fall. The force which was imparted on the blood source to put it in flight is another factor that affects the size, shape and appearance of the bloodstains.
- ⌘ Although, the viscosity, specific gravity and surface tension of blood make it resistant to being broken up into drops, but an external force which is imparted on static blood, causes some of the blood to react and put in flight. The distance the blood drop fly through the air depends upon force, which was applied to create the drops, size of the blood drops and air currents.
- ⌘ When low force is applied, less number of blood drops are put into flight and the size of the droplets tend to be large with approximately 3 mm in diameter, but when high force or velocity is used, greater number of blood drops are put into flight travelling the long distance from the blood source with the lower size of droplets being roughly about 1 mm in diameter.
- ⌘ Many of the larger drops, which are formed in the high force events, are the result of smaller blood drops colliding while in flight and

combining into larger volume drops of blood. In the high force and velocity events, larger drops tend to travel a greater distance away from the blood source as compared to smaller drops, due to their higher momentum to resist the air currents and friction.

- ⌘ The shape of bloodstain depends on the angle between the flight path and the target surface. When a drop of blood strikes a horizontal surface from the perpendicular or at the right angle, the resulting bloodstain will be round in shape. As the angle between the flight path of droplet and the surface that it impacts decreases, the length of the bloodstain increases but the width decreases, thus the bloodstain becomes longer and narrower.
- ⌘ When the blood drop impacts the surface from an angle about 15 degree, it will be further longer and narrower with a tail. It is because of that the main body of the droplet will stick to the surface whereas a small portion will tear off from the top and continue in a forward direction. The tail of a bloodstain is an important tool during reconstruction of bloodstain pattern as it indicates the direction of the target.
- ⌘ The shape of the bloodstain is equally significant in the reconstruction process because when it is deposited on to a surface, the shape does not distort or alter. The width and length ratio, therefore, can be used to calculate the angle of impact. The direction of travel combined with the angle of impact can successfully be used to find the location of the blood source.
- ⌘ Nature of the target surface plays an important impact in the reconstruction process based upon shape and size of bloodstain. For this purpose, smooth, hard and non-porous surface is more useful, because, when a drop of blood strikes a rough surface, it may break up into blood droplets, hence the bloodstains cannot be used for an accurate pattern reconstruction.



### Significance of Bloodstain Pattern

Every crime scene has its own unique situation and specific requirements. However, observations and determinations made from a study of bloodstain patterns at the crime scene and evidence collected certainly help to confirm or refute assumptions or allegation concerning the events that took place to produce the bloodstains observed. From the investigative point of view, the crime scene examiner has to concentrate on the following points:

- Position of the victim or suspect in sitting, standing, lying down, running, etc. at the crime scene.
- Presence of blood smears or trails of bloody footprints, shoe prints, fabric impressions, etc. as evidence of struggle.
- Areas where there is any lack of staining, particularly spatter or voids in bloodstain pattern.
- Possible blockage of the flight of blood by the suspect, the victim, the weapon, etc.
- Inline stain patterns where blood was cast from a bloody object being swung such as the weapon or the victim,
- Particular sequence of events indicating smearing of a transfer or spatter pattern subsequent to the initial deposition of the blood.
- Number and nature of impacts indicated by the blood spatters.
- Any indication that points out that the scene has been altered before bloodstains or the crime scene examination actually is undertaken.
- The stain patterns on clothing of the suspect and at scene with each person's statements.
- The stain patterns on the victim or his clothing and at crime scene consistent

with the statement of the victim, the suspects or the witnesses.

- To disclose that the scene, the witnesses, and the evidence indicate an event or action could have happened in one or two or more different ways.

### Evaluation of Bloodstain Patterns

A bloodstain patterns evaluation might then establish that given the available information and based on the patterns present, only one of the suggested possibilities is actually correct. Whenever a blood splashed and spattered crime scene is encountered, it should be examined and evaluated by an experienced and qualified bloodstain interpreter. The laboratory analyst should also be ready to provide information and make analytical requirements known to the investigator. Certainly, when an analyst examines the scene, personally involved in the evidence collection process, and inspect undisturbed stain patterns at the scene, there is the greater likelihood of the required information being gathered with the minimum difficulty. The analyst may wish to personally cover photographic documentation of the scene. When bloodstain pattern interpretation is to be conducted on a violent crime scene, it is better to analyze the evidence at the crime scene rather than to send them to the laboratory. In those cases where the crime scene examination by the analyst is not practically possible, relevant evidence may be sent to the laboratory.

A careful evaluation of the evidence should be carried out to determine, so far as possible, that examination of the item sent will provide information, meaningful to the prosecution of the case. Although it is not always possible for the investigator to thoroughly evaluate the evidence, however, discussing the case with an experienced analyst will always be beneficial. The questions to be answered by the analyst should be probative and pertinent to the investigation. During the search of the scene, major priorities should include: collection,

with a crime scene. Bloodstain size, quantity, shape, distribution, relative location, angle of impact and target surface character are some of the valuable informations which give insight into the events that took place at the scene. Stains indicating movement of or masking by an object and transfer of blood between persons or objects would be observed, studied and documented to establish any probative information available.



The objective of this article is to promote awareness among the investigators and forensic personnel, who often visit crime scenes and prosecutors about bloodstain spatter interpretation, and better crime scene evaluation, evidence collection and proper documentation.

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preservation, documentation of bloodstains, patterns and physical evidence at the scene. While this is, in principle, no different from any other crime scene, the uniqueness of bloodstain pattern adds a new dimension to the task at hand

### Documentation of Bloodstain Patterns

Documentation and reconstruction of the bloodstain pattern evidence is the most important aspect of the forensic analysis. If the evidence and reconstruction are improperly documented, the results can become very subjective. Different techniques are currently in use for the documentation and reconstruction of bloodstain evidence. Some analysts use computer programs that evaluate data from the bloodstain patterns and crime scene to determine the blood source locations. A physical evaluation and reconstruction of the bloodstain patterns at the crime scene is also carried out by some other analysts. The crime scene notes, sketches and photographs are commonly used for the bloodstain pattern documentation. The investigating officer will have to consider the following categories for the purpose:

**Graphics Information:** These are in the form of clear, informative sketches, diagrams, drawings and maps with dimensions to define the crime scene. The sketch should consist of bloodstain patterns on to the static features of the crime scene such as corners of rooms, walls, floors, ceiling, attached cabins, bathrooms, doors, windows, etc. using two measurements, each taken from fixed points. The length, width, and height of any other unique features of the objects should be recorded in such way as to be reproduced courtroom. Scale drawings can be extremely beneficial, and it should be preferred. It should be remembered that crime scene sketch may be a supplement but cannot replace photographs.

**Photographic Information:** These eventually provide an opportunity for the jury to view the crime scene in the courtroom. A photographic record should illustrate a quality set of coloured pictures, consisting bloodstain patterns that were evaluated and the

construction that was carried out. Before the reconstruction and analysis, the bloodstain patterns should be photographed by keeping the camera positioned perpendicular to the surface on which patterns are deposited. It reduces distortion in the pictures and gives a real representation of the appearance of the bloodstain patterns. Artificial lighting may be used to illuminate the bloodstain patterns during their photography. It is better that a handheld photographic light meter should be used to assist in positioning the lights. Always include recognizable scales and the identification date wherever possible. Such scales should have sufficient contrast to photograph well. Metric measure should always be preferred for close up photography of bloodstains and patterns. A different approach is required for the outdoor, indoor and stain patterns as described below:

#### Outdoor Crime Scene

- Distance photographs are helpful in the documenting and establishing the location of the scene, with the inclusion of landmarks and unique features in the immediate vicinity.
- A logically organized photographic record of features which are encountered is often much more informative as compared to random ones.
- To make a record of relative positions of more closely related items and larger stain patterns within the scene itself, the medium range photographs should be used.
- Close-up photographs of individual items often establish their nature and the presence of any bloodstain or stain pattern as found .

#### Indoor Crime Scene

- Again the use of distance photograph will help to document and establish the relative location of items with landmarks and unique features.

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- ❑ In indoor scenes, a logical organized photographic record is even more important than random photographs.
- ❑ First of all take an initial series of photographs, sequentially in a clockwise or anticlockwise fashion.
- ❑ Before concentrating on specific details, document the overall features of the room.
- ❑ A photographic log with an organized approach will help ensure that the scene is completely documented rather than a specific order in which photographs are taken.
- ❑ The use of various lenses such as wide angle, telephoto, zoom, etc. will help to establish relationship between various objects in the interior areas of the rooms.
- ❑ Close-up view with appropriate scales should be used to exhibit details on individual items and particular stains and patterns.

### Bloodstain patterns

- ✕ Photograph of the surface bearing stains should always be taken by keeping the camera perpendicular to the surface.
- ✕ Always make sure that the dead body is photographed from all possible directions, showing off bloodstain pattern around it before it is moved from the scene.
- ✕ Every subsequent movement of the dead body should then be documented with the photographs.
- ✕ Bloodstains on the body surface or in the immediate vicinity of it may be the result of blood dripping from a weapon or offender's injury.

- ✕ Minutely observe an absence of bloodstains within the pattern which might indicate an object or body of offender masking or shielding a surface from the deposition of blood.

**Narrative Information:** These include valuable information about the events thought to have occurred, the features of the scene, physical description of the individuals involved, and the injuries sustained as mentioned below :

- Narrative coverage should include a description of the crime scene such as indoor or outdoor, weather conditions such as temperature, winds, precipitation, presence of oscillating fans and open windows.
- It should also include physical condition of blood pool and stains such as wet, dry, drying, mixed with other substances or fluid, etc.
- A review of the postmortem report is often helpful to get a picture of the wounds or injuries, the manner, angle and direction in or from which they were inflicted.

### Physical Evidence

Finally, it is equally essential to collect, preserve and package items of physical evidence. These include bloodstains, objects bearing blood stains such as clothing, weapon and others found in the immediate vicinity of the dead body. These items should be collected carefully to prevent any distortion or destruction of bloodstain patterns. However, bloodstains should be allowed to dry enough before packaging of articles of interest to avoid creating new stains which may mislead the investigation. Drying of bloodstains also check the biological degradation. Clothing and other similar objects bearing bloodstains may often crack or flake off during drying process. Therefore, these should be thoroughly described and photographed with



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scale to document the stains in their original condition and orientation. It is necessary that bloodstains should be lifted with the specific advice of an individual trained and experienced in the field of bloodstain pattern examination.

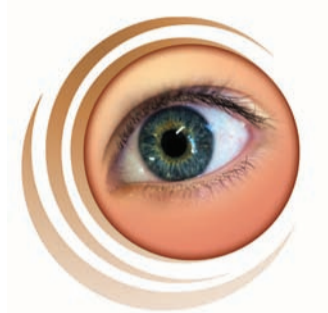
### Conclusion

Analysis of the blood samples and bloodstains certainly assists in the final interpretation of the patterns, by helping the analyst connect the patterns to the individuals involved in the blood-spattering event. Bloodstains are often found at various types of crime scene, such as homicide, hit-and-run, assault, child abuse, rape, robbery and burglary. Apart from the laboratory analysis of bloodstains on clothing, weapons, vehicles and other items of physical evidence, forensic scientists are often called for the analysis of bloodstain patterns at the crime scene. A transfer of blood from a blood bearing object may leave a pattern identifiable with the original object still bearing blood and later found in the possession of a suspect. The bloodstain pattern analysis not only provides valuable information but also saves time and effort for the investigator whether in the laboratory or at the crime scene. Even with these objectives met, however, there is the critical need for communication. An effective communication among the investigator, forensic expert, bloodstain pattern examiner and laboratory analyst, including the prosecuting attorney is essential to any thorough, well-prepared investigation and prosecution. A number of heinous

crime, especially, murder has been solved by scene of crime unit, Durg, Chhattisgarh at the crime scene itself. While considerable detail is involved, the material is not intended to be all inclusive. Finally, it should be recognized by the prosecutor that bloodstain pattern work will provide probative information and aid to the investigation.

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# Poroscopy in Personal Identification Authenticity and Acceptance

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## Introduction

### Authenticity of Fingerprint Evidence

Fingerprints have a long history as tool for identification for both civil and forensic purpose. Their reliability are proverbial and are often used as yard stick and reference modal for (new) forensic techniques mainly to profit from widespread image<sup>1</sup>. Papillary ridges can help in identification even when the epidermis gets eroded or damaged due to burns or long-term submergence in water. A partially submerged body was discovered in March, 2004 in Prince Rupert, British Colombia, Canada. The cadaver was identified by impressions of dermal ridges by BC AFIS Department<sup>2</sup>. Identification in such complicated cases certainly compliments the established science of fingerprint identification, which not only re-assures the world about Sir Francis Galton's theory based on twin factors, uniqueness and permanence.

There have been constant attacks even on validity of Fingerprint identification as science. In January 2002, Louis Pollak, a federal judge in Pennsylvania, decided that fingerprint evidence is unreliable. This is the first ruling in the American courts, although fingerprint evidence has been open to challenges for years<sup>3</sup>. Traditionally, latent print examiners have presented identification testimony in courts with an explanation of identification or with a charted enlargement of matching and latent prints<sup>4</sup>. Most often the subjective nature of the opinion of individualization comes under attack by lawyer in the courts of law. Fingerprint examiners do not

posses uniform objective standards to guide them in their comparisons. To the contrary, there is complete disagreement amongst the fingerprint examiners as how many points of comparisons are necessary to make an identification, and many examiners now take the position that there should be no objective standards at all<sup>5</sup>. Perhaps Scientists have started giving suggestion for the incorporation of more than one aspect in FP Evidence i.e. poroscopy, edgeoscopy, etc. Prior to 1973, different States (regions) of India had no uniformity on minimum number of identical points for giving opinion on fingerprints, it ranged from 5-17. In 1973, the first All India FP Conference held at Shrinagar (Jammu and Kashmir) adopted the following resolution:

"The minimum number of points for establishing the identity beyond doubt in case of fingerprint examination has been fixed at eight. However, where there are six or more points of identity, a qualified opinion can be offered by the expert on his responsibility".

In 1970, the International Association of Identification had formed a Standardization Committee for the purpose of determining the minimum number of ridge characteristics for establishing positive identification<sup>6</sup>. The resolution stated that no valid basis exists at this time for requiring that a predetermined minimum number of friction ridge characteristics must be present in two impressions in order to establish positive identity. Ne'urim Declaration (Israel) in 1995 had stated that no specific basis existed for requiring that a

## Key Words

Dermatoglyphics,  
Friction Ridge,  
Poroscopy,  
Personal Identification,  
Latent Prints,  
Third Level Details,  
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## Poroscopy in Personal Identification Authenticity and Acceptance

### Abstract

Sir Francis Galton proved that papillary ridges are persistent from birth until they are decomposed and destroyed after death. Dr. Harris Hawthorne Wilder studied morphology, the methodology of plantar & palmer dermatoglyphics, and along with Bert Wentworth re-authenticated that friction ridges are formed on the hands of fetus, from the fourth month of intrauterine life. The Science of Personal Identification using ridge characteristics is based on two primary factors, uniqueness and

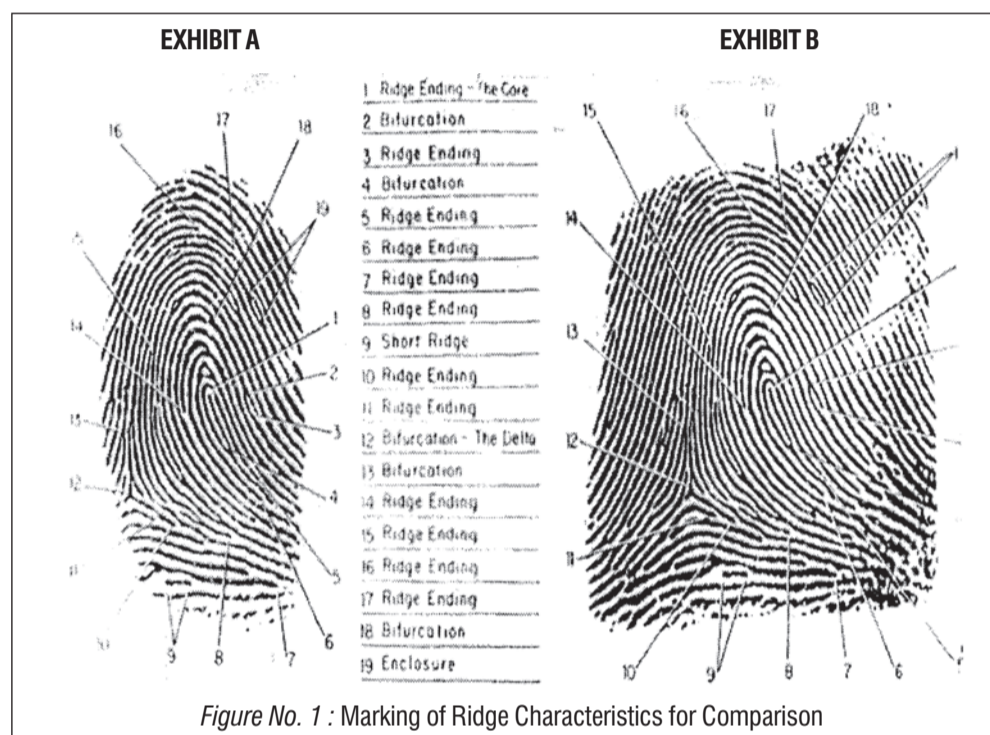


Figure No. 1 : Marking of Ridge Characteristics for Comparison

predetermined number of friction ridge features must be present in two impressions, in order to establish positive identification<sup>7</sup>. All those, who do not have thorough knowledge of fingerprint science, try to raise the issue of lack of uniformity in establishing the identity on the basis of point system, for nullifying this science as unreliable, which is absolutely false, mischievous and disastrous.

#### Pores: Integral Part of Friction Ridge Evidence

The scientific foundation of friction ridge identification originates from various doctors, scientists and progressive thinkers, many playing a distinctive role in formulating the foundation of the science without ever recognizing its potential. Both Nehemiah Grew, M.D. in his report (1684) for the Royal Society of London, and the anatomist Govard Bidloo from Holland in his book on human anatomy in 1685, discussed and illustrated their recognition of the friction ridges and pores within these ridges. Over 200 years ago, JCA Mayer in 1788 stated that the

“arrangements of skin ridges is never duplicated in two persons”<sup>8</sup>.

To ignore sweat pores and edge shapes when they are present is to ignore part of the valid information in the total image. This is by no means to suggest that an expert should ignore the minutiae points and concentrate on the pores and edge shapes. It is simply to say that one must consider all of the information present in both the latent print (or mark) and the inked print. Traditional minutiae points are still the backbone of most comparisons<sup>9</sup>.

#### Discussion

##### Third Level Details and Poroscopy

Third level details are small shapes on the ridges, the relative location of pores, and small details contained in accidental damage to friction ridges. The small intrinsic details of friction ridges have tremendous individualizing power. In the past, there was a general feeling that poroscopy had little



## Poroscopy in Personal Identification Authenticity and Acceptance

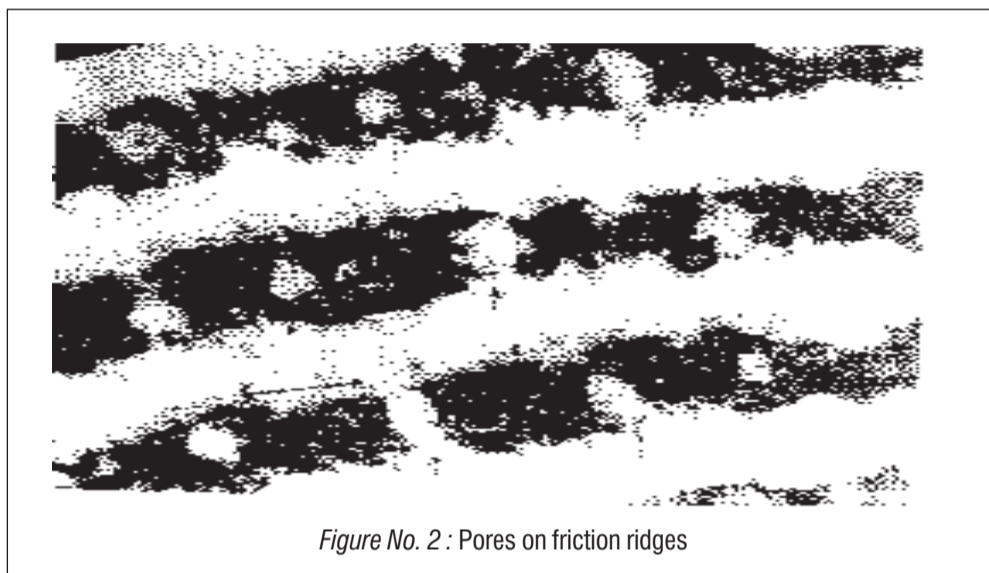
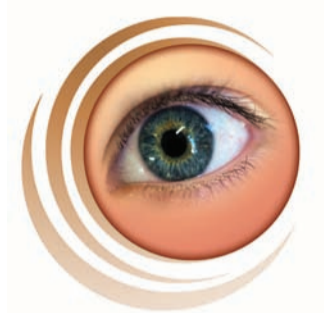


Figure No. 2 : Pores on friction ridges

practical value due to the minuteness of its detail and the failure of pore structure to be reproduced consistently in crime scene and inked friction ridge prints. The relevancy of friction ridge clarity, third level detail, and quantitative-qualitative analysis were not understood by the friction ridge identification theory and ignored in practice the majority of research done in field<sup>9</sup>.

### Pores: Integral Part of Friction Ridge Evidence

Poroscopy is a method of personal identification through the comparison of the impressions of sweat pores (present on friction ridges of palmar and plantar surfaces). The method was discovered and developed by Dr. Edmond Locard in 1912, and applied his newly developed technique of poroscopy in Boudet & Simonin Case, which was widely acclaimed. Pores were not examined in detail until Dr. Edmund Locard of Lyons, France, published a paper in 1912. Locard used Poroscopy as an independent method of identification, and also as an aid to reinforce identifications using the ridge characteristic method when the numbers of ridge characteristics were low.

Locard published his research into poroscopy in "Les pores et l' identification des criminels", Biological, vol. 2, pp. 357-365, 1912. He arrived at following conclusion :

- The sweat pores present the triple characteristic of perpetuity, immutability and variety, which establishes them as a means of identification of primary importance.
- Identification by comparison of pores in a striking manner confirms the evidence from fingerprints, by adding to the determination of ridge details that the visible sweat pores, the number of which is often many hundreds.
- In most cases in which the digital or palmar impression is too fragmentary for an absolute identification by the dactyloscopic method, which requires minimum of twelve characteristic points (then in France), the comparison of pores, providing these are discernable, will permit the attainment of positive identification.

permanence. Usual method of individualization from impressions of ridges lies in finding identical ridge characteristics or Galton details in their relative positions in two prints. The number of ridge characteristics required for establishing identity conclusively varies from country to country, in India 8 (eight) points are needed to prove positive identity in the court of law. Forensic Identification specialists continually encounter friction ridge impressions of varying degrees of clarity and difficulty, and when there are insufficient numbers of Galton points' in relative



position to prove positive identity, fingerprint examiners fail to get the culprit convicted, in such situations third level details are of great help. Poroscopy is one such independent method of identification, which uses comparison of the impressions of sweat pores, present on friction ridges of palmer and plantar surfaces. The method was discovered and developed by Dr. Edmond Locard of Lyons, France in 1912. Although poroscopy is an independent and full-fledged scientific methodology for individualization, but it can also be used as an aid to reinforce identifications.

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### Practical Difficulties in Accepting Poroscopy for Individualization

- Lack of sufficient and systematic data about various aspects of sweat pores such as shape, size, position, interspacing, and frequency, etc., and
- The sweat pores may not always appear in inked/latent impressions and their microscopic nature restricts the fingerprint experts to give proper attention to examine their details and to use them for identification purposes<sup>10</sup>. In case of chance prints or latents it is found that fingers are not pressed too hard on to the surface of object touched.

### Remedial Measure for Practical Problems

Some suggestions have been made by pioneers like David R. Ashbaugh of RCPM Manitoba, Canada and Professor O.P. Jasuja of Punjabi University Patiala, India, on the shortcomings or practical difficulties which deter our identification experts from using poroscopy as means of individualization are as under:

- ◆ Powder fill: Careful cleaning of the developed fingerprint, and use of good quality powder with no moisture contaminates.
- ◆ Use of pre-inked fingerprint strips increases the clarity of inked impressions; proper training and practice in inking the slab would improve results. Practice on correct pressure while fingerprinting will also be an asset.
- ◆ A microscope of 50x magnification is sufficient for in-depth study of pores; Dr. O. P. Jasuja has done a lot of research under 50x magnifications in Department of Forensic Science. Prof. Jasuja has successfully estimated number of pores /unit area, interspacing, size of pores, shapes of pores, and positions of pores.

- ◆ Knowledge of poroscopy will allow us to add strength to low ridge count identifications, assist in evaluating ridge characteristics and, on occasion, make identifications on prints we previously considered unidentifiable. Therefore, the piece of fingerprint which is considered unidentifiable, due to lack of sufficient ridge characteristics, but displays ample pore structure, may be worth collecting anyway.
- ◆ Learning the basics of poroscopy is not at all time-consuming as the material required is minimal. Identification experts would not find it difficult at all to learn poroscopy.

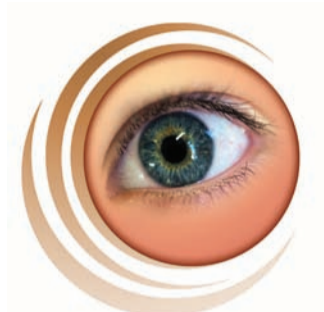
### Efforts of Contemporary Scientists

Two prominent names which are synonymous with Poroscopy are that of Mr. David R Ashbaugh and Prof. O P Jasuja. After Locard, no one in particular has taken enough interest to popularize poroscopy in practical terms, except for these two scientists.

Dr. Jasuja, Professor in Forensic Science, Punjabi University, Patiala, India using 50 x magnifications, observed that pores of different size might be present on the same ridge. There is very large variation in size of pores; unlike Locard he has defined pores as minute, medium, and large. He did not measure the pore size but did a comparative study. It was found that large pores might be lying with one or more minute pores on the same friction ridge. No systematic management of pores in this regard was found. In his study, Prof. Jasuja observed that the medium sized pores were found most frequently in all areas of print, 50-72%, followed by minute sized pores, 21-31%.

The frequency of large pores was found least, which was found absent even in interdigital areas in same prints where minute types of pores were found maximum, 72%. He has studied shapes and positions of sweat pores. He also developed latent prints on both porous and non- porous surfaces,

## Poroscopy in Personal Identification Authenticity and Acceptance



using various powders and other chemical methods; the developed prints were studied for the effectiveness of method used in terms of visibility of pores, to compare the findings with inked impressions for the same features. Ninhydrin was found to be the best chemical method amongst all used for developing latents paper, but the same method could not produce desired results in terms of clarity on non-porous surfaces like glass, glazed metal sheets, etc.

David R. Ashbaugh counted and examined various rolled inked impressions and came to conclusion that the size of pores varied within the fingerprint to a degree, and occasionally encountered extra large pores. He found the shapes of pores usually to be round, oblong, triangular and other shaped which he has not defined. According to him, positions of pores were random; there was no rhyme or reason for pattern associated with location.

### Analysis and Suggestions

I have conducted study in the laboratory at Central Finger Print Bureau, using binocular microscope of 50x magnification with attached electric light source (focused light). I made comparisons between

impressions developed following traditional method in printer's ink, with those recorded with fingerprint pads imported from a vendor in the United States. In terms of clarity of pores, the prints developed with printers ink were many times superior.

### Marking Presentation of Evidence in Courts

If poroscopy is studied and applied in day-to-day work in our identification work, certainly it is going to make an impact in terms of increase in number of convictions made on the basis of fingerprint evidence.

If in our identification work, certainly it is going to make an impact in terms of increase in number of convictions made on the basis of fingerprint evidence. But in the absence of set guidelines, fingerprint examiners avoid making use of vital pieces of information present on the ridges, the pores. Here, I have proposed a methodology which can be followed for marking, and comparison of prints to convince the Court.

One method can be making enlargements, and marking the counted pores with dots with a fountain or other non-washable fine tip ink pen, per unit area. Ashbaugh, in his experiments,

using the ridge characteristic method when the numbers of ridge characteristics were low.

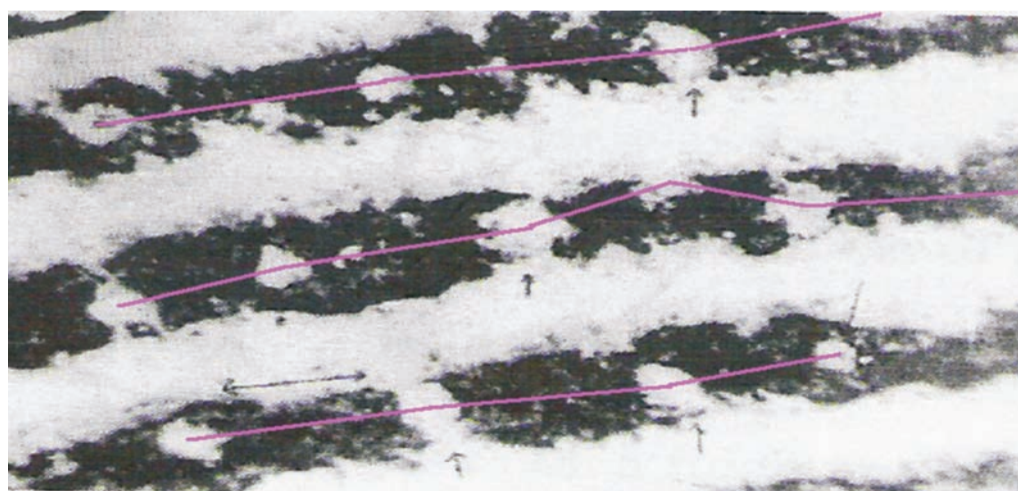


Figure No. 3: Making straight line connecting pores on individual ridges.



## Poroscopy in Personal Identification Authenticity and Acceptance

enlarged fingerprints to 5"X7" and dotted the pores with fountain pen so that he knew which of the pores had been already counted. After the count, another question comes to our mind, that whether it is possible to compute any mathematical method as a guide to a minimum of pores that should be examined before an opinion can be formed. Answer is in affirmative. This number, of course, would be a guide only as fingerprint identification, in fact, is a physical match. Ashbaugh has supported Dr. Locard that 20-40 pores in agreement were sufficient for giving opinion.

Another way of presenting friction ridge evidence using poroscopy can be by drawing straight lines from the centre of one pore to the centre of adjacent pore on the same ridge. This will form a unique pattern to make the judiciary understand the intricacies of poroscopy.

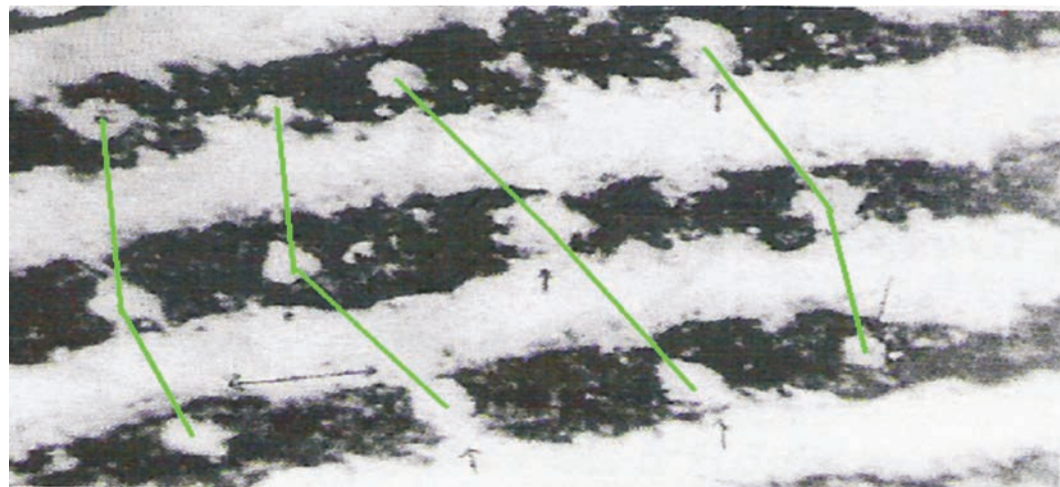
We can also form bridges by drawing straight lines across, from the centre of one pore on one ridge to the centre of another pore on another ridge running parallel, as shown in the figure below.

### Opinion Based on Poroscopy

On validity of pores being means of personal identification, Ashbaugh is in conformity with Edmond Locard. He affirms that poroscopy is a positive method of identification, and this science is extremely valuable tool for identification by experts.

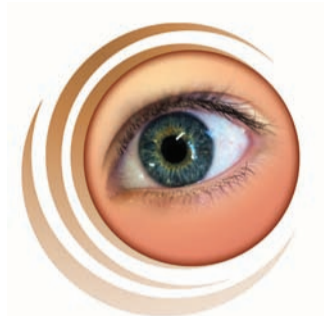
Professor Jasuja of Punjabi University, Patiala, in his studies, also concludes that in spite of difficulties poroscopy can be of great help in personal identification, if taken into consideration seriously.

It is the considered view of author that we should start giving due respect to this unique tool of individualization, and put it into practice for extending positive opinion in the courts of law. Identification professionals must observe meticulously and pay attention also to pores present on the ridges. In ridgeology, it is the expert who has to determine relative weight or value of each feature i.e. minutiae, pores, or edge characteristics, present in an impression.



*Figure No.4: Making bridges across adjacent ridges.*

## Poroscopy in Personal Identification Authenticity and Acceptance



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## Key Words

Fingerprints  
Forensics  
Fluorescence  
Powders  
Fuming Methods

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# Detection of Latent Fingerprints : A Review

G.S. Sodhi\* and Jasjeet Kaur\*\*

## Introduction

The fingerprints found at the scene of crime or an article removed from it are formed by sweat. The criss-cross lines on the fingertips - called the finger ridges - are studded with sweat pores. When the finger touches a surface, the sweat from these pores gets deposited in form of contours which are the mirror image of the ridge patterns. However, the contours are not visible since sweat is colourless. Hence, such impressions are called latent fingerprints or hidden fingerprints.

Sweat contains 99% water, 0.5% inorganic ions and 0.5% organic compounds. A latent fingerprint may be developed by converting any particular constituent of sweat by a physical and/or chemical method into a coloured derivative, so that a latent impression becomes visualized. The choice of the developing reagent depends on the nature, texture and colour of the surface on which the latent fingerprint is impinged. In view of the rising crime rate, and the potential of this technology to combat it, we review some common methods of latent fingerprints detection.

## Detection Methodologies

**Powder Method:** The powder technique for detecting latent fingerprints involves the application of a finely divided formulation to the fingermark impression, generally with a glass fiber or a camel hair brush [1]. The powder gets mechanically adhered to the sweat residue defining the ridge pattern of the fingertips. The furrows which are devoid of sweat do not absorb the powder on to these. The final outcome is that the powder formulation sticks to the ridges, but is easily blown off the furrows. Since the

powder is normally coloured, the ridge pattern becomes visible and the latent print is said to have developed [2].

Powder formulations containing meshed metals have been in use for a considerable time [4]. Their advantage is that these have longer shelflives as compared to regular powders. Their disadvantage is that the metallic components elicit toxic effects to the users. Silver powder containing aluminum flake and pulverized quarts; gold powder containing bronze flake and pulverized quarts; and gray powder containing meshed aluminum and kaolin are some of the examples of metallic dusting compositions [5].

A good number of powder formulations contain photoluminescent compounds [6, 7]. The advantage of such compositions is that these are useful for visualization of latent prints impinged on multicoloured surfaces that would present a contrast problem, if developed with conventional powders. Moreover, these can be used for developing weak prints. Its disadvantage is that these can be rarely used for field work. A fingerprint developed by a formulation prepared by coating fluorescent eosin yellow dye on nanoparticles of alumina [8] is shown in Fig. 1.

**Ninhydrin Method:** Ninhydrin method has traditionally been the most popular one for processing latent fingerprints on porous, absorbent surfaces like paper, cardboard and wood. The method relies on the reaction of ninhydrin with amino acids of fingerprint residue. The reaction produces a purple coloured compound, called *Ruhemann's purple*, the latent prints visible [9]. A representative fingerprint developed by this method is shown in Fig. 2.

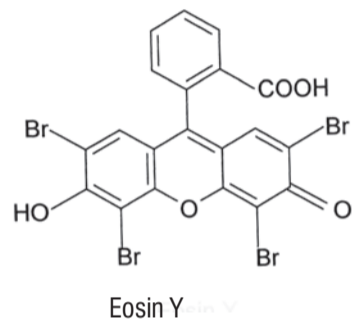


Fig. 1. Fingerprint developed on glass by eosin Y-based formulation.

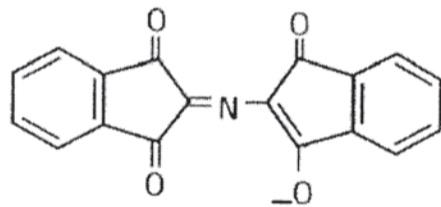
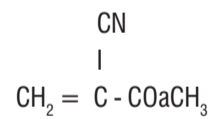


Fig. 2. A fingerprint developed on paper by ninhydrin method.

The amino acids in the sweat residue neither interact with the cellulose content of paper or wood, nor do these migrate within the capillaries of the substrate. Therefore, the ninhydrin method makes it possible to develop fingerprints that are many years old [10].

**Cyanoacrylate Method :** Cyanoacrylate method, also called as the Super Glue technique, for developing latent fingerprints is a fuming procedure. The principal underlying this method depends on the fact that when alkyl 2-cyanoacrylate reagent is allowed to vapourize, it undergoes base-catalyzed polymerization. The polymerized ester has a

tendency to get adsorbed on the sweat residue, imparting a white colour to the ridge pattern [12].



2-Cyanomethylacrylate ester

A china dish containing a few drops of cyanoacrylate ester and sodium hydroxide solution is placed in a fuming cabinet. The object bearing the latent prints is suspended from the roof of the cabinet. The item is exposed to cyanoacrylate vapours for about 2 hours until whitish coloured fingerprint pattern develops.

## Abstract

It may be claimed that there is no more effective deterrent to crime than the certainty of detection. Equally true is that there is no surer way of establishing identity than by fingerprints. The science of fingerprints is based on the premise that no two persons and no two



fingers of the same person have identical design of ridges on their fingertips. The detection of latent fingerprints at the scene of crime and their subsequent development is, therefore, one of the most powerful tools

## Detection of Latent Fingerprints : A Review

There are two techniques by which the developing time of cyanoacrylate fuming may be reduced: Fume circulation and heat acceleration. Fume circulation method requires a small battery operated fan or an air circulation pump in the fuming cabinet [13]. When the fan or the pump is turned on, the motion of the fumes increases and latent prints are developed within one hour. Heat acceleration method requires heating equipment, such as a light bulb, a portable heater, a hot plate or a hair dryer in the fuming cabinet. Under the influence of heat, the monomer volatilizes and polymerizes faster, thus reducing the developing time to about 30 minutes.

Even though cyanoacrylate fuming is a convenient and reliable method for detecting fingerprints, the developed imprints are white in colour and, therefore, lack contrast. In order to improve their clarity, the cyanoacrylate-developed prints are dusted with a luminescent dye, such as fluorescence or crystal violet. Such stains fluoresce or phosphoresce upon exposure to ultraviolet or laser light, giving a sharp contrast *vis-a-vis* the substrate.

**Iodine Method :** Iodine is a crystalline solid which, upon heating, sublimates into violet vapours. The vapours are physically adsorbed on the fatty acid content of sweat residue, imparting a yellow-brown colour to the ridge pattern [5].

Fingerprints developed by iodine are not permanent in nature. They tend to fade out on while standing. In presence of air, the fading of prints is accelerated. For this reason, the iodine-developed prints have to be photographed immediately. Nevertheless, it is possible to fix the prints by using iodine in conjunction with other chemical reagents. Iodine is known to react with starch giving a stable, deep blue complex. Thus, post-treatment of iodine-developed fingerprints with starch solution gives long lasting blue impressions. The fading problem may also be avoided by pressing a silver foil on to the iodine-developed finger marks. The interaction of iodine,

absorbed on the fingerprint residue with silver produces yellow coloured silver iodide. The latter, on exposure to light, decomposes into finely divided silver, revealing the ridge pattern as a stable, black deposition [14].

**Silver Nitrate Method :** Silver nitrate is one of the vintage methods for the development of latent prints, and is suited for porous surfaces like paper and wood. The reagent fixes the sodium chloride content of sweat, leading to the formation of silver chloride. The latter is darkened under the influence of sunlight or ultraviolet radiation, rendering the prints visible [5]. While using the silver nitrate method, care has to be taken to avoid overdevelopment of prints. This invariably leads to background colouration.

**Small Particle Reagent Method :** An aqueous suspension of an insoluble powder in a surfactant may be used to develop latent prints on wet surfaces. It fixes the lipid content of the latent print residue. Conventional small particle reagent formulation is a suspension of dark gray molybdenum disulfide ( $\text{MoS}_2$ ) in Tergitol detergent [15]. Small particle suspension of black iron oxide ( $\text{Fe}_3\text{O}_4$ ) powder gives prints with good contrast on smooth surfaces. A zinc carbonate ( $\text{ZnCO}_3$ )-based formulation has been used for developing prints on dark and wet surfaces [16]. Fig. 2 shows a fingerprint developed on moist lamination sheet by small particle reagent method.



Fig. 2. A fingerprint developed by small particle reagent method on moist lamination sheet.



## Detection of Latent Fingerprints : A Review



**Physical Developer Method** : A physical developer composition normally contains a mixture of a reducible metal salt and a reducing agent. Most salt and iron(III) ions for reduction. The former is reduced *in situ* to metallic silver which becomes adhered to the fingerprint residue [17]. When latent prints are required to be developed on paper, the alkali content with maleic acid or acetic acid [18].

**Vacuum Metal Deposition Method** : Vacuum metal deposition, a technique largely used for development of latent prints on non-porous surfaces like plastics and polyethylene, involves successive deposition of gold and zinc under low pressure [19, 20]. Normally, zinc deposits uniformly throughout the surface, except where latent print impressions exist. This results into development of 'negative prints' in which ridges remain transparent while the background is plated with metallic zinc. The visualization of latent prints on ferromagnetic-coated surface on reverse side of polyethylene films has also proved successful by this technique.

### Conclusion

Latent fingerprints may be visualized by a legion of chemical methods. No single technique of recovering latent prints has universal application under all circumstances. Research efforts have focused on methodologies that may be applied to difficult and unique surfaces. The method of choice varies from case to case.

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# Fingerprints/Footprints: Useful for Solving Identification Problems

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## Introduction

The uses of Fingerprints/Footprints are multifarious and have proved to be a big asset to the society. The proper use and handling of Fingerprints techniques today for the administration of criminal justice and for the investigation of crime has proved to be very useful, and has become a trustworthy source of evidence for the protection of people and for ensuring the personal liberty of the people. These days, with the sophisticated weapons in possession of criminals, who are adopting the latest methods to commit murder, dacoity, burglary, forgery and purgery, the crime-scenario as well as the process of investigation are becoming more and more complex and tough, and it is no more an easy job, nor it is a single handed job. However, it has become a team work comprising of police officers, forensic experts, medical experts and other technical experts and associates, etc.

Today the application of Forensic Science in solving the crime cases has increased. Its indispensable strength in providing clinching evidence was slowly realized all over the world and a few laboratories of chemical examination were established during middle of the nineteenth century, but their role was limited and for nearly hundred years hardly any expansion took place.

A successful investigation of crime and a fair administration of justice depends on the quality of

evidence. If the quality of the evidence is poor, as has been the case with the eye-witnesses testimony, the criminals managed to go unpunished. (As has been in Jasica Lal Murder case when the eye witness turned hostile. And it happens in all sort of the pre-planned murders.) It was then thought that there was an urgent need to expand the Forensic Science Facilities to improve the quality of evidence. Therefore, the present setup of Forensic Science needs radical and rational reforms and restructuring of the Forensic Science Laboratories, in such a manner that it should be able not only to cope up with the heavy work load of crime cases but also is able to handle the changing trends in crime pattern, and offer clinching evidence, strong enough to identify and covict a criminal.

The only solution for most of the criminal cases is the use of physical Science. Because this type of evidence includes any and all types of objects which could establish that crime has been committed or it can provide a link between the crime victim and the criminal. Thus, this Science deals with subjects scientifically, which are used to examine physical clues, collected from the spot of crime, regarding any crime.

## Credible Identification Technique

The main user of Forensic Science techniques are the police and judiciary of this country because its use under law protects the citizens from undue

## Key Words

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Science of Fingerprint  
Science of Footprint  
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Advancement  
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## Abstract

The most important use of Fingerprints lies with the new technique of crime investigation so advanced that detection through the use of Fingerprints and Footprints which have no papillary ridges is now considered as one of the soundest methods

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torture and turmoil. Among all the other branches of Forensic Science, the Science of Fingerprints and Footprints has been used in most of the cases. Therefore, the Science of Fingerprints/Footprints has proved to be the surest means for identification and investigations of crimes. In this age of scientific advancement, the foundation stone of every inquiry and decision is the opinion of a Fingerprint Expert, as it is the decisive factor for establishing the identity of an individual, or of a fact.

The most important use of Fingerprints lies with the new technique of crime investigation so advanced that detection through the use of Fingerprints and Footprints which have no papillary ridges is now considered as one of the soundest methods of identification and of crime detection. Indeed, the courts all over the world have now begun to give credence to this system of identification and of investigation.

### Perfect Science

As the Science of Fingerprints is a perfect Science, when compared to the Science of hand writing, which is still a developing science. The result obtained through Fingerprints are conclusive, hence it is a perfect Science.

Moreover, Fingerprints identification is far more superior to any other methods of identification available today. The courts rely on this science for the detection of crimes and for establishing the identity of the individual. Fingerprints help in catching criminals very fastly. No police force can be effective without a Fingerprints filing system in it. Very few people know that Indian Police Force was the first to use the identification process. In modern Forensic Law Enforcement, Fingerprints science play a fascinating and essential role in solving the mysteries of the crime.

### Valuable Uses

Besides this, Fingerprints has other valuable uses as well:

- ❖ The Footprints of the newly born baby are recorded along with the Fingerprints of the mother to guarantee the identity of the baby which can be proved beyond question in the maternity homes and hospitals.
- ❖ The results of aeroplane, train wrecks, explosions, earthquakes, fires, drownings, all demonstrate the frailty of the human body. In spite of this, the disaster victim's mutilated bodies beyond recognition can be positively identified, even if only a small area of Fingerprints is preserved in a relatively intact condition.
- ❖ In fatal accidents, thousands of victims whose identity are unknown have been identified through Fingerprints only.
- ❖ The armed forces maintain Fingerprints collection of all the military personnels, so that mutilated battle casualties can be identified, and the next of the kin can be informed and notified.
- ❖ By using Fingerprints, a bank can identify his depositor who can not sign due to illiteracy. Educational institutions, Civil Service Commissions and employees can prevent impersonification during examinations, admissions and employments by requiring each candidate to affix his or her Fingerprints on their test papers.
- ❖ The affixing of a single thumb mark on the valuable and important document along with the signatures for prevention of forgeries and impersonification on the sale deeds,

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agreements, will-deeds, rent-deeds, etc. are very common in Indian Civil Courts and a must in the registrar's office.

- ❖ Now, not too far away is the computerised system of individualized account of credit card with Fingerprints on it.

Money could be deposited automatically to the credit of each individual's account. Purchases and sale could be made through the credit card with Fingerprints on it, thus making forgeries and unauthorised use of the card an impossibility. What seems dream today may turn into reality soon.

Besides this, there has come advancement in the Fingerprints technique that has brought a revolutionary advancement in the field of crime investigation. It is the DNA typing, which has proved to be a novel method to connect various crimes with the criminals. The Deoxyribo Nucleric Acid (DNA) works on the basic principle that every individual in this world can be differentiated and identified at the molecular level, on the basis of his or her DNA sequence. This invention by Prof. Jaffary has given a boost to the Forensic Science.



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