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Technical Books Section

Indian talent at its best

Modi's Medical Jurisprudence & Toxicology, 22nd Edition *Edited by* B.V.Subrahmanyam Butterworth India; xxxiv + 764 pages (section 1) + 587 pages (section 2): ISBN 81-87162-27-9. Publication Date 2001

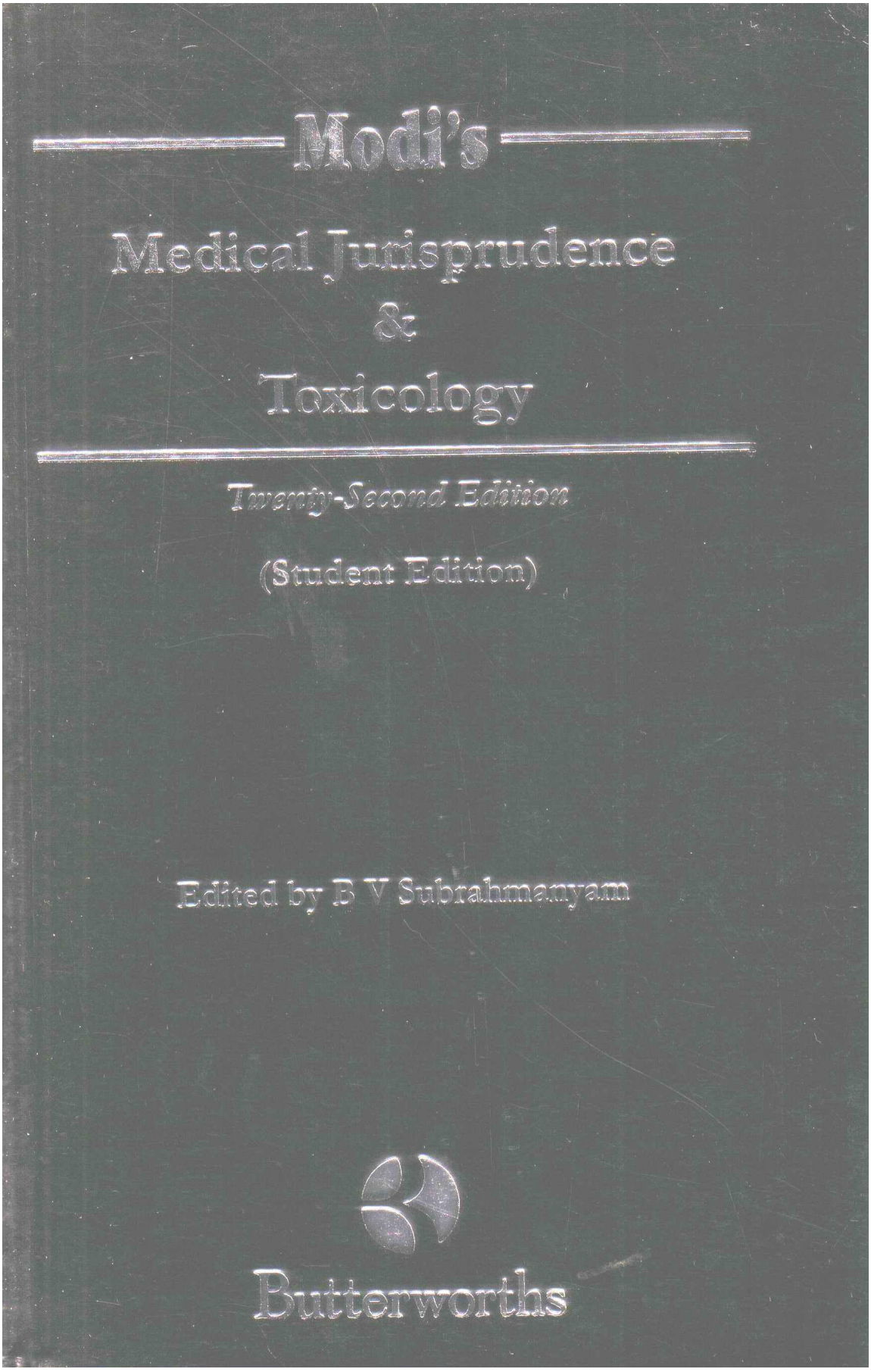


Jaising P. Modi (18 June 1875 - 19 June 1954)

Jaising P. Modi, the author of this book, is held in same reverence in India, as Bernard Spilsbury is in Britain or Milton Helpern in USA. After completing his education first in Bombay and then in England, he joined Government Service in *Uttar Pradesh*. While in service, he came to Agra Medical School as a teacher in Medical Jurisprudence, where he practiced and taught this specialty with great zeal. In 1918, he shifted to King George Medical College, Lucknow, in various capacities as Professor of Material Medica and Forensic Medicine and later as Reader in Medcial Jurisprudence. He chose to continue practicing Forensic Medicine even after he retired from active government service, joining G.S.Medical College, Bombay after his retirement where he worked for one year as Honorary Lecturer in Medical Jurisprudence.

The first edition of his now legendary work appeared in 1920. The last edition to appear in his life time was the 11^{th} edition, which appeared in 1952. After his death, the mantle of his book fell on his son Dr. Natwar J. Modi, who edited the 12^{th} edition in 1955 soon after his death. When this reviewer was studying forensic medicine for his undergraduate course, 19^{th} edition, published in 1975 was in vogue, a copy of which this reviewer still proudly possesses. The first edition to be edited by someone outside the family was the 21^{st} edition, which was edited by Dr. C.A. Franklin in 1988. Current edition - the 22^{nd} - edited by Dr. B.V. Subrahmanyam, has chapters written by a galaxy of Indian star pathologists. Among them is Dr. L. Fimate, whom we featured as one of the Doyens of Forensic Medicine in one of our earlier issues.

It would be just another 19 years, before Modi's book completes a century - a rare feat for any book. This fact by itself speaks volumes for the quality of this work.



When Modi set about writing his *Magnum Opus* way back in early 1900s, the world of Indian Forensic Medicine was still dominated by English books imported from the West. More often than

not, these books failed to capture the Indian peculiarities of crime, and thus were not true representatives of the Indian scene. For instance, while students read injuries by firearms in great detail, what they actually saw day in and day out were bludgeoning by *lathis* (a heavy blunt wooden rod used in India for beating). In fact N.J. Modi in his preface to the 19th edition wrote,"*For a change we began reading of Ramu and Kalua fighting over their cattle with a* gandasa *rather than Dick and Harry having a drunken brawl*".(Note: Ramu and Kalua are very common male names in Indian villages, and a *gandasa* is a scythe like instrument used to cut grass in India). Similarly faking of bruises by irritant vegetable juices such as *Semecarpus anacardium* (marking nut) or *Calotropis gigantea* (Madar), was almost unknown in the West, and frequently failed to find mention in the books originating from the West, while it used to be very common in Indian subcontinent.

Legal terminologies were also different in the two regions. While terms such as *manslaughter* and *battery* were common in the West, these terms do not find mention at all in India Penal Law. This obviously left the student studying in the Indian subcontinent quite confused.

Several such inconsistencies spurred Modi on to write his very own Indian book, giving details of Indian cases, Indian weapons, Indian criminal law and so on. He apparently had big files of his own cases, because he spiced almost every topic he wrote on with cases of his own. The book has seen as many as 22 editions and has survived 80 years, with no sign of decreasing popularity. It is also the only Indian book which is quoted by almost all Westerners in their works regularly and consistently.

Section I - Medical Jurisprudence

1. Legal Procedure in Criminal Courts
2. History of Forensic Medicine
3. Personal Identity
4. Postmortem Examination (Autopsy)
5. Exhumation
6. Postmortem Artefacts
7. Examination of Biological Stains and Hair
8. Death in its Medico-Legal Aspects
9. Deaths from Asphyxia
10. Death from Starvation, Cold and Heat
11. Injuries from Burns, Scalds, Lightning and Electricity
12. Injuries by Mechanical Violence
13. The Medico-Legal Aspects of Wounds
14. Traffic Injuries
15. Regional Injuries
16. Impotence, Sterility and Artificial Insemination
17. Virginity, Pregnancy and Delivery
18. Sexual Offences
19. Legitimacy and Legal Aspects of Marriage Annulment
20. Infanticide
21. Abortion and Medical Termination of Pregnancy
22. Medico Legal Aspects of Sterilisation
23. Insanity and Its Medico-Legal Aspects

24. Law in Relation to Medical Men
25. Torture and Medicine

Section II - Toxicology

1. Poisons and Their Medico-Legal Aspects
2. Corrosive Poisons
3. Inorganic Irritant Poisons (I)
4. Inorganic Irritant Poisons (II)
5. Organic Irritant Poisons (I)
6. Organic Irritant Poisons (II)
7. Mechanical Instant Poisons
8. Somniferous Cerebral Poisons
9. Inebriant Cerebral Poisons
10. Deliriant Cerebral Poisons
11. Spinal Poisons
12. Cardiac Poisons
13. Asphyxiants (Irrespirable Gases)
14. Peripheral (Neural) poisons
15. Miscellaneous

Appendices
A full listing of the Contents of the 22nd Edition of Modi

I was glad to receive the 22nd Edition from the publishers for review, as I was wanting to see it for quite some time (I do possess an old 19th Edition though). One thing that caught my attention immediately was that it had increased in bulk a great deal. While the 19th Edition had 798 pages, the current edition has an additional 600 pages or so. There are two main sections in this book, and the pagination is separate for both. Just the first section has roughly the number of pages, which the older 19th Edition had. The additional space has been used for covering such latest topics as DNA profiling, AIDS and the law, Consumer Protection Act, Law in Relation to medical men and the pathology of torture.

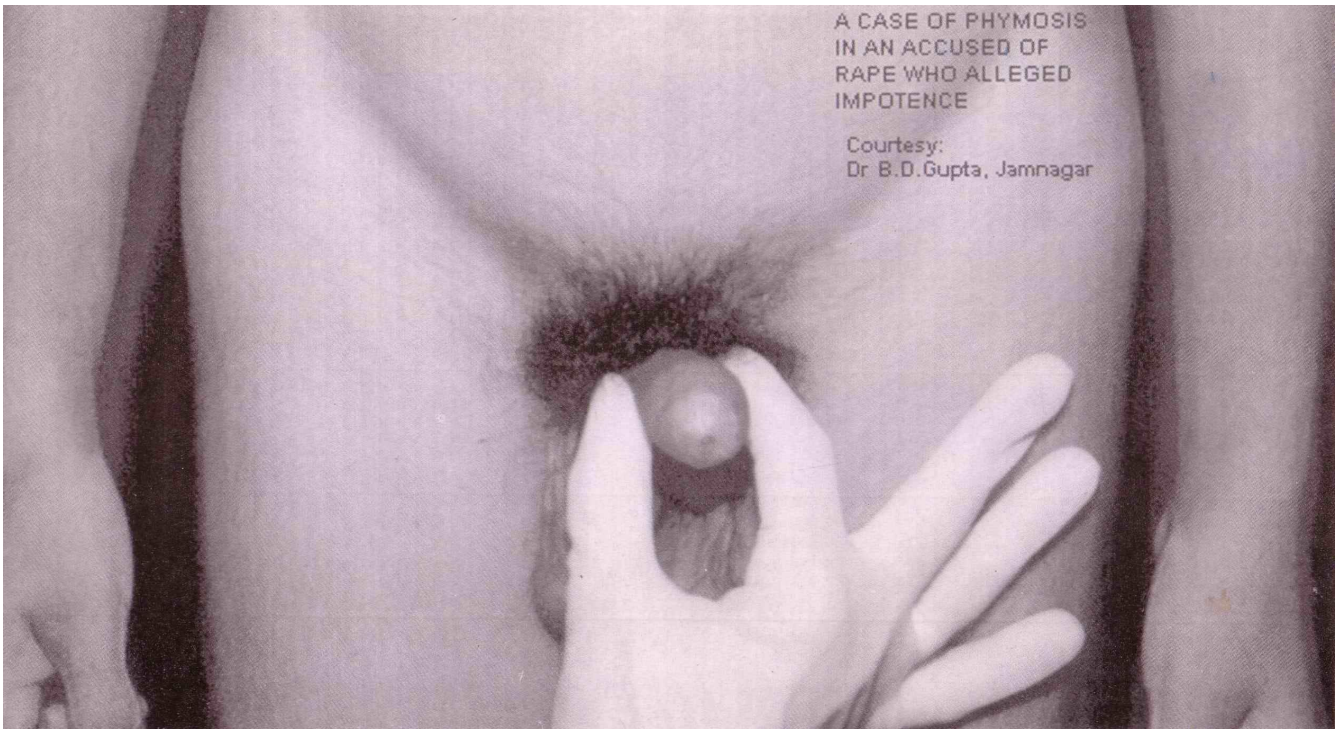
The other notable thing was that the current editor has roped in several talented Indian forensic experts to write on subjects of their expertise. This has happened for the first time in this book's history. The acknowledgements section mentions as many as 19 contributors in this book.

The book has been divided into two main sections - Section 1 dealing with Medical Jurisprudence contains 25 chapters and section 2 dealing with Toxicology contains 14. In addition there is a third section containing seven appendices. The appendices give such important facts as extracts from The Indian Evidence Act 1872, The Code of Criminal Procedure 1973, The Indian Penal Code, The Mental Health Act 1987, Workmen's Compensation Act 1923 and so on. This reviewer found Appendix VI particularly interesting, which detailed the treatment of common acute poisonings. This is given in a table consisting of four columns (Name of the poison, Symptoms and signs, Management and treatment and remarks). This arrangement makes it very easy for a young doctor to get his facts immediately.

The section of Medical Jurisprudence contains chapters on Legal procedures, history of forensic medicine, personal identity, postmortem examination, exhumation, postmortem artifacts,

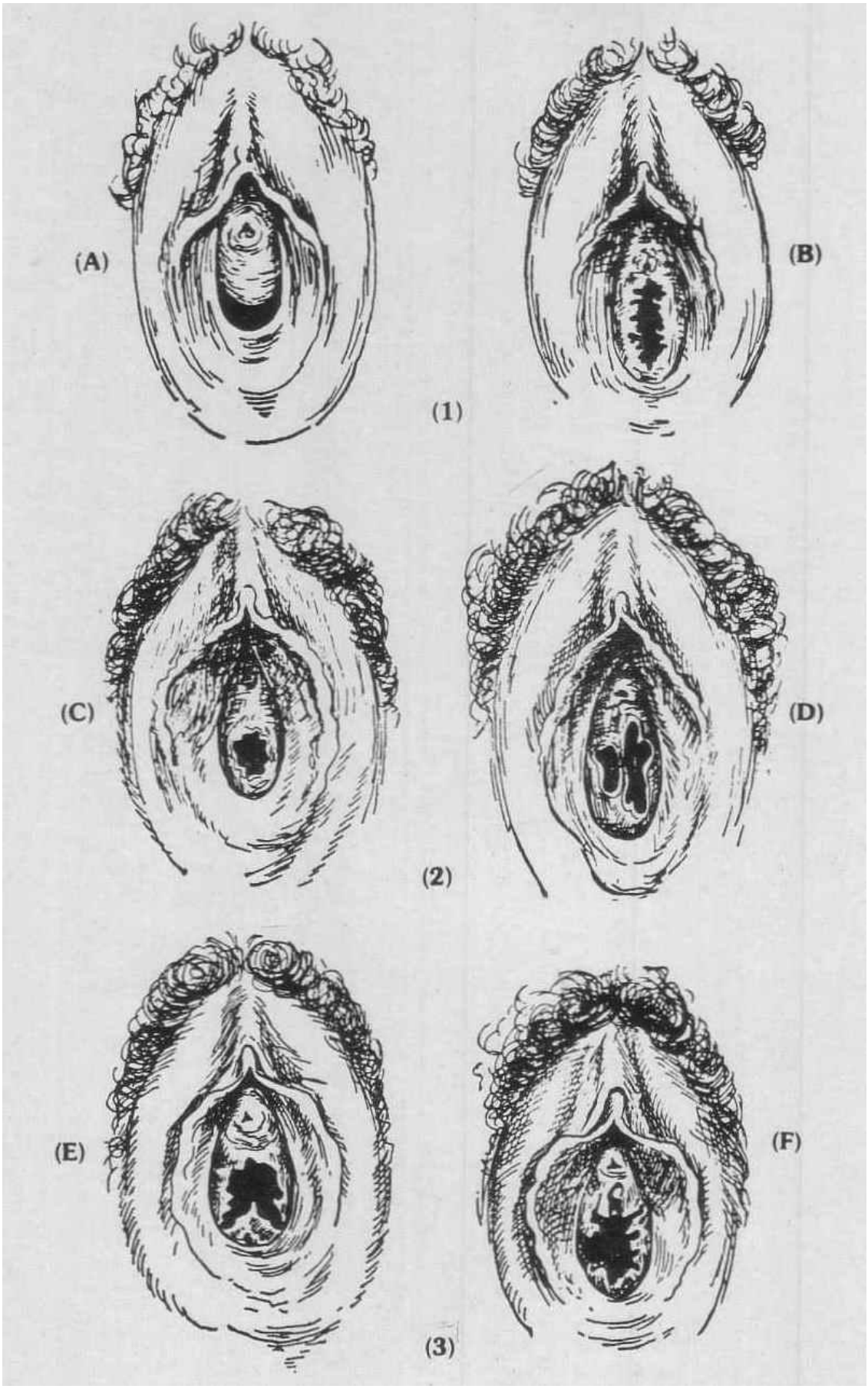
examination of biological stains and hair etc. Deaths from various causes such as asphyxia, starvation, cold and heat are covered too.

Sexual offences have a peculiar flavor in India, its sexual laws being some of the most complex in the world. One only has to read Sections 375 and 376 of the Indian Penal Code to get an idea. I was quite curious to read the chapter on sexual offences, and see how the editor has tackled this chapter. To my satisfaction, all relevant information was given including the *Mathura Case* occurring in India in the late 1970s which sparked off a row leading to a great modification in Section 376 of the Indian Penal Code. Readers wanting to know more about this extremely interesting case (and its fallout) may want to click here.



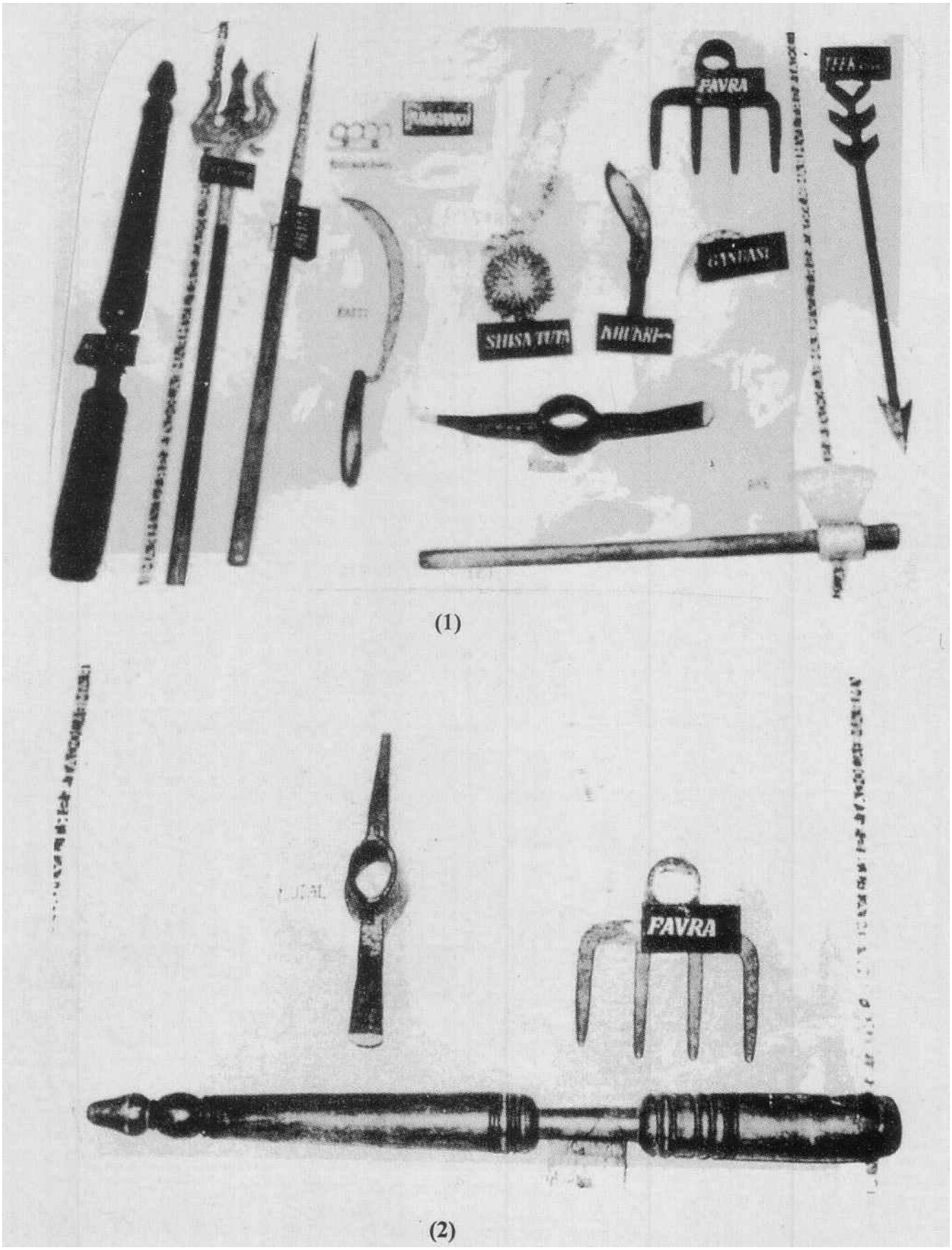
A case of phimosis in an accused of rape who alleged impotence

In India, commonly the accused of the offence of rape advances the defense of impotency. And these accused are referred to us for examination. Most of the times nothing abnormal is found, but sometimes we do see interesting findings. The book shows some interesting photographs taken from these cases. We are reproducing one here. This photograph has been contributed by Dr. B.D. Gupta of Jamnagar, who has earlier contributed forensic posters for this journal. This photograph shows a case of phimosis in an accused of rape.



Various types of hymen

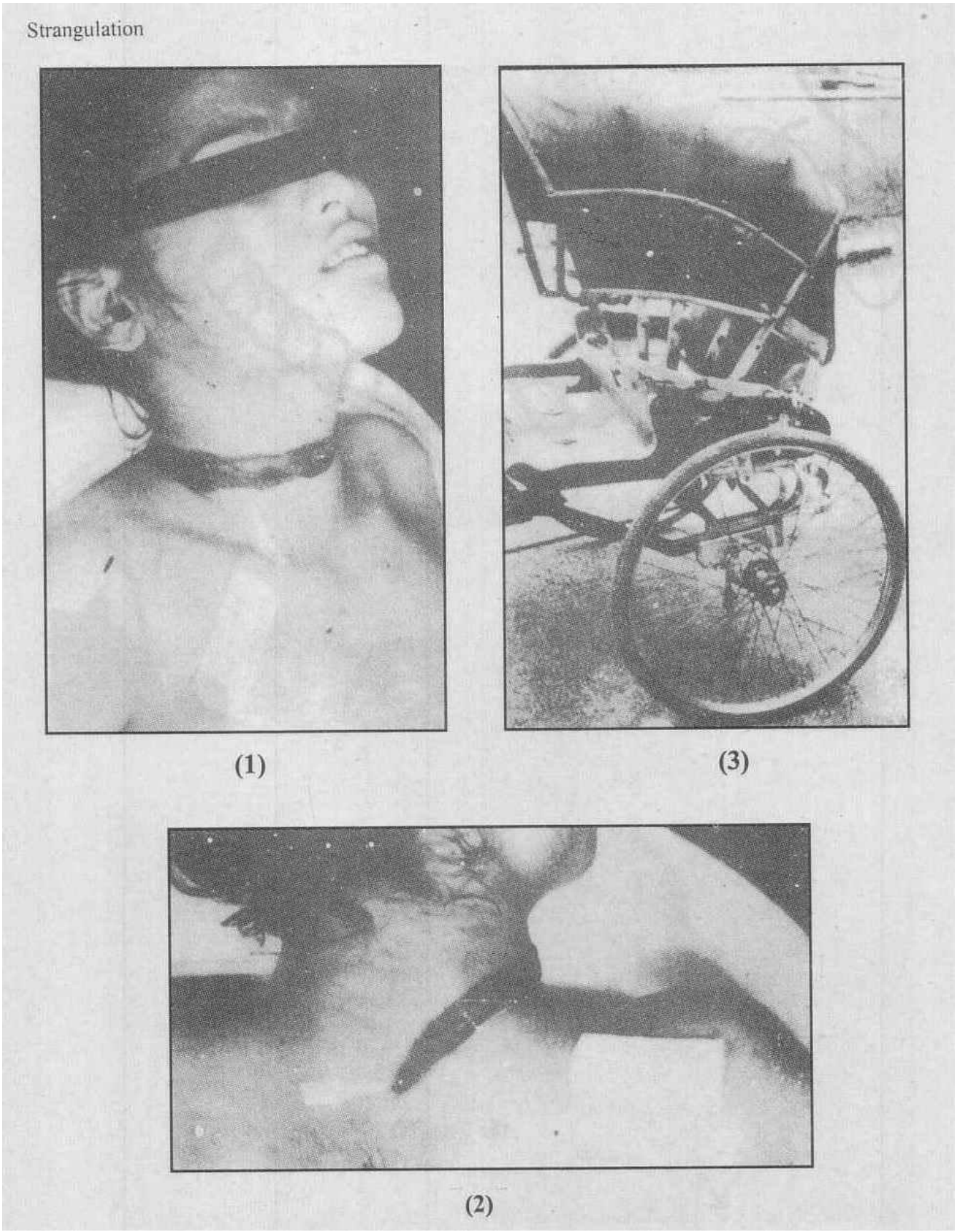
Another chapter that interested me was the one on virginity, pregnancy and delivery. Very often we talk about true and false virgins in this country (although foreign texts rarely mention these terminologies). By a false virgin, usually we mean a girl who has experienced sexual intercourse, but still has an intact hymen. When a young forensic expert examines a woman claiming to have been sexually assaulted (or claiming divorce for alleged impotence of his husband for that matter), he may encounter many different types of hymen, some of which can be completely misleading. For instance, he may see a fimbriate hymen (top row, right side in the accompanying figure), which may mimic a torn hymen, and the forensic practitioner may give a wrong opinion. Fimbriate hymen is actually an intact hymen, giving the appearance of a torn hymen. The book gives an interesting diagram showing some important variations of hymen, and how to differentiate between them.



Indian Tools and Weapons of offence

Another aspect peculiar to India which has been dealt with in this book is the Indian weapons. An amazing variety of different weapons have been used in India for assault and murder, and no

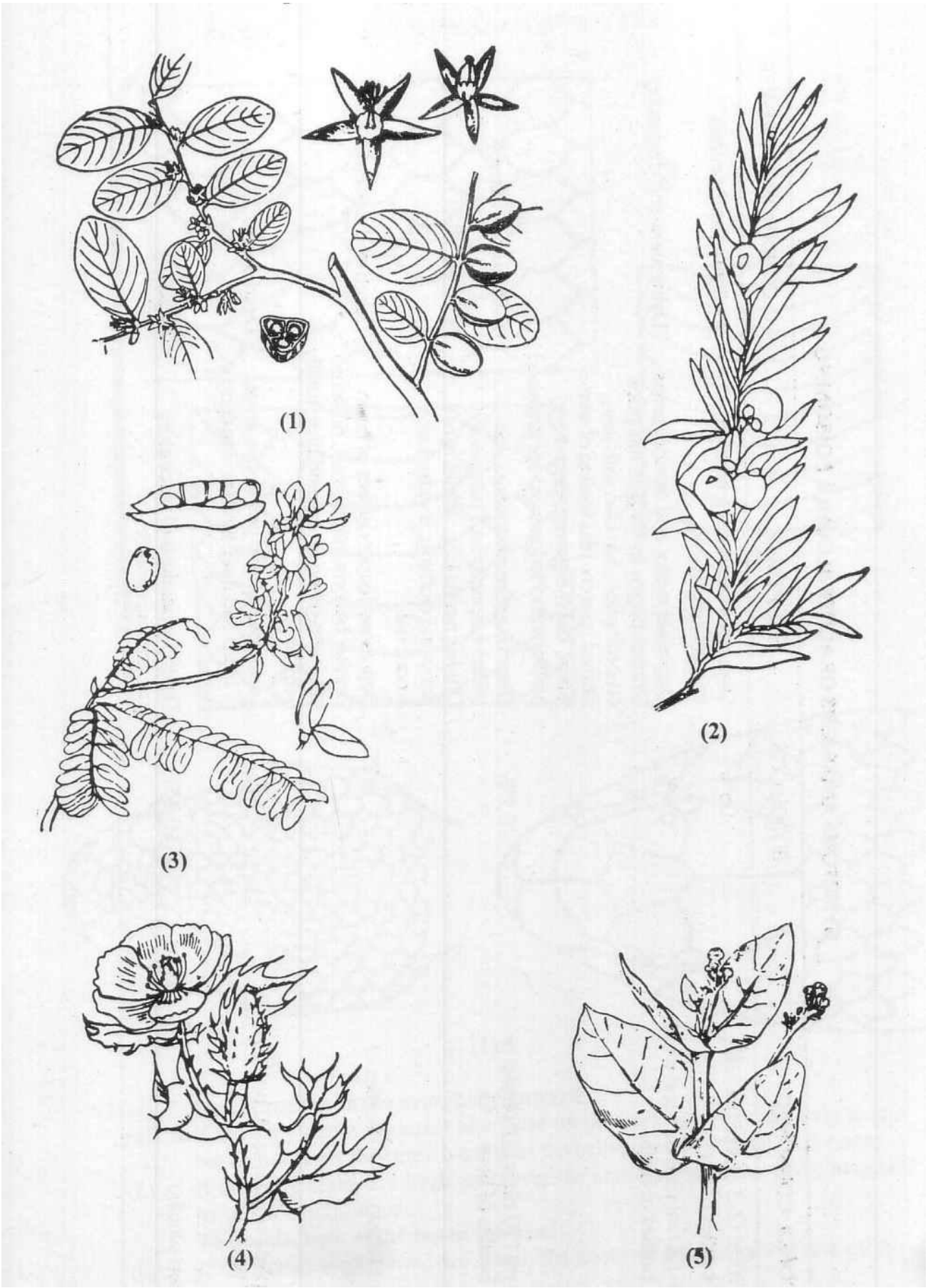
Western book can do justice to this aspect, simply because Western writers are not aware of such a great variety of weapons. To do justice to this subject, an Indian writer had to be roped in. And the editor does this admirably. While Dr. R.S.Bhise of Ahmedabad writes the chapter on "Medicolegal Aspects of Wounds", Dr. Anil Jinturkar of SRTR Medical College, Ambajogai, India, contributes a very illustrative photograph of some peculiar Indian weapons used for assault.



This interesting series of photographs is from Chapter IX (section one) entitled "*Death from Asphyxia*". This depicts a rare case of accidental strangulation simulating homicide, while travelling in a rickshaw. The *dupatta*, got entwined in the axle of the rickshaw. The constrictive abrasion in

the front middle of the neck (Illustration 1); running down on the back (Illustration 2). Illustration 3 shows a piece of torn *dupatta* near the axle

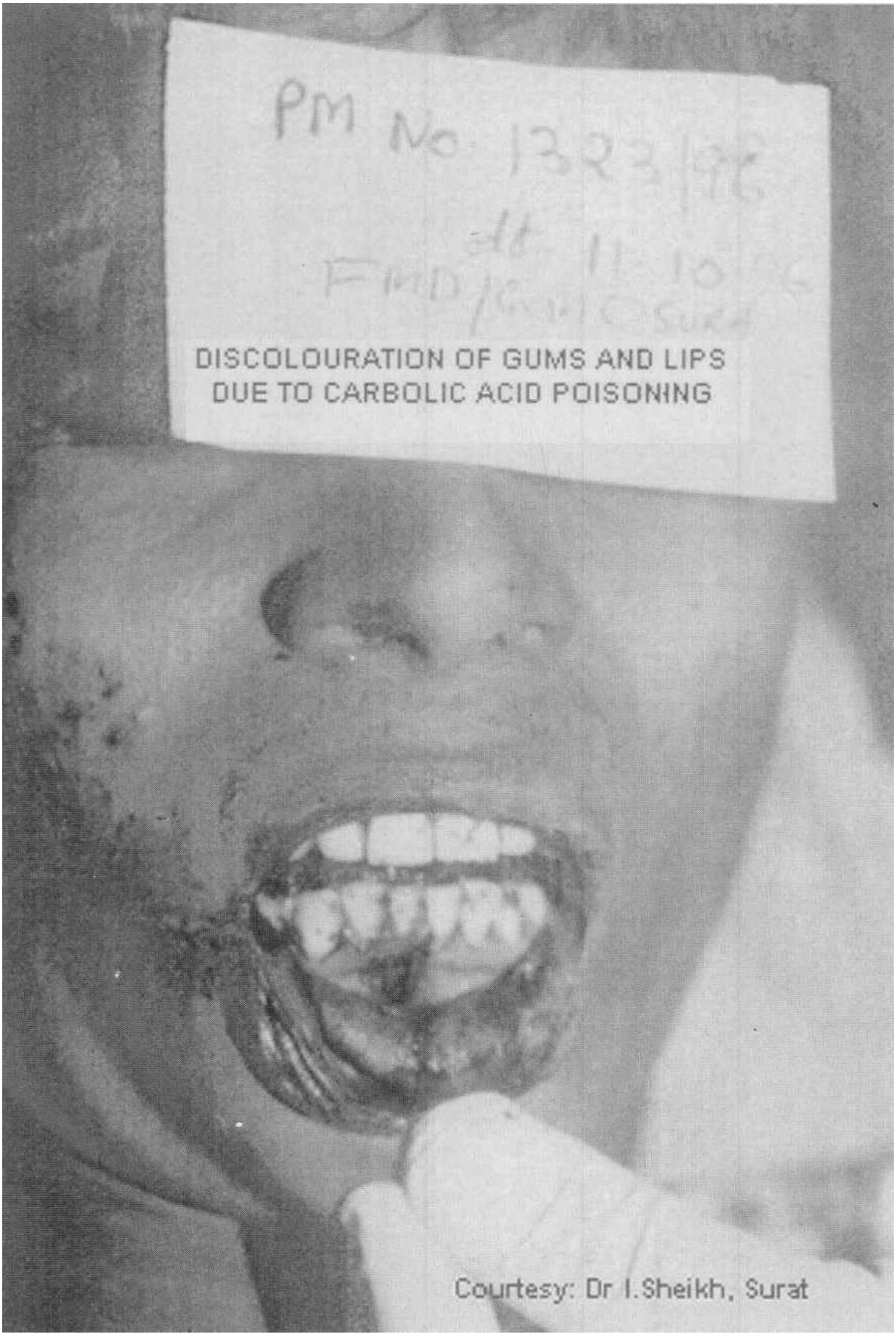
One of the strong points of the original Modi was the description of cases, which Modi gave from his own personal files. Almost every paragraph of every chapter used to be illustrated with some of his cases. It always used to amaze me how one person could tackle so many different kinds of medico legal cases in one life time. But they were all real cases. The current editor has taken the bold step to add many new cases, all coming from different authors. Thus in a way the editor has tried to tap the best Indian talent and experience between the covers of this book. Most of these cases have been illustrated with high quality photographs. One case which caught my attention has been contributed by Professor S.M. Sharif of Surat. It has an eerie similarity to Isadora Duncan's death. But this case is very *Indian*, involving Indian culture and ethos. Two things in this case which are peculiar to the Indian subcontinent are a cycle rickshaw and a *dupatta*. A cycle rickshaw is shown in the accompanying photograph (top row - right side). It is a three-wheeled vehicle run by a driver, who pedals it (it doesn't run on any fuel!).



These diagrams are from Chapter V (section two) entitled "*Organic Irritant Poisons*". The toxic plants depicted are (1) *Cleistanthus collinus* (2) *Taxus baceata* (3) *Abrus precatorius* with fruit and seeds (4) *Argemone mexicana* (5) *Calotropis gigantea*

The passengers sit on a couch attached at the back. In India, especially in small towns and villages, it is a very cheap and handy mode of transport for upto about 5 km. The fare is usually negotiable, but depends largely on the town you are traveling in (higher fares in bigger towns) and the distance you travel. In general you pay about Rs. 10 (one-fifth of a dollar) for one kilometer of travel. A *dupatta* is a long cotton or nylon scarf worn by Indian women to cover the front of their chests. It is usually two meters long or sometimes even longer. The middle part of it goes in front of the chest of the woman, and both ends go back over her shoulders and hang loosely at the back. This cloth is actually very frequently used by women for suicide too. This woman was traveling was traveling on a cycle rickshaw and her *dupatta* was hanging from each side of her shoulders. One end of this cloth got stuck in the spokes of the moving wheel, and quickly constricted her neck. The woman died on the spot with this accidental strangulation. A very bizarre form of death, but very possible in Indian circumstances.

The section of poisons is very interesting too, with the editor going in for all kinds of poisons. Particular stress is laid upon poisons indigenous to India. Chapter V on Organic Irritant Poisons (in section two) is quite interesting and gives information about such peculiar Indian poisons as *Cleistanthus collinus, Taxus baceata, Abrus precatorius, Argemone mexicana* and *Calotropis gigantea* (Diagrams and photographs of all these poisonous plants appear in the book. One is reproduced here).



Discoloration of gums and lips due to carbolic acid poisoning

Death by snakes is not uncommon in this country, and many such deaths could land the doctor in medico legal imbroglio. A full chapter is addressed to this problem, with important hints on how to differentiate between poisonous and non-poisonous snakes.

Photographs of appearances after intake of various poisons appear in the book throughout. We are reproducing just one photograph here, in which the woman is supposed to have ingested carbolic acid.

The book is reasonably priced, and is certainly a very good buy. The information is authentic and comes from several different authors. It is in short a display of Indian talent at its best.

Whom is this book meant for? Obviously for forensic professionals, law officers, police officers, lawyers, advocates and judges working largely in the Indian sub-continent. But I would imagine, a Westerner trying to get a flavor of Indian forensic medicine - and especially its peculiarities - would do well to read this book. It is definitely going to open a whole new world to him.