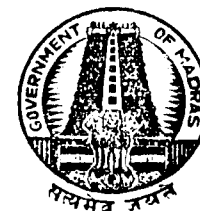


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ANNUAL REPORT
THE CHEMICAL EXAMINERS
DEPARTMENT
FOR THE YEAR
1951

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ANNUAL REPORT
OF THE CHEMICAL EXAMINER'S
DEPARTMENT

FOR THE YEAR
1951

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From

DR. P. VENKAT RAO, M.B., M.Sc., F.R.I.C.,

Chemical Examiner to Government, Madras-3,

To

THE SECRETARY TO GOVERNMENT,

HEALTH DEPARTMENT, FORT ST. GEORGE, MADRAS-9.

(Through the Director of Medical Services, Madras-6.)

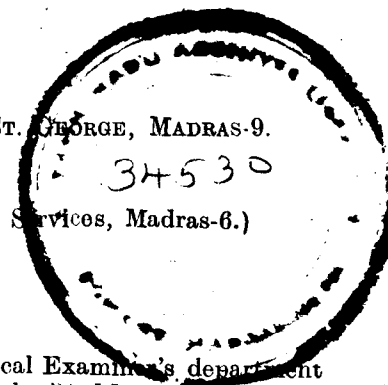
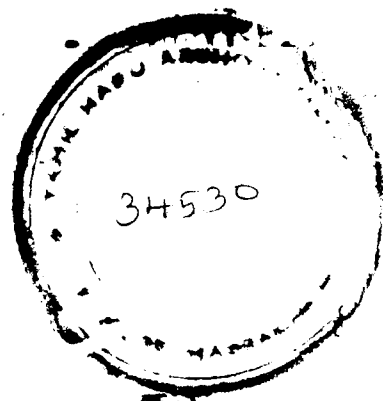
SIR,

[Subject.—Annual Report of the Chemical Examiner's department for the year 1951—Submitted.]

I have the honour to submit the Annual Report of the Chemical Examiner's department for the year 1951.

I was in charge of the Department throughout the year. I was elected a Fellow of the Royal Institute of Chemistry in November 1951. Dr. A. R. Natarajan, B.Sc., M.B.B.S., was my Senior Assistant from the 1st January to the 14th June and from the 15th July to the 1st September. He was on leave from the 15th June to the 14th July. During this period of leave I held full additional charge of the post of Senior Assistant to Chemical Examiner. In G.O. Ms. No. 1660, Health, dated the 12th May 1951, Government sanctioned the deputation of Dr. A. R. Natarajan, B.Sc., M.B.B.S., my Senior Assistant, for undergoing post-graduate studies in the United Kingdom for a period not exceeding two years and three months and he was relieved on the afternoon of the 1st September to take up his post-graduate studies. I held full additional charge of the post of Senior Assistant to Chemical Examiner from the 1st September to the end of the year. Dr. K. Krishna Varman, B.Sc., M.B.B.S., was my Senior Assistant throughout the year. Sri S. Natarajan, B.Sc., was my Junior Assistant throughout the year except for the period from the 1st May to the 30th June, while he was on leave. During this period of leave Sri R. Veeraraghavan, B.Sc., my Assistant for Police Research, held full additional charge of the post of Junior Assistant to Chemical Examiner. Sri A. S. Venkateswara Rao, M.Sc., joined the post of Additional Junior Assistant to Chemical Examiner, sanctioned in G.O. Ms. No. 4332, Health, dated the 26th December 1950, on the 16th November and continued to be my Additional Junior Assistant till the end of the year. Sri R. Veeraraghavan, B.Sc., was my Assistant for Police Research throughout the year. Dr. M. V. Korath, B.Sc., M.B.B.S., was on reserve duty, undergoing training in my laboratory from the 18th July to the end of the year. Sri M. M. Srinivasan, B.Sc., acted as my Sub-Assistant from the 1st January to the 1st April and Sri G. Seshagiri, B.A., acted as my Sub-Assistant from the 2nd April to the end of the year. Sri N. Vedachalam, B.Sc. (Pharm.), was appointed to act as my Additional Sub-Assistant sanctioned in G.O. No. 4332, Health, dated the 26th December 1950, which post he joined on the 11th April and continued to be my Additional Sub-Assistant till the end of the year.

The total number of cases examined during the year was 2,479 with 12,187 articles as compared with 2,220 with 10,544 articles in 1950.



HUMAN POISONING CASES.

The total number of human poisoning cases examined during the year was 956 cases with 4,417 articles as compared with 801 cases with 3,777 articles in 1950. Poison was detected in 414 cases or 43.3 per cent. The nature of poisons detected is shown in the following table:—

Inorganic—	Cases.	Organic—	Cases
Alum	1	Acetic acid	2
Alum and sodium carbonate	1	Aconite	7
Arsenic	14	Aconite and opium	1
Arsenic and alcohol	2	Aconite and sulphur	1
Arsenic and copper	1	Alcohol	33
Arsenic, copper, salicylic acid and lead	1	Alcohol and Chloroform	1
Copper	27	Alcohol and datura	1
Copper and aconite	1	Barbituric acid	7
Copper, mercury and calcium sulphate	1	Benzoin	1
Cyanide	21	Camphor	1
Cyanide and alcohol	2	Cresols	8
Cyanide and hydrochloric acid	1	Datura	25
Glass pieces	4	Datura, ammonium Chloride and calcium carbonate	1
Glass pieces and oleander	1	Jatropha curcas	2
Hydrochloric acid and zinc	1	Kerosene oil	25
Iodine	1	Madar	5
Iodine and alcohol	1	Methyl salicylate	2
Manganese	1	Nux-vomica	5
Mercury	13	Oduvan	6
Mercury and sulphuric acid	1	Oduvan and oleander	1
Nitric acid	18	Oduvan and opium	2
Nitrite	30	Oleander	35
Nitrite, alcohol and opium	1	Oleander and opium	5
Nitrite, copper and oleander	1	Opium	44
Nitrite and opium	1	Opium and alcohol	7
Nitrite and alcohol	4	Paludrine	1
Sulphuric acid	12	Phenol	1
Zinc phosphide or phosphine	12	Quinine	1
Zinc oxide	1	Salicylic acid	2
		Tobacco	1
		Unidentified poison	4
Total ..	176	Total ..	238

Among the poisons opium, heads the list with 61 cases, while alcohol comes next with 52 cases, followed by oleander with 43 cases, nitrite with 37 cases, copper with 31 cases and datura with 27 cases.

A few cases are selected as of interest—

Acids.—(1) A Sindhi girl, aged about 17 years, was suffering from bad throat and hence her mother had purchased a small quantity of "Listerine" for gargling, on the prescription of a doctor. The girl was using this now and then. One day the mother took out a small quantity of vinegar, used it for preserving pickles and placed the bottle containing vinegar, by the side of the "Listerine" bottle. At about 5-15 p.m., the girl took the bottle of vinegar by mistake and drank a small quantity of it. At once finding that it was not her medicine, she vomited and felt restless. She was immediately removed to a hospital for treatment, where she died. One "Listerine" bottle stated to contain vinegar and another bottle containing the "Listerine" were sent to us for examination along with the vomit and viscera of the girl. Acetic acid was detected in the vomit but not in the visceral matters. The liquid in one of the bottles was found to be concentrated acetic acid.

(2) A tinker, by profession, was ill for about a week. He got a medicine in a bottle from a native doctor and placed the same along with other bottles. On a particular day he took out a bottle and swallowed its contents in a hurry to relieve the pain caused by his illness. Subsequently he came to know that the bottle contained acid. He felt enormous pain in the stomach. He was removed

to the hospital where he died. We detected nitric acid in the stomach and contents of the individual.

(3) A girl, aged about 18 years, is stated to have taken some acid mistaking it for "Omam water" (Aqua Ptychotis) from a bottle in an almirah, for a complaint of pain in the abdomen. She was taken to a hospital in a state of restlessness with the whole of the mouth cavity, lips and inner aspect of the fingers of the left hand burnt. We detected sulphuric acid in the viscera of the girl.

Alcohol.—A head constable was stated to have consumed about four ounces of "Essence Raspberry", a spirituous preparation said to contain about 70 per cent of alcohol. Two hours later the constable vomited and died. We detected alcohol but not any other poison in the stomach and contents of the deceased. A specimen of the "Essence Raspberry" taken by the deceased was sent to us for examination and we found it to contain alcohol about 75 per cent volume by volume, but not any other poison.

Arsenic.—(1) A theft of rupees fifty took place in the house of the father-in-law of the deceased. A magician's assistance was sought by the father-in-law, to detect the theft. The magician promised to detect the theft in no time and so saying administered a pinch of some unknown white powder (sacred ash) to nearly fifteen members of that family, age-limit ranging from 4 years to 60 years. He further predicted that the culprit who had taken the money would start vomiting and purging within a couple of hours. At about 5 p.m. that evening the deceased and his brother-in-law who took the 'powder' with other members, complained of gripping pain in the stomach and soon started vomiting and purging. By 8 p.m. their condition grew worse and once again the same magician was called to attend on them. As a counter-remedy the magician administered a mixture of human excreta, cowdung, ass's dung, etc., to both the individuals. This did not have any effect. So the magician once again gave an extract of "Ricinus communis" leaves at midnight. But this also did not help the victims and they continued vomiting and purging till 2 p.m. next day. Then they were brought to the hospital in a dehydrated toxic condition, where the deceased died but the brother-in-law recovered. None of the other members who partook the white powder developed any symptoms. The stomach wash of the brother-in-law and the viscera of the deceased were sent to us for examination and we detected arsenic in the viscera of the deceased but not in the stomach wash.

(2) A male, aged about 55 years, ate some tiffin given by his concubine along with four children, two of whom were his grandchildren. The concubine also took the tiffin. All the six people started vomiting and purging. They were brought to a hospital where the man died and the others recovered. Arsenic was detected in the viscera of the deceased.

Barbiturates.—The father of a girl, aged about 17 years, died on a particular day. The girl is alleged to have developed hysteria four days after the death of the father. She was treated by a doctor. On the sixth day morning after the father's death the girl was found to come out of her room in a perturbed condition and shouting. Then she became unconscious, when she was rushed to the hospital. A stomach wash was given in the hospital followed by further treatment. However, the girl died the next day without regaining consciousness. The girl was suspected to have taken "Gardenal" tablets, kept for treating her father. The suspected tablets, stomach wash and the viscera of the girl were sent to us for examination and we detected a derivative of barbituric acid in the tablets, in the stomach wash, in the stomach and contents and in the urine of the girl.

Cyanide.—(1) The deceased, a male aged 35 years, was an employee in a photographic studio. He was arrested by the police for alleged theft of photo goods and was being taken to the police station, one evening. On a request by him, the police allowed him to enter a public latrine on the roadside. When he returned he was perspiring profusely and collapsing. On rushing him to the hospital he was

found dead. The viscera of the deceased were sent to us and we detected cyanide in the stomach and contents.

(2) The deceased, a male aged 57 years, is stated to have drunk illicitly distilled arrack in the company of the accused in a lonely field but, when questioned the accused stated that the deceased came to his hut and asked for water to drink. When this water was supplied, he drank it and fell down dead. We detected cyanide and alcohol in the stomach and contents of the deceased.

Datura.—(1) Two persons went to a marketing centre for selling chillies and coriander. When they were cooking their evening food, a stranger came and assisted them in the cooking. At about 9 p.m., when these two persons took their food, they became unconscious and behaved in a disorderly manner. It was suspected that the accused had mixed poison with the food while cooking. The victims were taken to the hospital for treatment. The suspected food materials and vessels which contained them were sent to us along with the stomach wash of one of the victims and we detected datura in the stomach wash and in the broth taken by the victims.

(2) An old man, aged about 65 years, went to a cattle fair two miles away with his grandson aged 18 years, with money to buy cattle. On the night prior to the day of the fair, two strangers befriended the old man and his grandson, gave them coffee and took rest on the veranda of a choultry. At about midnight the strangers gave them sweetmeats to eat. The old man and his grandson ate the sweetmeat and the old man fell fast asleep. The grandson was seen running about in the night behaving like a mad man and talking incoherently. In the early hours of the morning the boy ran towards the river. Thereafter none had seen him as to what had happened. At about 8 a.m. the next day his dead body was found floating in the river. The old man got up in the morning and found the strangers as well as the grandson missing. He also found cash, etc., valuables in all valued at Rs. 70 missing. He was not having clear brain and his limbs were trembling. He was removed to a hospital and after a day he regained his proper senses. The viscera of the grandson and the stomach wash of the old man were sent to us and we detected particles of datura seed in the stomach and contents of the grandson but not in the stomach wash of the old man.

Nitrite.—(1) A woman, aged about 20 years, was married to her husband, about a year ago. Since then she and her husband were not on good terms, as the husband had taken away her jewels seven months back. She was living at her mother's place. Her husband came to this place one day and gave her some white powder mixed with jaggery at 10 a.m. saying that it was some medicine from a doctor. The husband also administered the same powder to her six months old male child, in her absence. When the mother returned and saw the child, it was crying. The mother and child were brought to the hospital. The child was dead by the time they reached the hospital. The viscera of the child and the stomach wash of the woman were sent to us for examination and we detected nitrite in every one of them.

(2) A boy, aged about 13 years, took tiffin at the home at 7-30 a.m. on a particular day and was playing in the street. At about 9 a.m. a co-worker in a dyeing factory asked the boy to go with him to the factory. While sweeping the floor in the factory the boy vomited, felt nervous and fell down. He was taken to a hospital but he died before reaching the hospital. The viscera of the boy was sent to us for examination and we detected nitrite in the stomach and contents and in the intestines and contents.

Oleander.—A washerman gave a complaint to the police stating that his wife, whom he married eight months ago, poisoned him by mixing crushed oleander seeds in his food. On a particular day, the washerman after attending to his professional work, asked his wife to bring two eggs and cook them. Thereafter he went out into the village to collect food and returned with the food at meals time. His wife thereupon served him food and also the curry prepared by her. The complainant mixed up the food with the curry and took two morsels of them and felt they were bitter. When questioned the wife said that it was due to excess of salt in the curry. The complainant examined the food and picked out some particles from it

which were identified by the neighbours to be that of oleander seeds. Thereafter a complaint was given to the police. The police seized the remnant of the food and some vegetable matter. We obtained from the food a poisonous extract which gave reactions resembling those given by oleander and identified the vegetable matter to be yellow oleander. On account of the discrepancies in the statement of the complainant in the lower and higher courts the Judge acquitted the accused stating that according to the complainant himself he and his wife were living amicably and no grounds were made out in this case to carry the offence to the accused. The accused appears to be innocent. The Judge further added "I should think that her (accused's) colour and figure are responsible to bring her into this trouble. The husband seems to have developed a hatred for her, for no fault of hers. It may be that the husband himself has foisted this case by putting the seeds in the food that was served to him with a view to implicate his wife in this offence and get rid of her. There is no evidence in this case that anybody treated him (complainant) for poisoning and in fact the doctor opined that there were no symptoms of poisoning in his person."

ANIMAL POISONING CASES.

We received during the year 60 cases of animal poisoning with 266 articles as compared with 39 cases with 188 articles in 1950.

Poison was detected in 34 cases or 56.7 per cent. The nature of poisons detected is shown in the following table:—

	Cases.
Arsenic	19
Zinc phosphide or phosphine	3
Oleander	9
Opium	1
Unidentified poison	2
Total	34

Analytical notes—Zinc phosphide.—Twelve cases of human poisoning and three cases of cattle poisoning by zinc phosphide have occurred during the year under report and this is the first year in which articles from such poisoning cases have been received in this laboratory for examination. The incidence of poisoning by zinc phosphide is probably due to the knowledge of its poisonous effects, possessed by the ryots in whose hands it is placed by the Agricultural Department, for using it as a poison for field-rats.

Zinc phosphide has not been mentioned as a poison for human beings. Because of the number of cases received for examination it was considered desirable to work out a method for the quantitative determination of zinc phosphide in biological materials. The procedure described below was tried in this laboratory to estimate zinc phosphide in biological materials in cases of poisoning by zinc phosphide and was found to give satisfactory results. As a preliminary test for the presence of phosphine in the material, the strip test using mercuric bromide paper, recommended by F. Haun (Analyst 1937, 52, 218) is done. If this gives a positive reaction for phosphine an aliquot portion of the well-sampled viscous is placed in a suitable distilling flask of about 500 c.c. capacity and the phosphine in the viscous liberated with dilute hydrochloric acid. The liberated phosphine is absorbed in a 1.5 per cent solution of potassium permanganate according to the procedure described by J.W. Elmore and F.J. Roth (J. Assoc. Off. Agri. Chem. 1943, 26, 559-564) for evaluating phosphide phosphorous in zinc phosphide, in baits. The excess of permanganate is destroyed by passing a current of sulphur dioxide. The resultant solution is boiled down to a convenient volume, incidentally driving off the sulphur dioxide. Finally, the solution is made-up to a known volume (250 c.c. or 500 c.c.). An aliquot portion of this made-up solution is pipetted out in a boiling tube,

diluted to about 25 c.c. and the phosphate content of the solution estimated using ammonium molybdate and paramethyl-aminophenol sulphate as suggested by N.L. Allport (colorimetric analysis by N.L. Allport 1945 Edition, pages 156-157). The intensity of the blue colour developed is compared with the colours developed from known standard phosphate solutions using a photo electric colorimeter. The value obtained for the phosphate (P. O.) is multiplied by the factor 1.818 for calculating the amount of zinc phosphide. This method was found to give satisfactory results with known quantities of zinc phosphide added to biological materials. The alcohol used as preservative does not interfere.

Since no data regarding the minimum lethal dose of zinc phosphide to human beings were available, experiments were conducted on dogs with a view to fix the minimum lethal dose. It was found that three fourths of a grain of zinc phosphide per kilo weight of the animal administered orally is fatal in less than 24 hours. Calculating according to Meeh's formula (extra pharmacopoeia, Martindale 21st Edition, Vol. 1, page XXXII) the fatal dose for a 10 stone man would appear to be about 12 grains.

Zinc phosphide appears to act as a slow poison. The chief symptoms noticed after the administration of the drug are a vacant look, frequent vomiting with retching followed by respiratory distress at death. The post-mortem appearances noted were, the pale appearance of the mucous membrane of the stomach and intestine, heart dilated and flabby with clotted blood, lungs, liver and kidney congested and blood cherry red in colour. These post-mortem appearances were found to agree with those reported in cases of human poisoning received in this laboratory. The zinc phosphide would appear to be decomposed in the stomach by the hydrochloric acid in the stomach with the liberation of phosphine which acts as a respiratory poison. Being a very fine powder zinc phosphide adheres firmly to the crypts in the mucous membrane of the stomach. It was found that even a small quantity of zinc phosphide left over in the stomach after vomiting is sufficient enough to cause death by slow absorption as observed in experimental animals. A few cases of poisoning by zinc phosphide are given below :—

(1) A male, aged 25 years, Catholic Christian, is alleged to have accidentally swallowed a poison mistaking it to be a medicine for headache at 9-30 p.m. on a particular day. He was later picked up unconscious, near the latrine. Later he regained consciousness and was admitted in a hospital next day at 7-45 p.m. However, he died at 6-30 a.m. the following day, the interval between taking the poison and death being about 33 hours. Phosphine was detected in the stomach wash, urine and viscera of the individual. The post-mortem signs noted were cherry red colour of the blood, pericardial haemorrhage, areas of haemorrhage on lung surface, stomach pale, intestines distended with gas and brain normal.

(2) A female, aged 19 years, complained of severe abdominal pain on a particular morning. She had vomiting but no diarrhoea. She died the same night and at the time of death confessed to have taken rat poison. Phosphine was detected in the stomach and contents but not either in the vomit or other viscera.

(3) Two healthy bullocks drank water from a water trough and stated to have died immediately. This sudden death led the owner of the animals to suspect poisoning. No other symptoms except that the two animals suffered an agony of pain were observed. The viscera of the bullocks were sent to us for examination and we detected phosphine in the stomach and contents of each of the two bullocks and the intestine and contents of one of the bullocks.

(4) An elephant was supposed to have been administered with some bazaar drugs rolled in plantain leaves. The elephant was not eating from 8 a.m. of the day of administration of the drug. He was dull and listless, did not take interest in his surrounding and did not drink water. He was walking very slowly when

moved to a shady hill. Dung was not passed and urine was voided involuntarily in small quantities. At 11 a.m. he showed muscular tremors and shivering. Gait was unsteady and he found it difficult to balance himself. He showed gaping of the mouth and sucking air. At about 2-30 p.m., in an effort to move forward, he lost his balance, staggered and fell digging his tusks on the ground, and expired at about 3 p.m. The post-mortem signs noted were, pericardium contained about 2 gallons of serosanguinous exudate. Heart was enlarged and dilated. All cavities contained imperfectly clotted blood. Liver was enlarged, colour cyanotic, capsule and tissue friable. Large intestine contained formed dung balls some portion appeared dark and mucous membrane around these dark balls slightly congested. Phosphine was detected in the stomach and contents, intestine and contents, liver and dung.

STAIN CASES.

One thousand one hundred and sixty-nine cases were examined under this heading as against 974 cases in 1950. One thousand and forty-two cases were examined for blood and 127 cases for semen with or without blood. The total number of articles examined under these headings were 6,281.

In one thousand and forty-two cases examined for blood, blood was detected in 990 cases or 95 per cent.

In 127 cases examined for semen with or without blood the detections were, semen in 36 cases, blood and semen in 17 cases and blood alone in 18 cases, the total detections being 71 cases or 55.9 per cent.

Five thousand one hundred and twenty-one specimens in all, of stains in which blood was detected in this laboratory, were sent to the Serologist, Government of India, Calcutta, and the results of his examination are given below :—

Human blood	4,882	Blood but disintegrated and origin not determined	1
Disintegrated and origin not determined	227	Bird's blood	3
Too small	7		
Ruminant animal blood	1	Total	5,121

In addition to the above, some tiny brown particles stated to be pieces of bone were sent to the Serologist, Government of India, Calcutta, for determination of their origin and it was reported that no opinion could be given.

Besides the above, scrapings from a type were sent to the Serologist, Government of India, Calcutta, to find out whether the scrapings contained human brain tissue, and it was reported that no opinion could be given.

Specimens of semen stains from three items were sent to the Serologist, Government of India, Calcutta, for determination of their group but it was reported that the reactions of the control of these items were such that no opinion regarding their group was possible.

Twenty-nine pieces of hair found sticking to the weapons, etc., in blood-stain cases were studied and found to be human hair.

The following stain case is of interest :—

A girl, aged 18 years, was proceeding alone, along a road towards the house of a person whom the girl described as her god-father. On the way a taxi driver, seeing the girl unaccompanied by anybody, stopped the taxi near her and represented that he was going along the road to her god-father's house and that he would drop her in front of that house. The girl believed the driver and got into the taxi. The driver instead of dropping her in front of the house, drove at a terrific speed towards a lonely place, in spite of the girl shouting and screaming. The scream of the girl in the taxi, attracted the attention of some passers by, who duly intimated the police by phone regarding the direction in which the taxi was proceeding. But by the time the police could reach the spot, the taxi driver is alleged to have committed rape on the girl and also offered her some money after the act. However, the police were able to arrest the accused at about a mile off

from the scene of offence and took both the accused and the victim to the police station. During investigation the clothings, etc., of the accused and the victim were seized by the police and sent to us for examination and we detected semen in every one of them. The Judge found the accused guilty of abduction and rape and sentenced him to undergo rigorous imprisonment for a term of six years on each count and also to pay a fine of Rs. 500 in default of which to undergo rigorous imprisonment for a further period of three months.

MISCELLANEOUS MEDICO-LEGAL CASES.

(1) There were 243 cases with 1,172 articles under this heading as against 250 cases with 999 articles in the year 1950.

The nature of articles and the number of cases examined are given below :—

Cases.	Cases.
Firearms, bullets, etc., in shooting cases	54
Bones and tissues, etc., for powder and lead, in shooting cases	4
Bombs, etc.	23
Fireworks and other explosives	39
Cases of cheating	18
Theft of wires	8
Filed off numbers	5
Acids and other corrosives	1
Counterfeiting of coins	3
Explosives	21
Other cases	22
Bones and tissues for identification	45
Total	243

Details of a few cases are given below :—

A person is alleged to have entered the weaving shed of another person and removed sarees from the looms there. During investigation the Sub-Inspector of Police seized one saree from the house of the accused and also recovered one from the loom of the complainant. Both the sarees were sent to us for examination and we could prove that they appeared to have belonged to one and the same piece of cloth.

(2) A case of theft of valuables, from a bungalow, to the extent of about Rs. 44,150 was reported to the police. The articles mostly jewellery were stated to have been removed from a safe using a duplicate key. During investigation some blood-stained clothes were found at the scene of offence which were identified to be that of the cook employed in that bungalow. The cook is alleged to have made a duplicate key from a wax impression of the original key and used the same to open the safe. The original key was sent to us for examination to see if any wax particles were present on it. We detected traces of waxy material of mineral origin on the key.

(3) A body of an unknown person, with injuries on his body, was found in a channel. During investigation the police recovered from the scene of offence some blood-stained clothes and an axe with some pieces of wood inserted in the interspace between the axe and its handle. It was suspected that these pieces of wood might belong to a particular tree from which a portion was cut and sent to us for examination. We found the pieces of wood found in the axe to be similar in appearance and structure to the pieces cut from the tree.

(4) While some labourers were sinking a well they found a human body buried in the earth excavated from the well and reported the matter to the police. The police exhumed the body. During investigation it was disclosed that a person (accused) gave intoxicating drinks to his guest (deceased) and later killed him by strangulation. The head of the deceased was cut and thrown into a well and the trunk buried in earth. The shoes of the deceased were cut into pieces and thrown into some paddy fields. During investigation the police recovered the skull with the cervical vertebrae, other bones and a bunch of hair. The police also recovered the shoe laces, stockings and a bill-hook. All the articles were sent to us for examination. We found that the bones and the skull belonged to one and the same male human being, aged above 17 years and below 25 years and about 5 feet.6 inches in height. We also found that some

of the molars showed evidence of filling with a substance containing metallic mercury and silver, which was corroborated by the fact that the deceased had his filling of the teeth at a particular dentist. This piece of examination could fix the identity of the deceased.

GENERAL ANALYSES.

Fifty-one articles were examined under this heading during the year under report as against 156 articles in 1950. These comprised 39 articles for Madras Government, 1 article for Government of India and 11 articles for private parties.

OFFICE AND STAFF.

The Government were pleased to sanction the following additional staff in their G.O. Ms. No. 4332, Health, dated the 26th December 1950, to cope with the increase in work of this department ;—

Junior Assistant to Chemical Examiner	1
Sub-Assistant to Chemical Examiner	1
Typist	1
Technicians	2
Junior Laboratory attendant	1

The service books of the establishment are up to date and the inventory of the valuable stock has been kept and duly checked.

The members of the staff have all performed their duties satisfactorily during the year.

I have to tender my thanks to the Professors of Bacteriology, Pathology, Pharmacology and Medical Jurisprudence, Medical College, Madras, the Principal, Agricultural College, Coimbatore, and the Deputy Inspector-General of Police, Railways and C.I.D., Madras, for assistance in certain special cases.

Yours faithfully,

P. VENKAT RAO,

Chemical Examiner to Government.

APPENDIX.

TABLE I—Summary of work done.

	1950.		1951.	
	Number of cases investigated.	Number of articles examined.	Number of cases investigated.	Number of articles examined.
Medico-legal investigations—				
Human poisoning cases—(a) In Table II.	801	3,777	956	4,417
Animal poisoning cases—(b) In Table II.	39	188	60	266
Stain cases—(c) In Table II	974	5,434	1,169	6,281
Miscellaneous medico-legal cases—(d) In Table II.	250	999	243	1,172
Total medico-legal cases	2,064	10,398	2,428	12,136
General analyses	156	156	51	51
Grand total	2,220	10,554	2,479	12,187

TABLE II—Showing the results of medico-legal analyses according to cases.

Nature of exhibits.	1950.			1951.		
	Total number of cases investigated.	Number cases detected.	Total number of articles examined.	Total number of cases investigated.	Number cases detected.	Total number of articles examined.
(a) HUMAN POISONING.						
General.						
1 Cases in which viscera and contents were tested for poison. The viscera of individuals—	504	189	2,119	603	260	2,425
Poison detected		265				
Poison not detected		353				
	618					
2 Cases in which tissues other than viscera were tested for poison.	..	..	..	..	..	..
3 Cases in which excreta, vomit, dejecta or stomach contents received without viscera were tested for poison.	266	95	351	273	118	391
4 Cases in which only miscellaneous articles were received.	26	12	64	76	33	165
5 Miscellaneous articles received with cases under entries Nos. 1, 2 and 3.	..	..	1,212	..	..	1,413
Abortion.						
6 Cases in which viscera or contents were examined. The viscera of individuals—	5	1	23	4	4	18
Poison detected		4				
Poison not detected		Nil.				
	4					
7 Cases in which only miscellaneous articles were received.	..	..	..	..	..	..
8 Miscellaneous articles received with cases under entry No. 6.	..	..	8	..	..	5
Total (a)	801	297	3,777	956	414	4,417

TABLE II—Showing the results of medico-legal analyses according to cases—cont.

Nature of exhibits.	1950.			1951.		
	Total number of cases investigated.	Number of cases detected.	Total number of articles examined.	Total number of cases investigated.	Number of cases detected.	Total number of articles examined.
(b) ANIMAL POISONING.						
9 Cases in which viscera and contents from horned cattle were tested for poison. The viscera of cattle—	17	5	57	35	19	120
Poison detected		20				
Poison not detected		17				
	37					
10 Cases in which viscera and contents from animals other than horned cattle were tested for poison. The viscera of cattle—	8	..	52			21
Poison detected		6				
Poison not detected		2				
	8					
11 Cases in which tissues other than viscera were tested for poison.	..	..	..	..	..	..
12 Cases in which animal excreta, dejecta or stomach contents forwarded without viscera were tested for poison.	4	2	11	5	..	..
13 Cases of animal poisoning in which only miscellaneous articles were received.	10	8	16	13	10	17
14 Miscellaneous articles received with cases under entries Nos. 9 to 12.	..	..	52	..	..	91
Total (b)	39	15	188	60	34	266
(c) STAIN CASES.						
15 Blood-stain cases other than No. 16 ..	865	827	5,160	1,042	996	5,922
16 Blood-stain, rape and unnatural crime cases.	3	2	6	1	1	2
17 Seminal-stain cases	73	32	159	85	33	189
18 Mixed blood and seminal-stain cases.	33	32	109	41	37	168
19 Other stain-cases	..	..	..	..	..	..
Total (c)	974	893	5,434	1,169	1,061	6,281
(d) MISCELLANEOUS.						
20 Cases in which human bones, hair,*etc., were received.	250	..	999	243	..	1,172
Total (d)	250	..	999	243	..	1,172
Grand total	2,064	1,205	10,398	2,428	1,509	12,136

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TABLE III—Statement of poisons detected in the articles received under headings Nos. 1 to 14 of Table II.

Poisons.	Human poisoning.				Cattle poisoning.			
	General.		Abortion.		General.		Abortion.	
	In viscera and contents.	In tissues other than viscera.	In excreta or stomach contents.	In miscellaneous articles.	In viscera and contents.	In tissues other than viscera.	In excreta or stomach contents.	In miscellaneous articles.
INORGANIC.								
Alum	4	..	..	2	..	..	..	..
Alum and sodium carbonate	4	..	..	19	..	..	..	..
Arsenic	42	..	1	29	..	..	48	26
Arsenic and alcohol	10	..	..	4	..	..	..	..
Arsenic and copper	..	..	2	4	..	..	..	..
Arsenic, copper, salicylic acid and lead.	3	..	..	25	..	..	..	..
Copper	12	..	24	27	..	..	..	..
Copper, mercury and calcium sulphate	4	..	..	25	..	..	..	..
Copper and aconite	..	..	..	5	..	..	..	..
Cyanide	89	..	..	30	..	..	..	..
Cyanide and alcohol	6	..	..	9	..	..	..	..
Cyanide, and hydrochloric acid.	..	..	1	6	..	..	..	..
Glass pieces	..	..	4	10	..	..	..	..
Glass pieces and oleander	..	..	2	2	..	..	..	..
Hydrochloric acid and zinc	..	..	..	1	..	..	..	..
Iodine	..	..	1	2	..	..	..	..
Iodine and alcohol	..	..	1	1	..	..	..	..
Manganese	..	..	1	1	..	..	..	..
Mercury	42	..	2	34	..	..	..	..
Mercury and sulphuric acid	..	..	1	2	..	..	..	..
Nitric acid	55	..	6	24	..	..	..	..
Nitrite and opium	2	..	..	1	..	..	..	..
Nitrite	120	..	7	78	..	..	..	..
Nitrite, copper and oleander	4	..	..	9	..	..	..	..
Nitrite alcohol and opium.	8	..	..	11	..	..	..	..
Nitrite and alcohol	19	..	..	11	..	..	..	..
Sulphuric acid	28	..	4	21	..	..	..	..
Zinc phosphide or phosphine.	38	..	1	20	..	..	14	12
Zinc oxide	..	..	..	1	..	..	..	..

ORGANIC.

Acetic acid	8	..	..	6	..	..	..	..
Aconite	7	..	2	16	..	..	..	..
Aconite and opium	2	..	..	1	..	..	..	..
Aconite and sulphur	..	..	..	3	..	..	..	..
Alcohol	119	..	2	58	..	..	..	..
Alcohol and chloroform	5	..	..	3	..	..	..	..
Alcohol and datura	2	..	..	1	..	..	..	..

TABLE III—Statement of poisons detected in the articles received under heading Nos. 1 to 14 of Table II—cont.

Poisons.	Human poisoning.				Cattle poisoning.			
	General.		Abortion.		General.		Abortion.	
	In viscera and contents.	In tissues other than viscera.	In excreta or stomach contents.	In miscellaneous articles.	In viscera and contents.	In tissues other than viscera.	In excreta or stomach contents.	In miscellaneous articles.
ORGANIC—cont.								
Barbituric acid	5	..	7	10	..	..	..	..
Benzoin	..	..	1	2	..	..	..	..
Camphor	..	..	1	1	..	..	..	..
Cresols	27	..	7	10	..	..	..	..
Datura	16	..	70	68	..	..	..	..
Datura ammonium chloride and calcium carbonate	..	..	5	12	..	..	..	..
Jatropha curcas	..	..	2	4	..	..	..	..
Kerosene oil	..	..	25	25	..	..	..	..
Madar	16	..	..	11	5	2	..	..
Methyl salicylate	..	..	2	2	..	..	..	..
Nux-vomica	23	..	..	10	..	..	..	..
Oduvan	18	..	..	14	..	..	..	..
Oduvan and oleander	3	..	..	2	..	..	..	..
Oduvan and opium	8	..	..	4	..	..	..	..
Oleander	105	..	3	85	4	1	22	20
Oleander and opium	20	..	..	6	..	..	..	..
Opium	173	..	1	49	4	1	3	1
Opium and alcohol	27	..	..	9	..	..	..	..
Paludrine	..	..	2	2	..	..	..	..
Phenol	5	..	..	1	..	..	..	..
Quinine	..	..	..	..	5	1	..	..
Salicylic acid	..	..	2	2	..	..	..	..
Tobacco	..	..	..	5	..	..	..	..
Unidentified poison	7	..	1	7	..	..	..	3
Poison detected	1,086	..	191	843	18	5	89	62
Poison not detected ..	1,339	..	200	735	..	..	52	17
Total	2,425	..	391	1,578	18	5	141	108

TABLE IV.—Showing the places from which cases, in which articles were tested for *poison*, have been received during the year 1951.

		Human.								Cattle.			
		General.				Abortion.							
		In viscera.		Other articles.		In viscera.		Other articles.		In viscera.		Other articles.	
		Number of cases.	Number of detections.	Number of cases.	Number of detections.	Number of cases.	Number of detections.	Number of cases.	Number of detections.	Number of cases.	Number of detections.	Number of cases.	Number of detections.
1 Anantapur ..	..	15	8	7	2	1	1	..	..	..	..	..	..
2 Arcot, North ..	..	23	12	6	3	..	..	..	..	2	1	6	2
3 Arcot, South ..	..	36	16	6	1	..	..	..	..	2	1	..	..
4 Bellary ..	..	3	1	3	1	..	..	..	..	..	..	..	..
5 Chingleput ..	..	15	10	3	1	..	..	..	..	2	..	1	1
6 Chittoor ..	..	10	7	11	7	..	..	..	..	3	2	..	..
7 Coimbatore ..	..	37	16	9	3	1	1	..	..	4	1	1	1
8 Cuddapah ..	..	17	8	2	1	..	..	..	..	..	..	..	..
9 Godavari, East ..	..	19	11	10	3	..	..	..	..	1	1	..	..
10 Godavari, West ..	..	17	7	8	4	1	1	..	..	1	1	..	..
11 Guntur ..	..	32	12	14	6	..	..	..	..	2	..	..	..
12 Kanara, South ..	..	7	7	1	1	..	..	..	..	..	..	2	..
13 Krishna ..	..	17	4	4	2	..	..	..	..	..	..	..	..
14 Kurnool ..	..	12	3	3	2	..	..	..	..	1	..	..	..
15 Madras ..	..	76	22	179	76	..	..	..	..	5	4	..	..
16 Malabar ..	..	21	3	2	1	..	..	..	..	1	1	2	1
17 Madurai ..	..	20	11	8	5	..	..	..	..	1	1	1	1
18 Nellore ..	..	27	12	11	6	..	..	..	..	2	1	..	..
19 The Nilgiris ..	..	6	2	1	..	..	..	..	..	..	..	..	..
20 Ramanathapuram ..	..	10	6	3	2	..	..	..	..	4	3	2	1
21 Salem ..	..	50	29	14	4	..	..	..	..	..	..	..	..
22 Srikakulam ..	..	3	2	1	..	..	..	..	..	..	..	..	..
23 Tanjore ..	..	60	24	11	4	..	..	..	..	4	2	..	..
24 Tiruchirappalli ..	..	38	17	18	8	..	..	..	..	3	3	1	1
25 Tirunelveli ..	..	16	4	5	3	1	1	..	..	2	1	..	..
26 Visakhapatnam ..	..	7	3	6	2	..	..	..	..	2	1	2	2
27 Foreign cases ..	..	9	3	3	2	..	..	..	..	..	..	..	..
Total ..	..	603	280	349	150	4	4	..	..	42	24	18	10

TABLE V.—General analyses for Government department, etc.

Received from	Nature of substance.	Number of examinations.	Total for the year.
<i>Madras Government departments.</i>			
Veterinary Assistant Surgeon, Ramanathapuram.	Pellet found inside the intestine of a cow.	1	1
Veterinary Assistant Surgeon, Bodinayakanur.	Grasses	16	18
	Visceral matters of a sheep.	2	
Superintendent of Stationery	Inks	20	20
			39
<i>Government of India.</i>			
Chief Medical Officer, Southern Railway, Madras.	Stomach contents ..	1	1
Total for Government of India ..			1
<i>Private parties.</i>			
	Inks	11	11
Total for private parties ..			11
Grand total ..			51



HEALTH DEPARTMENT

G.O. No. 1469, 5th May 1952

Report—Chemical Examiner's Department—Administration Report—1951 —
Reviewed.

READ—the following paper :—

From the Director of Medical Services, dated 15th April 1952,
Ref. No. 37518-M/52.

Order—No. 1469, Health, dated 5th May 1952.

Recorded.

2. The work of the Chemical Examiner's Department during the year 1951 continued to be satisfactory.

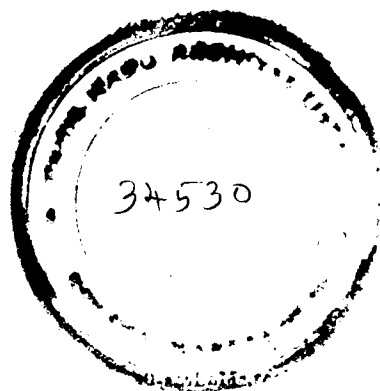
(By order of His Excellency the Governor).

S. R. KAIWAR,
Secretary to Government.

To the Director of Medical Services, Madras-6.

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- „ Chemical Examiner (through the Director of Medical Services).
- „ Inspector-General of Police.
- „ Director, King Institute, Guindy.
- „ Library of the Madras Legislature.
- „ Secretariat Library.
- „ Officer-in-charge, State Administration Report, Public Department.
- „ Secretary, Madras Medical Association.
- „ Registrar, University of Madras }
- „ Registrar, Andhra University } (with C.L.)
- „ Registrar, Annamalai University }

To the Librarian, Connemara Public Library.
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,, the Home Department.
,, the Development, Public and Legal Departments.
,, the Secretary, Madras Chamber of Commerce.
,, the Secretary, South Indian Chamber of Commerce.
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,, the Secretary to the Government of India, Ministry of Health (with C.L.).
,, the Secretary, Madras Public Service Commission.
,, all District Magistrates.
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,, the Hon'ble the Chief Justice, Madras (with C.L.).
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