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Revenue (1899) Department.

MISCELLANEOUS SERIES.

G.O., No. 1915

DATED 29th May 1885

[Despatch Abstract.]

Communicating to the Board of Rev.
Progs. of the Public Dept. reviewing the ann
report of the Chemical Examiner for the year

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Revenue Dept.

Government {1899} of Madras.

PUBLIC.

Current No. 3306.

Recd. 20th May } 1899. Enclosures

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G.O., &c., Nos. 508, 509, 6th May 1899.

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Order misc No 1915 of 29th Me

Communicated to the Board of Revenue

29/V/99

Dd 2-6-99 { To The Board of Rev L.R. A.S. & Sep Rev

Copy to the Director of the Govt Cinchona Plantation — Dept 31.5.

Report of the Chemical Examiner.

Reviewing the annual — for the year 1898. Copy to the Government of India.

20.[illegible].99

sent under a Special order.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

Read—the following paper :—

From Surgeon-General C. SIBTHORPE, C.B., F.R.C.P.I., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Ootacamund, 13th April 1899, No. T 8/102.

I have the honour to submit herewith the annual report for 1898 of the Chemical Examiner to Government. It is, as usual, full of interesting facts, and shows how carefully Major Sanjana, I.M.S., has worked to carry on the department efficiently.

2. The point raised by him in paragraph 19 regarding analyses for the Revenue Board is a most important one.

3. His observations regarding counterfeit coins in paragraph 24 require the consideration of the Financial Department.

Enclosure.

From Major K. C. SANJANA, I.M.S., Acting Chemical Examiner, to the Chief Secretary to Government (through the Surgeon-General with the Government of Madras), dated Madras, 6th April 1899, No. 390.

I have the honour to submit the annual report on the work of the Chemical Examiner's department for the year 1898.

2. Major J. L. VanGeyzel, I.M.S., who was granted furlough on account of his failing health, handed over charge of the office on the 20th April 1898 to M.R.Ry. M. C. Nanjunda Row, B.A., M.B., C.M., First Assistant Chemical Examiner, from whom I assumed charge on the afternoon of 4th May 1898.

3. The work of the department shows an increase over that of last year and the comparative statement of the analytical work done is shown below :—

Table I.

—	—	Number of cases investigated.		Number of articles examined.	
		1898.	1897.	1898.	1897.
A.—Medico-legal investigations.	I.—Cases of suspected human poisoning ..	135	118	859	770
	II.—Blood stains, &c.	57	50	192	238
	III.—Seminal stains	6	11	34	37
	IV.—Cases of suspected cattle poisoning ..	74	71	281	232
	Total ..	272	250	1,396	1,277
B.—Miscellaneous analyses.	For Government departments and municipalities	881	906	881	906
	For private parties and firms	49	85	49	85
	Total ..	930	991	930	991
	Grand Total ..	1,202	1,241	2,326	2,268

4. The number of medico-legal cases investigated exceeded that of last year by 22, while the number of separate analyses under this section was in excess of that of previous year by 119. In the miscellaneous work of the department there is however a decrease. The decrease is chiefly due to no sample of beer having been received from the Board of Revenue for analysis for the last nine months of the year, and to fewer samples of salt having been examined. The total number of separate analyses performed is however still in excess of those of previous years.

5. With reference to paragraph 8 of G.O., No. 681, Public, dated 19th May 1898, reviewing last year's annual report, suggestions and directions about the preparation of the plans and estimates for increased accommodation were received from Major J. L. VanGeyzel who, after visiting some of the principal chemical laboratories at home, sent detailed instructions not only with regard to the plan of the building and its fittings, but also with regard to the indenting for several valuable, useful and recently invented analytical apparatus required for carrying on the analyses of articles of so varied a nature as have been recently received from time to time. These instructions have been communicated to the Consulting Architect, and it is hoped that the plans and estimates will be prepared and the work taken in hand as early as possible, as much inconvenience is experienced owing to want of sufficient working room.

A.—MEDICO-LEGAL INVESTIGATIONS.

I.—Cases of suspected Human Poisoning.

6. The usual information regarding these cases which were examined during the year is furnished in the following two tables :—

TABLE II.—*Human Cases—Class A.*

(Including cases in which viscera or evacuations were examined with or without suspected substances, food, &c.)

Districts received from.	Number of cases.	Number of cases in which poison was detected.	Number of individuals affected.	Number of deaths.	Number of analyses.	Poisons. Inorganic. Arsenious oxide.	Arsenious oxide and mercuric salt.	Arsenious oxide and orpiment.	Arsenious oxide and strychnine.	Arsenious oxide and diseased grains of ragi.	Arsenious oxide and aconitine.	Corrosive sublimate and atropine.	Copper sulphate.	Cinnabar.	Mercurie salt.	Mercurie salt and dhatura.	Mercurie salt and aconitine.	Mercurie salt and morphine.	Orpiment.	Organic. Aconite.	Atropine.	Atropine and dhatura.	Aconite and opium.	Atropine and strychnine.	Bamboo leaves.	Dhatura.	Diseased grains of ragi.	Ganjah.	Manihot utilissima.	Morphine.	Opium.	Oleander and Tylophora asthmatica.	Picrotoxin.	Strychnine.	Strychnine and aconitine.	Tobacco.	Tylophorine.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Anantapur	3	3	12	2	20	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arcot, North	1	1	1	1	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arcot, South	1	..	1	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary	7	1	7	6	29	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Canara, South	4	1	4	4	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chingleput	3	1	9	2	15	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Coimbatore	8	6	23	5	36	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
Cuddapah	10	6	19	6	56	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ganjám	6	4	12	7	56	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gódávari	16	12	28	19	144	..	3	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Kistna	5	4	7	3	54	3	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	..	1
Kurnool	3	3	5	2	20	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Madras	3	2	3	3	16	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Madura	6	5	92	8	46	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	6	5	6	6	28	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..
Nellore	8	8	23	12	81	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..
Salem	2	1	3	3	15	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..
Tanjore	5	4	5	4	42	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Trichinopoly	2	2	18	1	29	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly	6	4	11	4	31	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Vizagapatam	5	4	8	6	46	1	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for the year. 1898 ..	110	77	297	105	794	29	5	1	..	1	1	..	..	2	7	..	..	1	..	7	2	1	1	1	1	1	2	1	..	1	4	1	2	1	2	..	1
1897 ..	100	75	218	81	735	32	5	1	1	..	..	1	1	..	11	1	1	..	1	6	1	..	..	..	..	1	..	..	1	2	3	..	..	4	1	1	..

TABLE III.—*Human Cases—Class B.*

(Including cases in which no viscera or evacuations were received for examination, but only suspected substances, food, &c.)

Districts received from	Number of cases.	Number of cases in which poison was detected.	Number of analyses.	Poisons. Inorganic. Arsenious oxide.	Arsenious oxide and metallic mercury.	Arsenious oxide and mercuric salt.	Corrosive sublimate and tartar emetic.	Mercuric salt.	Mercuric salt and atropine.	Nitric acid.	Phosphorus.	Realgar and potassium chlorate.	Organic. Atropine.	Calotropis gigantea.	Dhatura and atropine.	Diseased grain (rice).	Diseased varagoo.	Euphorbia.	Ganjah.	Monihot utilissima.	Morphine.	Nux vomica and Cocculus indicus.	Opium.	Oxalic acid.	Strychnine and aconitine.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Arcot, South	1	1	14	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary	3	3	9	..	..	..	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
Canara, South	2	2	13	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Chingleput	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Coimbatore	1	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cuddapah	3	2	22	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Kistna	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Kurnool	4	2	9	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Madras	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Nellore	1	1	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Salem	1	1	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	2	2	7	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	2	2	3	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly	2	2	7	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for the year. 1898 ..	25	22	95	2	..	2	1	3	1	1	1	1	2	2	1	1	1	..	1	..	1	..	1	..	..
1897 ..	18	14	35	2	1	..	..	1	..	..	..	..	..	..	..	..	1	1	1	1	..	1	3	1	1

7. The comparative percentages of detections to cases examined during the past two years are given below :—

Table IV.

—	A. Cases in which viscera or evacuations were examined.			B. Cases in which only suspected food, &c., was received for examination.			Total.		
	Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.	Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.	Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.
1897	100	75	75·00	18	14	77·7	118	89	75·42
1898	110	77	70·00	25	22	88·0	135	99	73·33

8. The ratio of detections to cases examined during the year under review was two per cent. less than in the preceding year when the highest percentage ever on record was shown. The ratio however is nearly six per cent. in excess of the average of last five years.

9. There were in all 36 cases in which chemical examination failed to detect any poison. In conformity with the previous year's report, I shall first take up these cases for review. These cases may be divided into two groups :—

I. Ten cases in which twelve persons were affected without fatal result.

II. Twenty-six cases in which thirty persons were affected with fatal result in every instance.

Group I.—Of the ten cases, four were returned as false ; one was due to diseased varagoo grain and one to alcoholic poisoning ; in one case a man under the pretence of instructing a rich widow in the truths of "Divine philosophy" was alleged to have administered her, during one of the lessons, some white powder and then, taking advantage of the giddiness produced by the substance, to have dealt her a severe blow on the head and walked off with all her jewels. The saliva that had dribbled from the mouth of the woman and the alleged vomited matters were sent for examination, but no poison was found to be present in either of them. The accused was given seven years' rigorous imprisonment for the offence. Of the three remaining cases, in one the alleged symptoms of poisoning were caused by a disease, in the second the cause was unknown, and in the third and last the result of the enquiry has not yet been received from the Magistrate.

Group II.—The cases in this group are classified into three sub-groups :—

(*a*) Twenty cases in which the balance of evidence was in favour of death from disease, or in consequence of abortion, hanging, drowning, strangulation or asphyxia :—

Abortion	7
Drowning	3
Cholera	2
Hanging	1
Strangulation	1
Asphyxia from a piece of meat getting stuck in the larynx of a drunken man during the act of vomiting	1
Heart disease	1
Apoplexy	1
Dysentery	1
Dysmenorrhœa and peritonitis	1
Bones sent for identification in a case of murder and not of poisoning ..	1
Total ..	20

(*b*) Three cases in which there was not sufficient evidence in favour either of poison or of a natural cause to account for death. In one of these a man had an attack of purging after eating pork, and the purging was aggravated by his relatives giving him large doses of a decoction of bamboo leaves in ignorance of its action which resulted in his death. No poison was found in the visceral matters. In another, two children were given roasted blood and developed symptoms of purging and vomiting and died. No poison was detected in the visceral matters. It was probably a case of ptomaine poisoning or cholera. In the last case, a boy and a girl went to sleep on a pial after supper and about midnight both of them woke up and complained of tingling sensation all over the body. This was soon followed by loss of sense of taste, unconsciousness and foaming at the mouth and they died the next morning. No poison was found in the visceral matters. Snake-bite was suspected, but the results of the enquiry have not yet been communicated.

(*c*) Three cases in which the balance of evidence was in favour of poison as the cause of death. In one of them, a man, while on his way home from a village in company with a female relative, developed symptoms of violent vomiting and purging after partaking of some rice preserved in tamarind water and died from their effects the next day. The woman who was with him was said to have absconded with his money. No poison was found in the viscera and their contents, and as no vomited or purged matter and only what was left of the rice partaken of was sent for examination, it was not possible to tell, in case the man was really poisoned, whether the failure to detect poison in the viscera was due to its total elimination from the system. In the second, a man, a resident of Rajahmundry, after having taken some sweet-meat and his usual evening meal at 8 o'clock was seized with vomiting and when seen by the Assistant Surgeon was found in a state of collapse. He died at 11-30 the same evening. In spite of the information given to the Station-house officer of the place by the Assistant Surgeon regarding the suspicious nature of the case, the body was not sent for *post-mortem* examination the next day but was hurriedly cremated. Subsequently, according to the statement of the police, further information having been received, the half-burnt body was recovered from the burning ghât and sent for *post-mortem* examination when all the visceral organs were found in a charred state. A mass of the charred organs was sent to this office for examination and naturally no poison was detected in it, the poison which, judging from the symptoms of the case, was probably of the nature of a vegetable poison like aconite, having been destroyed by heat. In the information received from the Superintendent of Police, Gódávari, regarding the case, it is stated that, "as no poison was found by chemical examination the police very naturally took no further steps in the matter and no trial was held." In the last case of this class, a man, his wife and three children partook of food consisting of *soma* rice, dried fish and tamarind water. They all went to bed and about six hours afterwards the wife and the two youngest children had profuse perspiration, twitching of limbs, foam about the mouth and nostrils, difficulty of breathing and insensibility followed by death next morning. The eldest child, a grown-up girl, developed similar symptoms the next morning and died about 24 hours afterwards. Her viscera alone were sent for examination but no poison was found in any of them. The father did not show any of the above symptoms. It was stated that the affected persons were hill people accustomed to eat different kinds of roots and berries. As no poison was detected no further steps were taken by the police in investigating the case.

10. Poison was detected in the remaining 99 cases, of which 59 were cases of inorganic and 40 of organic poison, and the statistical information regarding them is summarised below :—

—	Inorganic.	Organic.	Total.
Cases included in class A	47	30	99
" " B	12	10	
Number of individuals affected in A and B ..	209	107	316
" of deaths in A and B	44	34	78

Inorganic Poisons.

11. Of the 59 cases in which inorganic poisons were detected, in 32 a compound of arsenic alone was found, in seven there were salts of arsenic and mercury combined

and in three a compound of arsenic and an organic poison. Of the remaining 17 cases, a salt of mercury alone was detected in 12 cases, a compound of mercury and tartar emetic in one case, a compound of mercury and an organic poison in two cases, phosphorus in one case and nitric acid in another.

The following are the notes of a few cases of interest:—

(*a*) A case of more than ordinary interest was that of a man who, not having been on good terms with his wife, devised a peculiar method of punishing her by surreptiously introducing a piece of corrosive sublimate into her private parts after having an intercourse with her. The drug not only caused intense burning and local inflammation but also gave rise to all the symptoms of general mercurial poisoning including ulceration of mucous membrane of mouth and stomach, from the effects of which the poor woman died twelve days after. The visceral matters were found to contain more than the poisonous dose of mercuric chloride. This gave rise to the contention, during the trial of the accused, whether the symptoms of mercurial poisoning could not have been the result of swallowing the drug by the mouth, but no evidence was forthcoming in support of the contention. The whole evidence only went to confirm the curious fact that the external application of corrosive sublimate causes inflammatory changes in the alimentary canal of nearly the same intensity as when the poison is swallowed. The accused got ten years' rigorous imprisonment.

(*b*) A father and five children soon after a meal had vomiting, purging, and all the symptoms of arsenical poisoning and one of the children died and it was then found out that the man himself had mixed some poison with food without the knowledge of his wife to put an end to himself and his children, as he was much involved in debt. The result of the enquiry is not yet communicated.

(*c*) An old woman was charged with poisoning her only grandson in order to spite her daughter-in-law. Small quantities of arsenic and aconite were found in the visceral matters of the child. The detection of the two poisons, combined with the smallness of the quantities detected, created a reasonable doubt in the mind of the Sessions Judge as to the probability of an ignorant old woman administering two different poisons in quantities just enough to cause death. The death of the child was attributed to an overdose of native medicine, it being customary with native doctors to prescribe pills containing arsenic and aconite in combination, and the woman was acquitted.

(*d*) A man met with his death in the following altogether novel manner. Powdered realgar (red sulphide of arsenic), chlorate of potash and fine pebbles were mixed together and rolled into a ball with the help of a few rags and thread, and in this form, thrown at the deceased by the accused in the case. The ball, on coming in contact with the man's abdomen, exploded with violence causing serious injuries, not only to the abdominal wall but also to the stomach and intestines, and bringing about instantaneous death. Strange to say, the accused were acquitted owing to "the gross supineness, if not corruption, of the police" concerned in the case, as remarked by the Sessions Judge.

It may be mentioned here that crackers made of the abovementioned materials are allowed to be sold in the bazaars especially during the Deepavali and Kirthigay festivals. Chlorate of potash and realgar form a mixture which is ready to explode at the least friction or shaking, and is therefore almost as dangerous to handle as dynamite. Cases have been on record in the General Hospital in this town and in other hospitals, of persons employed in rolling such crackers getting their fingers and hands very severely injured by accidental explosions so as to necessitate amputation of the whole hand. The ease with which realgar and chlorate of potash can be procured in any Indian bazaar affords facilities for the private manufacture of such dangerous crackers on a large scale, and unless such unlicensed manufacture is made penal, it will not be possible to prevent it.

Organic Poisons.

12. Of the forty cases in which vegetable poisons were detected, in five more than one poison was detected in each case, in three diseased food-grains accounted for the poisonous symptoms, and only one poison was found in each of the remaining thirty-two cases. Cases of organic poisons mixed with inorganic have already been referred to in paragraph 11 above.

Aconitine and Opium (1 case).—This was a case of suicide in which aconitine was found in stomach and contents, but strange to say opium was found in what was said to be vomit-stained cloth.

Aconitine and Strychnine (2 cases).—One was a non-fatal case the result of a slight overdose of a medicinal pill containing both aconitine and strychnine, while in the other, two persons died soon after a meal and the two alkaloids were found to be present in the visceral matters, but the case remains undetected.

Strychnine and Atropine (1 case).—In this a man who had previous knowledge of compounding medicine committed suicide by taking strychnine. Tincture of Belladonna given as an antidote during life accounted for the presence of atropine with strychnine detected in the stomach and its contents.

Oleander and Tylophora Asthmatica.—Three persons took some medicine made up of powdered roots; two of them died but one escaped. The cause of death was traced to oleander only, but *Tylophora Asthmatica* was one of the roots sent for identification. Why this root is included among poisons will be noticed below.

Opium.—This was found in five cases of poisoning. In one a woman indignant at the caning received from her husband committed suicide by taking this drug; in another a man, with a view to induce his unwilling mistress to leave her mother's house and go with him, thrust a lump of opium into her mouth and made her swallow it by forcibly closing her mouth with his hand. In one of the cases eleven persons who partook of varagu cakes became delirious and unconscious and opium was found to be present in the cakes.

Morphine.—In one case of an habitual opium-eater who died suddenly only morphine was found in the stomach and its contents but no meconic acid. In another case a woman and her paramour were given coffee by another man and both fell into a deep sleep, and the woman was robbed of her jewels. The remnants of the coffee were sent for examination and only morphine was found to be present in them. The Police failed to detect the culprit.

Aconite.—This accounts for the largest number of deaths from poisoning with any single organic poison, fourteen having died out of twenty-two affected in seven cases. In three cases aconite root was mistaken for common turmeric and used with fatal results. One case where a woman died soon after a meal with all the symptoms of aconite poisoning remains undetected. In one case two women conspired together to put an end to the lives of two men by giving them aconite in a powder and rob them of their money, and succeeded in their object. One of them was sentenced to be hanged, but the other was acquitted. In another case six persons went on a nocturnal toddy-stealing excursion and three of them met with their deaths by drinking toddy previously drugged with aconite. In one case a mother made short work of the life of her immoral daughter by giving her aconite, and thus made short work of her own life by receiving capital punishment for it.

Atropine and Dhatura.—Atropine was detected in seven cases, in some of which dhatura seeds also were found. Two cases, in one of which six persons were affected with one fatal result, were due to accidental poisoning. In one a villager administered a fatal dose of the juice of dhatura leaves mixed with ghee to a man for ringworm and got six months' rigorous imprisonment for his ignorant medical practice. In another case, a man, suspecting another to be on terms of an undesirable intimacy with his wife, instigated a boy to mix dhatura seed powder in the conjee prepared for the latter thereby poisoning eight persons but with no fatal results, and received four years' rigorous imprisonment. In another case, a young woman of 17, married only eight days, mixed dhatura powder and powdered glass with the food of her husband to make him love her, but no untoward symptoms followed as the bitterness of the first morsel caused the husband to reject the food altogether. In one case, toddy, by drinking which five persons were poisoned, was found to contain atropine and seeds of dhatura, and in the last case a woman on account of the grudge she bore to a man gave him two cakes which produced all the symptoms of dhatura poisoning in five persons who partook of the same. All of them recovered and the woman got seven years' rigorous imprisonment.

Strychnine.—In addition to the cases already mentioned in which this poison was associated with other poisons, there was only one case in which this alkaloid was found singly in the visceral matters of a man found dead in a garden. The case is still pending enquiry.

Tylophorine.—This alkaloid derived from a plant called *Tylophora Asthmatica* was apparently the cause of death of three persons in two cases. In one of these cases a young man who was suffering from gonorrhœa took the juice of this plant in goat's milk about 10 o'clock in the night and when seen at 4 o'clock in the morning he was found unconscious and suffering from slight convulsions of the upper extremities. He died the next morning. He had neither vomiting nor purging and unfortunately no one observed the symptoms which had preceded his unconsciousness. In the other case a man and his wife were given a similar medicine by a native vythian also as a cure for gonorrhœa at about 7 o'clock in the evening. About three hours after, both of them began to complain of an acrid feeling in the mouth and throat which was followed by nausea, severe vomiting and purging, exhaustion, collapse and death on the morning of the next day. In both cases evidences of the alkaloid tylophorine alone were obtained from the visceral matters sent for examination. The *post-mortem* notes submitted with the cases do not throw any light on the nature of the changes produced by the poison in the different organs, the only appearances noted in the second case being a little congestion of the mucous membrane of the stomach and intestines.

These two cases have to be mentioned at length, as deaths from the use of the plant *Tylophora Asthmatica* have been very rare, so rare indeed, that I have not been able to find any reference to them in any of the published records available in the Madras Medical College library. Besides, *Tylophora Asthmatica* is a plant long known to and used by the natives of Southern India chiefly for its emetic properties, and it is considered a good substitute for Ipecacuanha of British Pharmacopœia. It has never been considered a poisonous plant, though another species called *Tylophora Faciculata*, called *Bhui-dodi* in Mahratti and found abundantly in Southern Konkan, is a recognised poison for rats and other vermin, and a case in which the root of this plant proved fatal in a man is on record. The symptoms as far as they are noted in the abovementioned two cases seem to differ rather widely. In the first case they were like those of a narcotic poison probably the result of the poison not having been thrown out of the system through vomiting and purging and thus affecting the nervous system, while in the second they resembled the symptoms of irritant poisoning. In both cases the death was evidently due to the effects of an overdose. The accused native vythian in the second case, who was sentenced to eighteen months' rigorous imprisonment, stated during the trial that what was given for three days' use was taken in one day, and also said that a death from the same cause had occurred once previously in his practice.

Bamboo Leaves.—Decoction of these is used internally by native women for producing abortion and may account for the non-detection of any poison in several cases of abortion attributed to the internal use of medicines. Although no poisonous principle of any kind has yet been obtained from these leaves, there is no doubt that their decoction does produce irritation of the mucous membrane of the intestines, and probably reflexly of that of the uterus. A case, in which diarrhœa caused by eating pork was aggravated by the internal administration of decoction of these leaves and which ultimately ended in death, has already been noted in paragraph 9 above.

Picrotoxin was detected in two cases, in both of which the symptoms of poisoning were caused by eating jaggery accidentally contaminated with the powdered seeds of *Cocculus Indicus.*

Cannabin or Resin of Ganja was found in two cases. In one, a woman poisoned five persons and nearly killed them by giving the drug mixed in a chutney and got two years' rigorous imprisonment. In the other case, a native quack was alleged to have robbed a woman of her jewels after administering her some medicine which made her giddy. Ganja was detected only in some of the drugs found in the possession of the quack and he was acquitted.

Calatropis Gigantea.—In two cases, the juice of the plant was found on the tip of a stick. In one of these the stick was intended for introducing into the uterus for causing abortion and in the other it was so used.

Diseased Grains.—In one case it was the usual *varagoo* grains that produced symptoms of poisoning in six persons with one fatal result. One was a case of fermented *rice* causing irritable diarrhœa, and in three others where fatal results occurred, the poisonous symptoms were due to mouldy grains of *ragi.* The symptoms in all the cases of ragi poisoning resembled those of irritant poisoning. Specimens of ragi grains received for examination in connection with these cases were found to be overgrown with a kind of fungus which had rendered the white starchy matter of the grains quite brown. As chemical examination failed to detect any poison in the grains and as it was considered that the fatal symptoms which were similar in all cases might have been caused by the mould, samples of the affected ragi were sent through Major VanGeyzel to the Director of the Institute of Preventive Medicine, England, for further examination and favour of report. The Director's report, received a few days ago, stated that the fungus found on the ragi grains was of a non-poisonous variety, so far as could be judged from experiments on rats, and that no toxic substance could be discovered in the grains.

13. The comparative statement of inorganic and organic poisons for the past five years is shown below :—

Table V.

Year.	Number of cases detected.	Inorganic poison.	Organic poison.	Percentage of column 3 to column 2.
1	2	3	4	5
1898	99	59	40	59·59
1897	89	59	30	66·29
1896	72	50	22	69·44
1895	64	47	17	73·43
1894	73	56	17	76·71

14. The results of the judicial enquiries into the 99 cases in which poison was detected are as follow :—

	Number of cases.	Number affected.	Number died.
(*a*) Without fatal result	35	114	..
(*b*) With fatal result	64	202	78
Total ..	99	316	78

In group (*a*), four were struck off as being due to "mistake of fact," eight were tried but discharged, five returned as undetected, one was a case of accidental death and in five the results of enquiry have not yet been communicated. Twelve cases were committed to the Sessions with the result that there was acquittal in four, and in the remaining eight punishment ranging from three months to seven years' rigorous imprisonment was awarded.

In group (*b*), five were returned as "mistake of fact" or false, eleven as suicide, in six there was trial resulting in discharge, six were returned as undetected and six were said to be due to accidental poisoning, three out of these six being attributable to diseased grains more than 100 measures of which were seized and destroyed, four cases are said to be still under investigation, while in six the results of enquiry have not yet been received. Twenty were committed to the Sessions resulting in seven acquittals, four imprisonments ranging from six months to ten years, one transportation and eight death sentences.

II.—Blood Stains.

15. The number of cases of suspected blood stains received for investigation during the year was slightly in excess of that of last year, but the number of articles

examined was less. The presence of blood alone was detected in twenty-nine cases, of which twenty-two gave evidences of mammalian blood, while in the remaining seven the evidences were doubtful. Pus was detected along with the blood in one case. Examination for identification of human hair was conducted in one of the cases and the article examined turned out to be fine vegetable fibres. The following table furnishes the usual information regarding the examinations carried out in these cases :—

Table VI.—Blood Cases.

Districts received from.	Number of cases.	Number of cases in which blood was detected.	Number of examinations.
Anantapur	4	3	11
Arcot, North	1	1	3
Arcot, South	2	1	6
Bellary	1	1	2
Canara, South	2	2	4
Chingleput	3	..	5
Coimbatore	3	1	7
Cuddapah	9	6	38
Kistna	4	2	10
Kurnool	5	2	20
Madras	1	1	4
Madura	1	..	1
Malabar	3	1	6
Nellore	5	1	8
Salem	5	3	30
Tanjore	2	..	17
Trichinopoly	1	1	8
Tinnevelly	4	2	5
Vizagapatam	1	1	7
Total for the year 1898	57	29	192
Total for the year 1897	50	35	238

16. All cases referred to murder except two, namely, one referring to suicide and the other to hurt. Of these, thirty-one were tried by Sessions Courts resulting in fifteen acquittals, three imprisonments, six transportations for life and six capital sentences. In one a conviction has been reported but the crime it referred to and the punishment given have not been intimated. Of the remaining cases, in six the results have not been communicated, five are returned as undetected, one fined for causing hurt, and the rest discharged by the Magistrates for want of evidence.

III.—Seminal Stains.

Table VII.

Districts received from.	Number of cases.	Number of cases in which semen was detected.	Number of examinations.
Kistna	1	..	7
Kurnool	1	1	3
Salem	2	2	3
Tanjore	1	1	1
Vizagapatam	1	..	20
Total for the year 1898	6	4	34
Total for the year 1897	11	2	37

17. Spermatozoa were detected in a proportionately large number of cases, viz., in four out of six cases examined. In three of these four cases mammalian blood was also found to be present. In the two cases where no spermatozoa were found, blood was detected in one and in the other the result of the examination was *nil*. In two of the four cases in which semen was detected, the offenders were sentenced to ten years and five years, respectively, in the third the offender is reported to have died during the enquiry of the case, and in the fourth there was acquittal. In the case where nothing was detected the accused was given 7 years' imprisonment, while the result of enquiry in the sixth and last case has not yet been received in this office.

IV.—Cases of Suspected Cattle Poisoning.

Table VIII.

Districts received from.	Class A. Number of cases.	Number of deaths.	Number of cases in which poison was detected.	Number of analyses.	Nature of poisons. Arsenious oxide.	Arsenious oxide, and mercuric salt.	Mercuric salt.	Milk hedge juice.	Calatropis gigantea.	Class B. Number of cases.	Number of cases in which poison was detected.	Number of analyses	Nature of poisons. Arsenious oxide.	Ganja and picrotoxin	Orpiment.	Arsenious oxide and aconitine.	Abrus precatorius (sui)	Arsenious oxide and orpiment.	Arsenious oxide and calotropis gigantea.
Anantapur	3	7	2	21	1	..	..	1	..	1	1	4	1	..	..	..	..	..	..
Arcot, North	1	3	1	7	1	..	..	..	..	1	1	1	1	..	..	..	..	..	..
,, South	1	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary	3	3	2	14	2	..	..	..	..	3	3	5	2	..	..	..	..	1	..
Chingleput	2	2	2	7	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cuddapah	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..
Ganjám	2	2	2	8	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gódávari	11	11	7	34	6	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Kistna	9	14	8	42	8	..	..	..	..	4	2	5	1	..	..	..	..	..	1
Kurnool	5	6	3	17	3	..	..	..	..	2	2	4	2	..	..	..	..	..	..
Madura	2	5	2	20	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malabar	..	..	..	..	..	..	..	..	..	1	1	2	1	..	..	..	..	..	..
Nellore	5	5	4	27	4	..	..	..	..	1	1	1	1	..	..	..	..	..	..
Salem	1	1	1	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	3	3	3	12	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trichinopoly	1	1	1	4	1	..	..	..	..	3	3	4	3	..	..	..	..	..	..
Tinnevelly	1	1	1	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Vizagapatam	3	4	3	16	3	..	..	..	..	2	2	2	2	..	..	..	..	..	..
Pudukkóttai	2	2	2	11	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for the year 1898	55	71	44	252	41	1	..	1	1	19	17	29	15	..	..	..	..	1	1
Total for the year 1897	45	57	39	198	36	1	2	..	..	26	25	34	21	1	1	1	1	..	..

18. As usual arsenious oxide was the agent employed in almost all cases. In one case in which an animal died by drinking water in which a lump of something was previously soaked, the lump on examination was found to be a small bundle of cloth soaked with the juice of the ordinary milk hedge plant (*Euphorbia tirukalli*). In one case the juice of *Calotropis gigantea* was the agent employed and in another, in one of the suspected articles not given to any animal, this juice was found mixed with arsenic.

B.—MISCELLANEOUS ANALYSES.

Examinations made for Government Departments, &c.

Received from	Nature of substance.	Number of examinations.	Total number of examinations for the year.
Assistant Commissioner of Salt, Abkári and Customs Revenue, Bellary.	Suspected intoxicant found in toddy.	1	10
	Plants	9	
Board of Revenue, Madras	Common salt	389	424
	Bangle salt	4	
	Saltpetre earth	1	
	Beer	6	
	Arrack	1	
	Lakhium	1	
	Ganjah	6	
	Ganjah seeds	1	
	Opium	14	
	Thippathigai	1	
Experiments conducted in this laboratory, with reference to G.O., No. 1851, Judicial, dated 25th November 1898.	Dynamite	6	12
	Blasting gelatine	6	
Commissariat Department	Lime juice	24	28
	Kerosine oil	3	
	Tinning material	1	
Collector of Sea Customs, Madras	Dynamite	6	
	Blasting gelatine	13	
	Gelatine dynamite	1	
	Gelignite	1	
	Liquid fuel	2	

Examination made for Government Departments, &c.—*cont.*

Received from	Nature of substance.	Number of examinations.	Total number of examinations for the year.
Collector of Sea Customs, Madras	Petroleum resisting composition	1	103
	,, refuse	1	
	,, lubricating oil	1	
	Oil, kerosine	37	
	,, almond	1	
	,, painters	1	
	Red lead	1	
	Turpentine	3	
	Sirop de hemoglobine, soluble	1	
	Vin dé ,,	1	
	Elixir dé ,,	1	
	Elixir saw palmetto and santal compound	1	
	Phenacetin	1	
	Pepsencia	1	
	Panopeptin	1	
	Vin castinel	1	
	Balsam of aniseed	1	
	Liquid Taka—Diastase	1	
	Vibrona	1	
	Orange quinine wine	1	
	Pepsine wine	1	
	Port wine	2	
	Vinegar	1	
	Soot	1	
	Concentrated coffee tree manure	1	
	Thomas phosphate powder	1	
	Artificial manure	1	
	Newlanite	1	
	Mustard condiment	1	
	Dynamite glycerine	1	
	Carbolacene	1	
	Caoutchoucine	2	
	Methylated spirit	3	
Superintendent of Sea Customs, Tellicherry	Methylated spirit	1	
	Crude wood naphtha	1	
Collector of Cuddapah	Opium	1	1
,, of Malabar	Thomas phosphate powder	1	1
,, of Nilgiris	Fuller's earth	1	1
District Medical Officer, Ganjám	Opium	15	16
	Arrack	1	
,, ,, Cuddalore	Pickle	2	2
,, ,, Malabar	Opium	1	2
	Ganjah	1	
Deputy Collector, Madras	Water	3	3
District Magistrate Anantapur	Counterfeit coins	8	43
	Chemicals used in preparation of counterfeit coins	35	
Executive Engineer, Coimbatore	Limestone	44	44
,, ,, Madura	Water	2	2
,, ,, Rajahmundry	,,	1	1
,, ,, West Berar Division Akola	,,	1	1
General Hospital, Madras. — Second Surgeon	Crystic fluid from cyst in omentum.	1	6
	Urine	1	
	Calculus	1	
Dental Surgeon	Black sediment of silver	1	
	Nitrous oxide gas	1	
Matron	Butter	1	
Jail Department. — For all Jails	Standard solutions for water analyses	15	46
District Jail, Madura	Water	6	
,, Berhampur	,,	1	
,, Bellary	,,	1	
,, Guntúr	,,	4	
,, Nellore	,,	1	
,, Mangalore	,,	3	
Central Jail, Rajahmundry	,,	2	
,, Coimbatore	,,	2	
,, Salem	,,	3	
,, Cannanore	,,	1	
,, Vellore	,,	3	
,, Trichinopoly	,,	2	
Hill Jail, Russellkonda	,,	2	
Medical Storekeeper to Government, Madras Command, Madras.	Syphon for acid for repair	1	6
	Commercial carbolic acid	2	
	Spirit	3	
Medical Officer (Principal), Secunderabad	Water	3	3
,, Station Hospital, St. Thomas' Mount.	,,	1	1
,, ,, ,, Ramandrug	,,	2	2
,, ,, ,, Poonamallee	,,	3	3
,, ,, ,, Bellary	,,	5	5

Examinations made for Government Departments, &c.—*cont.*

Received from	Nature of substance.	Number of examinations.	Total number of examinations for the year.
Municipalities and District Boards. — Madras	Carbolic acid	1	19
	,, powder	1	
	Silt	4	
	Water	5	
Coonoor	,,	1	
Chidambaram	,,	1	
Dindigul	,,	1	
Dachepalli	,,	1	
Tiruvannámalai	,,	1	
Calicut	,,	3	
Ordnance Officer, Arsenal, Madras	Mustard oil	1	2
	Canvas dressed with linseed oil and yellow ochre	1	
,, ,, Bellary	Beeswax	1	1
Officer in charge of Telegraph Stores, Madras	Copper sulphate	1	2
	Bichromate of potash	1	
Professor of Engineering, College of Engineering, Madras	Steel rails	2	2
Railways — Bezwada-Madras	Coal tar	3	9
	Water	3	
East Coast	,,	3	
Sanitary Officer, Rangoon	,,	23	23
Secretary to the Surgeon-General with the Government of Madras	Pudding	1	1
Surgeon to His Excellency the Governor	Urine	3	3
Sessions Judge, Tanjore	Counterfeit coins	4	4
Sub-Magistrate, Vanur	Suspected salt	1	1
,, Cocanada	Ghee	4	4
,, Kálahasti	Chemicals used for forging currency notes	24	24
Stationary Sub-Magistrate, Atur	Forged documents	2	2
,, ,, Ongole	Swamp salt	1	1
,, ,, Narasaraopet	Opium	2	2
Superintendent of Stationery, Madras	Ink (black)	9	14
	,, (red powder)	5	
,, of Government Museum, Madras	Mineral	1	1
Private Parties and Firms	Dynamite	7	49
	Gelatine dynamite	1	
	Blasting gelatine	1	
	Cinchona bark	2	
	Nitre	2	
	Urine	3	
	Water	15	
	Crude petroleum	1	
	Soil	1	
	Butter	1	
	Carbolic disinfecting powder	1	
	Raspberry ice cream	1	
	Manganese ore	1	
	Beer	1	
	Sugar	1	
	Pieces of gunnies	1	
	Sandalwood oil	1	
	Wood ash	1	
	Kankur	1	
	Surry cloth	1	
	Corroded tin	1	
	,, paper	1	
	Cement	3	
	Total	930	930

B. Miscellaneous Section.

19. *Analyses for the Revenue Board* have been slightly less than those of last year, the decrease being chiefly due to no samples of beer having been received for analysis during the last nine months of the year under review and fewer samples of salt having been examined. It seems to me that the analysis of beer is carried on in the laboratory of the Abkári Deputy Commissioner, apparently under what I consider to be a misinterpretation of the wordings of the G.O., No. 432, Revenue, dated 4th August 1898. The paragraph in the Government Order which refers to the subject runs thus :—

"(1) *Paragraph 8 of Board's Proceedings.*—The Government is unable to approve the proposed transfer of the laboratory work from the Chemical Examiner to the Abkári Deputy Commissioner. The latter officer must have an analytical establishment for making experiments;

but the conduct of all analyses which concern the public should be left to the Chemical Examiner —an arrangement which will always insure trained and skilled supervision, ready reference to a scientific expert in cases of difficulty, and independence of any departmental bias. The Board is requested accordingly to revise its proposals for the laboratory establishment in consultation with the Chemical Examiner."

But the Board of Revenue in communicating the contents of the Government order to this office in their Proceedings, Mis. No. 3409, dated 30th August 1898, say as follows :—

"Referring to the correspondence ending with his letter, No. 372, dated 24th March 1898, the Chemical Examiner is informed that Government has decided that the conduct of all analyses done on behalf of the Board of Revenue should continue to be with the Chemical Examiner, the Abkári Deputy Commissioner only conducting the experiments that are necessary and such analyses as concern the department alone.

"The Board will, therefore, be able to relieve the Chemical Examiner of very little work beyond that involved in analysis of salt samples and samples from distilleries and breweries and even in these cases it may be necessary occasionally to refer to him."

From the above extracts it will be seen that the Board of Revenue have added the words—such analyses as concern the department (underlined above by me)—which are not to be found in the Government order quoted above, and have thus intended to withdraw salt and malt liquor analyses from this laboratory which is tantamount to withdrawing nearly 95 per cent. of the work done for the Board, notwithstanding the Government order stating distinctly that "the conduct of all analyses which concern the public should be left to the Chemical Examiner, an arrangement which will always insure trained and skilled supervision, ready reference to a scientific expert in cases of difficulty and independence of any departmental bias."

In reply I have written to the Board showing the reasons, adduced by Sir Henry Bliss at the time the conduct of the analyses of salt and malt liquor was handed over to the Chemical Examiner, for considering that such analyses concern the public interest more than that of the Salt and Abkári Department, and in view of the difference which has arisen in the interpretation of the Government order, I have requested them to obtain a distinct order as to whether salt and malt liquor analyses which have hitherto been conducted in this laboratory should be withdrawn from it. Though the final orders of the Government on the subject have not yet been received, the Board of Revenue have thought fit to stop sending the beer for analysis in this laboratory since April last. I am waiting to know the final decision of the Government as to the withdrawal of these analyses from this laboratory and as to whether the Government now considers such analyses carried on by the Abkári Deputy Commissioner free from departmental bias and as not affecting public interest.

20. *Commissariat Department.*—Twenty-four samples of lime juice prepared in Madras, Bangalore and Secunderabad for transmission to the North-West Frontier for the use of the Military were examined for purity and determination of acid strength, and three samples of kerosine-oil and one of tinning material were the only other articles examined, the one for determination of the flash point both by open test and by Abel's close test and the other for purity of the substance.

21. *Customs Department.*—Analyses for this department consisted as usual of a number of explosives, petroleums including lubricating oils and what was recently imported as "liquid fuel," oils, paints, drugs, manures, &c., examined for adulterations and of several new spirituous medicinal preparations for alcohol strength. The total number of examinations for this department was however slightly less than that of last year.

22. *Municipalities.*—Analyses of samples of water for drinking purposes formed as usual the bulk of the work performed for this department. A few disinfectants also were examined. An interesting examination conducted on behalf of the Health Officer of the Madras Municipality was that of four samples of *silt* taken from one and the same mass after different periods of exposure to the heat of the sun, for determining the amount of oxidisable organic matter present in them. Small as the number of experiments was, they served to show a distinct tendency to diminution in the amount of the oxidisable matter in proportion to the length of exposure to the sun.

23. *Jail Department.*—The analyses have been chiefly of water and the number of such analyses has been slightly more than that of last year. In one or two of the jails, purification of the water of the wells by means of permanganate of potash was

advised. The results of the subsequent analyses of the same waters showed some improvement in the quality of the waters due to diminution in the amount of volatile solids and ammonias brought about by the action of the permanganate. There was necessarily an increase in the amount of nitric acid. Potassium permanganate not only oxidises various organic substances present in stagnant waters, thus rendering the latter odourless and innocuous, but is also considered an efficacious agent for the destruction of the eggs and larvæ of mosquitoes which breed in such waters. All sources of stagnant water where these pests abound and are the means of communicating diseases such as malaria, elephantiasis, &c., may advantageously be purified by this agent. The quantity of the permanganate to be used depends on the bulk of the water to be dealt with, but two ounces are said to be sufficient for a single trial in cases of average-sized wells.

24. *District and Sub-Magistrates.*—Edduced salts, adulterated ghee, counterfeit coins, forged currency notes, documents, swamp salt and opium were some of the articles examined for them. Several counterfeit coins, received for examination in connection with the well-known Anantapur counterfeit coin case which brought to light the fact of the manufacture of false coins from silver and alloy and their circulation in some of the districts of the Presidency, were so cleverly and neatly executed that to all appearance they looked exactly like genuine coins and could only be distinguished from the latter by analysing and comparing the proportion of silver and copper contained in them with that in the genuine ones of the same value. The depreciation in the value of bar silver has evidently led to the profitable manufacture of counterfeit coins similar in finish and appearance to the genuine ones. That the transaction of making such coins is a very profitable one may be gathered from the fact that 100-rupee weight of bar silver could be had for 70 or 72 rupees and if to this 10 per cent. of copper be added, 110 false rupees could be easily turned out for an outlay of Rs. 72 *plus* labour which, as elicited during the trial of the abovementioned case, does not cost much. This is a matter for the consideration of the Financial Department.

25. *For other Departments.*—The analyses consisted chiefly of drugs and chemicals for adulteration for the Medical, Telegraph, Arsenal and other departments; waters for railways as to their suitability for drinking purposes and for locomotive work; methylated spirits and wood naphtha for the Superintendent of Sea Customs, Tellicherry; urine, urinary calculus, cystic fluids, nitrous oxide gas, butter, &c., for the General Hospital, Madras; and water, explosives, cinchona bark, cements, urine, manganese ore, &c., for private parties. Forty-four samples of lime stones were examined quantitatively for the Executive Engineer, Coimbatore. The examination lasted over three months and involved a considerable amount of labour an idea of which cannot be formed if the number of samples examined were alone considered. In addition to the experiments conducted with reference to G.O., No. 1851, Judicial, dated 25th November 1898, for determining the raising of heat test in case of dynamites, and of time of exposure in the case of blasting gelatine, several other experiments which cannot be expressed numerically were performed from time to time in order to reply to questions on general matters submitted for opinion.

26. The service books of the establishment are kept up to date and inventory of valuable stock has been kept and duly checked in accordance with G.O., No. 920, Financial, dated 18th September 1893.

27. It gives me great pleasure to testify to the efficient aid rendered by the members of the staff who, one and all, performed their respective duties with great zeal and care, and to specially mention the names of M.R.Ry. M. C. Nanjunda Rao, B.A., M.B. C.M., First Assistant Chemical Examiner, and M.R.Ry. M. Goolab Roy, Second Assistant Chemical Examiner, without whose zealous co-operation it would not have been possible for me to efficiently carry on the arduous duties of this office. I have also to tender my thanks to Captain R. Hollingsworth, Senior Assistant Surgeon, First Assistant, Medical College, for the assistance received from him from time to time in the identification of several vegetable specimens submitted for examination.

28. The concluding tabular statement of medico-legal work performed during the year is appended as usual.

TABLE IX.—*Tabular Statement for the year.*

| Nature of work. | | Total number of cases. | Total number of articles received for examination. | Total number of cases in which poison was detected. | Total number of cases in which blood was detected. | Total number of cases in which semen was detected. | Poisons. Inorganic. Arsenious oxide. | Arsenious oxide and mercuric salt. | Arsenious oxide and orpiment. | Arsenious oxide and strychnine. | Arsenious oxide and metallic mercury. | Arsenious oxide and aconitine. | Arsenious oxide and calotropis gigantea. | Arsenious oxide and disease grains of ragi. | Corrosive sublimate and atropine. | Corrosive sublimate and tartar emetic. | Copper sulphate. | Cinnabar. | Mercuric salt. | Mercuric salt and datura. | Mercuric salt and aconitine. | Mercuric salt and morphine. | Mercuric salt and atropine. | Nitric acid. | Orpiment. | Phosphorous. | Realgar and potassium chlorate. | Poisons. Organic. Aconite. | Atropine. | Atropine and strychnine. | Abrus precatorius (sut). | Atropine and datura. | Aconite and opium. | Bamboo leaves. | Calotropis gigantea. | Diseased grain of ragi. | Diseased grain (rice). | Diseased varagoo. | Datura. | Euphorbia. | Ganjah and pierotoxin. | Ganjah. | Manihot utilissima. | Morphine. | Milkhedge juice. | Nux-vomica and Cocculus indicus. | Opium. | Oxalic acid. | Oleander and Tyiophora asthmatica. | Pierotoxin. | Strychnine. | Strychnine and aconitine. | Tobacco. | Tyiophorine. |
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10. His Excellency the Governor in Council has read the foregoing report with much interest, and fully agrees with the Surgeon-General in his estimate of Major Sanjana's work as Chemical Examiner.

(True Extract.)

for *Chief Secretary.*

To the Surgeon-General.
„ the Revenue Department.
„ the Judicial Department.
„ the Local and Municipal Department.
„ the Inspector-General of Police.
„ the Secretary to the Government of Hongkong (with C.L.).
„ all District Magistrates.
„ all Sessions Judges.
„ the Honcurable the Chief Justice (with C.L.).
„ the Director of Government Cinchona Plantations, the Nilgiris.
„ the Public Works Department.
„ the Financial Department.
Editors' Table.

Endorsement— No. 509, Public, dated 6th May 1899.

Copy to the Government of India, Home Department.

G. STOKES,
Chief Secretary.

Exd. C. M. Thumbuswamy

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Statement with ditto.								
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