6-3-98.

Revenue (1898) Department.

MISCELLANEOUS SERIES.

G.O., No. 2504

DATED 14th June.

[Despatch Abstract.]

Communicating to the Board of Revenue, Proceedings, Public Department, reviewing the Chemical Examiner's Report for the year 1897.

BACK PAPERS.

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

FURTHER PAPERS.

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Revenue 1898 Department
Current No. 4148.

Government {1898} of Madras.

PUBLIC.

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Communicated to the Board of Revenue.

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To the Board of Rev (L.R.)
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Copy to the Dr. of Govt. Cinchona Plantations

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Chemical Examiner's Report.

Reviewing the — for the year 1897. Copy to the Government of India, Home Department.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper:—

From Surgeon-Major-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, 19th April 1898, No. Tour—19.

I have the honour to submit herewith the annual report for 1897 of the Chemical Examiner to Government, which, as usual, is drawn up with great care, is full of interest and shows a steady increase in the work of his department.

2. Under inorganic poisons in paragraph 10 (i), a curious case is mentioned.

3. With reference to paragraph 29 of the report, I regret to say that Surgeon-Major VanGeyzel has been in very indifferent health for some months back, but he has worked on in the interests of Government as long as he has been able.

ENCLOSURE.

From Surgeon-Major J. L. VANGEYZEL, M.B., F.I.C., F.C.S., Chemical Examiner, to the Chief Secretary to Government (through the Surgeon-General with the Government of Madras), dated Madras, 13th April 1898, No. 438.

I have the honour to forward the annual report of this department for the year 1897.

2. The work demanded of this department still continues to increase as shown by the following numerical statement:—

TABLE I.

—	—	Number of cases investigated.		Number of articles examined.	
		1897.	1896.	1897.	1896.
A.—Medico-legal investigations.	I. Cases of suspected human poisoning	118	104	770	698
	II. Blood stains, &c.	50	32	238	108
	III. Seminal stains	11	12	37	35
	IV. Cases of suspected cattle poisoning	71	51	232	195
	Total	250	199	1,277	1,036
B.—Miscellaneous analyses.	For Government departments and municipalities	906	959	906	959
	For private parties and firms	85	86	85	86
	Total	991	1,045	991	1,045
	Grand Total	1,241	1,244	2,268	2,081

3. The number of medico-legal cases investigated was 51 in excess of the previous year, while the number of such analyses exceeded those of the previous year by 241. The slight decrease in the miscellaneous work is quite trivial, it being due to fewer samples of salt having been examined; though the miscellaneous work in other directions shows an increase.

4. Inconvenience and delay are still experienced owing to want of sufficient working room as pointed out in last year's report. I am in communication with the Consulting Architect as to the plans for the laboratory extension which Government have promised to consider when the financial outlook improves.

A.—MEDICO-LEGAL INVESTIGATIONS.

I.—CASES OF SUSPECTED HUMAN POISONING.

5. The following two statements supply the usual information regarding these cases, which were examined during the year:—

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. | 1 | Number of cases. | 2 | Number of cases in which poison was detected. | 3 | Number of individuals affected. | 4 | Number of deaths. | 5 | Number of analyses. | 6 | Poisons. Inorganic. Arsenious oxide. | 7 | Arsenious oxide and mercuric salt. | 8 | Arsenious oxide and orpiment. | 9 | Arsenious oxide and cinnabar. | 10 | Arsenious oxide, mercuric salt and dhatura. | 11 | Antimony and mercuric salt. | 12 | Arsenious oxide and strychnine. | 13 | Corrosive sublimate and atropine. | 14 | Copper sulphate. | 15 | Mercuric salt. | 16 | Metallic mercury. | 17 | Mercuric salt and dhatura. | 18 | Mercuric salt and aconitine. | 19 | Orpiment. | 20 | Orpiment and cinnabar. | 21 | Poisons. Organic. Aconite. | 22 | Atropine. | 23 | Calotropis gigantea. | 24 | Calotropis gigantea and plumbagin. | 25 | Colocynthin. | 26 | Croton. | 27 | Datura. | 28 | Ganjah. | 29 | Liniment of Camphor, Belladonna, Chloroform and Aconite. | 30 | Manihot utilissima. | 31 | Morphine. | 32 | Oleander. | 33 | Opium. | 34 | Strychnine. | 35 | Strychnine and aconitine. | 36 | Tobacco. | 37 |
|---|---|---|---|---|---

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 realgar.	Arsenious oxide, orpiment and realgar.	Arsenious oxide and metallic mercury.	Mercurio salt.	Organic. Euphorbia.	Ganjah.	Opium.	Oxalic acid.	Manihot utilissima.	Nux vomica and cocculus indicus.	Plumbagin.	Semecarpus anacardium.	Strychnine and aconitine.	Diseased vaingoo.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Arcot, South	2	2	4	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..
Bellary	1	1	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..
Canara, South	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cuddapah	1	1	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Gódávari	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kistna	4	4	7	..	..	..	..	1	1	..	1	..	..	..	..	..	1	..
Kurnool	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras	2	2	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Salem	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tanjore	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly	1	1	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Vizagapatam	1	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for the year 1897	18	14	35	2	..	..	1	1	1	1	3	1	1	1	..	..	1	1
Total for the year 1896	17	12	55	4	1	2	..	..	..	..	2	..	..	..	2	1	..	..

6. The percentage of detections to cases examined during the past two years is shown below :—

TABLE IV.

—	A. Cases in which viscera or evacuations were examined. Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.	B. Cases in which only suspected food, &c., was received for examination. Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.	Total. Total number of cases.	Number of cases in which poison was detected.	Percentage of detections.
1896	87	60	68·96	17	12	70·58	104	72	69·23
1897	100	75	75·00	18	14	77·7	118	89	75·42

7. While the percentage of detections last year exceeded the highest previous record by 3, the number of detections for the year under review is 6 per cent. in excess of last year's figure. These results speak for themselves as to the amount and the efficiency of the work performed.

8. I shall, as usual, first review those cases in which chemical examination failed to detect any poison. There were in all 29 such cases, which may be divided into two groups—

I. Ten cases in which 38 persons were affected *without a fatal result.*

II. Nineteen cases in which 20 persons were affected *with fatal result* in every instance.

Group I.—Of the ten cases, in three there was a disease cause for the symptoms, three were returned as false, in one the final results of the Magistrate's enquiries have not been reported, while two are said to be still pending. The tenth case was one in which 31 persons were attacked with vomiting and purging. The local enquiries did not reveal the cause, but probably it was an instance of poisoning by diseased grain.

Group II.—The cases in this group have usually been classified as follows:—

Class (*a*)—in which enquiry traced the death to natural causes. There were sixteen such cases.

Class (*b*)—in which there was insufficient evidence in favour either of poison or of a natural cause to account for death. There were none of these.

Class (*c*)—in which the balance of evidence is in favour of poison as the cause of death. There was one such case; and in it a woman is said to have "committed suicide by taking the juice of some poisonous drug after a great disappointment. It is said that the poison must have either disappeared by evaporation or might have been removed from the body by evacuation." In the remaining two cases the results have not as yet been reported.

9. In the remaining 89 cases poison was detected, and a summary statement of figures relating to them is given:—

—	Inorganic.	Organic.	Total.
Cases included in class A	55	20	89
" B	4	10	
Number of individuals affected in A and B	118	143	261
" of deaths in A and B	46	18	64

INORGANIC POISONS.

10. Of the 59 cases in which this class of poison was detected, in 34 a compound of arsenic was detected alone, in 12 a mercuric salt, in one copper sulphate, while in 5 an arsenic compound with a mercuric salt were detected, and in the remaining 7 were detected mixtures of an arsenic or mercuric compound with strychnine, dhatura, atropine and aconitine.

A few cases of interest are noted below:—

(*a*) A man disappeared and six months afterwards the remains of a corpse was exhumed from the kitchen floor of his house. The wife confessed that, because her husband was somewhat impotent, she administered a love potion which she had obtained from the man with whom she was in intrigue, that her husband died in consequence and that she buried the body in the kitchen. In the portions of the body exhumed and sent for examination arsenic was detected. But she withdrew her confession, and as there was also some doubt as to the identity of the remains of the corpse the case fell through.

(*b*) A man received a beating and died. At the *post-mortem* examination suspicious particles were found in the stomach, in addition to various wounds and injuries on the body, which were stated to be not dangerous. Orpiment was the compound found in the stomach and the quantity exceeded a fatal dose. No explanation was forthcoming as to how the arsenic got into the system of the deceased, and it was suggested that "he may have taken it after he was beaten either to put an end to himself or to get those who beat him into serious trouble," and the accused was convicted for voluntarily causing hurt.

(*c*) The viscera of an infant sent for examination contained mercury; the complaint being that the father of the child poisoned it "as it was born under a bad star and was unsafe to his health because he could not recover from some illness."

(*d*) A man died from vomiting and purging and his death was ascribed to cholera. Suspicion however fell upon his paramour, and the viscera when examined yielded over 2½ grains of white arsenic.

(*e*) A man was seized with uneasiness in the stomach during a meal, he vomited and in less than an hour he was dead. The body was disinterred, and mercury and aconitine were found in his viscera.

(*f*) A woman was accused of having put something into the cooking pot. Four children who ate the cooked food suffered from irritant poisoning and three of

them died; a dog also which ate some of the food died. Fatal amounts of arsenic were found in the viscera and excreta of the deceased children, and of the dog, leaving over 60 grains of white arsenic unconsumed in the cooking pot.

(*g*) In a similar case in which eight persons were affected, five of whom died, there were over 80 grains of white arsenic left in the cooked food which remained after the meal.

(*h*) A love philter, guaranteed "to secure unfailing love," was found to contain an arseniate and metallic mercury.

(*i*) Two men journeyed together, one of them cooked food, of which both ate. One suffered from vomiting and purging and died the same night. Before death he accused the other of having poisoned him. The other defended himself by stating that he too suffered from vomiting, and fearing cholera, he ran away. Arsenic and mercury were found in the viscera of the deceased. The police officer reports that "the investigation showed that the deceased had not been poisoned."

(*j*) Over 42 grains of copper sulphate were found in a pot of suspected food which nearly caused a fatal result.

(*k*) Three persons were taken to hospital suffering from symptoms of dhatura poisoning, and one of them died. In the viscera of the deceased over 1¼ grains of corrosive sublimate as well as atropine were detected.

(*l*) A woman is reported to have died in consequence of having drunk some juice for painful menstruation. In the stomach and its contents were found over 5 grains of white arsenic, also strychnine.

Organic Poisons.

11. Of the thirty cases in which this class of poisons was detected, in three there was a mixture of more than one poison, while in twenty-seven one poison only was detected. Cases of mixed poisoning in which inorganic poisons were associated with organic poisons have already been noticed in paragraph 10 above.

Opium.—There were six cases of poisoning from this drug. In one of them seven persons were affected, and opium was found in the suspected rice flour. A striking case occurred in which sixty coolies on a famine-relief work were affected with "vomiting and delirium." It was reported that cattle which ate the conjee made from the grain "suffered similarly," and that the food was tried upon a dog with the same effect. The grain employed was found to be tainted with opium. The importance of insisting upon urine found in the bladder at the *post-mortem* examination being sent up for chemical examination is well exemplified by a case in which morphine and meconic acid were found only in the urine, while no poison could be detected in the viscera which were submitted.

A case which called for pity was that of a woman who had been in good circumstance, but had been reduced to do cooly work by the death of her husband and by the stress of famine. She and her children had been starving, she sold her nose ornament, bought some gingelly-oil and opium and administered it to all her children and to herself, saying "We have no meals, what is the use of life?" One of the children died, and the mother was convicted of murder in spite of the gallant attempt of her little son, who tried to save her by stating that the act was voluntary on his part, and in spite of the opinion of the assessors which the Judge considered did "more credit to their hearts than to their heads."

Strychnine—was found in a case of abortion, in which death was certified to be due to hæmorrhage; strychnine sulphate was detected in the remains of liquor which produced convulsions in three persons who drank some of it. A girl had received a wound from a goad used by some persons, and a complaint was set up that she died of tetanus in consequence of the wound; but strychnine was found in the stomach. A woman died after vomiting and purging and her step-mother was suspected of poisoning her. In her stomach strychnine was detected, but it was also detected in the sample of spirit which had been used for the preservation of the stomach. The case fell through, and the carelessness of the medical subordinate was punished by the Surgeon-General.

Manihot Utilissima—was the cause of death in two cases reported during the year. In one of them, as usual, a child was affected by eating the root, with fatal result. In the other case it was reported that several families, even those in different

villages, suffered after eating these roots. The villagers suspected that, because a varagu crop preceded this in these fields, the roots acquired poisonous properties. The fresh juice of the roots, however, contain prussic acid and is poisonous, while the boiled root is a staple article of food in Southern India. Tapioca is prepared from the tubers of this plant, the poison being dissipated by the roasting which the starch is subjected to.

Atropine—was detected only in one case, in which a whole family of eight persons were affected after a meal, two of whom died.

Dhatura.—Portions of the fruit of this plant were found among some substances with which a woman was drugged by her paramour.

Aconite—was detected in six cases, of which two were suicidal; in one a man who stole toddy off a tree got a fatal dose of the poison from the toddy into which it had evidently been put in order to detect and punish thieves; and in two cases the result of enquiry is unknown. In the sixth case a quack with a reputation for detecting thefts was engaged to trace a stolen jewel. All the villagers were summoned, given each a pill and told to re-appear next day; but an additional pill was administered to the deceased, who suffered from intense symptoms of aconite poisoning. Meanwhile, the quack was going through a sort of hypnotic performance with a boy who was made to stare at a light and to whom leading questions were being put as to whether he could see in the light a person resembling the deceased. The appeals of the suffering woman for an antidote were met with the reply that if she would restore the jewel she would be all right. When the quack at last yielded and gave her some gruel, it was too late, she could not swallow and she died in a short time.

Strychnine and Aconitine—were found in two cases, in one of which two out of four affected persons died after drinking toddy stolen off the tree; and in the other, three persons were affected without a fatal result.

Strychnine and Cocculus Indicus—were the agents of poisoning in a case in which it was reported that several persons suffered after eating "some roots."

Ganjah—was detected in some "fine nectar" brought from a temple and distributed amongst the members of a family, all of whom suffered from symptoms of poisoning by this agent.

Oxalic acid—was the poison in a case which occurred in Madras in which the servants were suspected of attempting to poison their master. This reagent was in constant use for preserving butterflies and, when a partially used bottle had disappeared, the servants were fined. Another bottle subsequently disappeared, also in a mysterious manner, and could not be traced. In a day or two, the breakfast coffee had a suspicious taste and was sent for chemical analysis; sufficient oxalic acid was present in the coffee to have produced serious result if it had been drunk. The offender in this case has unfortunately not been traced.

Varagu.—An instance of poisoning by eating this grain which was unwholesome came under notice, in which 21 persons were affected. The grain was destroyed by order of a magistrate.

Morphine.—A man was reported to have attempted suicide with a white powder. In his vomit and in his urine this alkaloid was found. In another case two persons, of whom one died, suffered from poisoning with this drug after drinking arrack.

12. The proportion of cases of inorganic poisoning for the past five years is stated below:—

Table V.

Year.	Number of cases detected.	Inorganic poison.	Organic poison.	Percentage of column 3 to column 2.
1	2	3	4	5
1897	89	59	30	66·29
1896	72	50	22	69·44
1895	64	47	17	73·43
1894	73	56	17	76·71
1893	79	63	16	79·74

13. The results of the judicial enquiries into the 89 cases in which poison was detected may be classified thus:—

—	Number of cases.	Number affected.	Number died.
(*a*) Without fatal result	37	159	..
(*b*) With fatal result	52	102	64
Total ..	89	261	64

In group (*a*), seven have been returned as "undetected, enquiry stopped," three were struck off as "mistake of facts," four were proved to be "false," three were cases of attempted suicide, in five the accused were tried and discharged for want of sufficient evidence, one ended in short imprisonment, nine were committed to Sessions Courts resulting in four acquittals and five convictions with punishments varying from three years rigorous imprisonment to transportation for life. Of the remaining five, in one unwholesome grain in the bazaar was destroyed, while in four cases no results of enquiry have been communicated.

In group (*b*), five have been returned as undetected, five as accidental and eight as suicidal cases; in three the accused were discharged and one was struck off the file, for want of sufficient evidence; one ended in short imprisonment, one was returned as false and another as "not poisoned," in one the accused died before the enquiry was closed, and seven are still pending or under enquiry. Seventeen were committed to Sessions Courts, and seven of these ended in acquittal, three in rigorous imprisonment for periods from one to ten years, three in transportation for life, and four in sentences of death. In the remaining two cases, correspondence regarding judgments is still proceeding.

II.—Blood Stains.

14. The number of cases in which suspected blood stains were investigated and also the number of articles examined has, during the year, greatly exceeded the numbers examined for several years past. Out of the 35 cases in which blood was detected, in 30 cases the blood was proved to be mammalian, and in one the blood was that of a bird. Identification of human hair formed part of the examination in some of these cases.

Table VI. Blood Cases.

Districts received from	Number of cases.	Number of cases in which blood was detected.	Number of examinations.
Anantapur	3	1	7
Arcot, North	6	5	14
Arcot, South	1	..	3
Cuddapah	9	9	33
Gódávari	2	..	7
Kistna	4	3	12
Kurnool	3	1	8
Madras	2	2	4
Madura	2	1	4
Nellore	3	2	33
Salem	5	4	61
Tanjore	5	2	21
Trichinopoly	2	2	13
Tinnevelly	1	1	1
Vizagapatam	2	2	17
Total for the year {1897 ..	50	35	238
{1896 ..	32	23	108

15. In only one case has the result not as yet been communicated and as it was a case examined at the close of the year, it is probably still under enquiry. Two cases have been returned as still pending, two as mistake of facts, one referred to abortion and one to hurt; in one a conviction has been reported, though the crime to

which it referred has not been intimated; in one the complainants were finally prosecuted for bringing a false charge of dacoity and of murder; and the remaining forty-one referred to homicidal or murder cases. Six of these were tried by a magistrate and the accused were discharged, while 35 were tried by Sessions Courts resulting in twenty acquittals, three imprisonments, three transportations for life, and nine death sentences.

III.—Seminal Stains.

Table VII.

Districts received from	Number of cases.	Number of cases in which semen was detected.	Number of examinations.
Arcot, North	2	..	5
Arcot, South	2	..	11
Cuddapah	1	1	1
Kistna	1	..	1
Kurnool	1	1	2
Madras	1	..	1
Madura	1	..	8
Tanjore	1	..	7
Tinnevelly	1	..	1
Total for the year {1897 ..	11	2	37
{1896 ..	12	2	35

16. In one of the two cases in which seminal stains were detected, the offender was sentenced to ten years' rigorous imprisonment, while the other turned out to be a trumped up case in which consent was proved. Of the remaining nine cases in which no semen was detected, in four the magistrate discharged the accused, one was proved to be false, three were tried by Sessions Courts ending in acquittal, while in one the result has not been communicated. In several of these cases, mammalian blood was detected.

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, orpiment and metallic mercury.	Calatropis gigantea.	Croton seeds.	Arsenious oxide and mercuric salt.	Mercuric salt.	Class B. Number of cases.	Number of cases in which poison was detected.	Number of analyses.	Nature of poisons: Arsenious oxide.	Ganjah and picro-toxin.	Orpiment.	Arsenious oxide and aconitine.	Abrus precatorius (sut).
Anantapur	2	2	2	5	2	..	..	..	..	..	1	1	1	1	..	..	..	..
Arcot, North	1	1	1	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Bellary	4	7	4	20	4	..	..	..	..	..	2	2	2	2	..	..	..	..
Canara, South	..	..	..	..	..	..	..	..	..	..	1	1	1	..	1	..	..	..
Coimbatore	4	5	2	15	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Cuddapah	3	3	3	14	3	..	..	..	..	..	1	1	3	..	..	1	..	..
Ganjám	4	6	4	17	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Gódávari	8	9	7	29	7	..	..	..	..	..	2	2	3	2	..	..	..	..
Kistna	4	4	2	16	2	..	..	..	..	..	5	5	6	4	..	..	1	..
Kurnool	6	6	5	34	4	..	..	..	1	..	2	2	2	2	..	..	..	..
Madras	1	1	1	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Madura	4	5	4	21	3	..	..	..	..	1	2	1	2	..	..	..	..	1
Malabar	1	1	1	3	1	..	..	..	..	..	1	1	1	1	..	..	..	..
Nellore	1	1	1	2	1	..	..	..	..	..	2	2	2	2	..	..	..	..
Tanjore	2	5	2	11	2	..	..	..	..	..	1	1	1	1	..	..	..	..
Trichinopoly	1	1	..	3	..	..	..	..	..	..	2	2	2	2	..	..	..	..
Vizagapatam	..	..	..	..	..	..	..	..	..	..	4	4	8	4	..	..	..	..
Total for the year {1897.	45	57	39	198	36	..	..	..	1	2	26	25	34	21	1	1	1	1
{1896.	40	49	30	182	26	1	2	1	..	..	11	9	13	9	..	..	..	..

17. Arsenious oxide was the agent of poisoning in the majority of these cases. A mixture with which it was attempted to poison some cattle was found to contain ganjah and picrotoxin, which is the active agent of the *Cocculus indicus*—a very virulent poison proving fatal in small doses. Another case of interest was the one returned in class B. under "Abrus precatorius." An attempt was reported to have been made to wound some cattle with a short stick, and this stick was sent for examination. It turned out to be a "sui," and it consisted of a small stick 4 inches long, which could be conveniently concealed in the palm of the closed hand. At one end of this stick was a small hole into which fitted the base of a conical hard substance, which was found lying loose in the packet in which the piece of wood was received. In order to use this weapon, one of these cones is mounted on the handle, and a blow is struck with it when the pointed cone enters the skin and remains there after the handle is withdrawn. The cone in this case was found to consist of a paste of the crushed seeds of the *Abrus precatorius* (the native jewellers' "Goondumani"). In the examination of this cone I also detected a poison which, in its physiological properties, closely resembled snake venom; for want of anti-venine the re-action could not be confirmed.

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 Superintendent of Police, Nilgiris	Ash	1	1
Board of Revenue, Madras	Salt	409	479
	Beer	40	
	Margosa toddy	2	
	Raisin wine	1	
	Sonti soru	3	
	Methylated spirit	1	
	Foreign liquor	4	
	Majum	1	
	Spent wash	2	
	Arrack	1	
	Water	4	
	Brine	1	
	Paints	6	
Chemical Laboratory, Madras	Linseed-oil	4	1
	Coca leaves	1	
Commissariat Department	Sugar	2	13
	Extract of beef	6	
	Tin	2	
	Flour	1	
	Lime-juice	2	
	Blasting gelatine	11	
	Dynamite	9	
	Gelignite	2	
	Oil, kerosine	49	
	" olive, fine sublime	1	
	" Rangoon	1	
	" raw, linseed	1	
	" copaiba	1	
	" Amygdal dulc.	1	
	" santal flav.	3	
	" mineral	1	
	" vaseline	1	
	" double-boiled linseed	1	
	Paint, white zinc	2	
	" white lead	1	
Collector of Sea Customs, Madras	Chambers' cough remedy	1	142
	" pain balm	1	
	" colic, cholera and diarrhœa remedy	1	
	Quinine sulphate	1	
	Cassis de Dijon	1	
	Gingnolet D'Augers	1	
	Thebacium	1	
	Bitter secrestat	1	
	Jadoo liquid manure	1	
	Dry phosphoric acid manure	1	
	Caoutchoucine	1	
	Methylated spirit	4	
	Pepsine wine	3	
	Coca wine	1	
	Kola wine	1	
Superintendent, Sea Customs, Cocanada	Drugs	1	
		37	

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

Received from	Nature of substance.	Number of examinations.	Total number of examinations for the year.
Collector of the Nilgiris	Forged document	1	1
" of North Arcot	Caoutchoucine	5	5
" of South Arcot	"	44	44
Consulting Architect to Government of Madras	Stone	4	4
Chief Engineer for Irrigation, Madras	"	3	5
	Coral	2	
District Medical Officer, Ganjám	Opium	12	12
" " Malabar	"	1	1
Director of Government Cinchona Plantations, Nilgiris	Quinine sulphate	2	2
Deputy Magistrate, Madura division	Counterfeit coins	2	2
Executive Engineer, Coimbatore division	Soils	12	31
	Earth	19	
General Hospital, Madras. — Additional Medical Officer	Santonine	1	6
Assistant Physician	Salicylate of soda	1	
Resident Medical Officer	Flour	1	
Second Surgeon	Renal calculus	1	
	Kola wine	1	
	Plaster of Paris	1	
Inspector of Salt, Abkári and Customs Department, Ennore Circle	Water	1	1
Jail Department — For all Jails	Standard solutions for water analysis	15	39
District Jail, Berhampore	Water	3	
" Mangalore	"	2	
" Vizagapatam	"	1	
" Nellore	"	1	
" Cuddalore	"	1	
" Tanjore	"	1	
" Madura	"	3	
Central Jail, Rajahmundry	"	3	
" Vellore	"	4	
" Trichinopoly	"	2	
" Coimbatore	"	2	
Hill Jail, Russellkonda	"	1	
Medical Officer (Senior), Station Hospital, Bangalore.	"	1	1
" Station Hopital, Secunderabad	"	1	1
" " " Ramandrug	"	3	3
" 20th Regiment, Madras infantry, Vizianagram	"	4	4
Medical Storekeeper to Government, Madras Command.	Rectified spirit	1	13
	Carbolic powder	5	
	" acid	6	
	Calcium sulphate	1	
Municipalities and District Boards. — Madras	Water	5	26
Adóni	Carbolic powder	2	
Calicut	Water	1	
Bezwada	"	2	
Ponnáni	"	2	
Vizianagram	"	1	
Kurnool	"	2	
Dindigul	"	2	
Bápatla	"	4	
Cochin	"	1	
Guntúr	"	1	
South Canara	"	2	
	Mortar	2	
Officer in charge of Telegraph Stores, Madras	Zinc	2	5
	Bichromate of potash	2	
Ordnance Officer, Arsenal, Madras	Copper sulphate	1	2
	Tar oils	2	
Railways — Bezwada-Madras	Water	20	27
East Coast	Tar	6	
	Water	1	
Stationary Sub-Magistrate. — Nellore	Forged document	1	1
Rámachandrapuram	Opium	1	1
Palkonda	Suspected ganjah	1	1
Ongole taluk	Salt-earth	2	2
Second-class Magistrate, Trichinopoly taluk	Suspected educed salt	10	10
Superintendent, Government Maternity Hospital, Madras.	Water	1	2
	Urinary calculus	1	
Superintendent of Stationery, Madras	Inks	15	17
	Printing inks	2	
Tahsildar of Mannárgudi	Poornathi	1	1
Private parties and firms	Water	19	
	Cement	2	
	Clay	2	
	Limestone	2	
	Saltpetre	10	
	Fish manure	3	

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

Received from	Nature of substance.	Number of examinations.	Total number of examinations for the year.
Private parties and firms—*cont.*	Manure	4	85
	Superphosphate	2	
	Wood ashes	3	
	Shell lime	1	
	Stone lime	1	
	Ashes	1	
	Bone char	1	
	Poonac	3	
	Phosphatic nodule	1	
	Poonac and bone manure	1	
	Soil	2	
	Coffee beans	4	
	Cinchona bark	5	
	Dynamite	4	
	Tea	1	
	Chicken broth	2	
	Kerosine-oil	3	
	Sweepings of petroleum tank ..	1	
	Paint	1	
	Wood	3	
	Caoutchoucine	1	
	Ink	1	
	Palmyra jaggery	1	
	Total ..	991	991

18. *Analyses for the Revenue Board* have been fewer in the year under review, but quite up to the average demands of previous years. In addition to the usual salt analyses, a few paints and oils were examined, and the remaining articles were analysed chiefly for adulteration and for alcoholic strength.

19. *Analyses for the Customs Department* consisted, as usual in recent years, of a number of oils, paints, drugs, &c., for adulterations, of petroleums and oils suspected to fall under the definition of petroleum in the Act, and of explosives. The number of each of the latter two classes of substances examined was double the number examined in the previous year, though the number of other oils and paints, &c., was rather less. The total number of examinations for this department was nearly the same as in the previous year.

20. *For the Public Works Department.*—The composition of a large number of earths and soils were determined with a view to ascertain their suitability for manufacturing soorki and for building earth embankments to masonry dams for reservoirs, &c., the composition of certain stones, to determine the question whether a sufficiently pure lime could be obtained from them for making calcium carbide, also the composition and certain properties of some clay and stones as to their suitability for ornamental dressing.

21. *For Municipalities.*—Several samples of water were, as usual, examined as to their drinking value; also disinfectants; and for one municipality a sample of mortar taken from a bridge under construction which formed the subject of a dispute with the contractor. The mortar was analysed and found to be much inferior to specification.

22. *For the Jail Department.*—The examinations consisted chiefly of water analyses, which I am glad to say have been in smaller demand than some time ago, owing, no doubt, to a scheme instituted by the Inspector-General. The medical officer of the jail now makes a periodical examination, using solutions which are freshly prepared in this laboratory and distributed quarterly; if the result of this examination throws suspicion on the water, then it is sent here for further examination.

23. *For other Departments.*—The analyses have been chiefly of foods, drugs and chemicals for adulteration for the Medical, Telegraph and Commissariat departments; opium and ganjah, salt-earth, educed salt, for magistrates; water for railways as to their suitability for locomotive work and for drinking purpose; cements, manures, soils, feeding cakes, and cinchona barks, &c., for private parties; besides other experimental work which cannot be expressed numerically, but performed from time to time in order to answer references upon matters submitted for opinion.

A case of counterfeit coins and two forged documents also formed the subject of inquiry. In one of the latter, a very interesting inquiry was as to the pre-existence of a certain Telugu character, which differs but very slightly from another character. This was settled by photographing under special illumination, upon special plates, and then enlarging the result.

24. As pointed out in my last report, many apparatus (besides photographic apparatus) cannot be suitably employed except in a dark room or at night. If the Chemical Examiner is not also a photographer, he must decline such work or do less than would be satisfactory. Many of the examinations now demand the use of such apparatus, which must be used under special conditions. Medico-legal work also is often crowded out for want of working room in the main laboratory, and I trust that Government will soon be able to see its way to add the much needed extension to this laboratory.

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

26. I have only to add that the whole staff have as usual worked most ungrudgingly, the work being of such a nature that all must sacrifice many holidays throughout the year. Their main object has been to do the work expeditiously and well, and to sink self interest on behalf of the hundred and one little things which go to make up "laboratory discipline." The work has been as hard as ever, but it is always pleasant with such willing assistants.

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

28. The cases referred to in the body of the report as those in which judgments have not as yet been received are still the subject of correspondence.

29. I fear that this report will be a little late as it has been delayed in the drafting. I have been under the disadvantage of carrying on all my duties lately in enfeebled health, but I have made an effort to avoid any delay in submitting this report, and I beg that Government will be pleased to excuse the delay under these circumstances.

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.	Arsenious oxide.	Arsenious oxide and mercuric salt.	Arsenious oxide, mercuric salt and datura.	Arsenious oxide and orpiment.	Arsenious oxide, orpiment and realgar.	Arsenious oxide, orpiment and metallic mercury.	Arsenious oxide and cinnabar.	Arsenious oxide and realgar.	Antimony and mercuric salt.	Arsenious oxide and strychnine.	Arsenious oxide and metallic mercury.	Arsenious oxide and aconitine.	Corrosive sublimate and atropine.	Copper sulphate.	Mercuric salt.	Metallic mercury.	Mercuric salt and datura.	Mercuric salt and aconitine.	Opium.	Orpiment and cinnabar.	Aconite.	Atropine.	Abrus precatorius (sut).	Calotropis gigantea.	Calotropis gigantea and plumbagin.	Croton.	Datura.	Kaphorbia.	Ganjah and picrotoxin.	Ganjah.	Liniment of camphor, belladonna, chloroform and aconite.	Manihot utilissima.	Morphine.	Nux-vomica and Coccolus indicus.	Oleander.	Opium.	Oxalic acid.	Plumbagin.	Semecarpus anacardium.	Strychnine.	Strychnine and aconitine.	Tobacco.	Diseased Yaraggo.
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	39	40	41	42	43	44	45	46	47	48	49	50
Human cases.	Class A ..	100	735	75	..	..	32	..	..	..	..	..	..	..	..	1	..	..	..	1	11	..	1	..	1	..	6	1	..	..	..	..	..	..	1	..	..	1	..	2	..	..	..	3	..	..	..	4	1	..	1
	,, B ..	18	85	14	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Blood stains, &c.	..	50	238	35	35	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Seminal stains	..	11	37	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cattle cases.	Class A ..	45	195	39	..	..	36	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	,, B ..	26	34	25	..	..	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Examinations for Government departments ..		906	906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Examinations for private parties and firms ..		85	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for the year 1897 ..		1,241	2,268	153	36	2	91	6	..	1	..	..	..	..	..	1	..	1	2	1	13	..	1	1	1	1	6	1	1	6	1	1	1	1	1	1	1	2	1	1	1	2	1	4	1	2	1	1	1
Total for the year 1896 ..		1,244	2,081	111	23	2	69	2	1	1	2	1	1	1	1	..	1	..	1	..	8	1	..	1	2	..	3	2	..	1	..	2	3	..	1	1	1	..	2	..	1	2	..	1	2	1	..	..	..	..

ORDER—No. 681, Public, dated 19th May 1898.

The figures in paragraph 2 of the report exhibit a marked increase, as compared with the previous year, in the number of medico-legal cases investigated as well as in the number of articles examined. The decrease in miscellaneous analyses is shown to be unimportant.

2. The total number of cases of suspected human poisoning was 118, being 14 more than in 1896; the percentage of detections rose from 69·23 in 1896 to 75·42 in 1897. Government observes with satisfaction the high standard of efficiency in investigation to which these figures point.

3. Inorganic poison was discovered in 59 and organic poison in 30 cases, the corresponding figures in 1896 being 50 and 22. These cases referred to 261 persons, and 64 deaths occurred; the corresponding figures in 1896 were 110 and 41, respectively.

4. The number of cases in connection with which suspected blood stains were examined rose from 32 in 1896 to 50 in the year under review. Blood was detected in 35 cases, the proportion of detections being almost the same as in the previous year. The number of articles examined showed a considerable increase.

5. Eleven cases were investigated in which seminal stains were suspected, against twelve in the preceding year. As in 1896, semen was detected in two cases.

6. Seventy-one cases of cattle poisoning were investigated against 51 in 1896 and 72 in 1895. Arsenious oxide was the agent employed in 57 out of 64 cases in which poison was detected. The percentage of detections was 90·1 against 76·4 in the previous year.

7. Analyses were made in 991 miscellaneous cases against 1,045 in 1896. There was a decrease in the work done for the Board of Revenue and for the Customs Department, the number of examinations being 479 and 142, respectively, against 615 and 149 in 1896.

8. The plans and estimates for increased accommodation in the chemical laboratory, the preparation of which was ordered in paragraph 9 of G.O., No. 489, Public, dated 30th April 1897, are awaited.

9. His Excellency the Governor in Council notes with much satisfaction the interesting results of Surgeon-Major VanGeyzel's researches. The report shows a continued improvement both in the quantity and quality of the work done.

(True Extract.)

S. G. Roberts
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 Hon'ble the Chief Justice of the High Court (with C.L.).
„ the Director of Government Cinchona Plantations, the Nilgiris.
„ the Public Works Department, paragraph 8 only of the Government Order, with reference to paragraph 9 of G.O., No. 489, Public, dated 30th April 1897.

Editors' Table.

ENDORSEMENT—No. 682, Public, dated 19th May 1898.

Copy to the Government of India, Home Department.

A. T. ARUNDEL,
Chief Secretary.

Exd. A. Raitt.

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*When copied*_____
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*When signed*_____
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189 ,

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ENCLOSURES TO C. No.

ORDER OF GOVERNMENT	A	A	A	A	A	A	A	
LETTER OF GOVERNMENT.								
STATEMEN. WITH DITTO.								
PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.								

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