

**REPORT OF THE KING INSTITUTE OF PREVENTIVE
MEDICINE, GUINDY, FOR THE PERIOD FROM
1st APRIL 1953 TO 31st MARCH 1954**

STAFF.

GAZETTED OFFICERS.

Director.

1. Dr. Y. S. Narayana Rao, M.B.B.S., D.T.M. (Cal.) (Lond.), from 19th July 1953 to 22nd October and 17th November 1953 to 31st March 1954.
2. Dr. M. Narayana Pai, M.B.B.S., from 1st April to 17th July and 23rd October to 16th November 1953.

Assistant Directors.

1. Dr. M. K. K. Menon, M.B.B.S.
2. Dr. M. Narayana Pai, M.B.B.S., from 18th July to 22nd October and 17th November 1953 to 31st March 1954.
3. Dr. K. Dattatreya, M.B.B.S., from 1st April to 17th July and 23rd October to 16th November 1953.
4. Dr. N. R. Ratnakannan, M.D., from 1st April 1953 to 28th February 1954.
5. Dr. S. Govindarajan, M.D., D.B. (Manch.) from 1st March to 31st March 1954.
6. Dr. C. Sriramachandra Rao, M.B.B.S., D.P.H.
7. Dr. C. Venkateswara Rao, M.B.B.S., L.O., from 1st April to 30th June 1953.
8. Dr. M. W. Williams, Ph.D., from 9th July 1953 to 31st March 1954.

Assistant Surgeons.

1. Dr. Dinker Babu Rao, M.B.B.S.
2. Dr. V. Krishnamurthy up to 25th July 1953.
3. Dr. K. Dattatreya from 18th July to 22nd October and 17th November 1953 to 31st March 1954.
4. Dr. N. Sundararajan, M.B.B.S.
5. Dr. K. Appu Kurup, L.M.P., L.O., up to 3rd December 1953.
6. Dr. N. V. Gangadaran, L.M.P., up to 1st May 1953.
7. Dr. P. Ramaswamy, L.M.P.
8. Dr. K. S. Balasubramaniam, L.M.P.
9. Dr. P. S. Srinivasa Rao, M.B.B.S., D.T.M., up to 11th May 1953.
10. Dr. S. Venkataswamy, L.M.P., up to 30th September 1953.
11. Dr. B. V. Venkatasalapathy Chetty, M.B.B.S., up to 2nd July 1953.
12. Dr. G. D. Sheno, M.B.B.S., D.G.O.
13. Dr. K. S. Ramaswamy, M.B.B.S.
14. Dr. M. Vatsala, M.B.B.S., D.G.O., up to 21st October 1953.
15. Dr. Ambujammal Natarajan, M.B.B.S., from 11th January 1954.
16. Dr. C. J. Anna, M.B.B.S., from 16th November 1953.
17. Dr. N. Rajasekaran, M.B.B.S., from 5th December 1953.

13. Dr. P. Shanthi, L.M.P., from 21st November 1953 to 11th January 1954.
19. Dr. Ottupuni, M.B.B.S., from 8th October to 6th November 1953.
20. Dr. B. Padmanabhan, L.M.P., from 5th September 1953.
21. Dr. V. Srinivasamurthy, M.B.B.S., from 6th October 1953.
22. Dr. B. G. Krishnan, L.M.P., from 6th October 1953.
23. Dr. Abdul Malik, M.B.B.S., from 26th May to 3rd October 1953.
24. Dr. M. N. Ganapathy, M.B.B.S., from 12th May to 1st October 1953.
25. Dr. A. L. Annamalai, M.B.B.S., from 19th May to 26th August 1953.
26. Dr. K. K. Appaji, M.B.B.S., from 6th April 1953.
27. Dr. N. B. Kuppurajan, M.B.B.S., from 5th April 1953.
28. Dr. T. Sundaravelu, M.B.B.S., from 4th April 1953.
29. Dr. S. Venkatasubbu, M.B.B.S., from 4th April to 30th September 1953.
30. Dr. N. Rajaseharan, M.B.B.S., from 1st to 14th April 1953.

Department of Water Analysis.

1. Sri P. V. Seetharama Iyer, M.A., Chief Water Analyst, from 1st April to 20th December 1953.
2. Sri K. G. Veeraraghavan, M.Sc., Chief Water Analyst, from 21st December 1953.
3. Sri K. R. Ramaswamy, B.Sc., Assistant Water Analyst, from 4th May 1953.
4. Sri N. Swaminathan, B.Sc. A.I.I.Sc., Assistant Water Analyst, from 1st April to 4th May 1953.
5. Sri A. S. Hariharan, B.Sc., Assistant Water Analyst, from 1st September to 14th October, 19th October to 20th November 1953 and from 21st December 1953.

Department of Anti-Toxin.

1. Dr. P. Seshagiri Rao, M.Sc., D.Sc., A.R.I.C., Bio-Chemist.
2. Sri P. K. Ramachandran, M.Sc., Drugs Chemical Assistant.

Government Analyst Section.

1. Sri S. Narayana Iyer, M.A., A.I.I.Sc., F.R.I.C., Government Analyst.
2. Sri K. R. Srinivasan, M.A., F.R.I.C., Deputy Government Analyst, from 1st April to 1st August 1953.
3. Sri Y. G. Doraisamy, M.Sc., A.R.I.C., from 2nd August 1953, Deputy Government Analyst.
4. K. R. Srinivasan, M.A., F.R.I.C., Senior Assistant to Government Analyst, from 2nd August 1953.
5. Sri K. Narayanaswamy, M.A., A.R.I.C., Senior Assistant Government Analyst, from 2nd August 1953.
6. Sri M. Krishnamurthy, M.Sc., Senior Assistant to Government Analyst from 2nd August 1953.
7. Sri P. S. Nataraja Sarma, M.A., Senior Assistant to Government Analyst, from 2nd August 1953.
8. Sri K. Balasubramaniam, B.Sc. (Hons.), Senior Assistant to Government Analyst.
9. Sri K. Ramachandran, M.A., from 1st August 1953, Senior Assistant to Government Analyst.
10. Sri N. Srinivasan, M.A., on 1st August 1953 only.

Sterile Solution Section.

1. Sri V. R. Srinivasan, M.A., Senior Assistant.

OFFICE ESTABLISHMENT.

1. Sri R. Gopalakrishna Rao from 1st April to 15th May 1953, a.n., Lay Secretary and Treasurer.
2. Sri P. K. Mathuramuthu from 16th May 1953, Lay Secretary and Treasurer.

NON-GAZETTED OFFICERS.

Veterinary Assistant Surgeons.

1. Sri E. R. Nagarajan.
2. Sri K. L. Uthup.

Junior Water Analysts.

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| Department of Water Analysis | .. | Sri S. Venkataraman, B.Sc. (Hons.). |
| | | Kumari S. Chellam, B.Sc. (Hons.). |
| | | Sri D. Seethapathi Rao, B.Sc. (Hons.). |
| | | " G. Swaminathan, B.Sc. (Hons.). |
| | | " N. Gopalakrishna Rao, M.Sc. |
| Government Analyst Section | .. | Sri N. Srinivasan, M.A. |
| | | " M. V. Narayanan, B.Sc. (Hons.). |
| | | " C. S. Raghunathan, B.Sc. (Hons.). |
| | | " G. Balasubramaniam, B.Sc. (Hons.). |
| | | " V. Seshagiri Rao, B.Sc. (Hons.). |
| | | " M. R. Gopalan, B.Sc. (Hons.). |
| | | " K. Sambandam, B.Sc. |
| | | " S. Kasturi, B.Sc. (Hons.). |
| | | " P. Appavu, B.Sc. (Hons.). |
| | | " T. R. Krishnamurthy, B.Sc. (Hons.). |
| | | " S. Subbaraman. |

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| Solution Section | .. | .. | Sri V. V. Krishna Rao, B.Sc. |
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| Department of Anti-toxin | .. | Sri S. Srinivasaraghavan, B.Sc. |
| | | Kumari H. Packiyam, B.Sc. (Hons.), |
| | | Additional Junior Chemical Assistant. |

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| Vaccine Lymph Section | .. | .. | Sri P. Munuswamy Raju, Junior Assistant. |
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OFFICE.

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| Manager | .. | .. | .. | Sri S. Gopala Iyer. |
| Librarian | .. | .. | .. | Srimathi Sundaramma. |
| Permanent | .. | .. | .. | Accountant 1, Cashier 1, Upper Division Clerks 3, Lower Division Clerks 17, Typists 5, Stenographers 2, Telephone Attenders 2, Attenders 2 and Peons 9. |
| Temporary | .. | .. | .. | Upper Division Clerks 2, Lower Division Clerks 3, Typists 2, Attenders 2 and Peon 1. |

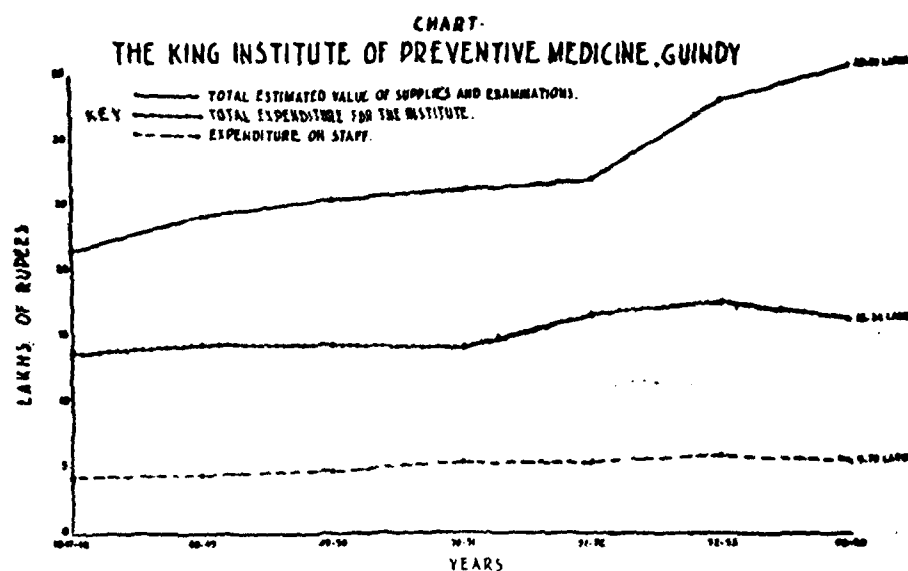
LABORATORY STAFF.

Permanent	Sample Takers 4, Technicians 16, Laboratory Attendants, I Grade, 33, Laboratory Attendants, II Grade, 51, Compounder 1, Peons 62, Technical Assistants 2 and Algae Collector 1.
Temporary	Technicians 2, Laboratory Attendants, I Grade, 2, Laboratory Attendants, II Grade, 3 and Peons 7.
Miscellaneous staff	Photographer Assistant 1, Overseer 1, Deputy Overseer 1, Assistant Overseers 4, Mechanic 1, Electrician 1 and Refrigeration Mechanic 1.

GENERAL REVIEW.

The following graph clearly shows how the work of the Institute is gradually increasing. It also shows that—

(1) There has been an increase in gross profits of Rs. 3,578-8-0 this year over that of last year.



Finance.—The total expenditure for the year amounted to Rs. 16,33,417 (see Table I) including the amounts borne by other departments on Institute accounts. The total cash receipts by way of sale-proceeds of sera vaccines and collection of payments for services rendered amounted to Rs. 2,93,140. The difference (i.e.), Rs. 13,40,277 represents the net cost of the Institute debitable to State revenues. It has been pointed out however that most of the biologicals manufactured in the Institute such as vaccine lymph, bacterial vaccines, A.T.S. sterile solutions, etc., and anti-toxins purchased from foreign firms are issued free to Government institutions in the State. Vaccine Lymph and prophylactic cholera vaccine are issued free to local bodies. Similarly services are also rendered free of charge to the Government departments and local bodies. If the above supplies and services rendered by the Institute were to be charged for according to the rates approved by Government the total anticipated receipts as shown in Statement 3 of Table I would amount to Rs. 35,91,204. The difference between the estimated receipts and the estimated expenditure (i.e.), Rs. 19,57,787 represents the net profit to Government.

IMPROVEMENT.

1. **Buildings.**—(1) Shed for Britania Boiler constructed.

(2) Infiltration gallery started functioning at the pumping station. As a result of this, the difficulty experienced for the last several years, regarding the amount of water required for the routine working of this Institute is now overcome. New stills have been purchased and pyrogen free distilled water required for the preparation of solutions, etc., is now being prepared at the Institute.

2. **Additional staff—Gazetted.**—The Senior Assistants to Government Analyst have been sanctioned to cope up with the increased volume of work in the Government Analyst's Section—vide G.O. No. 1234, Health, dated 1st April 1953, communicated in Director of Medical Services, P. No. 122-M/53, dated 6th April 1953.

Non-Gazetted—Government Analyst Section—

Junior Assistant	1	Sanctioned in G.O. No. 1234, Health, dated 2nd April 1953, copy communicated in Director of Medical Services, P. No. 122-M/53, dated 6th April 1953.
Laboratory Attendant, I Grade..	1	
Peon	1	
Laboratory Attendant, II Grade..	1	
Upper Division Clerk	1	

Representations have been made to Government through the Director of Medical Services regarding the anomalies in the scales of pay attached to the Posts of Technical Assistants, Samples Takers and Junior Assistant Vaccine, Lymph Section. In spite of the Financial stringency I hope the Government will be pleased to accept my recommendation and issue early orders—Vide this office letter Rc. No. 22191-B-3/54, dated 14th December 1953.

Revision of scale of pay—Technicians.—The scale of pay for the Technicians has been raised from Rs. 45-75 to Rs. 50-5-100—vide G.O. No. 3081, Health, dated 17th August 1953.

First Grade Laboratory Attendant.—Similarly the scale of this post has also been raised from Rs. 40-70 to Rs. 45-3-60-2-90—Vide G.O. No. 3081, Health, dated 17th August 1953.

Vaccine Lymph.—During the year 210,462 ml. of glycerinated lymph was manufactured as against 219,838 ml. in 1952-53. A total quantity of 5,180,450 doses as against 6,038,210 doses in previous year of glycerinated lymph were issued to the field after the usual tests for purity, potency and toxicity. The potency of the vaccine had been satisfactory both by tests on calves in the laboratory and by results of Primary Vaccinations of children in the experimental range.

The usual cessation of vaccination in summer months of May and June was observed during the year.

Further trials in the production of freeze dried vaccine lymph is being continued.

Serology (Diagnostic) Section.—During the current year, more cerebro-spinal fluid specimens were received and tested for Wassermann reaction and Lange's tests. The supply of Kahn antigen has also increased compared to the previous year.

From the beginning of this year most of the specimens received from the anti-natal department (O.P.) of the Women and Children Hospital, Madras, were sent to the upgraded Venereal Diseases Department, General Hospital, Madras. Hence there is a fall in the total number of specimens received.

This section is continuing its work in the Inter-Laboratory Evaluation (different laboratories in India) of Serological tests for Syphilis in collaboration with Dr. K. V. Venkataraman, Serologist to the Government of India at the instance of the Indian Council of Medical Research. These specimens of sera were tested qualitatively and quantitatively during the year with the reagents supplied by

List of distinguished visitors.—The institute was honoured during the year by the visits of—

- (1) P. N. Wabi Profesar of Pathology, Medical College, Agre
- (2) N. K. Jerne State Serum Institute, Copenhagen.
- (3) Major-General S. L. Bhatia Chairman, Pharmaceutical Enquiry Committee, New Delhi.
- (4) K. R. Chandran Member, Pharmaceutical Enquiry Committee, New Delhi.
- (5) K. Vyasal Planning Commission.
- (6) P. Govinda Menon Joint Director of Industries and Committee, Madras.
- (7) H. M. Patel Secretary, Government of India.
- (8) Dr. C. R. Amin United Kingdom (Great Western road, Middlesex.
- (9) Martin D. Young National Institute of Health, Columbia, S.C. U.S.A.
- (10) E. Jwayre Regius Professor of Medicine, Glasgow University, U.K.
- (11) G. Smithev Assistant Director, Institute of Animal Morphology, Acad. of Science U.S.S.R.—Moscow.
- (12) Rudolph Reitler, M. D. Director, Bacteriological Laboratory Haifa—Israel.
- (13) Hakim Abdul Hamid Hamdard Dewakhana, Delhi.
- (14) Hakim Mohammed Said Hamdard Dewakhana, Karachi.
- (15) B. Ahamed Press Attache, Indian Embassy, Bagdad.
- (16) O. A. Bawman T.C.M. Vet. Bio. Advisor Government Iraq.
- (17) A. Dhandra Mukteswar. U.P.
- (18) Balwant Singh Health Division Biological I.V.R.I., Izatnagar.
- (19) K. S. Shetty Director, Veterinary Services, Hyderabad.
- (20) P. N. Sapru Superintendent, Biological Products, Bombay.
- (21) S. Datta Director, Indian Veterinary Research Institute, Izatnagar U.P.
- (22) V. R. Rajagopalan Director, Animal Husbandry, Madras.
- (23) R. L. Kaushal Deputy Director, M.B. Gwalior.
- (24) Sahai Director, Veterinary Services, Poona, Bombay State.

PART I—ROUTINE WORK.

VACCINE LYMPH SECTION.

Charge.—Dr. N. R. Ratnakannan, M.D., 1st April 1953 to 1st March 1954.

Dr. Y. S. Narayana Rao, M.B.B.S., D.T.M. (Cal.), D.B. (Lond.), 1st March to 31st March 1954.

1. *Manufacture and issue of vaccine lymph.*—The stock of vaccine lymph at the commencement of the year under report was 279,642 ml. of 1 in 7 dilution. During the year under review 210,462 ml. of 1 in 7 dilution glycerinated lymph was manufactured. The average yield per calf was 32.7 grms. as compared with 29.7 grms. last year. A total quantity of 212,072 ml. of 1 in 10 dilution vaccine was issued during the year. The closing balance of vaccine lymph at the end of the year was 317,214 ml. of 1 in 7 dilution. Thus the manufacture and issue of vaccine had been within normal limits during the year and the stock position quite satisfactory.

The lymph before supply was treated with chloroform vapour to reduce the viable bacterial content and the usual tests in conformity with the standards prescribed as regards purity, toxicity and potency were done on all batches of lymph.

2. *Potency of vaccine lymph—Test Range.*—The potency of all batches of vaccine was satisfactory at the time of issue both by laboratory tests on calves and by results of primary vaccinations of children in the test-range. In all, one thousand nine hundred and thirty-seven primary vaccinations were verified with a case success rate of 96.9 per cent and an insertion success rate of 88.8 per cent.

3. *Analysis of result statements* received from the districts, municipalities, Corporation of Madras, etc.

Since the separation of Andhra State from 1st October 1953, this analysis, which is for the calendar year 1953, with reference to the total doses of vaccine lymph issued to the field, returns received in respect of vaccinations done, etc., are given separately as follows:—

- (i) 1st January to 30th September 1953 for the Composite State.
- (ii) 1st October to 31st December 1953 for the Madras State.
- (iii) 1st October to 31st December 1953 for the Andhra State.

Out of a total of 5,180,450 doses of vaccine lymph issued during the calendar year 1953, 3,902, 165 doses were issued to the Composite State (1st January to 30th September 1953), 811,870 doses to the Madras State (1st October to 31st September 1953) and 466,415 doses to the Andhra State (1st October to 31st December 1953).

A. *Total vaccination and types (Table II).*—Returns received in respect of total number of vaccinations done and the different types of vaccinations, viz., primary, secondary and re-vaccinations were as follows:—

Period.	Total number of vaccinations done.	Primary vaccinations.	Secondary vaccinations.	Rev-vaccinations.
		PER CENT.	PER CENT.	PER CENT.
(a) Composite State—1st January to 30th September 1953.	4,560,316	23.5	0.7	75.8
(b) Madras State—1st October to 31st December 1953.	998,533	27.3	1.3	71.4
(c) Andhra State—1st October to 31st December 1953.	429,817	35.0	0.7	64.3

Dr. K. V. Venkataraman. As far as the specificity, sensitivity, and reproductivity were concerned, King Institute, Guindy, has gives the best results in the combined laboratory evaluation.

Clinical Section.—This section had received 14,602 and 1,353 specimens from Madras and Andhra State respectively for microscopical, bacteriological and cultural examinations. A vi strain of *Salm Typhii* and a strain of *Salm paratyphii A* were isolated from cultural examination of cerebro-spinal fluid received in this institute. This, though not uncommon was for the first time isolated in this institute. One hundred and seven specimens were received for Histopathological examinations.

The main function of this section is to maintain several variants of the different bacterial strains and supply them to any Research Institute either in India or abroad. The section also prepares a large quantity of stock and autovaccines intended for therapeutic purposes. It is left to the clinician as to how far these vaccines are of therapeutic value in this era of antibiotics.

In general, the work is increasing year by year. This may be due to the awareness of the General Medical Practitioners and Hospitals for the need of laboratory tests, vaccines, sera, etc.

Prophylactic Vaccine Section.—The Prophylactic Vaccine Section, has manufactured 15,114,457, c.c. of cholera vaccine and 170,403 c.c. of T.A.B. Vaccine and issued 13,138,282 c.c. and 176,295 c.c. respectively. It also receives plague vaccine from the Haffkine Institute, Bombay, and issues the same to the officers of the Public Health Department. Twenty-five thousand c.c. of plague vaccine were received this year and issued.

Department of Antitoxin.—The department had 58 horses during 1953-54 for the production of Therapeutic sera for the use by the various Medical Institutions of the State. As the demand for Tetanus Antitoxin continued to be high a large proportion of these horses were assigned for the production of Tetanus Anti-toxin. During the year a still further increase in the production of processed antitoxic plasma was achieved, the total immune plasma processed being 3,143 litres (approximately 660 gallons) as against 2,731 litres processed last year. Biological standardizations were conducted on 260 samples of Tetanus Antitoxin and 14 samples of Gas Gangrene (*Perfringens*) antitoxin.

Department of Biological Control.—The department undertook the analysis of the Biological products manufactured in the Institute, as well as those sent by the different hospitals in the City and mufassal samples received from the Drugs Inspectors under the provisions of the Drugs Act and samples received from private firms, etc.

Blood Bank Section.—The activities of the Blood Bank are increasing. The training in Blood Transfusion to the Medical Officers of the Madras State as well as of the Andhra State is being continued. The Blood Bank at Salem Headquarters Hospital was added during the period. The supply of Blood Bank requirements for the Blood Banks of the Madras State as well as to the Andhra State are being made from the Central Blood Bank at this Institute. The Blood Bank took part in the various exhibitions held in the mufassal and also in the city for doing propaganda work for encouraging voluntary blood donors.

The Mobile Blood Bank was sent to accept blood donations from the Jails in the State.

Department of Water Analysis and Algae Control.—The volume of work relating to the analysis of water carried out at this department increased during the year under report, owing to intensive search for new drinking water sources. Problems connected with the growth of micro-organism (algae and aquatic animal plankton) and aquatic weeds in water supplies were studied with special reference to their effect on filtration, chlorination and other water treatment processes. As in the previous years, the department rendered technical assistance to the Madras Corporation authorities, in the matter of algicidal treatments to the Red Hills Lake, during the year under report.

Filter plants and other connected appertenances have been erected by the authorities of the Southern Railway at Guntakal in connection with the proposed semi large scale trials on the removal of fluorides from drinking water. Accommodation for the field laboratory and the staff has also been provided by the railway authorities at Guntakal. These experiments will be started as soon as sanction of the Government is received for the expenditure towards the staff, etc.

In connection with the starting of a postgraduate degree course in Public Health Engineering, the Government has sanctioned a post of Assistant Water Analyst and a Laboratory Assistant to the Department of Water Analysis. It is expected that the course will be started in June 1955.

The Water and Sewage Purification Committee met several times during the year. Experiments carried out at the Research Station, Kilpauk, the occurrence of iron in the Kozhikode water-supply derived from certain infiltration wells and methods required for removing it, proposals for conducting large-scale experiment on breakpoint pre-chlorination and its influence on slow sand filtration utilising two of the filters at the Madras Corporation Water Works were some of the more important subjects considered by the Committee at its meetings.

Library.—The library has continued to be used by the members of the institute staff, Research Officers of the Indian Council of Medical Research, Officers of the B.C.G. Vaccine Laboratory and a few members of the Public Health, Medical Veterinary and Public Works Departments stationed in the City. This Institute is well equipped with books and periodicals on Medical, Public Health and other allied scientific subjects. Occasionally books and journals were also lent to members outside the city at the discretion of the Director. During the period from 1st April to 30th September 1953 hundred and fifty-five volumes of periodicals have been bound and added to the existing volumes of books and periodicals bringing the total number of volumes to 11,391. During the period from 1st October 1953 to 31st March 1954 seven new titles have been added to the list of current periodicals and there are now 122 titles on the list. Seventy-seven new books and maps were added to the library and hundred and fifty-two journals bound, bringing the total number of books and bound volumes of journals to about 11,610 volumes.

The number of institutions sending their journals in exchange for the King Institute, Annual Report was 75.

As the space allotted for the library is inadequate for housing the increasing number of books and other publications, arrangements should be made at a very early date to revive the original scheme sanctioned in 1939 for the construction of a separate library block.

Staff Meeting.—The weekly meetings of the staff were held regularly when literature on various subjects were reviewed. Special talks were given as follows:—

(1) Dr. Venkatasubbu—"Pharmacological study of Ceramine and Cordiazol on the Cardiovascular system in animal and man" on 8th May 1953.

(2) Mr. Abraham—"Work done on the edible Meretrix Casta and its bearing on cholera endemicity on 5th June 1953.

Laboratory attendants and technicians training courses were continued during the year under report. Technician candidates have undergone training in the Laboratory Attendants Course. Among them 26 candidates have come out successful.

The following candidates were given training in one or other branches of work of this Institute, as indicated:—

(1) Sri J. Jagannathan, M.Sc. (Tech.) student of the Andhra University, Waltair, for two months from 15th July to 14th September 1953.

(2) Sri M. Padman, Laboratory Assistant, Pathological Laboratory in Saravak Oil Fields, Limited, for three months from 1st March 1954.

B. Primary vaccinations (Tables II and III).—Results for 880,152, 208,501, and 123,195 primary vaccinations were received, verified from the Composite, Madras and Andhra States respectively with the following success rates:—

	Composite State.		Madras State.		Andhra State.	
	1st January to 30th September 1953.		1st October to 31st December 1953.		1st October to 31st December 1953.	
	Case success rate.	Insertion success rate.	Case success rate.	Insertion success rate.	Case success rate.	Insertion success rate.
	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.	PER CENT.
Madras Corporation ..	99.8	94.1	99.9	94.9	..	..
Municipalities ..	99.2	95.3	99.4	93.9	99.1	94.3
Districts ..	95.3	85.2	96.0	86.5	91.0	72.9
State as a whole ..	96.0	86.5	97.4	87.0	92.0	74.8

C. Re-vaccinations (Tables II and III).—Returns for 2,169,264, 425,392, and 174,717, re-vaccinations verified, were received from the Composite, Madras and Andhra States respectively with the following success rates.

	Case success rate.		
	Composite State Period 1st January to 30th September 1953.	Madras State Period 1st October to 31st December 1953.	Andhra State Period 1st October to 31st December 1953.
	PER CENT.	PER CENT.	PER CENT.
Madras Corporation ..	5.6	4.5	..
Municipalities ..	15.8	15.7	16.3
Districts ..	14.0	14.1	11.1
State as a whole ..	13.0	13.0	12.0

The success rates in respect of primary vaccinations and re-vaccinations have continued to be satisfactory.

4. **Lymph unaccounted for.**—Out of a total supply of 5,180,450 doses of vaccine lymph made during the year, returns have been received for 3,766,492 doses only. 27.3 per cent of the total quantity remain unaccounted for.

5. **Special activities.**—During the year two more batches of dried vaccine lymph were prepared. Details of tests and trials in the field are given in Part II—Researches. The method of surface application of streptomycin and penicillin on the vaccinated area of calves, during the progress of vaccinia, for obtaining a purer vaccinal pulp with a minimal viable bacterial content suitable for freeze drying was adopted. Further studies in this line are being continued.

Some laboratory studies with the vaccine hyper-immune gamma globulin obtained through the courtesy of Dr. C. Henry Kempe of the University of California were conducted—vide Part II—Researches.

SEROLOGY (DIAGNOSTIC) SECTION.

Assistant Director-in-charge—Dr. M. W. Williams, PH.D.

(I) The following special features of the nature and type of work require particular reference. Besides the usual routine work, additional serological investigations were undertaken on behalf of the recently upgraded Venereal Department, General Hospital, Madras, and under the auspices of the W.H.O., V.D. Project, certain serological evaluations also were carried out.

(II) During this period the General Hospital, V.D. Department, carried out V.D.R.L. (Venereal Diseases Research Laboratory) microflocculation tests. This accounts for a slight fall in the total number of specimens received in the course of the year for testing.

(III) From 5th June 1953 we have been participating in the "Inter-Laboratory Evaluation of Serologic Tests, 1953" of the Indian Council of Medical Research under Dr. R. V. Rajam, Officer-in-charge, Inter-Laboratory Evaluation of the procedure for serological tests for Syphilis. We are also doing Kahn test, V.D. R.L. microflocculation, and complement fixation tests. Such specimens received from V.D. Department, General Hospital, Madras, if found positive a quantitative WR., Kahn and V.D.R.L. have concurrently been carried out.

(IV) This Institute further participated in the Serological Evaluation programme for 1953, under Dr. W. H. Gaub, Senior Adviser to W.H.O., V.D. Project.

As regards routine work during the year under report, a total of 68,253 specimens were received of which 19,346 were serologically positive.

Reagents for serological tests to private and Government institutions were supplied as usual.

After formation of Andhra State, separate records are being kept for the specimens received from the districts of the New State, and also for the Residuary Madras State.

The statements of records are as follows:—

(a) Statements IA and IB give details of collective and detailed total serological tests of the Composite State. Statements IIA and IIB give the details of the Madras State and Statement IIIA and IIIB of the Andhra State.

(b) Reagents supplied to the Composite State, Residuary Madras State and Andhra State are appended in Statements IV, V and VI respectively.

CLINICAL SECTION.

There has been a general increase in the work of the section when compared to the previous year. A total of 16,845 specimens were received for microscopic and bacteriological diagnosis from 1st April 1953 to 31st March 1954 of which 5,202 were reported positive for some lesion or other. A feature in the year under report is the increase in the number of salmonella para typhosum 'C' grown in blood culture out of a total number of 1,394 specimens for blood culture 293 specimens were positive for some salmonella group out of which 53 specimens belong to Salm paratyphosum 'C' group. Although this laboratory is not fully equipped for histo-pathological examination of tissues biopsy specimens are being received from some Mission Hospitals and Private Medical Practitioners and are examined at this Institute in consultation with the Professor of Pathology, Madras Medical College, if necessary. Such specimens are received for histo-pathological examination.

Autogenous Vaccine Section.—This section besides preparing Autogenous vaccines maintains a large stock of various type cultures, not only for use in the Institute, but also for supplying sister institutions in other States or abroad.

The various statements showing the nature of work carried out and vaccines or suspensions supplied are detailed in Appendix.

PROPHYLACTIC VACCINE SECTION.

Charge.—Dr. C. Venkateswara Rao, M.B.B.S., L.O., from 1st April to 30th June 1953 and from 1st February to 31st March 1954.

Dr. M. W. Williams, M.B.B.S., PH.D., from 8th July to 30th September 1953.

Dr. N. R. Ratnakannan, M.D., from 1st October 1953 to 31st January 1954.

There was a severe epidemic of cholera in this State during the year under report and as such there was heavy demand for anti-cholera vaccine. 15.1 million doses of anti-cholera vaccine were manufactured and 13.1 million doses were issued which is a record figure for this Institute. This section has also manufactured this year 1.70 lakhs doses of T.A.B. vaccine and issued 1.76 lakhs doses. The plague vaccine was as usual obtained from the Haffkine Institute, Bombay, and 42,220 c.c. was issued to the Public Health staff of this State.

Media Room.—The demand for media continued to be heavy both from other laboratories and from the different sections of this Institute. Due to lack of accommodation and enough equipment, the staff had to work on all holidays and during extra hours throughout this year to cope up with the increase in demand. The statement showing the supplies of media made to other laboratories are shown in Table V—Miscellaneous.

STERILE SOLUTION SECTION.

The department has continued the manufacture of various sterile solutions and supplies of the same have been made to State hospitals, local fund and municipal medical institutions. Approximately 2 lakhs of ampoules of Sterile Solutions have been supplied besides about 1,200 pint bottles of solutions like Glucose Saline, Ringer Lactate, Darrow's Solution, etc.

Particulars regarding supplies made to the Composite State of Madras for the period 1st April to 30th September 1953, are as follows:—

Name of solution.	Number of ampoules supplied.
1 25 per cent Glucose 20 c.c.	1,39,661
2 25 per cent Glucose 10 c.c.	4,756
3 5 per cent Calcium Gluconate 5 c.c.	15,252
4 10 per cent Calcium Chloride 10 c.c.	1,681
5 Distilled Water 10 c.c.	26,527
6 Normal Saline 10 c.c.	18,115
7 Miscellaneous ampoules	1,507
8 Solutions like Glucose Saline Darrow's Solution, Ringer Lactate 1,249 pint bottles.	..

Statement of work done in the Sterile Solution sections for the period 1st October 1953 to 31st March 1954.

The department has continued the manufacture of sterile solutions and supplies of the same to all State Hospitals, local fund, municipal and missionary medical institutions. Demands for the sterile solutions, particularly glucose, continue to be on the increase and unless adequate facilities in the shape of additional accommodation, automatic equipment and staff are provided, it would be impossible to cope with these demands for additional supplies. Considering the very low cost of production of these solutions at this institute as compared with the products in the open market, it would be very economical for the Government to provide additional facilities at this institute and thereby meet the increased demands of the hospitals of this State.

During the period under report, the following supplies of sterile solutions have been made to hospitals in the State of Madras.

Name of Solution.	Number of ampoules supplied.
1 25 per cent Glucose 20 c.c.	94,699
2 25 per cent Glucose 10 c.c.	2,345
3 5 per cent Calcium Gluconate 5 c.c.	6,051
4 10 per cent Calcium Chloride 10 c.c.	1,413
5 Distilled Water 10 c.c.	19,701
6 Normal Saline 10 c.c.	12,249
7 Miscellaneous ampoules	398
8 5 per cent Calcium Chloride 10 c.c.	675
9 Glucose Saline, Ringer Lactate, Darrows' Solution, etc., in pint bottles.	1,026

It will be seen from the above particulars, that a total of 137,531 ampoules of various sterile solutions have been supplied to hospitals all over the State.

The department has continued the manufacture of sterile solutions and supplied the same to State hospitals, local fund and municipal hospitals in the Andhra State. During the period under report, approximately 40,000 ampoules of various sterile solutions have been supplied to hospitals in the Andhra State.

Name of solution.	Number of ampoules supplied.
1 25 per cent Glucose 20 c.c.	29,261
2 25 per cent Glucose 10 c.c.	1,680
3 5 per cent Calcium Gluconate 5 c.c.	2,494
4 10 per cent Calcium Chloride 10 c.c.	150
5 Distilled Water 10 c.c.	3,763
6 Normal Saline 10 c.c.	2,524
7 5 per cent Calcium Chloride 10 c.c.	150
8 Glucose Saline in pint bottles	48

REPORT OF THE DEPARTMENT OF ANTI-TOXINS FOR THE PERIOD 1ST APRIL 1953 TO 30TH SEPTEMBER 1953.

Charge.—Dr. M. K. K. Menon.

This department consists of four sections, viz., (1) Veterinary Section, (2) Anaerobic Section, (3) Serum Concentration Section and (4) Serum Filling Section.

A. Veterinary Section.—The number of horses maintained by the department on 1st April 1953 was 57. Of these, five died, two destroyed on account of unsuitability for serum production. One horse was bled to death after a certain stage of immunization for collection of anti-toxin at the peak level. The total strength as on 30th September 1953 was 49. A large majority of these horses were assigned for the production of anti tetanic serum and the rest for Anti Gas Gangrene Serum.

The number of horses under immunisation and bleeding and the quantity of blood drawn during this period are shown in the table below:—

TABLE I.			
Name of toxin.	Number of horses under immunisation and bleeding.	Number under immunisation but not bled.	Total.
Tetanus	36	10	46
Perfringens	1	2	3

TABLE II.			
Name of anti-toxin.	Quantity of blood drawn in litres.		
Tetanus	..	..	904
Perfringens	..	..	22.5
Total ..	..	..	926.5

B. Anaerobic Section.—Toxic strains of C1. tetanus, C1. Perfringens, *Vibrio septique* and C1. Oedematiens continued to be maintained in the laboratory both in the dry state as well as in the semisolid medium. Purity and toxicity test are done at frequent intervals. A steady yield of highly potent

tetanus toxin for horse immunisation was obtained from the cultures of C1. tetani maintained in the laboratory. For the production of C1. Welchii toxin a new strain (PB 6K) was successfully adopted for routine toxin production.

The following amounts of toxin were manufactured during the year under report:—

	LITRES.
Tetanus toxin	491
Gas Gangrene toxin (Perfringens)	37.9

Biological Standardization.—One hundred and sixty-two samples of tetanus anti-toxin and four samples of gas gangrene (perfringens) anti-toxin were standardized during the period under review including samples of Serum purchased from outside.

Special activities.—The experiments on toxin production of C1. Tetani were continued with a view to get the maximum yield of potent Tetanus-toxin.

Flocculation experiments.—Following on the observation in our laboratories that tetanus Anti-toxin prepared by the Enzyme digestion technique showed clear flocculation with the concentrated toxin and toxoids, a systematic study was made on the antigenicity of various toxins and toxoids manufactured here. The previous difficulty manifested in the appearance of multiple zones of flocculation. This has now been practically overcome. These studies of flocculation have been particularly helpful to us in reducing the number of animals that would otherwise have been required for the determination of these antigenic values.

During this time highly potent toxins and toxoids were manufactured by concentrating neat toxin by ammonium sulphate precipitation and subsequent dialysis. It has been claimed that a high anti-body titre can be induced in the horse by injection of concentrated toxins and toxoids. Work on this problem is under progress. For purposes of biological standardization of tetanus anti-toxin a potent and stable test toxin was prepared by dialysing tetanus toxin against neutral glycerine work on these lines appears to have been conducted in the State Serum Institute, Copenhagen. The resulting test toxin in our experience could not, however, be brought into general use as certain difficulties were encountered owing to uncertainty and non-uniformity of toxin reactions in mice. This toxin is being subjected to further chemical processing with a view to make it confer uniform results in the assay of anti-toxin.

Work is in progress in the laboratory to standardize methods for producing potent toxin of C1. Septique and C1. Oedematiens.

C. Serum Concentration Section.—During the period under review 1861 litres (approximately 414 gallons) of anti-toxic plasma were processed, tetanus anti-toxin forming the major part. The following are the quantities of anti-toxic plasma processed under each head:—

Type of Antitoxic Plasma.	Quantity processed. LITRES.
Tetanus	1,722
Perfringens	139

Special work.—Enzyme refined anti-toxic sera were prepared and they were electrophoretically analysed as to their purity. Such sera are used as working standards for routine determination of antigenicity of toxins and toxoids (in terms of L.F. units) intended for the immunisation of horses; conversely toxoids of known L.F. values prepared by chemical fractionation methods are being used for evaluating the anti-toxic potency of recently bled out horse plasmas as well as finished anti-toxins. The toxoid which is now being used for this purpose is antigenic to the order of 250 L.F. units per c.c. Naturally this method of assay has resulted in great saving of laboratory animals.

New additional safety test introduced.—In accordance with the instructions contained in the British Pharmacopoeia an additional safety test has been introduced before sera and other biologicals are pronounced fit for human use. The test consists in the use of rabbit in which the serum under test is given intravenously at the rate of 3 c.c. per kg. body weight of the rabbit. This should not produce any toxic reactions.

Special work.—Two batches of Enzyme refined anti-toxic sera have been prepared on a laboratory scale with a view to use them as standard serum for flocculation tests in the assessment of antigenicity of toxins and toxoids. This was also useful to us in ascertaining the approximate value of the potency of individual horse plasma and also finished sera. This has resulted in a considerable saving of more costly laboratory animals.

Successful efforts were made in preparing concentrated toxoids by fractionation methods, using ammonium sulphate. Concentrated toxoids possessing as high a value as 250 L.F. units/c.c. have been prepared and work is under progress to study the correlation between the potency values recorded by flocculation tests and those recorded by biological methods on anti-toxic plasmas at various levels of immunisation.

From time to time improvements in the methods of concentration and purification of anti-sera are being incorporated in keeping with the advances that are being continually made in this field of activity.

D. Serum Filling Section.—The work in this section consists of proper ampouling, labelling and issue of various therapeutic sera and other biological products in accordance with the provisions contained in the Drugs Act. The statement of therapeutic sera issued during the period is appended (Table III). A statement showing sera manufactured and labelled in the King Institute, from 1st April to 30th September 1953 is also appended (Table IV).

TABLE III.
Statement showing the Therapeutic sera supplied to the Composite State (i.e., Madras and Andhra States) for the period 1st April to 30th September 1953.

Number and name of sera.	Quantities supplied.
1 Anti-anthrax 10 c.c.	Nil.
2 Anti-gas gangrene 4,000 units	59
3 Anti-gas gangrene 10,000 units	3,209
4 Anti-scorpion 1 c.c.	3,085
5 Anti-venene 10 c.c.	517
6 Diphtheria anti-toxin 10,000 units	7,551
7 Diphtheria prophylactic TAF 1 c.c.	309
8 Diphtheria prophylactic TAF 10 c.c.	25
9 Diphtheria prophylactic APT 0.5 c.c.	125
10 Diphtheria prophylactic APT 5 c.c.	82
11 Haemostatic serum 2 c.c.	3,939
12 Tetanus anti-toxin 1,500 I.U.	1,55,455
13 Tetanus anti-toxin 1950 25,000 I.U.	12,651
14 Tetanus toxoid 1 c.c.	7
15 Tetanus toxoid 5 c.c.	10
Total	1,87,024

TABLE IV.
Statement showing Sera K.L.P.M. product bulbed from 1st April to 30th September 1953.

Serial number and name of sera.	Number of tubes bulbed.
(1)	(2)
1 Tetanus anti-toxin 1500 I.U./1950 (prophylactic)	15,976
2 Do. 10 doses vials (do. do.)	1,763
3 Do. 25,000 I.U. Curative	1,860

REPORT OF THE

REPORT OF THE DEPARTMENT OF ANTI-TOXINS FOR THE PERIOD 1st OCTOBER 1953 TO 31st MARCH 1954.

Charge.—Dr. M. K. K. Menon.

The Department consists of four sections, viz., (1) Veterinary Section, (2) Anaerobic Section, (3) Serum Concentration Section and (4) Serum Filling Section.

A. Veterinary Section.—The number of horses maintained by the department on 1st October 1953 was 49. Of these, two died, two were destroyed as they were unfit for purposes of serum production and four were bled to death after they had reached the desired degree of hyperimmunisation. Seventeen horses were added during the period under report. Thus the total strength of horses on 31st March 1954 was 58. The following tables show the number of horses under immunisation and bleeding and the quantity of blood drawn during this period:—

TABLE I.

Name of toxin.	Number of horses under immunisation and bleeding at the end of the period.	Number under immunisation only.	Number under rest.	Total.
Tetanus	41	..	..	41
Perfringens	..	2	..	2
			15	15
			Total ..	58

TABLE II.

Name of anti-toxin.	Quantity of blood drawn in litres.
Tetanus	2,390.5
Perfringens	35.75
	2,426.25

B. Anaerobic Section.—Toxic strains of C1. tetani, C1. perfringens, Vibrio septique and C1. Oedematiens were maintained in the laboratory both in the dry state as well as in the semi-solid medium. Purity and toxicity tests are done at frequent intervals. A steady yield of highly potent toxin for horse immunisation was obtained from the cultures of C1. tetani maintained in the laboratory. For the production of C1. Welchii toxin a new strain (PB6K) was successfully employed for routine toxin production.

During the period under reference the following amounts of toxins were manufactured:—

	LITRES.
Tetanus toxin	294
Gas gangrene toxin (Perfringens)	18.1

Biological Standardisation.—Eighty-eight samples of tetanus anti-toxin and ten samples of gas-gangrene (perfringens) anti-toxin were standardized during the period. This included samples of serum purchased from outside.

KING INSTITUTE OF PREVENTIVE MEDICINE, GUINDY

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Service rendered to other departments.—The following samples were received from the Superintendent, Government Headquarters Hospital, Guntur, for investigating clostridial infection:—

Gauzes, cotton, vaseline, gloves, rubber tubing, catgut, french chalk, linen sulphanilamide powder, etc. On investigation no clostridia were isolated.

Special activities.—Along with the routine toxin production a number of experiments were done to get the maximum yield of highly potent tetanus toxin. Studies were conducted on toxin production (a) at different levels of peptic digestion, (b) at different PH levels of the nutrient medium, (c) with different enriching substances such as peptone, inorganic salts, tissues, etc., and (d) with different methods of improved Anaerobiosis. These experiments guided us in preparing and maintaining a steady yield of potent tetanus toxin for immunisation of horses. A comparative study on Toxin production was made with certain laboratory strains of C1. Septique and C1. Oedematiens with a view to select the best one for routine toxin production.

C. Serum Concentration Section.—During the period under review the total quantity of immune plasma processed was 1,282 litres (approximately 285 gallons). Of this the tetanus anti-toxic plasma formed the major portion. The quantities of different types of anti-toxin plasma processes is given below:—

Type of anti-toxic plasma.	Quantity processed. LITRES.
Tetanus	1,250
Gas gangrene (perfringens)	32

Equipments.—Valuable additions to the equipment of the section were made by the acquisition of an electrophoresis apparatus and two stainless steel tanks each of 135 gallon capacity. The Electrophoresis apparatus besides being useful for pursuing many problems of protein chemistry, in general, is of particular use to the department in that it enables us to follow the immunological level of anti-toxin production in the horses with considerable amount of precision and rapidity. The stainless steel tanks have been of considerable use to us in enabling us to take large amounts of plasma for concentration and refining.

REPORT OF THE BLOOD BANK SECTION, KING INSTITUTE, GUINDY, FROM 1st APRIL TO 30th SEPTEMBER 1953.

Staff.—Dr. C. S. Ramachandra Rao, M.B.B.S., D.P.H., Assistant Director (Blood Transfusion).

Assisted by.—Dr. N. Sundararajan, M.B.B.S., Civil Assistant Surgeon.

The Mobile Blood Bank was sent to accept blood donations from the inmates of jails at Vellore and Madras Penitentiary, Madras.

The blood bank took part in the various exhibitions conducted in the City and also in the districts for popularizing blood donations.

Training in Blood Transfusion and Resuscitation work was given to Medical Officers. Blood bank equipments for the Blood Transfusion service to the Medical Institutions in the State are being supplied under the Central Supply Scheme of the King Institute, Guindy, Madras.

The work done by the Blood Bank Section during 1st April to 30th September 1953 is given below:—

I. Blood—

(1) Number of blood bottles received	1,174 bottles.
(2) Quantity of blood used for plasma processing ..	433.3 litres.

II. Plasma—

(1) Balance of plasma from previous year	..	..	36 litres.
(2) Quantity of plasma processed	..	..	8 "
(3) Quantity of plasma issued	..	..	140.5 "
(4) Dry serum issued	..	..	220 bottles.

III. High titre—blood grouping serum—

(1) 'A'	..	..	..	..	..	..	2,615 c.c.
(2) 'B'	..	..	..	..	..	..	2,708 c.c.
(3) 'O'	..	..	..	..	..	..	2,462 c.c.

IV. Donors received by the bank—

(1) Paid voluntary donors	..	..	..	..	295
(2) Unpaid voluntary donors	..	..	..	..	Nil.

V. Exhibitions—

(1) Number of exhibitions and propaganda work taken part outside the City.	Two.
(2) Number of exhibitions taken part in the City	One.

VI. Jails visited for blood collections—

(1) Central Jail, Vellore.
(2) Madras Penitentiary, Madras.

**REPORT OF THE BLOOD BANK SECTION, KING INSTITUTE, GUINDY, MADRAS STATE,
FROM 1st OCTOBER 1953 TO 31st MARCH 1954.**

The undermentioned are the Blood Banks left over for the Madras State after the separation of Andhra State.

- (1) Madras City Blood Bank at General Hospital, Madras.
Government Stanley Hospital, Madras.
King Institute, Guindy, Madras.
- (2) Government Tuberculosis Sanatorium, Tambaram.
- (3) Government Headquarters Hospital, Tiruchirappalli.
- (4) " Madurai.
- (5) " Tanjore.
- (6) " Tirunelveli.
- (7) " Kozhikode.
- (8) " Ootacamund.
- (9) " Coimbatore.
- (10) " Vellore.
- (11) " Mangalore.
- (12) Government Hospital, Cochin.

The mobile Blood Bank was sent to accept blood donations from the inmates of the Central Jail, Vellore, and Madras Penitentiary, Madras.

The blood bank took part in various Exhibitions in the City and also in the districts for popularizing blood donations.

Training in Blood Transfusion and Resuscitation work was given to a Medical Officer deputed from Amritsar, Punjab State, for a period of one week during February 1954.

Blood bank equipments for the Blood Transfusion service to the Medical Institutions are being supplied under the Central Supply Scheme of the King Institute, Guindy.

The work done by the Blood Bank Section is given below:—

I. Blood—

(1) Number of blood bottles received	893 bottles.
(2) Quantity of blood issued for Plasma processing ..	315.8 litres.

II. Plasma—

(1) Quantity of Plasma processed	..	..	..	94 litres.
(2) Quantity of Plasma issued	..	..	..	114.5 litres.
(3) Dry Serum issued	..	..	..	190 bottles.

III. High titre blood grouping serum—

(1) 'A'	..	..	..	..	..	..	1,124 c.c.
(2) 'B'	..	..	..	..	..	..	1,238 c.c.
(3) 'O'	..	..	..	..	..	..	1,108 c.c.

IV. Donors received by the Blood Bank—

(1) Paid voluntary donors	..	..	..	..	161
(2) Unpaid voluntary donors	..	..	..	..	72

V. Number of exhibitions taken part in the City

.. Two.

VI. Jails visited for blood collections—

(1) Central Jail, Vellore.
(2) Madras Penitentiary, Madras.

REPORT OF THE BLOOD BANK SECTION, KING INSTITUTE, GUINDY, ANDHRA STATE,
FROM 1ST OCTOBER 1953 TO 31ST MARCH 1954.

The undermentioned are the Blood Banks in the Andhra State:—

1. Government Headquarters Hospital, Guntur.
2. Government Headquarters Hospital, Kakinada.
3. Government Headquarters Hospital, Masulipatam.
4. King George Hospital, Visakhapatnam.

Blood Bank equipments for the Blood Transfusion service to the Medical Institutions in the Andhra State are being supplied under the Central Supply Scheme of the King Institute, Guindy.

(1) Plasma supplied	33 bottles of 500 c.c. each.
(2) Dry serum supplied	16 bottles.
(3) Blood group serum supplied 'A'	282 c.c.
'B'	282 c.c.
'O'	282 c.c.
(4) Novocain supplied	12 ampoules.
(5) 3 per cent Sodium Citrate supplied	65 x 20 c.c.
(6) Blood taking sets	36 sets.
(7) Blood giving sets	26 sets.
(8) Saline transfusion sets	28 sets.

REPORT OF THE DEPARTMENT OF BIOLOGICAL CONTROL, KING INSTITUTE, GUNDRY,
MADRAS-15, FOR THE YEAR 1ST APRIL 1953 TO 31ST MARCH 1954.

Charge.—Dr. M. Narayana Pai was in charge of the department during the whole year except during the periods 1st April to 17th July 1953 and 23rd October to 16th November 1953 when he was on other duty as Director. During these periods Dr. K. Dattatreya was in charge of the Department of Biological Control.

Pharmacologist.—Dr. V. S. Venkatasubbu from 4th April to 19th July 1953, Dr. K. Dattatreya from 1st to 3rd April 1953 and from 20th July 1953 to 51st March 1954.

Bacteriologist.—Dr. S. Gnanadesikan, M.B.B.S., throughout the year.

Chemical Assistant.—Dr. P. K. Ramachandran, m.sc., throughout the year.

Sterility Tests.—Total number of specimens received and examined for Sterility tests during this period was six. Out of these three specimens were found to be not sterile.

Pyrogen Test.—Three specimens were examined during this period. Out of these one specimen was pyrogenic. The rest were pyrogen free.

Chemical Analysis.—Two specimens were examined under this head. Out of these one specimen was Not of Standard Quality.

Male Frog Test for Pregnancy.—One specimen of urine was received from the Headquarters Hospital, Chittoor. The result was positive.

DEPARTMENT OF BIOLOGICAL CONTROL, KING INSTITUTE, GUINDY, MADRAS-15 FOR THE PERIOD FROM 1ST OCTOBER 1953 TO 31ST MARCH 1954 FOR THE MADRAS STATE.

Total number of specimens received and the tests performed during the period was 6,954 and 8,282 respectively.

Sterility Tests.—Total number of specimens received and examined for sterility tests during this period was 1938. Out of these 108 specimens were found to be Not Sterile.

Pyrogen Tests.—One hundred and seventy-two specimens were received for Pyrogen Tests. Out of these 5 specimens were pyrogenic. The rest were Pyrogen free.

Chemical Analysis.—One hundred and fifty-one specimens were examined under this head. Out of these 7 specimens were not of Standard Quality.

Toxicity Tests.—5,326 specimens (mostly anti-cholera Vaccine and anti-typhoid vaccine) were examined under this head during the second half year under report. All were found non-toxic.

Anti-toxin Potency Test.—Ten tests were done under this head on 6 samples of tetanus Anti-toxin. All were found to be of Standard Quality.

Biological Assay of Digitalis.—Four samples were tested for potency and found to be of Standard Quality.

Tests for Sensitivity to Anti-biotics.—Two specimens of cultures were tested for sensitivity to anti-biotics. One was found to be sensitive to Penicillin as well as streptomycin. The other was found resistant to Penicillin.

Vaccine Lymph.—Tests of bacteria count were done on 6 specimens of vaccine lymph and all were found to conform to accepted Standards.

Catgut Absorbability in animals.—Twenty-two specimens of catgut sutures were received from Government Hospitals and private firms. Out of these 6 catguts received from Government Hospitals were found to be Sterile and absorbed in rabbits thigh muscle. The remainder are under test.

Male Frog Test for Pregnancy.—One hundred and sixty-four specimens of urine were received from the different Government and Mission Hospitals and Nursing Homes in the City and from private Practitioners. Out of these 46 were found positive for pregnancy.

Drugs Act.—Ten specimens were received from the Inspectors of Drugs and Provincial Drugs Controller, Madras, for examination under the Drugs Act. Out of these 3 were found Not to conform to Standards.

REPORT OF THE DEPARTMENT OF BIOLOGICAL CONTROL, KING INSTITUTE, GUINDY, FOR THE PERIOD FROM 1ST OCTOBER 1953 TO 31ST MARCH 1954 IN RESPECT OF ANDHRA STATE.

Total number of specimens received and tests performed during this period was 7 and 12 respectively.

Sterility tests.—Total number of specimens received and examined for Sterility tests during this period was 6. Out of these, 3 specimens were found to be Not Sterile.

Pyrogen test.—Three specimens were examined during this period. Out of these one specimen was pyrogenic. The rest were pyrogen free.

Chemical Analysis.—Two specimens were examined under this head. Out of these one specimen was not of Standard Quality.

Male frog test for pregnancy.—One specimen of urine was received from the Headquarters Hospital, Chittoor. The result was positive.

DEPARTMENT OF WATER ANALYSIS AND ALGAE CONTROL

Part I—Composite State from 1st April to 30th September 1953.

Charge.—Sri P. V. Seetharama Iyer, M.A., from 1st April to 21st December 1953 and Sri K. G. Veeraraghavan, M.Sc., from 21st December 1953.

As per Government Memo. No. 7468/53-2 (Partition) Department, dated 2nd January 1954, the report of the department of Water Analysis for the year 1953-54 is presented in three parts, viz., (1) for the period 1st April to 30th September 1953 for the Composite State, (2) for the period 1st October 1953 to 31st March 1954 for Madras State, and (3) for the period 1st October 1953 to 31st March 1954 for the Andhra State.

Sri P. V. Seetharama Iyer, Chief Water Analyst went on leave from 21st December 1953 preparatory to retirement and Sri K. G. Veeraraghavan, Assistant Analyst (Water Biology) was promoted as Chief Water Analyst. Sri N. Swaminathan, Assistant Analyst (Water Bacteriology and Chemistry) retired from service on 3rd May 1953, and Sri K. R. Ramaswamy was appointed to this vacancy.

This department continued to maintain a check over the hygienic quality of the protected drinking water supplied to the Municipalities, Panchayats, Jails, Railway Stations and other institutions in both Madras and Andhra States prior to and after separation. This was carried out by the examination of samples of water collected from these water-supply systems three times a year. In addition scientific advice and help were rendered to the Public Health and Sanitary Engineering departments in matters relating to investigations on new water supplies, improvements and extensions to existing supplies, and sewerage and industrial waste disposal schemes. Field investigations on water-supply and trade waste disposal problems constituted an important and vital aspect of the work of this department. All the analytical examinations in connection with the researches on water purification carried out at the Government Experimental Filter Station, Kilpauk were conducted in the laboratories of this department.

The analysis of chemicals, filter sand and other materials used in water treatment was also undertaken. As in previous years, the bacteriological examination of samples of milk, aerated waters and foodstuffs was carried out in this department as a part of its routine work. A large number of samples of water was also tested for their fitness for use in various industrial processes and also for determining treatment measures necessary to render the water satisfactory for specific industrial uses.

A sum of Rs. 6,128-3-0 was received during the whole year towards charges for the analysis of water and other samples received from private sources. The corresponding receipt for the previous year was Rs. 6,354-12-3.

Sri K. G. Veeraraghavan was appointed a Member of the Sub-Committee on Coal Tar Disinfectants of the Indian Standards Institution. He attended a meeting of the Sub-Committee held in Calcutta in April 1954 to consider specifications and methods of tests for various types of Coal Tar Disinfectants. It was decided at this meeting that the King Institute would be the central laboratory for the supply of the standard strain of the test organisms (*B. Typhosus*) for use in testing disinfectants by the Rideal Walker and the British Admiralty tests for the estimation of the phenol co-efficient. A draft specification for white and black fluids was also drawn up at this meeting.

Owing to the separation of Andhra State on 1st October 1953 it has been found necessary to consider the report in this department under the following three heads:—

(1) Report for the period 1st April to 30th September 1953 for the composite State.

(2) Report for the period 1st October 1953 to 31st March 1954 for the Residuary Madras State.

(3) Report for the period 1st October 1953 to 31st March 1954 for the Andhra State.

This has been considered necessary as under the orders of the Government, the King Institute, performed its functions for the Andhra State as well until further orders.

Total number of tests performed during the year 1953-54 are 13,146 as compared with 7,290 in the previous year 1952-53. It can be seen from the figures that there is an appreciable increase in the work year by year. The number of tests done from the time of inception of this department since September 1947 are as follows.—

	Number of tests done.						
1948-49	..	..	..	..	..	..	437
1949-50	..	..	..	..	..	..	1,562
1950-51	..	..	..	..	..	..	5,348
1951-52	..	..	..	..	..	..	6,268
1952-53	..	..	..	..	..	..	7,290
1953-54	..	..	..	..	..	..	13,146

Report for 1st April to 30th September 1953 for the composite State has already been furnished on 24th March 1954, a copy of which is appended.

Financial.—A sum of Rs. 870 was collected towards fees for examination of specimens from private firms, private practitioners, etc.

Research.—Work in connection with the value of Male Frog Test in the diagnosis of early pregnancy is being continued and a paper on this subject has been sent to the *Indian Medical Gazette* for publication.

A FEW OF THE INTERESTING CASES ARE GIVEN BELOW.

1. A vial of tetanus anti-toxin which was used on a patient was sent by a District Medical Officer for testing because it produced unfavourable symptoms. When tested, it was found to be not sterile and was toxic to experimental animals. A fresh vial from the same batch was obtained and tests carried out showed it to be sterile and non-toxic to experimental animals. Obviously, the specimen must have got contaminated while it was used.

2. A specimen of Aminophylline ampoules was sent by a Drugs Inspector in the moffusil for analysis. The sample was found to contain an excess of Theophylline when assayed according to U.S.P. method; it was also pyrogenic and subsequently we were informed that the manufacturer used Ethylene diamine Hydrochloride instead of Ethylene diamine as directed by the U.S.P. and B.P. and this was responsible for the high value for theophylline content.

3. A sample of liver extract was sent by the State Drugs Controller stating that it was found to give toxic reactions on administration to patients. We found it to be toxic to experimental animals.

4. A sample of 10 per cent Calcium Gluconate solution intended for intravenous use was sent to us for testing. It was found to be sterile, Pyrogen free and conformed to standards as per chemical analysis. But the sample contained suspended particles, it was reported as not fit for intravenous use.

5. A sample of Nupercaine solution was sent for test by a Civil Surgeon in the moffusil as its action was not found satisfactory. When tested on guinea pigs, it was found to give complete anaesthesia to the end of 30 minutes after which the anaesthetic effect gradually disappeared. The result suggested that the product was of satisfactory quality.

6. A specimen of Posterior Pituitary Extract with its date of expiry February 1952 was received for examination. This was found sterile but it contained brown suspended particles. On Biological Assay it was found to have lost over 50 per cent of its potency and was hence reported being not up to standard.

7. A sample of Tr. Digitalis was sent by the Drugs Inspector for Biological Assay. This was only about 32.75 per cent potent and hence was reported as not of standard quality.

DEPARTMENT OF BIOLOGICAL CONTROL, KING INSTITUTE, GUINDY, FOR THE PERIOD 1ST APRIL TO 30TH SEPTEMBER 1953.

Total number of specimens received and the tests performed during the six months from 1st April to 30th September 1953 was 3,895 and 4,864 respectively.

Sterility Tests.—Total number of specimens received and examined for Sterility Tests during the first half year of 1953-54 was 1,275. Out of these 20 specimens were found to be Not Sterile.

Pyrogen Tests.—We received during the first half year of 1953-54 one hundred and sixty-nine specimens for Pyrogen test. Out of these 10 specimens were Pyrogenic.

Chemical Analysis.—One hundred and forty-two specimens were examined under this head. Out of these 8 specimens were not of Standard Quality.

Toxicity Tests.—Two thousand four hundred and thirty-one specimens (mostly anti-cholera vaccine and Anti-typhoid vaccine) were examined under this head during the first half year under report as against 2,627 for the whole year of 1952-53. All were found non-toxic.

Anti-Toxin Potency Test.—Seven tests were done under this series on 5 samples of Tetanus Anti-toxin. All were found to be of Standard Quality.

Biological Assay of Digitalis.—One sample was tested for potency and found to be of Standard Quality.

Potency Test of Anti-Typhoid and Anti-Cholera Vaccine.—Three rabbit immunisation tests were done and the sera were tested for agglutination with the respective organisms for finding out the titre.

Penicillin and other Antibiotics Sensitivity Tests.—Three specimens were received and tested under this series. All organisms were sensitive to the antibiotics against which they were tested.

Miscellaneous Tests.—Tests on opacity, identity and serological tests with high titre sera were done on 638 specimens of prophylactic vaccines.

Vaccine Lymph.—Tests of bacterial count were done on 17 specimens of Vaccine Lymph.

Catgut Absorbability in animals.—Two specimens of catgut sutures were received from a private firm and tested for absorbability in rabbits. Both specimens were found absorbed in 27 days.

Male Frog Test for Pregnancy.—One hundred and twenty-three specimens of urine were received from the Women and Children Hospital, Egmore, Kasturba Gandhi Hospital, Triplicane, Raja Sir Ramaswami Mudaliar Lying-in-Hospital, Royapuram, Willingdon Nursing Home and Private Practitioners of the State. Out of these 33 were found positive for pregnancy.

Drugs Act.—Seven specimens were received from the Inspectors of Drugs and Provincial Drugs Controller for examination under the Drugs Act. Out of these three were found not to conform to standards.

Other States.—One sample of mixed Anti-typhoid-cholera vaccine was received from the Government of Orissa and one sample of Anti-Cholera vaccine from the State Public Health Laboratory, Patna for test. Both were found satisfactory.

Samples of water for bacteriological and chemical analysis have to be drawn in specially prepared bottles. A total of 3,555 sampling containers were prepared in the laboratory for use in the collection of water samples, and supplied to Government and private parties.

Section of Water Bacteriology and Chemistry.—Two thousand, nine hundred and six samples of water, milk, aerated waters, food products, etc., were tested bacteriologically during the period under report. The samples of water drawn from the protected water supplies under periodical examination were subjected to the presumptive coliform test. In the case of samples derived from investigation sources and other institutions, a more detailed bacteriological analysis including the differential tests for coliform organisms was also carried out. Such differential tests were conducted also on samples collected from the distribution system which showed any evidence of transit pollution.

An account of the investigations carried out on the Bacteriology of utensils used in city hotels and eating establishments and on dish washing procedures was published in the *Indian Medical Gazette* (Volume 89, No. I, January 1954, page 14).

At the request of the Director of Public Health, Madras and the Secretary of the Hotel Sanitation Committee, studies on "Informative Bacteriological Standards for Ice Cream" were undertaken. An account of the experiments carried out in this connection is given later in this report.

During the year under report, 967 samples of water were tested chemically and an equal number was tested for their physical characteristics like turbidity, colour and odour. Full details regarding the number of samples of bleaching powder, lime, alum, sand, etc., analysed are presented in Table VII, Part II.

A sample of water collected from a field well at Minampalli, Rasipuram taluk (Salem district) was received for chemical analysis in August 1953. It was stated that 8 persons who got into the well died. The well was used for soaking jute. On analysis it was found that the water had a foul smell of sulphuretted hydrogen (11 parts per 100,000) and contained 26 parts per 100,000 of carbon dioxide and the atmosphere in the well had an oxygen content of 11 per cent only. The results of the analysis indicated that death had occurred due to marked depletion of oxygen in the well owing to the decomposition of organic matter. Similar instances have previously been reported in this Institute's annual report and the present occurrence points to the importance of adopting precautionary measures before people descend hastily into wells.

Section of Water Biology.—Samples of water collected periodically from the protected water-supplies in the State for routine examination and samples drawn from investigation sources were examined microscopically to determine the nature and extent of aquatic growths present in them. The purpose of this examination has already been given in detail in this Institute's annual report for 1949-50. Algicidal treatment was recommended and carried out whenever the analytical data showed conditions likely to promote the growth of algal organisms to an undesirable extent or when the existing growths were found to be excessive. The specific algicidal measures required were ascertained by laboratory tests and checked with tests carried out on the spot.

One hundred and fifty samples were examined microscopically during the year. Of these 21 samples were collected from the Red Hills Lake, Madras, in connexion with experiments on the Kilpauk Research Station and the algicidal treatment to the lake water.

The application of algicidal treatment to drinking water-supply sources and other bodies of water was carried out as far as circumstances would permit under the technical guidance and analytical control of the staff of the King Institute specially deputed for this purpose.

Requests were received during the year under report for advice on algicidal measures applicable to temple tanks to render the tank water satisfactory for use during important fairs and festivals. It is noted with regret that often such requests are made too late for the successful adoption of algicidal measures. A large majority of these tanks are heavily infested with aquatic organisms more especially algae which impart an unsightly appearance to the water and cause odour and taste troubles when the growths start to decay. The adoption of a planned programme of algal control measures in respect of each of these tanks, based on the specific characteristics of the water and the organisms is strongly recommended in order to keep these waters in a clean and aesthetically satisfactory condition.

A few of the more interesting observations made in the course of the biological studies are given below:—

(1) Sample of water drawn from the bottom scour of the Ralliah reservoir at Coonoor in February 1954 showed the presence of an abundant growth of the colonial green algae, *Dicatysphosium pulchellum*. At the same time, samples drawn at and near the surface of the reservoir were almost practically devoid of these organisms. Generally, intensity of algal growths is greater near the surface layers of the water where the condition for growth and development as regards sunlight is more favourable than in the deeper layers.

(2) Organisms belonging to the group of iron bacteria were isolated from the incrustations found inside the distribution pipe lines at Nellore.

Municipal and panchayat board water-supplies.—The number of municipal and panchayat board water-supplies from which samples of water were collected periodically for testing remain the same as during the previous year. However, in some of these supplies, extensions have been made to the distribution system, for supplying water to new areas. Full details regarding these extensions were obtained from each water-supply in order to determine the additional points for collection of samples for periodical analysis so as to determine the quality of the water as supplied in these extended areas. As in previous years samples were collected three times during this year also. The desirability of more frequent examination of the quality of the drinking water-supply has been pointed out in previous reports. It is essential that the frequency of examination of each water-supply should be based in relation to the total quantity of water supplied per day, the population served, the special features of the source of the water-supply and the purificatory procedures adopted. While these would be the scientific basis on which frequency of analytical examinations should be conducted for an efficient control of the hygienic safety of protected drinking water-supplies in the State, it has also to be pointed out that its implementation would mean a very substantial increase in the number of samples examined in these laboratories which cannot be undertaken with the available facilities at present as regards staff and laboratory accommodation.

The results of examination of samples of water collected from the various sources from which protected water-supplies to municipalities and panchayat boards are derived in the State show that their quality has remained more or less unchanged as regards both chemical features and bacterial quality during this year. Surface sources such as rivers, tanks, etc., were generally found to be year. Surface sources showed often the presence of coliform organisms bacteriologically contaminated and showed the presence of coliform organisms in as small a volume as 0.1 to 1 c.c. while under-ground sources yielded water of fair quality from the bacteriological point of view. In these, coliform organisms were noticed in volumes ranging from 5 c.c. and upwards and in certain instances these organisms were absent in 60 c.c.

The water yielded by infiltration galleries at Madurai, Pollachi, Tiruchirappalli and Tuticorin showed some deterioration in bacteriological quality during this period.

At the commencement of the year there were 171 protected water supplies and one swimming pool under periodical examination at this Institute. The water supplies to 5 institutions were added to the list during the year. Periodical analytical examination of water supplies is now carried out in 60 municipalities, 17 panchayat boards, 24 jails and certified schools, 54 railway stations, 21 institutions and one swimming pool making a total of 176. With the separation of Andhra State, 18 municipal water supplies, 7 panchayat board water supplies and 3 supplies to jails fall within the Andhra State while the rest are in the Madras State. The examination of samples of water collected from the Thungabhadra Project Camps, Bellary Municipality and the Jails in Bellary which were hitherto carried out at this Institute is now being done by the Public Health authorities of the Mysore State.

Only the water in the swimming pool in the Gymkhana Club, Madras is now periodically analysed at the request of the Club authorities for control of its quality. The desirability of bringing all the swimming pools in the State under analytical control to ensure their hygienic safety has been referred to in previous reports and is reiterated now.

At present the water supplies to 54 railway stations are included in the list for regular examination. These stations have been selected in consideration of their importance as pilgrim or commercial centres and places which normally carry a heavy passenger traffic. This list however leaves out at present some of the most important stations of pilgrimage such as Rameswaram, Dhanushkodi, Conjeevaram, Nagapattinam (Nagore), Srirangam and centres of commerce like Coimbatore, Mettupalayam, Ootacamund, Pollachi, Kodaikanal Road, Dindigul, etc. This subject was discussed in detail at a meeting of the Water and Sewage Purification Committee as far back as 1948. The Committee was then of the opinion that at least 30 more railway stations selected on the basis of their importance from the point of view of pilgrimage, fairs, and festivals, etc., should be added to this list in order that the hygienic quality of the water supplies at these places may be properly controlled. A final decision on this has not yet been taken by Government.

Filter plants and other connected appurtenances have been erected by the authorities of the Southern Railway at Guntakal in connection with the proposed semi large scale trials on the removal of fluorine from drinking water. The railway authorities have also allotted suitable buildings for accommodating the field analytical laboratory and quarters for the analytical staff. These installations were inspected in January 1954 by the Director, King Institute, the Chief Medical Officer and the Regional Engineer of the Southern Railway and the Chief Water Analyst. Minor additions to and modifications of the plant which were deemed necessary after the inspection have also been carried out. Though necessary facilities for carrying out the experiment have been already provided by the railway authorities, at their cost, the experiments could not be started pending necessary sanction of Government for the expenses towards the staff, etc. Sanction of Government has been applied for and the experiments would be commenced when the same is received.

Statistical Data.—The total number of samples of water analysed during the six months period ending 30th September 1953 was 4,856. Out of this, 3,918 samples were collected from the protected water supplies under the schedule of periodical examination. One hundred and seventy-two samples were received for analysis in connection with investigations conducted by the Government on Rural and Urban water-supply schemes as well as from private institutions. Two hundred and seventy-three samples of water and specimens of organic growths occurring in water sources were examined in the Water Biological Laboratory in connection with the periodical biological assay of water samples and the measures carried out on water sources for the control of algal and other aquatic organisms.

One thousand, two hundred and twenty-nine samples of water were collected and analysed in connection with the experiments conducted at the Government Experimental Research Station, Kilpauk. Besides this, 686 estimations were made for the determination of the dosage of alum, chlorine, copper sulphate, ammonia, etc., in the course of these experiments.

The number of samples of water received during the period under report for a full Mineral examination to ascertain suitability for use in various industrial processes was 20. Of these 12 were tested for use as boiler feeds. Most of the samples analysed were found to require treatment before they could be rendered fit for such purposes. Detailed advice regarding the methods which could be adopted for treating the water was given in all cases.

The number of samples of Sewage and Trade wastes tested during the period under report was 33 as compared with 18 during the previous year. These were mostly collected from factories in the State in connection with investigations on problems relating to treatment and disposal of the waste waters. It may be stated that this branch of work, viz., analysis and treatment of industrial waste waters has shown a steep rise in the last few years reflecting the development of industries in the State and the growing consciousness of the authorities in charge of industries of the importance of carrying out adequate purification of industrial wastes before they are discharged into natural water courses. Such treatment is of importance not only from the point of view of prevention of pollution of water courses by the addition of noxious, pollutorial and dangerous materials but also in the interest of safeguarding the water sources of the State from contamination which in course of time is bound to throw a heavy financial burden on future users of water in instituting corrective procedures. It is also to be stated that this department has so far been able to undertake a limited amount of work of this nature at considerable strain on the staff. It would be necessary to suitably augment the staff of this section if this service should be expanded to meet essential requirements. The lack of sufficient laboratory space has all along been a serious handicap more so because it is essential that the analysis of highly polluted sewage and trade wastes should not be carried out within the same laboratory where drinking water samples are also tested for their hygienic quality.

One hundred and twenty-three samples of bleaching powder intended for use in water treatment and for general disinfection purposes were received for analysis to determine the percentage of available chlorine in the samples. The results of analysis of these samples once again showed the markedly poor quality of the powder that is generally used. Forty-eight of these samples had an available chlorine percentage of less than 5.0. This shows the need for taking measures to ensure that only bleaching powder of very good quality is marketed to secure efficiency in water-sterilization and disinfection. Moreover, the bleaching powder now available for use is an unstabilized product which deteriorates rapidly in quality once the original container is opened for use. The possibility of inducing indigenous manufacturers to produce a stabilized powder with a high chlorine content is worth considering in the interest of satisfactory chlorination of drinking water supplies.

In connection with the periodical examination of reconstituted milk from the Government Milk Factory at Teynampet, 112 samples of milk and 72 samples of water and utensils were examined during the year.

The number of tests carried out to determine the Phenol Co-efficient of samples of disinfectants was 63. Both the Rideal Walker method of testing and the Crown Agents Test were carried out as required by the parties submitting the sample.

386.5 litres of pancreatic extract were prepared and supplied for use in the manufacture of cholera vaccine. The entire requirement of microscopical stains and other reagents of the various departments in the institute were met.

An automatic chlorinating apparatus using liquid chlorine was installed for purifying the water-supply to Kumbakonam Municipality during the year. The automatic plant at Erode Municipality did not function satisfactorily and chlorination was carried out with bleaching powder solution. This was not quite efficient.

The method of purification comprises alum coagulation, settlement and filtration through rapid gravity sand filters and chlorination at Bodinayakanur, Fort Cochin, Erode, Salem, Mettupalayam and Mettur Dam. All these filters except the one at Bodinayakanur yielded a filtrate which was of fair bacteriological quality.

Rapid sand filters of the pressure type are in use at Chidambaram. This plant did not function efficiently. The quality of the filtered water yielded by this plant has been generally unsatisfactory in physical appearance due to post-filtration precipitation of the alum because facilities for proper sedimentation of the water before filtration are not available.

Slow sand filters are in commission in Madras, Salem and Periyakulam. Those in Madras served at best as coarse strainers. The production of H.S. was noticed in these filters though to a lesser extent than in previous years. At Salem chlorination of the water prior to filtration is adopted and this has helped in improving the bacteriological quality of the filtered water. The slow sand filters at Periyakulam have functioned satisfactorily.

All but 8 of the protected water-supplies to municipalities and panchayats in the State are chlorinated. The results of examination of the chlorinated waters carried out during the year under report show that generally wherever automatic chlorinating apparatus are employed and so the dosage could be correctly regulated the treatment has proved satisfactory. The use of manually regulated apparatus with bleaching powder solution would appear to be unsatisfactory and yielded rather variable results. Chlorination was found to be inefficient at one time or another at Kozhikode, Cannanore, Chingleput, Coimbatore, Coonoor, Dindigul, Kodaikanal, Melapalayam and Nagapattinam. The supply derived from Marlimund reservoir and the Doddapetta group of reservoirs at Ootacamund are now being chlorinated by adding bleaching powder solution. The treatment is noticed to have improved the bacteriological quality of the supply drawn from these sources.

The standard of bacterial quality adopted for a chlorinated water-supply is the absence of coliform organisms in 60 c.c. volumes of the samples examined. Judged by this standard, out of 166 chlorinated samples collected at the various headworks during the period under report one hundred and forty-three samples or nearly 86 per cent were of satisfactory quality. Five hundred and fifty samples of water were drawn from the service tanks and from the distribution taps in municipalities and panchayat boards and tested for their hygienic quality. The following statement shows the number of samples which fell short of the required standard of bacteriological purity for a satisfactory drinking water-supply in each group of supply divided according to the type of treatment adopted:—

TABLE.

Madras State water-supplies.

Type of supply.	Number of sources.	Number of samples tested.	Number unsatisfactory.	Per cent unsatisfactory.			
				1953-54.	1952-53.	1951-52.	1950-51.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Municipal water-supplies.							
Untreated	8	62	27	43.5	50.0	31.8	35.9
Chlorinated only ..	40	281	81	28.0	36.5	37.1	32.1
Filtered and chlorinated.	11	110	40	36.3	27.3	29.1	32.1
Total ..	59	453	148	30.6	35.8	34.0	32.8

Type of supply.	Number of sources.	Number of samples tested.	Number unsatisfactory.	Per cent unsatisfactory.			
				1953-54.	1952-53.	1951-52.	1950-51.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(2) Panchayat board water-supplies.							
Untreated	1	9	9	100.0	44.4	..	47.6
Chlorinated only ..	13	72	20	27.7	34.2	33.0	44.6
Filtered and chlorinated.	1	16	2	12.5	25.0	..	9.0
Total ..	15	97	31	32.0	34.0	27.0	41.9

It will be seen from the table that out of these 550 samples, 179 or 32.5 per cent were not quite satisfactory from the bacteriological point of view. It will thus be seen that there is need for effecting much improvement in the hygienic quality of the drinking water-supplies in our State. A majority of the samples of purified water drawn from the headworks have been found to be of satisfactory quality but this quality is not maintained in the water when actually supplied to the consumers. It is desirable to carry out a comprehensive and thorough investigation to ascertain the causes leading to the fall in quality of the water during distribution. The necessity of establishing a Water-supply Inspectorate to tackle this and other problems relating to water-supplies has been pointed out in previous reports.

Jails and Certified Schools.—The examination of water-supplies to 21 jails, certified schools, vigilance homes and other institutions was carried out thrice during the period under report. Treatment with bleaching powder solution for purifying the supply is adopted in many of these institutions but this has not proved uniformly satisfactory.

Railway station water-supplies.—The water-supply to 54 railway stations is now included in the list for regular examination. Ten of these derive their supply from the neighbouring municipality while the rest have independent sources—mostly wells. The water-supply at the following railway stations is chlorinated with the aid of an automatic plant using gaseous chlorine:—

Arkonam, Bangalore, Erode, Guntakal, Jalarpet, Madurai, Mayuram, Tanjore, Shoranur, Tiruchirappalli, Tirunelveli, Villupuram and Waltair,

At other stations, chlorination is carried out using bleaching powder solution. Judged from the results of the analysis of samples of water collected from taps on the platforms it may be stated that the drinking water-supply at most of the railway stations was satisfactory from the bacteriological point of view. A consolidated statement giving the recommendations made by the institute for improvements and the measures carried out and proposed to be carried out by the railways during the year was received from the Chief Medical Officer. It is seen from the report that most of the recommendations suggested by the institute are being carried out or are under execution. Improvements have been made to the wells at Tirunelveli, Tiruttani and Tenali. It appears that it is proposed to install filters at Dronachalam and Gudur Railway stations to improve the physical appearance of the water-supply. Automatic chlorinating equipments are to be installed at Tiruvarur and Katpadi Railway stations.

Other institutions.—The water-supplies to 22 institutions comprising hospitals, colleges, Raj Bhavans, hydro-electric and irrigation project camps are also included for periodical examination. A new pressure filter has been installed at the Annamalai University and work is in progress on the construction of alum coagulation and sedimentation basins. The water-supply to Glenmorgan and Singara camps was noticed to be unsatisfactory throughout in quality and recommendations made for adequate purification have not been carried out.

The drinking water-supply of the major State hospitals in Madras City except the Royapetta Hospital are now under regular periodical analytical control. Besides these, the supplies to Erskine Hospital, Madurai, Government Headquarters Hospital, Coimbatore, and the Mission Hospital at Vellore are also examined periodically. The results of the examination carried out during the year under report of the samples collected from these hospitals show that frequently deterioration in the quality of the water occurs as a result of storage in inadequately cleaned tanks. Necessary advice for improving and maintaining the quality of the supply in a satisfactory state has been made and it is gratifying to note that these are being implemented.

Field investigations.—As in previous years, field investigations in connexion with water-supply schemes, improvements to existing installations, schemes for sewage and trade waste disposals, sterilization of newly laid water mains, etc., constituted an important and vital aspect of the work of the department during this year also. A brief account of some of the investigations carried out during the year under report is furnished below.

Drinking water-supplies—(1) *Kozhikode Emergency Water-supply Scheme.*—An investigation was carried out by Sri P. V. Seetharama Iyer on the treatment of the Kozhikode Municipal Emergency Water-supply for the removal of iron present in the raw water in May 1953. The supply derived from the infiltration wells at Elathur contains excessive amounts of iron in solution. It is treated in one of the elevated service reservoirs in Kozhikode with the addition of lime, alum and chlorine to precipitate and settle the iron as well as sterilize the drinking water-supply. Samples of water at various stages of purification were collected for analysis at the spot to assess the efficiency of the treatment carried out. The results show that the treatment as carried out was generally satisfactory. It was recommended that the distribution lines should be flushed out from time to time with strongly chlorinated water in order to prevent biological growths in the lines and keep them free from any depositions of precipitated iron.

(2) *Srivilliputtur Water-supply Scheme.*—A field investigation was carried out by Sri P. V. Seetharama Iyer in August 1953 to test samples of water from the infiltration cum collecting well and infiltration gallery laid in the bed of the Payyanur at Athithundu for the new water-supply scheme for Srivilliputtur. The quality of the water yielded by the infiltration wells were found to be satisfactory previously. Another sample collected after 100 feet of the gallery was connected to the infiltration well showed the presence of fairly large amounts of iron and fluorides. The well and the gallery were subjected to vigorous and continuous pumping for a long time and samples were drawn for analysis. It was noticed that the chemical features of the water yielded by the gallery and the infiltration well are more or less alike. Traces of iron were noticed in these samples but the total iron content was within permissible limits. Fluorides occurred to the extent of 0.9 to 1.4 parts per million. This is also regarded as within the allowable limit. The water derived from a deep trench dug for laying the gravitation main, but which was proposed to be converted into a gallery to augment the supply was also examined. At the time of investigation this trench was in three reaches comprising a total length of 275 feet. It was found that samples of water collected from the three reaches of the trench resembled that of the water drawn from the gallery in their chemical quality except for the presence of iron (in the ferric condition) as well as manganese. These are probably leached out of the clayey strata. This unsatisfactory feature was present to a marked extent in one particular reach of the trench and so it was advised that this portion may be eliminated from the proposed gallery.

Guntur water-supply.—Under the new water-supply scheme to Guntur Municipality, water from the storage tank at Jagarlamudi is taken to a compartment of the elevated reservoir in Guntur town. This water is filtered through a slow sand filter and is chlorinated. A detailed spot survey of the quality of the water supplied to the municipality under this emergency scheme was

carried out by Sri K. G. Veeraraghavan in the first week of June 1953. Samples of water were drawn before and after filtration and after chlorination as well as from a large number of consumer taps. These samples were analysed bacteriologically in the field laboratory. The results of the analysis indicated that the supply was in a good state as regards its bacteriological quality but its physical appearance was not quite satisfactory. At this time, the newly laid mains in zone V of the distribution system were also sterilized with a heavy dose of chlorine. Samples of the water passing through this distribution main after sterilization were examined bacteriologically to ascertain the efficacy of the treatment.

Nellore water-supply.—It was reported that there has been a progressive drop in the carrying capacity of the distribution mains in Nellore owing to extensive tuberculations of the cast iron mains. A field investigation on this problem was carried out in February 1954 under Sri K. G. Veeraraghavan to ascertain the character and extent of the tuberculations and devise suitable corrective measures. Representative sections of the pipe lines were cut and removed for examination. It was noticed that there was an extensive formation of irregular nodular brownish black incrustations inside these pipe lines which covered the entire surface and considerably reduced its bore. There was very little corrosion of the surface of the metal under the tubercles. An examination of the tuberculations revealed the presence of iron bacteria, sulphate reducing bacteria, organic matter and compounds of iron. From the data collected during the course of this investigation it would appear that the main causes for the formation of these tubercles are both chemical and biological in nature. It was surmised that owing to the presence of iron bacteria in the water, a certain amount of aerobic corrosion may take place leading to the formation of tubercles which may grow and coalesce thus covering the entire surface. Anaerobic conditions are likely to occur inside the tubercles and favour the growth of the sulphate reducing bacterial organisms. The hydrogen sulphide liberated by them would then combine with the iron to form ferrous sulphide. It was also noted that calcium, magnesium and silica present in the raw water enter into this process of tubercle formation and make these growths firm and hard. The investigation showed that it would not be practicable to free the pipe lines of these hard tubercles by flushing alone. Heavy doses of chlorine also did not give satisfactory results. Mechanical scraping seemed to be the only method of removing them. A detailed report based on the results of the investigation was furnished to the Executive Engineer, Public Health Division. It was suggested that the formation of these tubercles may be prevented by systematic scouring as well as by systematic chlorination of the supply at the headworks. Treatment of the supply with chloramine which is known to persist for a longer time in the treated water appeared to be more advisable.

Industrial waste disposal—(1) *Cauvery Textiles, Limited, Bhavani.*—A field investigation was carried out by Sri P. V. Seetharama Iyer and Sri S. Venkataraman on the problem of the disposal of the liquid wastes from the Cauvery Textiles, Limited, at Bhavani. At the request of the factory authorities, representative samples of the wastes at various stages of manufacture were collected and examined in the field laboratory. The pooled wastes were also critically analysed. The waste water discharged from this factory was found to be deep yellow in colour, acidic in reaction and had a high bio-chemical oxygen demand. Based on the results of field and laboratory analytical examinations and trials it was recommended that the wastes should first be neutralized and then treated with coagulants to remove the suspended and colloidal matter and clarified. Chlorination of the effluent before it is discharged into the river was also recommended. The factory authorities were also advised to lead the discharge pipe well into the river so that the full benefits of dilution with the river water may be obtained.

(2) *United Bleachers, Limited, Mettupalayam.*—At the request of the management of the United Bleachers, Limited, Mettupalayam, Sri P. V. Seetharama Iyer and Sri A. S. Hariharan carried out a comprehensive survey of the

industrial wastes at this factory in November 1953. The industrial effluents at this factory comprised mainly of concentrated liquor derived in the processing of cotton cloth and wash water. A detailed report incorporating the field and laboratory analytical data together with recommendations for the treatment of the wastes to render them suitable for discharge into the Bhavani river was furnished to the company. It was suggested that the concentrated wastes should be separated from the wash water. The wastes drawn from one cycle of operations should be pooled together. Treatment with lime and alum followed by coagulation and sedimentation was recommended for the removal of the suspended and colloidal impurities. It was also suggested that the treated and clarified concentrated liquor may then be diluted with the less harmful wash water and chlorinated before it is discharged into the river. The desirability of introducing some form of biological filtration was also pointed out and it was recommended that provision for this may be made if found necessary.

Water and Sewage Purification Committee.—The Water and Sewage Purification Committee met three times during the year under report. The Committee reviewed the results of the experiments carried out to study the relative merits of filtration of the Red Hills Lake water after treating it with chlorine by the Break Point method and with chloramine. The Committee considered that *these experiments have yielded results of value* and reiterated its earlier decision to conduct actual plant scale trials adopting these methods of pre-treatment utilizing the slow sand filters at the Corporation Water-Works.

A note from the Secretary "On the Present Position Regarding the Analysis of Sewage, Sewage Effluents and Trade Wastes in the State" was considered by the Committee. As there is now an increasing demand for investigations into the problems relating to the treatment and disposal of liquid wastes from various industries in the State, the Committee considered it essential that for the investigation of such problems detailed field tests and observations on the nature and special characteristics of the different varieties of industrial wastes should be carried out by the Water Analysis Department of the King Institute and full analytical data collected. It was resolved to request the Director, King Institute, Guindy, to undertake such field and laboratory analytical investigations whenever necessary and to equip the Water Analysis Department adequately for the purpose.

During the year under report, the Committee also—(1) recommended the adoption of certain improvement measures in chlorination to bring the bacteriological quality of the water supplied to the City to a satisfactory level;

(2) requested the Director, King Institute, to arrange for the collection and examination of a special set of samples from the infiltration well at Manapparai to determine the relative proportions of the several salts present in the water with a view to ascertain which method may prove suitable for improving the quality of the water;

(3) decided to try the effect of pre-treating the Red Hills Lake water with cuprichloramine before sand filtration and compare the efficiency of this method of purification with those adopting Break Point Chlorination and Chloramination;

(4) decided that it was undesirable to locate the Special Armed Police Camp at Red Hills close to the margin of the Lake;

(5) considered that allowing fish farming and fish removal on a commercial scale in Red Hills Lake from which Madras City takes its water-supply is risky from the point of view of the safety of the supply.

Experimental Filter Station, Kilpauk.—The researches conducted at the Filter Station, Kilpauk, were mainly in connection with the study of the relative efficiency of treating the Red Hills Lake water prior to sand filtration with (1) chlorine at the break point dose and (2) chloramine.

The object of these experiments as already stated in previous reports, is to find out how far such pretreatment measures would eradicate the foul smell of sulphuretted hydrogen produced in the slow sand filters when the Red Hills Lake water is ordinarily filtered through these. It has been found that sulphate reducing bacterial organisms are mainly responsible for the production of this obnoxious gas during the course of their metabolic activity. A suitable bactericidal agent should therefore serve to destroy the bacteria and prevent the formation of hydrogen sulphide. It was considered that chlorine in different forms would be able to serve the purpose in view.

Break-Point chlorination.—The experiment was started in May 1950 and has been continued since then without interruption. The scientific aspects of this experiment and the results obtained are given in detail in the half-yearly reports of the Water and Sewage Purification Committee submitted to Government. The main conclusions already arrived at were further confirmed during the year under report. These are (1) that this method of pretreatment increases the filtered water output, (2) yields water of excellent bacteriological quality, (3) totally eliminates the production of H_2S in the sand filters and (4) reduces the organic matter content of the filtered water to a greater extent than in ordinary sand filtration.

Chloramination.—The experiment on this method of pretreatment was started in November 1951. The theoretical aspects of the problem, the operational details of the experiment and optimum conditions for this treatment have been dealt with fully in the annual report of this Institute for 1951-52 and also in the half-yearly reports of the Water and Sewage Purification Committee. With a comparatively low dose of chlorine as chloramine (about 1.5 ppm) an effluent of satisfactory bacteriological quality was obtained. This method of pretreatment was found to be almost as effective as Break-Point chlorination as regards its efficiency in arresting the production of hydrogen sulphide in the sand filter.

These results are of outstanding importance in relation to water purification in general and in the purification of the Madras City water-supply in particular. It has therefore been decided to put them to a further trial on a full plant scale.

The analytical and other experimental work in connection with the above research studies was carried out by Sri K. G. Veeraraghavan, M.Sc., and Sri A. S. Hariharan, B.Sc., during the year under report.

Part II—Madras State from 1st October 1953 to 31st March 1954.

The examination of water samples from Bellary Municipality and the jails situated in Bellary as well as the water-supply from the various Camps in the Tungabhadra Project area are done at the Public Health Laboratories of Mysore State.

A total of 3,226 samples were received for analysis during the six months under report. Of these 1,358 samples of water were received for analysis from the protected water supplied and 44 samples were received for tests in connection with investigations on rural and urban water-supply schemes. Two hundred and fifty-one samples of water and biological samples were examined in connection with algal control measures. The rest of the samples were derived from Governmental sources and private bodies.

The number of samples of water analysed during this period in connection with the experiments on water purification conducted at the Government Filter Research Station at Kilpauk was 925.

Part III—Andhra State from 1st October 1953 to 31st March 1954.

The following 28 protected water-supply systems in the Andhra State are now under periodical analytical examination for purposes of quality control:—

Municipalities.

Adoni.	Nellore.
Anantapur.	Palacole.
Cuddapah.	Proddatur.
Eluru.	Rajahmundry.
Gudur.	Tadpatri.
Guntur.	Tirupati.
Kakinada.	Vijayavada.
Kurnool.	Visakhapatnam.
Masulipatnam.	Vizianagaram.

Panchayat Boards.

Chodavaram.	Tiruttani.
Dharmavaram.	Yemiganur.
Kosgi.	T.T. Devasthanams.
Ramachandrapuram.	

Jails.

Nellore Special Sub-Jail.	Central Jail, Visakhapatnam.
Central Jail, Rajahmundry.	

The water-supply to Raj Bhavan at Kurnool has also been included in the list for periodical analysis. A total of 525 samples of water drawn from the protected water-supplies in the Andhra State was analysed chemically and bacteriologically during the period under report. The number of samples examined in connection with new water-supply schemes was 22. Besides these, 40 samples of water were also received for analysis to ascertain their suitability for use in various industries.

Municipal and Panchayat Board water-supplies.—The drinking water-supply to Adoni, Eluru, Guntur, Kakinada, Kurnool, Masulipatnam, Palacole, Rajahmundry, Ramachandrapuram, Tiruttani and Tirumalai is derived from surface sources. The raw water yielded by these sources is generally subject to fluctuations in its physical appearance and show evidence of heavy bacterial pollution. All these sources, however, yield water of acceptable quality from the chemical point of view.

The Nallacheruvu tank from which Adoni draws its water-supply is subject to infestation with heavy algal growths. Systematic algicidal treatment has therefore been adopted to control these organic growths. Similar algal control measures were also adopted at Kakinada, Eluru, Masulipatnam while the tanks at Kurnool, Guntur, Ramachandrapuram, Palacole and Tiruttani received algicidal treatment whenever analytical results indicated the need for such treatment.

Filtration through slow sand filters followed by chlorination is adopted for purifying the drinking water-supply at Adoni, Eluru, Guntur, Kakinada, Kurnool and Ramachandrapuram. Alum coagulation followed by sedimentation, rapid gravity filtration and chlorination are the methods of purification applied to the drinking water-supply to Rajahmundry which is derived from Godavari river. At Masulipatnam and Palacole, purification is carried out after storage in tanks by alum treatment, filtration through pressure filters and chlorination. Only the water-supply to Tiruttani and Tirumalai which are drawn from surface sources are supplied for drinking with only chlorination as the purificatory

procedure. Underground sources (infiltration gallery, infiltration wells and deep wells) form the sources of supply to Anantapur, Cuddapah, Gudur, Guntur, Nellore, Proddatur, Tadpatri, Tirupati, Visakhapatnam, Dharmavaram, Kosgi and Yemiganur. These sources yield on the whole a water which is aesthetically satisfactory and chemically of fair quality. Bacteriologically, the water derived from these underground sources is generally of fair quality though occasionally they also show evidence of undue but transient pollution. The supply to all these places except to Gudur, Nellore, Tadpatri, Proddatur and Vizianagaram is made after chlorination.

As regards the efficiency of the purification plants in service, it is seen from the results of analysis carried out during this period that the slow sand filters at Adoni, Eluru, Kurnool, and Ramachandrapuram did not yield satisfactory results. The rapid gravity filter at Rajahmundry functions uniformly satisfactorily. The filtered water from the pressure filters at Masulipatnam showed occasional evidence of after precipitation of alum. The hygienic purity of the chlorinated supplies was fairly satisfactory throughout. A new automatic chloronome has been installed at Tirumalai.

A total of 81 samples of chlorinated water collected at the water purification stations were tested bacteriologically. Out of these the bacterial quality of (68 samples or 85 per cent) was found to conform to the standard required of an efficiently chlorinated drinking water-supply. (Table tabulated separately.)

Out of 219 samples of water collected from the distribution taps of the water-supply systems where some form of purification including chlorination is adopted, it was found that 49 samples, i.e., 20 per cent were not of the desired standard in their bacteriological quality. It would thus be seen that there is reduction in the percentage of satisfactory samples between those examined at the Head-works and those examined from the consumer taps. This indicates that water suffers damage in quality during its passage through the service reservoirs and distribution pipe lines. Systematic investigations into the specific cause which lead to transit deterioration of drinking water quality in each place required to be carried out in order that the necessary corrective measures may be adopted.

The water supplied to the jails in the Andhra State is of satisfactory quality as judged by the results of the examinations of samples carried out during the period under report.

ANDHRA STATE WATER SUPPLIES.

Municipal Water Supplies.

Type of supply.	Number of sources.	Number of samples tested from the distribution main.	Number of samples unsatisfactory.	Per cent unsatisfactory.
(1)	(2)	(3)	(4)	(5)
Untreated	4	24	5	20.8
Chlorinated only	6	89	13	20.2
Filtered and chlorinated	8	65	10	15.3

Panchayat Board Water Supplies.

Untreated	0	Nil.	..	..
Chlorinated only	6	38	14	36.1
Filtered and chlorinated	1	3	2	66.0

PART II—RESEARCHES.

LABORATORY STUDIES WITH VACCINIA, HYPER-IMMUNE GAMMA GLOBULIN.

Dr. Y. S. Narayana Rao.
Dr. N. R. Ratnakannan, and
Dr. K. S. Balasubramaniam.

An investigation into the use of vaccinia hyper-immune gamma globulin in the control and therapy of smallpox was conducted recently in Delhi and Madras by Dr. C. Henry Kempe, M.D., of the University of California and Dr. F. Berge, Ph.D., of the Sixth Army Area Medical Laboratory, California. Dr. Kempe has claimed that "Vaccinia immune gamma globulin may be an effective supplemental tool in preventing variola upon known intimate contacts exposed to the disease. Early vaccination followed, 12-24 hours later, by a single intra-muscular dose of 0.05 c.c. per K.G. of body weight appears to be an effective method to prevent the disease from occurring".

As the above work was in progress, it was felt desirable to conduct some laboratory experiments with the vaccinia hyper-immune globulin and a small quantity of the product was obtained through the courtesy of Dr. Kempe. It is gathered that this hyper-immune gamma globulin was prepared from donors who had been vaccinated 8 to 14 weeks before the date of collection of blood and who had exhibited a primary or a vaccinoid take.

The experiments conducted were—

(a) Virus Neutralisation test to estimate the approximate quantity of neutralising anti-vaccinial anti-body in the hyper-immune gamma globulin.

Serial dilutions of the gamma globulin were made and 0.5 c.c. of each dilution was mixed with an equal quantity of 1 in 200 dilution of glycerinated vaccine lymph. After 24 hours cold storage at 4°C. the mixture of different dilutions of gamma globulin and vaccine lymph were vaccinated on the skin of a calf. In the experiment normal human serum and serum from a convalescent case of smallpox were also included.

The results showed the presence of the anti-vaccinial anti-bodies in the gamma globulin, but the titre is lower than that of convalescent smallpox serum.

(b) To evaluate the use of this gamma globulin as a prophylactic agent against vaccinia variola group of viruses—

Sixteen monkeys each weighing about 2 K.G. were used in the experiment. All the monkeys were vaccinated with the routine glycerine lymph, in a dilution of 1 in 5. The monkeys were divided into 4 batches of 4 each. Each of the first batch of monkeys received 1 c.c. of the gamma globulin intra-muscularly about one hour prior to vaccination with the vaccine lymph. The second, third and fourth batches were given 1 c.c. of the gamma globulin on the 2nd, 3rd and 4th day respectively after vaccination. Day-to-day observations of the vaccinal reactions in the monkeys were made for 10 days. It was observed that all the monkeys exhibited the usual typical vaccinal take just as well as the control monkeys which did not receive any gamma globulin.

This shows that this gamma globulin, even when given one hour before vaccination in a fairly high concentration (as high as 0.5 c.c. per K.G. body weight—Dr. Kempe's recommendation being 0.05 c.c. per K.G. body weight) has neither been successful in preventing the vaccinal take nor in modifying the reaction to any extent; or, in other words, Dr. Kempe's contention that gamma globulin is an effective prophylactic agent in smallpox is not correlated by this experiment on monkeys.

DRIED VACCINE LYMPH.

Dr. Y. S. Narayana Rao,

Dr. N. R. Ratnakannan, and

Dr. K. S. Balasubramaniam.

The preparation of dried vaccine lymph on an experimental scale, reported last year, was continued during the year.

The method of production was practically the same as reported last year, but for the adoption of the method of external application of a mixture of penicillin (100 units per c.c.) and streptomycin (1 m.gm. per c.c.) in 50 per cent glycerine-water over the vaccinated area to obtain the crude vaccinal pulp free from the usual contaminating organisms, and conforming to the prescribed standards before drying.

This method was adopted in order to avoid the chloroforming process as there will be a certain degree, though very little, of deterioration in the potency of the vaccine which factor has to be safeguarded in view of the fact that there will be a further reduction of potency during the process of drying.

During the year, two batches of dried vaccine were prepared. The results of tests for purity, toxicity and potency on calves, on representative samples of the dried vaccine ampoules satisfied the standards prescribed in the Drug Rules. Field trial with this dried vaccine, by primary vaccination of children is reported.

(a) Trials in the field, after long periods of cold storage, viz., six months and one year at ordinary frigidaire temperature (4° C.) the optimum temperature for storage of the routine glycerinated vaccine being below 0° C. (-11° C.). The vaccine was exposed to room temperature for 7 days, 14 days, and one month, as would possibly occur during the despatch of the vaccine to remote places and then reconstituted with 50 per cent glycerine water to make up the original volume, i.e., to make a dilution of 1 in 4 and used for primary vaccinations. A higher dilution (1 in 8) was also tried. In each case two insertions were made with the dried vaccine in one arm, and as a control, two insertions were made with routine glycerine-vaccine in the other arm. The results are given below:—

Period of cold storage at 4°C.	Period of exposure to room temperature.	Dilution.	Number of cases verified.	Case success rate.	Number of insertions verified.	Insertion success rate.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				PER CENT.		PER CENT.
I. Six months	Seven days	1 in 4	14	100.0	27	96.3
	Fourteen days	1 in 4	11	90.9	20	90.0
	Fourteen days	1 in 8	11	81.8	21	76.2
	One month	1 in 4	14	85.7	28	71.4
	One month	1 in 8	14	85.7	28	71.4
II. One year	Seven days	1 in 4	15	100.0	29	75.9

The results obtained with the dried vaccine are quite good considering the fact that it has been exposed to room temperature (98° F to 100° F) for periods up to one month.

(b) Considering the fact that the main reason for attempting the production of dried vaccine lymph is to improve the keeping qualities of the vaccine in adverse conditions of exposure to atmospheric temperature during transit, an opportunity was availed of when an indent for the supply of vaccine lymph was received from the Government Dispensary, Kavarathy islands, through the District Medical Officer, North Malabar. The mode of transit to these islands being by country boats in sea, the utilization of the vaccine at the island will naturally be after a long delay after the despatch of the vaccine from the institute. A quantity of

240 doses of dried vaccine ampoules with the 50 per cent glycerine water ampoules and other accessories required for reconstitution at the time of vaccination were despatched. The Medical Officer had been prompt in communicating the results of vaccination with this dried vaccine but collectively without details of date of vaccination, number vaccinated, verified, etc. The results, as reported, were extremely satisfactory, in that from about 60 per cent of the cases that actually reported for a check up, not even a single failure was noticeable.

FILARIASIS ENQUIRY UNDER THE DIRECTOR, KING INSTITUTE, GUINDY
(FINANCED BY THE INDIAN COUNCIL OF MEDICAL RESEARCH).

With a skeleton staff of a Laboratory Attendant, the work of preparation of Filarial Antigen from the *Conispiculum guindiensis* (the filarial parasite of the garden lizard *Calotes Versicolor*) was continued during the year for the purpose of supplying the antigen to various filariasis workers.

During the year, a good number of male and female filarial worms were collected from lizards. Besides the work of ampouling the antigen in smaller quantities of 0.25 c.c. and supplying periodically to the Government General Hospital, Madras, the antigen was supplied to Dr. Ganga Ram Mahto, Patna, and the Principal Medical Officer, Assam Frontier Tea Company, Limited, Assam.

The enquiry was closed on the 31st March 1954 afternoon.

THE LIST OF PAPERS CONTRIBUTED BY THE STAFF OF THE KING INSTITUTE,
GUINDY.

(1) "The Present Status of Dish Washing Procedure adopted in Coffee Houses and Restaurants". A Bacteriological Assay—by Dr. Y. S. Narayana Rao, M.B.B.S., D.T.M. (Cal.), D.B. (Lond.), Sri P. V. Seetharama Iyer, M.A., and Sri K. R. Ramaswami, B.Sc.

(Published in *The Indian Medical Gazette*, January 1954.)

(2) "An Improved Dry Vaccine Lymph" by Drs. Y. S. Narayana Rao, M.B.B.S., D.T.M. (Cal.), D.B. (Lond.), N. R. Ratnakannan, M.D., and K. S. Balasubramaniam, L.M.P.

(Published in *The Indian Journal of Medical Research*, 42, 2nd April 1954.)

KING INSTITUTE, GUINDY,
MADRAS-15,
29th April 1955.

Y. S. NARAYANA RAO,
Director.

TABLES.

TABLE I.

Statement No. 1—Expenditure—Actuals, 1953-54.

Detailed Head of Account.	Composite State of Madras— 1st April to 30th September 1953.			Residuary State of Madras— 1st October 1953 to 31st March 1954.		
	RS.	A.	P.	RS.	A.	P.
(a) King Institute, Guindy—						
1 Pay of officers	91,145	10	0	61,900	3	0
2 Pay of establishment	1,16,817	3	0	83,779	15	0
3 Other Compensatory allowance	39,484	14	0	27,169	10	0
4 Travelling allowances	7,145	7	0	7,125	4	0
5 Dearness allowance	71,898	15	0	50,326	6	0
6 Madras allowance to menials	690	10	0	660	13	0
7 Pay of menials	3,965	14	0	3,907	14	0
8 Dearness allowance to menials	6,229	14	0	5,958	15	0
9 Telephone charges	797	13	0	652	3	0
10 Books and periodicals	883	5	3	765	1	0
11 Service postage and telegram	16,050	0	0	27,535	13	0
12 Cleaning charges and office expenses	2,312	8	2	1,645	10	9
13 Rates and taxes	..	..	..	10,810	6	0
14 Purchase of serum	2,37,186	5	2	1,02,520	9	8
15 Instruments and chemicals	1,31,979	15	0	1,63,322	13	9
16 Purchase and feed of calves and other animals	50,666	10	5	64,221	14	2
17 Motor car maintenance charges	2,680	4	0	2,615	6	3
18 Electric current charges	7,425	8	6	6,067	5	3
19 Customs duty	58,940	8	0	282	14	0
20 Other contingencies	17,625	12	0	16,444	9	5
21 Honoraria	..	..	..	28	0	0
Total	8,63,927	0	6	6,37,741	10	3
				15,01,668	10	9
				or		
Grand total				15,01,669	0	0
(b) Administration of Drugs Act, 1940—						
1 Pay of officers	11,642	5	0	9,297	12	0
2 Pay of establishments	2,223	15	0	1,876	13	0
3 Travelling allowance and other compensatory allowances	3,181	13	0	2,083	5	0
4 Dearness allowance	3,676	2	0	2,231	12	0
5 Apparatus and office furniture	414	8	0	4,434	11	9
Total	21,138	11	0	19,924	5	9
				41,063	0	9
				or		
Grand total				41,063	0	0
(c) Amount borne by other budget on Institute account—						
Proportionate cost of management and supervision by the Director of Medical Services and his staff	3,030	0	0			
Cost of audit on construction and repair of buildings and electrical installations	402	0	0			
Maintenance charges of buildings and electrical installations	42,702	8	10			
Depreciation and interest charged on—						
(a) Buildings	29,199	0	0			
(b) Electric current and machinery	4,852	11	0			
Cost of stationery, clothing and printing	9,881	13	0			
Superannuation allowance and pension	617	0	0			
	90,685	0	10			
	or					
Total	90,685	0	0			
Grand total	16,33,417	0	0			
Deduct—Receipts Net (actuals)	2,93,140	0	0			
Net cost to State funds	13,40,277	0	0			

REPORT OF THE

TABLE I—cont.

Statement No. 2—Actual Receipts.

	1st April to 30th September 1953.			1st October 1953 to 31st March 1954.		
	RS.	A.	P.	RS.	A.	P.
1 Sale-proceeds of sera and vaccine	79,677	0	0	51,062	0	0
2 Recoveries of overpayments—Bacteriological Laboratory.	4,010	0	0	10,140	0	0
3 Collection of payments for services rendered.	85,045	0	0	3,359	0	0
4 Miscellaneous	9,623	0	0	2,897	0	0
5 Contribution from local bodies for analysis of food samples.	27,641	0	0	20,107	0	0
Total ..	2,05,996	0	0	87,566	0	0
6 Deduct—Refunds—Bacteriological laboratories	348	0	0	74	0	0
Net actual receipts ..	2,05,648	0	0	87,492	0	0
Grand total ..	2,93,140 0 0					

Statement No. 3—Estimated cost of supplies and services made.

	RS.	A.	P.
1 Bacteriological and chemical examinations	5,75,836	2	10
2 Bacteriological vaccine supplies	11,00,431	2	6
3 Value of cultures and antigens, etc.	1,56,874	6	0
4 Vaccine lymph	3,23,778	2	0
5 Sera	7,45,046	2	0
6 Value of examinations done under the Drugs Act	4,41,963	0	0
	33,43,928	15	4
Total ..	33,43,929	0	0

Government Analyst Section.

	Madras State			Andhra State		
	1st April to 30th September 1953.	1st October 1953 to 31st March 1954.		1st April 1953 to 31st March 1954.		
	RS.	A.	P.	RS.	A.	P.
Food—						
1 Contribution from local bodies working for the Madras Prevention of Adulteration Act at Rs. 7-8-0 per sample.	68,062	8	0	44,092	8	0
2 Value for analysis done for Government institutions.	38,210	0	0	4,650	0	0
3 Fees received from unofficial sources for analysis of food samples.	985	0	0	1,330	0	0
Drugs—						
4 Value for drug samples analysed for hospital and samples under the Madras Drugs Rules.	6,170	0	0	4,610	0	0
5 Fees received from unofficial sources for analysis of drug samples.	20	0	0	250	0	0
Total ..	1,13,447	8	0	96,932	8	0
Grand total ..	2,47,285 0 0					
Grand total value of Receipts ..	35,91,204 0 0					
Deduct—Expenditure ..	16,33,417 0 0					
Net value of profits ..	19,57,787 0 0					

TABLE II.

(a) Composite State—1st January to 30th September 1953.

Serial number and type of vaccination.	Total number of cases verified.	Total number of cases not verified.	Total.	Percentage of each type to the total cases done.
1 Primary	880,182	190,707	1,070,889	23.5
2 Secondary	34,514	..	34,514	0.7
3 Re-vaccinations	2,169,264	1,285,649	3,454,913	75.8
Total ..	3,083,960	1,476,356	4,560,316	..
		Cases.		Percentage of each type to the total quantity issued.
1 Total quantity of vaccine lymph issued at 4 insertions rate.		3,902,165		..
2 Total quantity of vaccine lymph used for vaccinating cases in 1, 2 and 3 (above) calculation at 4 insertions per case.		2,832,851		72.6
3 Total vaccine lymph unaccounted for		1,069,314		27.4

(b) Madras State—1st October to 31st December 1953

1 Primary	208,591	64,103	272,604	27.3
2 Secondary	12,795	..	12,795	1.3
3 Revaccination	425,382	287,752	713,134	71.4
Total ..	646,678	351,855	998,533	..
		Cases.		Percentage of each type to the total quantity issued.
1 Total quantity of vaccine lymph issued at 4 insertions rate.		811,870		..
2 Total quantity of vaccine lymph used for vaccinating cases in 1, 2 and 3 calculation at 4 insertions per case.		641,962		79.1
Total vaccine lymph unaccounted for		169,908		20.9

(c) Andhra State—1st October to 31st December 1953.

Serial number and type of vaccination.	Total number of cases verified.	Total number of cases not verified.	Total.	Percentage of each type to the total cases done.
1 Primary	123,195	27,262	150,447	35.0
2 Secondary	3,096	..	3,096	0.7
3 Revaccinations	174,718	101,561	276,274	64.3
Total ..	301,004	128,813	429,817	..
		Cases.		Percentage of each type to the total quantity issued.
1 Total quantity of vaccine lymph issued at 4 insertions rate.		466,415		..
2 Total quantity of vaccine lymph used for vaccinating cases in 1, 2 and 3 calculation at 4 insertions per case.		291,679		62.5
3 Total vaccine lymph unaccounted for		174,736		37.5

REPORT OF THE

Serial number and particulars and description. (1)	Number examined. (2)	Number positive. (3)	Details regarding positive. (4)
II. Cerebro-spinal fluid—	3,466	1,100	
(a) Cell count	20	..	
(b) Other examinations	86	..	
(c) Cultural examination	76	4	M. tuberculosis .. 2 Pneumococcus .. 2
III. Urine—			
Cultural examination	288	96	B. Coli 7 Others 19
IV. Faeces—			
(a) Microscopical examination	16	7	Ova 3 Organisms 4
(b) Cultural examination	1,816	810	V. Cholera 801 Dysentery group .. 1 Enteric group 1 Other organisms .. 7
V. Pathological Fluids—			
(a) Microscopical examination	895	51	M. tuberculosis .. 46 P. Pestis 1 Other organisms .. 4
(b) Cultural examination	999	172	M. tuberculosis .. 9 Other organisms .. 163
(c) Examination with Experimental animals.	51	2	Friedman Test .. 2
Total	7,653	2,242	

VI. Details of number of Histo-pathological specimens examined in the clinical section and reported during the period between 1st April 1953 and 30th September 1953 (Composite state)—

Total number of specimens examined 50.

Malignant growths	Nil.
Benign growths	45
Other tissues	5

STATEMENT II—Statement showing the pathological specimens received and examined in the Laboratories of the State-public local, funds, aided hospitals and dispensaries in the Madras State during the year from 1st October 1953 to 31st March 1954.

Name of the institution and the section .. Clinical Section, King Institute of Preventive Medicine, Guindy.

Serial number and particulars and description. (1)	Number examined. (2)	Number positive. (3)	Details regarding positive. (4)
I. Blood—			
(a) Blood films	14	4	Malaria 4
(b) Blood for counts and Haemoglobin percentage.	291	..	R.B.C. total count .. 6 W.B.C. total count .. 11 Haemoglobin percentage. 6 Differential count .. 268
(c) Blood for Agglutination test—			
(i) Enteric group	2,184	1,114	Enteric group Sal. typhi Sal. para typhi A .. Do. B Do. C Sal. para typhi A & B, E & C & A & C. 393

Serial number and particulars and description. (1)	Number examined. (2)	Number positive. (3)	Details regarding positive. (4)
I. Blood—cont.			
(c) Blood for Agglutination test—cont.			
(ii) Weil Felix	52	8	Proteins O x K .. 5 Do. O x 2 and O x 19. 3
(iii) Brucellosis	6	..	....
(d) Blood for Gel test	41	24	....
(e) Blood for Chopra test	41	20	....
(f) Blood for culture	677	142	Sal. typhi 54 Sal. para typhi A .. 2 Do. B 41 Do. C 43 Sal. typhi. para A & B, A & C, B & C. 2
(g) Work carried out by Blood Bank Section—			
(i) Blood grouping	231	..	Group A 51 " B 70 " C 93 " AB 17 Positive 12 Negative 12
(ii) Rh. factor	16	12	Positive 1 Negative 27
(iii) Cold Agglutination test.	28	4	Positive 1 Negative 27
	3,561	1,325	

II. Cerebrospinal fluid—			
(a) Cell count	..	18	..
(b) Other examinations	..	46	2 M. tuberculosis .. 2
(c) Cultural examination	..	66	7 Other organisms .. 7
III. Urine—			
Cultural examination	..	361	89 B. coli 59 Enteric group .. 5 Other organisms .. 25
IV. Faeces—			
(a) Microscopical examination	..	14	4 Other organisms .. 4
(b) Cultural examination	..	1,748	716 V. Cholera 706 Dysentery group .. 1 Enteric group 3 Other organisms .. 6
V. Pathological fluid—			
(a) Microscopical examination	..	976	87 M. tuberculosis .. 81 C. Diphtheria .. 2 Other organisms .. 4
(b) Cultural examination	..	1,068	137 M. tuberculosis .. 21 C. Diphtheria .. 21 Other organisms .. 109
(c) Examination with experimental animals.	..	52	4 M. tuberculosis .. 1 Friedman test .. 3
Total		7,910	2,371

VI. Details of the number of Histo-Pathological specimens examined in the clinical section and reported during the period from 1st October 1953 to 31st March 1954—

Total number of specimens examined ..	46
Malignant growths	Nil.
Benign growths ..	36
Other tissues ..	10

STATEMENT III—Statement showing the pathological specimens received and examined from the Laboratories of the State-public local funds, aided hospitals and dispensaries in the Andhra State during the year from 1st October 1953 to 31st March 1954.

Name of the institution and section ..		Clinical section, King Institute of Preventive Medicine, Guindy.			
Serial number and particulars and description.		Number examined.	Number positive.	Details regarding positive.	
(1)		(2)	(3)	(4)	
I. Blood—					
(a) Blood for Agglutination test Enteric group.		556	287	Enteric group sal.	
				Typhid	175
				Para Typhi B ..	6
				Sal. typhi. para A & B, B & C, A & C.	106
(b) Blood for culture		65	11	Sal. typhi. ..	6
				Sal. Typhi. para. A.	1
				Sal. typhi. para B.	1
				Sal. typhi. para C.	3
(c) Work carried out by Blood Bank Section—					
(i) Blood grouping		1	..	Group O—1 ..	
(ii) Cold Agglutination Test—Nil.					
II. Faeces—					
Cultural examination		571	228	V. Cholera ..	228
III. Pathological fluids—					
(a) Microscopical examination ..		49	3	M. tuberculosis ..	3
(b) Cultural examination		39	..		
		1,282	589		

Statement showing the number of serological tests from April 1953 to 31st March 1954.

Serial number and name of test.	Number examined.	Number of positives.
1 Number of bloods for khan test	40,824	10,698
2 Do. W.R. test	25,051	8,092
3 Number of C.S.Fs. for W.R. test	1,255	384
4 Do. Langes C.G. test	1,109	172
5 Number of bloods for khan verification test ..	10	..
6 Do. Paul Bunnel test	4	..
Total ..	68,253	19,346
7 Number of bloods for khan test from Dr. W. H. Gaub	100	32
8 Number of bloods from I.C.M.R.	562	226
9 Do. for V.D.R.L. test	562	279
10 Do. for Screen test	562	207
11 Do. for V.R. test	562	186
Grand total ..	70,001	20,276
1 Number of specimens received broken or lysed ..	..	3,253
2 Do found broken or lysed while testing ..	..	1,335

Work carried out for the World Health Organization and Indian Council of Medical Research during the year 1953-54.

Serial number and name of test.	Negative.	Positive.	Total.
1 Specimens from Dr. W. H. Gaub, for khan test	68	32	100
2 Specimens from I.C.M.R. for khan test	336	226	562
3 Do. for V.D.R.L. slide test	283	279	562
4 Do. for Screen test	355	207	562
5 Do. for Wassermann test	376	116	562
Total ..	1,418	930	2,348

(MADRAS STATE).

Statement showing the total serological tests from 2nd October 1953 to March 1954.

Serial number and name of test.	Number examined.	Positive.
1 Number of bloods for Khan test	16,377	3,333
2 Do. Wassermann test	5,552	2,256
3 Do. C.S.F. for wassermann test	581	142
4 Number of C.S.F. for Langes' test	521	92
5 Number of bloods for Kahn Verification test ..	6	..
6 Do. Paul Bunnel test	2	..
Total ..	23,049	5,823

MISCELLANEOUS.

	For Composite State from 1st April to 30th September 1953.	For Andhra State from 1st October 1953 to 31st March 1954.	For Madras Residuary State from 1st October 1953 to 31st March 1954.
Distilled water	9 lb.	..	..
Wassermann Capsules	48,775	8,655	33,954
Various media	8,059 tubes	1,667 tubes	3,542 tubes.
	27,000 c.c.	..	32,100 c.c.
	350 sets	66 one oz. bottles	250 sets.
	621 one oz. Bottles.	..	425 one oz. bottles.
Various sterile materials for obtaining cultures ..	1,299 tubes	5 tubes	1,802 tubes.

STATEMENT IV.—Statement showing the supply of Re-agents from 1st April 1953 to 1st October 1953 (Composite State).

Serial number and name of re-agent.	Total quantity supplied.
1 Kahn Antigen for Kahn test	1,964
2 Bullock-Heart-Extract for Wassermann test ..	80
3 Anti-sheep Amboceptor	2

STATEMENT V.—Statement showing the supply of re-agents from 2nd October 1953 to 31st March 1954 (Madras State).

To various Institutions in Madras State.

Serial number and name of re-agent.	Total quantity supplied.
1 Kahn Antigen for Kahn test	1,082
2 Bullock Heart-Extract for Wassermann test ..	20

Statement showing the supply of re-agents from 2nd October 1953 to 31st March 1954 (Andhra State).

Serial number and name of re-agent.	Total quantity supplied.
1 Kahn Antigen for Kahn test	580 c.c.

Statement showing the total serological tests from 2nd October 1953 to 31st March 1954.

Serial number and name of the tests.	Number examined.	Number positive.
1 Number of bloods for Kahn test	3,815	1,037
2 Number of bloods for W.R. test	1,200	923
3 Number of C.S.F. for W.R. test.	17	6
4 Number of C.S.F. for Langes' test	17	5
5 Number of bloods for Kahn verification test	..	..
6 Number of bloods for Paul Bunnet test	..	..
Total ..	<u>4,249</u>	<u>1,971</u>

Statement showing the total serological tests from 1st April 1953 to 1st October 1954 {Composite State}.

Serial number and name of the tests.	Number examined.	Number positive.
1 Number of bloods for Kahn test	21,432	8,328
2 Number of bloods for Wassermann test	18,299	4,913
3 Number of cerebro-spinal fluid for W.R. test ..	657	236
4 Number of C.S.F. for Langes' test	561	75
5 Number of bloods for Kahn verification test ..	4	—
6 Number of bloods for Paul Bunnell test	2	..
Total ..	40,955	11,552

KING INSTITUTE OF PREVENTIVE MEDICINE, GUINDY

TABLE IV-A.
From 1st April 1953 to 1st October 1953 (Composite State).

Serial number and name of Institution.	Blood for Kahn test.			Blood for Wasserman test.			Cerebro-spinal fluid for Wasserman test.			Cerebro-spinal fluid for Long's test.			Kahn negative.			
	Number examined.	Positive.		Number examined.	Positive.		Number examined.	Positive.		Number examined.	Positive.					
		(3)	(4)		(5)	(6)		(7)	(8)		(9)	(10)		(11)	(12)	(13)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1 General Hospital, Madras ..	571	413	158	562	424	138	286	181	105	243	216	27	3	1	24	41
2 Stanley Hospital, Madras ..	1,102	851	451	1,082	635	447	70	50	29	69	49	20	..	..	58	57
3 Blood Bank Section ..	3,133	2,310	823	3,116	2,389	727	..	..	..	..	..	..	..	..	217	288
4 Women and Children Hospital, Madras.	4,712	3,800	912	3,826	3,243	568	..	..	..	..	..	..	..	..	116	426
5 Kasturba Gandhi Hospital for Women and Children, Madras.	1,001	680	311	813	572	241	4	3	1	3	3	..	..	..	27	83
6 Ophthalmic Hospital, Madras.	1,575	1,136	439	1,310	1,013	292	..	..	..	..	..	..	..	..	49	261
7 Indian Medicine Hospital, Madras.	196	136	60	181	134	47	..	..	..	..	..	..	..	..	5	20
8 Mental Hospital, Madras ..	646	448	198	551	427	124	205	125	80	207	186	21	..	..	23	71
9 Government Royaspetta Hospital, Madras.	71	55	16	53	36	17	1	1	..	1	1	..	1	..	2	2
10 Other Hospitals in Madras City.	114	62	52	127	83	44	..	..	..	..	..	..	..	..	1	15
11 Mission Hospitals ..	557	425	132	474	363	111	9	4	5	3	3	..	..	..	..	13
12 Mufassal Hospitals ..	6,995	4,352	2,643	5,579	3,453	2,021	44	11	28	23	5	..	..	..	151	430
13 Local Fund and Rural Dispensaries.	189	146	43	161	127	34	2	2	..	..	..	..	..	..	2	9
14 Primary Public Health Centres.	202	184	18	38	32	6	..	..	..	..	..	..	..	..	..	1
15 Private Practitioners ..	368	296	72	426	345	81	27	22	5	7	5	2	..	1	9	23
Grand total ..	21,432	15,104	6,328	18,299	13,356	4,913	657	421	236	561	486	75	4	2	694	1,740

TABLE V-B.

Statement of supplies of stock Therapeutic vaccines, Autovaccines, etc., made to Government and private institutions in the Composite State of Madras and Andhra during the half-year 1st April to 30th September 1953.

Serial number and name of vaccines.	Group.	Stock doses.	Autogenous doses.
(1)	(2)	(3)	(4)
1 Gonococcus vaccine	Genito-urinary ..	3,354	..
2 Compound Gonococcus vaccine	do. ..	543	..
3 B. coli vaccine	do. ..	234	6
4 Enterococcus	do. ..	..	6
5 Staphylococcus vaccine	Pyogenic ..	3,853	72
6 Streptococcus and Staphylococcus	do. ..	2,981	18
7 Streptococcus vaccine (Puerperal, Filarial, Pyogenic, Faecalis and Pyorrhoeal origin).	do. ..	7,515	12
8 Acne vaccine	do. ..	408	6
9 Compound catarrhal vaccine	Respiratory ..	1,006	80
10 Whooping cough vaccine (curative)	do. ..	1,350	..
11 do. (prophylactic).	do. ..	624	..
12 T.A.B. Vaccine for Protein shock therapy.	.. ..	5,678	..
Total doses ..		27,544	200
Miscellaneous.			
1 Old tuberculin for V.P. test		2,100 doses.	
2 do. Mantoux test		2,104 ..	
Total doses ..		4,204	
3 Dysentery phage		540 tubes.	

Statement of supplies of stock Therapeutic vaccines Autovaccines, etc., made to Government and private institutions in the Madras State during the half-year 1st October 1953 to 31st March 1954.

Serial number and name of vaccines.	Group.	Stock doses.	Autogenous doses.
(1)	(2)	(3)	(4)
1 Gonococcus vaccine	Genito-urinary ..	3,403	..
2 Compound Gonococcus vaccine	do. ..	324	..
3 B. coli vaccine	do. ..	276	6
4 Enterococcus vaccine	do. ..	..	6
5 Staphylococcus vaccine	Pyogenic ..	2,793	72
6 Streptococcus and Staphylococcus vaccine.	do. ..	2,316	18
7 Streptococcus vaccine (puerperal, filarial, pyogenic and pyorrhoeal origin).	do. ..	4,510	12
8 Acne vaccine	do. ..	150	12
9 Compound catarrhal vaccine	Respiratory ..	950	156
10 Whooping cough vaccine (curative)	do. ..	2,324	..
11 do. (Prophylactic).	do. ..	864	..
12 Typhoid vaccine (curative)	Intestinal ..	989	..
13 T.A.B. vaccine for protein shock therapy.	do. ..	4,441	..
14 T.A.B. vaccine for 'H'	do. ..	508	..
15 T.A.B. vaccine for 'O'	do. ..	568	..
Total doses ..		24,416	282
Miscellaneous.			
1 Old tuberculin for Von Perquest test		2,330 dose.	
2 do. Mantoux test		1,085 ..	
Total doses ..		3,415	
3 Dysentery phage		515 tubes.	

Statement of supplies of stock Therapeutic vaccines, Autogenous vaccines, etc., made to Government and private institutions in the Andhra State during the half-year 1st October 1953 to 31st March 1954.

Serial number and name of vaccines.	Group.	Stock doses.	Autogenous doses.
(1)	(2)	(3)	(4)
1 Gonococcus vaccine	Genito-urinary ..	1,276	..
2 Compound Gonococcus vaccine	do. ..	108	..
3 B. coli vaccine	do. ..	102	..
4 Staphylococcus vaccine	Pyogenic ..	804	6
5 Streptococcus Staphylococcus vaccine	do. ..	576	6
6 Streptococcus vaccine (Puerperal, Filarial, Pyogenic and Pyorrhoeal origin).	do. ..	2,670	6
7 Compound catarrhal vaccine	Respiratory ..	198	30
8 Whooping cough vaccine (curative)	do. ..	402	..
9 do. (prophylactic).	do. ..	78	..
10 Typhoid vaccine (curative)	Intestinal ..	38	..
11 T.A.B. Vaccine for Protein shock therapy.	do. ..	716	..
Total doses ..		6,966	48
Miscellaneous.			
1 Old Tuberculin for Von Pirquest test		50 doses.	
2 do. Mantoux test		6 ..	
Total doses ..		56	
3 Dysentery phage		Nil.	

Statement of supplies of Bacterial suspensions, high titre sera and Live cultures to Government and private institutions in the Composite State of Madras and Andhra for the half-year from 1st April to 9th September 1953.

	c.c.
Bacterial suspensions—	
Salm Typhi 'H'	5,010
Salm 'O'	1,565
Salm para typhi 'A'	4,035
Salm para typhi 'B'	3,830
Salm para typhi 'C'	870
B. Proteus OX2	240
B. Proteus OX19	340
B. Proteus OXK	340
Brucella abortus	245
Brucella melitensis	245
Total ..	16,820
c.c.	
High titre sera—	
Salm typhi 'H'	94
Salm para typhi 'A'	47
Salm para typhi 'B'	45
Salm para typhi 'C'	17
B. Dysentery Shiga	37
B. Dysentery Flexner	45
V. Cholera ogawa	67
V. Cholera inaba	65
V. Cholera combined	126
Total ..	543

Statement of supplies of Bacterial suspensions, high titre sera and Live cultures made to the Government and private institutions in the Madras State during the half-year from 1st October 1953 to 31st March 1954.

Bacterial suspensions.

	C.C.
Salm typhi 'H'	6,315
Salm typhi 'O'	1,595
Salm para typhi 'A'	5,280
Salm para typhi 'B'	5,355
Salm para typhi 'C'	890
B. Proteus OX2	175
B. Proteus OX19	175
B. Proteus OXX	175
Brucella abortus	110
Brucella melitensis	110
B. Dysentery Shiga	160
B. Dysentery flexner	160
Total ..	20,500

High titre sera.

	C.C.
Salm typhi 'H'	79
Salm para typhi 'A'	37
Salm para typhi 'B'	28
Salm para typhi 'C'	6
B. Dysentery shiga	17
B. Dysentery flexner	18
V. Cholera ogawa	29
V. Cholera inaba	51
V. Cholera combined	137
Total ..	402

Live cultures.

	TUBES.
Lacto bacillus Acidophilus in milk	2
Salm typhi 'H'	4
Salm typhi VI	1
Salm typhi murium	1
S. Enteritidis gartner	1
B. Proteus OXX	2
B. Proteus OX2	2
B. Proteus OX 19	2
C. Diphtheria gravis	1
C. Diphtheria intermediate	1
B. Dysentery shiga	10
B. Dysentery flexneri	18
B. Dysentery sonne	4
B. Dysentery schmitz	4
Brucella abortus	3
Brucella melitensis	1
V. Cholera ogawa	10
V. Cholera inaba	9
Staphylococcus	3
Sterptococcus	3
Pnemococcus	1
B. Subtilis	1
B. Coli	1
Salm typhi (Rawlings)	24
Total ..	109

Statement of supplies of Bacterial suspensions, high titre sera and Live cultures made to Government and private institutions in the Andhra State during the half-year from 1st October 1953 to 31st March 1954.

Bacterial suspensions.

	C.C.
Salm typhi 'H'	185
Salm typhi 'O'	135
Salm para typhi 'A'	65
Salm para typhi 'B'	20
Salm para typhi 'C'	110
Total ..	515

High titre sera.

	C.C.
Salm typhi 'H'	40
Salm para typhi 'A'	20
Salm para typhi 'B'	20
V. Cholera Ogawa	20
V. Cholera Inaba	20
V. Cholera Combined	20
Total ..	140

Live cultures.

	TUBES.
Salm typhi 'H'	2
Salm para typhi 'A'	2
Salm para typhi 'B'	2
Brucella abortus	2
Brucella melitensis	2
B. Proteus OX19	2
B. Proteus OXX	2
B. Proteus OX2	2
B. Dysentery shiga	2
B. Dysentery flexner	2
C. Diphtheria gravis	2
C. Diphtheria mitis	2
C. Diphtheria intermediate	2
H. Influenza	2
H. Pertuissis	1
B. Pyocyaneus	1
V. Cholera ogawa	1
V. Cholera inaba	1
Staphylococcus	1
Pnemococcus	1
Lactobacillus Acidophilus in milk	3
Salm typhi 'H'	10
Salm typhi 'O'	4
Salm para typhi 'A'	7
Salm para typhi 'B'	7
Salm para typhi 'C'	7
B. Proteus OXX	1
B. Proteus OX2	1
B. Proteus OX19	1
C. Diphtheria gravis	2
C. Diphtheria mitis	3
C. Diphtheria intermediate	2
B. Dysentery shigae	11
B. Dysentery flexner	19
B. Dysentery sonne	5
B. Dysentery schmitz	4
Brucella abortus	3
Brucella melitensis	3

From 2nd October 1953 to 31st March 1954 (Madras State).

Serial number and name of institution.	Blood for Kahn test.			Blood for Wasserman test.			Cerebro-spinal fluid for Wasserman test.			Cerebro-spinal fluid for Lange's test.			Kahn verification test.	Paul Bunnell test.	Kahn negative and Wasserman post- live.	Kahn positive and Wasserman neg- ative.
	Number examined.	Negative.		Number examined.	Negative.		Number examined.	Negative.		Number examined.	Negative.					
		(2)	(3)		(4)	(5)		(6)	(7)		(8)	(9)				
(1)																
1 General Hospital, Madras ..	76	43	33	39	16	23	206	152	54	212	173	39	..	2	..	5
2 Stanley Hospital, Madras ..	85	64	21	23	12	11	46	42	4	8	6	2	..	..	..	7
3 Blood Bank Section ..	2,130	1,744	386	1,971	1,510	461	..	..	..	..	..	..	..	..	185	143
4 Women and Children Hospital, Madras.	4,730	4,049	681	685	316	369	3	2	1	3	3	..	..	..	6	263
5 Kasturibai Gandhi Hospital for Women and Children, Madras.	1,302	1,031	271	269	66	203	..	..	..	..	..	..	..	..	2	47
6 Ophthalmic Hospital, Madras ..	1,543	1,214	329	300	82	218	..	..	..	..	..	..	..	..	1	66
7 Indian Medicine Hospital, Madras.	169	128	41	37	8	29	..	..	..	..	..	..	..	..	..	8
8 Mental Hospital, Madras ..	589	493	96	117	46	71	..	..	..	..	..	..	..	..	..	13
9 Royapetta Hospital, Madras ..	146	126	20	17	6	11	2	..	2	2	1	1	..	..	..	2
10 Other Hospitals in Madras city.	139	90	49	54	20	34	..	..	..	..	..	..	..	..	..	14
11 Mission Hospitals ..	533	437	96	414	280	134	1	1	..	..	..	..	..	..	..	10
12 Mufassal Hospitals ..	4,370	3,146	1,224	1,183	600	583	71	54	17	57	45	12	6	..	..	158
13 Local Fund and Rural Dispen- saries.	125	107	18	38	24	14	1	1	..	1	..	1	..	..	..	4
14 Primary Public Health Centres.	132	113	19	8	5	3	..	..	..	..	..	..	..	..	..	2
15 Private Practitioners ..	308	259	49	397	305	92	20	12	8	9	8	1	..	..	13	16
Total ..	16,377	13,044	3,323	5,552	3,296	2,556	581	439	142	531	439	92	6	2	207	758

From 2nd October 1953 to 31st March 1954 (Andhra State).

Serial number and name of institution.	Blood for Kahn test.			Blood for Wasserman test.			Cerebro-spinal fluid for Wasserman test.			Cerebro-spinal fluid for Lange's test.			Kahn verification test.	Paul Bunnell test.	Kahn negative and Wasserman test.	Kahn positive and Wasserman negative.	
	Number examined.			Number examined.			Number examined.			Number examined.							
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)					
(1)	1,978	1,037	3,015	277	923	1,200	11	6	17	12	5	17	..	..	3	127	
1 Government Hospitals ..	..	1,978	1,037	3,015	277	923	1,200	11	6	17	12	5	17	..	..	3	127

TABLE V-A.
Prophylactic vaccines, Cholera, T.A.B. and Plague from 1st April 1953 to 31st March 1954.

Number and name of vaccine.	Opening balance in c.c.	Receipt from mufassal in c.c.	Manufacture in c.c.	Issues.			Total issues in c.c.	Closing balance.
				Composite State from 1st April to 30th September 1953.	Andhra State from 1st October 1953 to 31st March 1954.	Madras and other States from 1st October 1953 to 31st March 1954.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 Cholera ..	7,87,992	57,105	1,51,14,457	60,38,809	22,53,984	48,45,489	1,31,38,282	28,01,272
2 T.A.B. ..	35,266	495	1,70,403	94,234	5,455	76,606	1,71,76,295	28,869
3 Plague ..	30,700	NIL.	* 25,000	21,600	13,500	7,120	42,220	13,480

* Received from the Haffkine Institute, Bombay.

TABLE VII.

Department of Water Analysis.

PART I.

WATER SAMPLES.

(a) Domestic purposes

Combined State.

(from 1st April to 30th September 1953.)

Serial number and description.	Number examined.
1 Bacteriological examination of water samples from protected water-supplies	1,043
2 Chemical examination of water samples from protected water-supplies	734
3 Samples of water for bacteriological examination from investigation sources	17
4 Samples of water for chemical examination from investigation sources	127
5 Samples for bacteriological examination from Government institutions and private bodies	100
6 Samples for chemical examination from Government institutions and private bodies	78
7 Water samples for fluoride estimation	28
8 Do. vibrio tests	1,160
9 Do. physical test like turbidity, odour, colour, etc.	967
10 Do. Bacteriological examination from the Government milk factory	12
Total	4,366

Residuary State from 1st October 1953 to 31st March 1954)

Number and Description.	Number of samples examined.						Total.
	October.	November.	December.	January.	February.	March.	
1 Samples for Bacteriological examination from protected water-supplies.	112	159	95	173	92	171	802
2 Samples for Chemical examination from protected water-supplies.	75	109	66	114	62	130	556
3 Samples for Bacteriological examination from investigation sources.	..	..	1	..	..	..	1
4 Samples for Chemical examination from investigation sources.	8	5	7	7	8	8	43
5 Samples for Bacteriological examination from Government Institute and private bodies.	9	17	9	10	7	8	60
6 Samples for Chemical examination from Government Institute and private bodies.	29	18	10	7	2	8	74
7 Water samples for fluoride estimation.	..	..	..	..	..	..	..
8 Water samples for vibrio test	121	176	104	183	92	179	855
9 Water samples for Physical test like turbidity, odour, colour, etc.	112	122	84	128	72	146	664
10 Water samples for Bacteriological test from the Government Milk Factory, Teynampet.	2	2	2	2	2	2	12

Andhra State.

Number and description.	Number of samples examined.						Total.
	October.	November.	December.	January.	February.	March.	
1 Samples for Bacteriological examination from protected water-supplies.	51	28	48	13	49	36	225
2 Samples for Chemical examination from protected water-supplies.	37	24	35	8	33	28	165
3 Samples for Bacteriological examination from investigation sources.	..	..	..	..	..	..	..
4 Samples for Chemical examination from investigation sources.	3	4	..	1	..	1	9
5 Samples for Bacteriological examination from Government Institute and private bodies.	..	1	1	3	..	3	8
6 Samples for Chemical examination from Government Institute and private bodies.	2	..	3	1	2	7	15
7 Water samples for Fluoride estimation.	2	1	6	6	2	5	22
8 Water samples for vibrio test	51	29	50	16	49	39	234
9 Water samples for Physical test like turbidity colour, odour, etc.	42	28	38	10	35	36	189

(b) Government Experimental Filter Station, Kilpauk.

Serial number and description.	Number examined.
1 Water samples for Bacteriological examination	838
2 Do. Chemical examination	643
3 Do. Physical (Turbidity, odour and colour) tests	643
4 Tests for estimation of dissolved H ₂ S	136
5 Do. Oxygen	529
6 Determination of alum and chlorine dose	35
7 Samples of sand examined	5
8 Determination of residual chlorine	572
9 Do. ammonia	52
10 Do. alum	7
11 Estimation of biological growths in water and filter surfaces	25
12 Tests for sulphate reducing organisms	84
13 Tests for total iron	6

(c) Non-domestic purposes.

Combined State (from 1st April to 30th September 1953).

Serial number and description.	Number examined.
1 Suitability for boiler use	12
2 Suitability for drying purposes	1
3 Suitability for loco. use	2
4 Suitability for cooling condensers	1
5 Suitability for feeding humidification plant	2
6 Suitability for soap boiling	1
7 Suitability for glue manufacture	1
Total	20

Live cultures—cont.

	TUBES.
V. Cholera ogawa	10
V. Cholera inaba	8
Staphylococcus	7
Sterptococcus	3
N. Meningococcus	1
Pneumococcus	1
B. Coli	4
N. Gonorrhoea	1
Salm typhi (Rawlings)	21
B. Diphtheroids	1
Total ..	184

TABLE III.

Statement showing Therapeutic sera supplied to the Residuary (Madras State) for the period from 1st October 1953 to 31st March 1954.

Serial number and name of sera.	Quantity supplied.
1 Anti gas-gangrene 10,000 units	1,766
2 Anti Scorpion 1 c.c.	1,362
3 Anti Venene 10 c.c.	745
4 Diphtheria Anti-toxin 10,000 units	8,258
5 Diphtheria Prophylactic TAF 1 c.c.	408
6 Diphtheria prophylactic PTAP 0.5 c.c.	443
7 Haemostatic 2 c.c.	2,470
8 Tetanus Anti-toxin— 1500 I.U. (Prophylactic) 15,610	1,14,360
1950	
Tetanus Anti-toxin (Prophylactic) 98,750	
10 doses vials 9,875	
9 Tetanus Antitoxin— 25,000 I.U. Curative	9,705
1950	
10 Tetanus Toxoid 1 c.c.	62
11 Tetanus Toxoid 5 c.c.	11
Total ..	1,39,590

TABLE IV-A.

Statement showing K.I.P.M. product bulbed from 1st April 1953 to 31st March 1954.

Serial number and name of sera.	Number of ampoules bulbed.
1 Tetanus Anti-toxin— 1500 I.U. Prophylactic	40,197
1950	
2 Tetanus Anti-toxin 10 doses vials (Prophylactic)	1,809
3 Tetanus Anti-toxin— 25,000 I.U. (Curative)	6,243
1950	

TABLE V.

Statement showing Therapeutic sera supplied to Government and Private Institutions in Andhra State from 1st October 1953 to 31st March 1954.

Serial number and name of sera.	Quantities supplied.
1 Anti-gas-gangrene 10,000 units	1,060
2 Anti-scorpion, 1 c.c.	1,096
3 Anti-venene, 10 c.c.	157
4 Diphtheria anti-toxin, 10,000 units	575
5 Diphtheria prophylactic, TAF 1 c.c.	18
6 Diphtheria prophylactic, TAF 10 c.c.	1
7 Diphtheria prophylactic, PTAP 0.5 c.c.	156
8 Haemostatic, 2 c.c.	883
9 Tetanus anti-toxin 1,500 I.U./1950 (prophylactic) 5,847	30,307
Tetanus anti-toxin (prophylactic), 10 doses vials 2,446, i.e. 24,460 doses	
10. Tetanus anti-toxin 25,000 I.U./1950 (curative)	
Total ..	37,166

TABLE VI.

Statement of Therapeutic sera.

Serial number and name of sera.	Stock on 1st April 1953.	Receipts from 1st April 1953 to 30th September 1953.	Issued from 1st April 1953 to 30th September 1953.	Balance on 30th September 1953.
(1)	(2)	(3)	(4)	(5)
1 Anti-anthrax, 10 c.c.	12	Nil.	Nil.	12
2 Anti-gas gangrene, 4,000 units	34	25	59	Nil.
3 Do. 10,000 units	6,622	Nil.	3,209	3,413
4 Anti-scorpion, 1 c.c.	2,291	1,604	3,085	810
5 Anti-venene, 10 c.c.	80	650	517	213
6 Diphtheria anti-toxin, 10,000 units	10,993	Nil.	7,551	3,442
7 Diphtheria prophylactic T.A.F., 1 c.c.	735	Nil.	309	426
8 Do. T.A.F., 10 c.c.	28	Nil.	25	1
9 Do. A.P.T., 0.5 c.c.	492	Nil.	125	367
10 Do. A.P.T., 5 c.c.	83	Nil.	82	1
11 Haemostatic, 2 c.c.	4,191	6,667	3,939	6,949
12 Tetanus anti-toxin, 1,500 I.U./1950	102,019	148,273	155,455	94,837
13 Do. 2,500 I.U./1950	13,066	34,137	12,651	34,552
14 Tetanus toxoid, 1 c.c.	37	Nil.	7	30
15 Do. 5 c.c.	31	Nil.	10	21
Total ..	140,712	191,356	187,024	145,044

TABLE IV.

Statement showing sera K.I.P.M. Product bulbed from 1st April 1953 to 30th September 1953.

Serial number and name of sera.	Number of tubes bulbed.
1 Tetanus antitoxin, 1,500 I.U./1950 (prophylactic)	15,976
2 Do. 10 doses vials (prophylactic)	1,763
3 Do. 25,000 I.U./1950 (curative)	1,860

Residuary State (1st October 1953 to 31st March 1954).

Serial number and description.	Number of samples examined.						Total.
	October.	November.	December.	January.	February.	March.	
1 Samples for full mineral analysis.	6	..	..	2	3	1	12
2 Suitable for loco. purposes ..	1	5	1	..	..	1	8
3 Suitable for boiler feed purposes.	..	3	3	4	1	..	11
4 Suitable for chromium and nickel plating.	..	1	..	..	..	..	1
5 Suitable for irrigation purposes.	..	3	..	..	..	..	3
6 Suitable for building construction.	..	..	4	..	..	..	4
7 Suitable for bleaching and dying.	..	..	1	..	..	..	1

Andhra State (from 1st October 1953 to 31st March 1954).

Description.	Number examined.						Total.
	October.	November.	December.	January.	February.	March.	
Full mineral analysis ..	..	..	..	..	2	..	2

*(d) Water biology and algae control.**Combined State (from 1st April to 30th September 1953).*

1 Microscopic examinations of samples of water filter growths, etc.	..	129
2 Tests to determine dose of algicide ..	..	11
3 Tests for residual copper-sulphate ..	..	39
4 Field test for residual chlorine ..	..	27
5 Do. dissolved gases ..	..	5
6 Do. organic matter content estimation ..	..	35
7 Do. colour, odour, turbidity, etc.	..	31

Residuary State (from 1st October 1953 to 31st March 1954).

	October 1953.	November 1953.	December 1953.	January 1954.	February 1954.	March 1954.	
1 Microscopic examination of samples of water filter growths, etc.	13	11	9	21	6	24	
2 Tests to determine dose of algicide ..	2	5	3	2	1	8	
3 Tests for residual copper sulphate ..	9	11	10	8	4	6	
4 Field test for residual chlorine ..	3	5	2	8	7	11	
5 Field test for dissolved gases ..	2	..	1	..	1	..	
6 Field test for organic matter content ..	6	9	3	6	2	2	
7 Field test for colour, odour, turbidity, etc.	6	..	7	9	2	..	

Andhra State (from 1st October 1953 to 31st March 1954).

	October 1953.	November 1953.	December 1953.	January 1954.	February 1954.	March 1954.	
1 Microscopic examination of samples of water, filter growths, etc.	4	3	8	2	7	8	
2 Tests to determine dose of algicide ..	2	1	2	..	3	4	
3 Tests for residual copper-sulphate ..	6	4	6	..	12	12	
4 Field test for residual chlorine ..	..	..	..	..	..	..	
5 Field test for dissolved gases ..	..	4	..	..	8	..	
6 Field test for organic matter content estimation.	..	..	..	..	..	..	
7 Field test for colour, odour, turbidity, etc.	..	..	..	..	..	..	

PART II.

MISCELLANEOUS SAMPLES.

Combined State.		Number Examined.
Serial number and description.	(1)	
1 Bleaching powder for determination of available chlorine	..	62
2 Analysis of Alumina Ferric	..	1
3 Distilled water for analysis	..	2
4 Analysis of Blesters, seals, etc.	..	2
5 Determination of pH of Renger lactate solution, calcium hydroxide, etc.	..	4
6 Estimation of D.D.T. in water	..	7
7 Analysis of Trisodium phosphate	..	1
8 Waste water sample for suggesting treatment	..	1
9 Sewage and industrial wastes	..	14
10 Milk samples for bacteriological examination	..	60
11 Bacteriological examination of utensils washed and sterilized in the milk factory	..	12
12 Ice cream samples	..	36
13 Number of tests on disinfectants	..	47
14 Soda waters for Bacteriological examination	..	1
Total ..		254

Residuary State.

Serial number and description.	Number of samples examined.						Total.
	October.	November.	December.	January.	February.	March.	
1 Bleaching powder for available chlorine.	20	24	1	11	..	2	58
2 Neutrality of glass	1	..	..	..	..	..	1
3 DDT analysis ..	1	1	..	..	..	..	2
4 Determination of pH.	..	..	..	2	..	..	2
5 Estimation of fluorine in bones	..	..	..	1	..	..	1
6 Do. in urine	..	..	..	1	..	..	1
7 Analysis of distilled water	..	13	..	..	..	..	13
8 Textile waste	..	2	1	..	..	..	3
9 Waste from glue factory	..	..	..	3	..	..	3
10 Waste from Hydrogenation factory ..	..	..	..	3	..	2	6
11 Sewage wastes	..	..	..	..	..	..	16
12 Tests on disinfectants	1	1	..	..	..	..	2
13 Soda water for Bacteriological examination.	..	2	..	..	..	..	2
14 Ice cream for Bacteriological examination.	..	..	..	..	..	..	52
15 Milk samples for Bacteriological examination.	..	..	..	..	..	..	12
16 Rinse waters from sterilized utensils for bacteriological examination.	..	..	..	..	..	..	..

Andhra State.

Serial number and description.	Number of samples examined.						Total.
	October.	November.	December.	January.	February.	March.	
1 Bleaching powder for available chlorine.	3	..	4	2	..	3	..
2 Analysis of rust in pipes	..	..	..	..	..	1	..
3 Waste from Hydrogenation factory ..	3	..	..	3	..	..	..

**REPORT OF THE GOVERNMENT ANALYST, MADRAS,
FOR THE HALF YEAR 1ST APRIL
TO 30TH SEPTEMBER 1953
FOR THE COMPOSITE MADRAS STATE
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PART III.

SOLUTIONS SUPPLIED.

(From 1st April 1953 to 31st March 1954.)

Serial number and description.	Amount supplied in c.c.
1 N/10 hydrochloric acid	100
2 Buffered distilled water	3,500
3 33 per cent Acetic Acid	250
4 Benedict's qualitative solution	1,350
5 N. Sodium hydroxide solution	24,000
6 Lactose salt solution for V.L. Section	3,000
7 0.01 per cent Phenol red solution	875
8 Potassium sulphate solution	100
9 0.04 per cent Brom Thymol Blue solution	450
10 25 per cent Sulphuric acid	250
11 6 per cent Sulphuric acid	250
12 Standard sodium Fluoride solution	100
13 Sanchis reagent	500
14 10 per cent Potassium chromate solution	50
15 N/10 silver nitrate solution	100
16 Standard Iron solution	680
17 Nitric Acid 1:1	1,800
18 10 per cent Ammonium Thiocyanate solution	1,350
19 N/10 Potassium Permanganate	50
20 Pancreatic extract	386,500
21 Wet stains supplied	34,560

TABLE VIII.

Protected water-supplies examined at the King Institute, Guindy, with details regarding source, method of filtration, chlorination, etc.

Protected water-supplies.	Total number of		Sources.				Infiltration gallery or well.	
	Places.	Sources.	Impounded reservoir.	River or stream.	Tank.	Well.	Bed of river.	Bank of river.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Municipalities	53	89	11	15	8	15	25	15
Panchayat boards	17	24	..	10	3	6	3	2
Jails, Borstal and Certified schools and Vigilance Homes.	20	20	2	1	1	16	6	3
Railway stations	54	61	1	4	..	51	3	2
Swimming pools	1	1	..	..	..	1	..	..
Other institutions	21	28	8	8	..	6	5	1
Total	171	282	22	38	12	95	42	23

	Filtration.				Chlorination.			
	Slow sand filter.	Mechanical filter. Pressure.	Gravity.	Infiltration gallery or well.	Not filtered.	Automatic chlorine.	Bleaching powder. Mechanical.	Hand controlled.
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Municipalities	8	5	6	39	23	1	49	11
Panchayat boards	1	..	1	5	3	1	10	1
Jails, Borstal and Certified schools and Vigilance Homes.	2	1	..	9	17	9	18	2
Railway stations	..	2	4	5	50	18	23	15
Swimming pools	..	1	..	..	..	1	..	..
Other institutions	5	5	2	6	10	11	5	6
Total	16	14	13	64	124	70	107	30

Protected water-supplies examined at the King Institute, Guindy, with details regarding source, method of filtration, chlorination, etc.—cont.

Madras State, 1st October 1953 to 31st March 1954.

Protected water-supplies.	Total number of		Sources.					
	Places.	Sources.	Impounded reservoir.	River or stream.	Tank.	Well.	Infiltration gallery or well. Bed of river.	Bank of river.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Municipalities	39	59	11	8	5	9	16	10
Panchayat boards	10	15	..	9	..	2	3	1
Jails, Borstal and Certified schools and Vigilance Homes.	17	24	2	1	1	13	5	2
Railway stations	52	59	1	4	..	50	2	2
Swimming pools	1	1	..	..	..	1	..	..
Other institutions	21	28	8	8	..	6	5	1
Total	140	186	22	30	6	81	31	16

Andhra State, 1st October 1953 to 31st March 1954.

Municipalities	18	29	..	7	3	6	8	5
Panchayat boards	7	9	..	1	3	4	..	1
Jails, Borstal and Certified schools and Vigilance Homes.	3	5	..	..	..	3	1	1
Railway stations	..	..	..	..	..	..	..	..
Swimming pools	..	..	..	..	..	..	..	..
Other institutions	..	..	..	..	..	..	..	..
Total	28	43	..	8	6	13	9	7

(Madras State.)

	Filtration.				Chlorination.			
	Slow sand filter.	Mechanical filter. Pressure.	Gravity.	Infiltration gallery or well.	Not filtered.	Automatic chlorine.	Bleaching powder. Mechanical.	Hand controlled.
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Municipalities	3	3	5	26	22	16	1	34
Panchayat boards	..	..	1	4	10	1	1	12
Jails, Borstal and Certified schools and Vigilance Homes.	2	1	..	7	14	5	..	17
Railway stations	..	2	4	5	50	18	27	14
Swimming pools	..	1	..	..	..	1	..	..
Other institutions	5	5	2	6	10	11	5	6
Total	10	12	12	48	106	52	34	83

(Andhra State.)

Municipalities	5	2	1	13	8	12	..	14
Panchayat Board	1	..	..	1	7	2	..	7
Jails, Borstal and Certified schools and Vigilance Homes.	..	..	..	2	3	4	..	1
Railway stations	..	..	..	..	..	..	..	..
Swimming pools	..	..	..	..	..	..	..	..
Other institutions	..	..	..	..	..	..	..	..
Total	6	2	1	16	13	18	..	22

I. STAFF.

Government Analyst Sri S. Narayana Ayyar, M.A., A.I.I.S.C.,
F.R.I.O.

Deputy Government Analyst Sri K. R. Srinivasan, M.A., F.R.I.O.,
from 1st April to 1st August
1953.

„ Y. G. Doraiswami, M.Sc., F.R.I.O.;
from 2nd August to 30th
September 1953.

Senior Assistants to Government Sri K. R. Srinivasan, M.A., F.R.I.O., from
Analyst. 2nd August to 30th September
1953.

„ K. Narayanaswami, M.A., A.B.I.C.

„ M. Krishnamurthi, M.Sc.

„ P. S. Nataraja Sarma, M.A.

„ K. Balasubramaniam, B.Sc. (Hons.).

„ K. Ramachandran, M.A., from
1st August 1953.

Junior Assistants to Government Sri K. Ramachandran, M.A., from 1st
Analyst. April to 31st July 1953.

„ N. Srinivasan, M.A.

„ M. V. Narayanan, B.Sc. (Hons.).

„ C. S. Raghunathan, B.Sc. (Hons.).

„ G. Balasubramanian, B.Sc. (Hons.).

„ S. A. Subramanian, M.Sc.

„ K. Kuppuswami, M.Sc., till 8th July
1953.

„ V. Seshagiri Rao, B.Sc. (Hons.).

„ M. R. Gopalan, B.Sc. (Hons.).

„ V. Ramachandran, M.A., till 9th
May 1953.

„ K. Sambandam, B.Sc., from 28th
May 1953.

„ T. R. Krishnaswami, B.Sc. (Hons.),
from 19th June 1953.

„ P. Appavu, B.Sc. (Hons.), from 13th
July 1953.

The laboratory staff included one Technical Assistant, three First-grade Attendants, one Second-grade Attendant and seven Peons. The office staff consisted of two Upper Division Clerks, one Steno-typist, three Typists and two Lower Division Clerks.

Sri K. Kuppaswamy, Junior Assistant to Government Analyst, was transferred to the Stanley Medical College, Madras, on his appointment as non-Medical Assistant to the Professor of Bio-Chemistry from 9th July 1953 afternoon.

Sri K. Ramachandran, Junior Assistant to Government Analyst, was promoted to act as Senior Assistant from 1st August 1953 in the post newly sanctioned by Government. Sri N. Srinivasan, Junior Assistant to Government Analyst, acted as Senior Assistant on 1st August 1953.

Leave.

Sri S. Narayana Iyer, Government Analyst, was on leave on average pay for 5 days from 16th August 1953.

Sri Y. G. Doraiswami, Deputy Government Analyst, was on leave out of India up to 1st August 1953 and Sri K. R. Srinivasan, Senior Assistant to Government Analyst, acted in his place and Sri K. Balasubramanian, Junior Assistant to Government Analyst, was promoted to act as Senior Assistant to Government Analyst.

The following Junior Assistants were on earned leave for the periods shown against them:—

- (1) Sri M. V. Narayanan for 4 days from 24th to 27th June 1953 and one day on 10th August 1953.
- (2) Sri S. Subbaraman for 12 days from 7th to 18th September 1953.
- (3) Sri V. Ramachandran for 3 days from 5th to 7th May 1953.
- (4) Sri T. R. Krishnaswamy for 4 days from 7th to 10th September 1953.
- (5) Sri S. A. Subramanian for 13 days from 29th June to 11th July 1953.
- (6) Sri M. R. Gopalan for 4 days from 2nd to 5th September and for 5 days from 14th to 18th September 1953.

II. INTRODUCTION.

This report does not cover one full year, but only the period of six months from April to September 1953, as ordered by Government in Memo. No. 7468-53-2, Public (Partition) Department, dated 2nd January 1954; when the Andhra State was formed from 1st October 1953, Government directed that the half-yearly report for the half-year ended 30th September 1953 should be for the composite Madras State and that separate report for the residuary Madras State and the Andhra State should be submitted for the half-year ending 31st March 1954.

In addition to the usual work of food analysis arising from the working of the Madras Prevention of Adulteration Act in 238 local bodies, food samples from various Government Institutions such as Hospitals, Certified Schools, Jails, Police, etc., and from Government of India Departments such as Railways, Regional Food Commissioner, etc., were analysed.

There has been an increase in the number of drug samples sent by Drug Inspectors under the Madras Drugs Rules, 1945.

A noteworthy feature of the year was that, as a result of the issue of Press Note No. 10, dated 17-1-1953 of the Government of Madras, Public Works (Information and Publicity) Department, a number of suspected drugs, foods and cosmetics seized by the police was sent by Magistrates to this laboratory to see whether they were spurious imitations and infringed trade marks of the genuine preparation.

TABLE I.

Number and categories of samples analysed from different sources in the Government Analyst's Laboratory.

Source.	Half year 1953-54 (1-4-53 to 30-9-53).		Full-year 1952-53.	
	Number of samples.	Number adulterated or unsatisfactory.	Number of samples.	Number adulterated or unsatisfactory.
(1)	(2)	(3)	(4)	(5)
Food samples under the Madras Prevention of Adulteration Act.	8,915	4,099	18,252	8,199
Food samples from Government Hospitals ..	3,286	589	6,187	1,092
Food samples from other Government Departments.	456	60	925	141
Food samples from unofficial sources ..	35	9	60	20
Total (Foods) ..	12,692	4,757	25,424	9,452
Drugs analysed under the Madras Drugs Rules.	60	20	92	46
Drugs analysed from Government Hospitals and other Government Institutions.	109	61	275	180
Drugs from unofficial sources	1	..	17	7
Total (Drugs) ..	170	81	384	233

III. FINANCE.

The estimated receipt for the half-year ended 30th September 1953 was Rs. 1,13,488 and the estimated expenditure Rs. 68,019 showing a profit of Rs. 45,329. Government's share of the fines realized for offences under the Act, credited to the Judicial Budget amounted to Rs. 12,517.

TABLE II.

Financial statement of the Government Analyst Department for the half-year ending 30th September 1953.

ESTIMATED RECEIPTS.

	Food.	RS.	A.	P.
1 Contribution to Government from local bodies working the Madras Prevention of Adulteration Act at Rs. 7-8-0 per sample		68,062	8	0
2 Value for analysis done for Government Institutions ..		38,210	0	0
3 Fees received from unofficial sources for analysis of food samples		985	0	0
<i>Drugs.</i>				
4 Value for drug samples analysed for Hospital and samples under the Madras Drugs Rules		6,170	0	0
5 Fees received from unofficial sources for analysis of drug samples		20	0	0
Total Receipts ..		1,13,447	8	0

TABLE II—cont.

Financial statement of the Government Analyst Department for the half-year ending 30th September 1953—cont.

ESTIMATED EXPENDITURE.

	RS.	A.	P.
1 Salaries and allowances of the staff of the Government Analyst	32,737	0	0
2 Superannuation allowance and pension on above ..	387	0	0
3 Proportionate cost of certain common staff of the King Institute, Guindy	720	0	0
4 Proportionate cost of management and supervision by the Director of Medical Services and the Director, King Institute, Guindy	150	0	0
5 Stores, instruments and chemicals, including gas and water charges	13,197	15	0
6 Customs duty	5,894	1	0
7 Contingencies	9,101	0	0
8 Electric current	742	9	0
9 Cost of stationery, clothing and printing	376	0	0
10 Proportionate charges on cost of audit maintenance, interest and depreciation on buildings, electric installation and other plants	3,715	0	0
Total Expenditure ..	67,020	9	0
Share of the fines accruing to Government on account of the working of the Madras Prevention of Adulteration Act (10 per cent of total fines plus half the excess fines over the contribution by the local body to Government towards fee for analysis)	31,686	0	0

IV. WORKING OF THE MADRAS PREVENTION OF ADULTERATION ACT.

During the half-year the number of samples received in this laboratory from 238 local bodies working the Act was 8,915 of which 4,099 (45.9 per cent) was adulterated. Table III gives the number of samples sent by the Municipalities and Panchayat Boards, and Table IV the extra samples sent by some local bodies. Tables V, VI and VII give the nature of samples taken under the Act, for the whole Madras State, the nature of samples analysed in the Madras Corporation laboratory from Madras City, and in the Government Analyst's laboratory respectively. The figures for the previous year have also been included for comparison.

Appendix A at the end of this Report gives detailed particulars about the samples sent by 238 local bodies excluding Madras City, the number under each category, the number adulterated, grouped under the various districts.

Appendix B gives the total fines levied, number of convictions, average fine, etc., in the half-year under report.

Rule 28-E was amended in G.O. No. 1758, Health, dated 8th May 1953, so that Kesari Dhall and its products should not be used in the preparation of foods intended for sale.

Rule 28-B was further modified by G.O. No. 4023, Health, dated 27th November 1953 so that it is now incumbent on hotel-keepers to put up notice boards stating which sweets and savouries are made in ghee and which are not made in ghee.

Instead of prosecuting merchants for improper labelling of coffee-chicory mixtures, many were asked to alter the labels to conform to the rules with satisfactory results. Similarly regarding the display of notice boards in hotels, the Health authorities have been asked to give wide publicity to the new Rule before taking any punitive action.

TABLE III.

Number of samples analysed and found adulterated in the Madras State.

	Half-year 1953-54 (1st April to 30th September 1953).			Full-year 1952-53.		
	Number of samples taken.	Number adulterated.	Percentage adulterated.	Number of samples taken.	Number adulterated.	Percentage adulterated.
Municipalities.						
23 Class A	2,440	1,593	46	6,904	3,212	46.9
24 Class B	1,143	539	46	2,318	1,086	46.8
46 Class C	1,244	590	47	2,540	1,161	45.7
Panchayat Boards.						
139 Panchayats	3,063	1,377	44	6,400	2,730	42.7
Total for 237 local bodies, analysed in the Government Analyst's laboratory ..	8,915	4,099	45.9	18,252	8,189	44.9
Corporation.						
Madras City	2,863	1,319	46.1	4,827	2,647	54.8
Total for 238 local bodies in the State ..	11,778	5,418	46	23,079	10,836	46.9

TABLE IV.

Extra samples sent by Municipalities and Panchayats during the half-year 1st April to 30th September 1953.

MUNICIPALITIES.		PANCHAYATS.	
1 Madurai	1	24 Arkonam	1
2 Coimbatore	8	25 Avanashi	1
3 Salem	29	26 Courtallam	2
4 Ootacamund	1	27 Chinnamannur	4
5 Tirunelveli	24	28 Chodavaram	2
6 Bellary	2	29 Dhone	1
7 Kancheepuram	24	30 Giddalur	1
8 Kumbakonam	12	31 Kurichi	3
9 Tuticorin	2	32 Madurantakam	2
10 Palghat	1	33 Melur	2
11 Cannanore	1	34 Madanapaltee Sanatorium	4
12 Kurnool	1	35 Kallidaikurichi	2
13 Tiruppur	8	36 Namakkal	4
14 Hindupur	1	37 Nuzvid	1
15 Proddatur	3	38 Paramakudi	1
16 Rajapalayam	5	39 Panrutti	6
17 Ambur	1	40 Penukonda	1
18 Bhimavaram	1	41 Puttur	1
19 Kodaikanal	13	42 Pattukottai	2
20 Mettupalayam	15	43 Palakonda	2
21 Srirangam	1	44 Rayadrug	1
22 Rasipuram	2	45 Sirkali	4
23 Tiruvallur	3	46 Sattur	1
		47 Satyamangalam	3
		48 Srivaikuntam	4
		49 Tiruttani	4
		50 Tirupattur (Ramnad)	3
		51 Tiruchengode	4
		52 Vayalpad	3
		53 Vickramasingapuram	6
		54 Vetapalem	1
		55 Viravanallur	2
		56 Virudhachalam	2
		57 Yemmiganur	2
		Total ..	83
		Grand total ..	245

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TABLE V.

Nature of samples taken in 239 local bodies (including Madras City) working the Act in the State.

Nature of sample.	1953-54 1st April to 30th September 1953.			1952-53.		
	Total.	Number adulterated.	Percentage adulterated.	Total.	Number adulterated.	Percentage adulterated.
Milk	7,315	4,299	58.7	14,206	8,395	59.1
Ghee	953	319	33.4	1,816	707	38.4
Butter	548	257	46.8	900	421	46.8
Gingelly oil	764	50	6.5	1,883	196	10.4
Coconut oil	481	6	1.2	1,038	29	2.7
Groundnut oil	185	17	9.1	855	36	4.1
Kusumba oil	..	..	..	9	4	44.4
Coffee powder	676	207	30.6	1,258	490	38.9
Sweets	..	..	..	149	103	69.1
Turmeric	103	17	16.5	186	31	16.7
Tea	119	4	3.3	351	43	12.3
Honey	76	18	23.6	97	29	29.9
Dhalls and flours	363	130	35.8	647	275	42.5
Hydrogenated vegetable oils.	10	2	20.0	61	17	27.9
Miscellaneous	185	72	38.9	123	58	47.1
Total ..	11,778	5,418	46.0	23,079	10,834	46.9

TABLE VI.

Nature of samples taken in Madras City alone in the half-year period April-September 1953.

Nature of sample.	Total.	Number adulterated.	Percentage adulterated.
Milk	1,676	1,047	62.5
Butter	336	124	36.9
Ghee	440	78	17.7
Gingelly oil	167	18	10.8
Groundnut oil	13	..	..
Coconut oil	82	..	..
Coffee powder	75	20	26.7
Tea	7	..	..
Ghee substitute	10	2	20.0
Other articles	57	30	52.6
Total ..	2,863	1,319	46.1

GOVERNMENT ANALYST, MADRAS

TABLE VII.

Nature of samples taken in 238 local bodies working the Act in the Madras State during the half year April to September 1953 and analysed in the Government Analyst's laboratory.

Nature of samples.	1953-54. Half-year (from 1st April to 30th September 1953).			1952-53.		
	Total number of samples taken.	Number adulterated.	Percentage adulterated.	Total number of samples taken.	Number adulterated.	Percentage adulterated.
Milk	5,639	3,252	57.0	11,396	6,359	55.8
Ghee	513	241	47.0	1,133	493	43.7
Butter	212	133	62.0	430	237	55.1
Gingelly oil	597	32	5.0	1,521	126	8.3
Coconut oil	399	6	1.0	882	19	2.2
Groundnut oil	172	17	9.0	319	35	10.9
Kusumba oil	..	..	..	..	..	..
Coffee powder	601	187	31.0	1,089	396	35.4
Sweets made in ghee	..	..	..	..	..	..
Turmeric	103	17	16.0	186	31	16.7
Tea	112	4	3.0	316	43	13.6
Honey	76	18	23.6	..	..	..
Dhalls and flours	363	130	35.0	647	275	42.5
Hydrogenated vegetable oils.	..	..	..	..	..	..
Miscellaneous	128	62	39.2	47	25	53.2
Total ..	8,915	4,099	45.9	18,252	8,187	44.9

The figures, when compared with those for the previous year, show that adulteration continues at the same high level. A larger percentage of milk, ghee and notably butter samples, was found to be adulterated whereas in the case of oils, coffee and specially tea there is distinct improvement. Kesari dhall is freely imported into Madras State from North India and used to adulterate poor dhall and Bengalgram flour.

Milk.—Adulteration of milk was heavy in the following municipalities:—

Municipality.	Number of milk samples.	Number adulterated.
Anantapur	28	20
Mettupalayam	29	25
Gobichettipalayam	23	23
Trivellore	14	13
Kakinada	93	83
Rajahmundry	53	46
Bhimavaram	17	14
Palacole	9	8
Tenali	26	25

Butter.—Adulteration was heavy in the districts of Chingleput, East Godavari, Krishna and Visakhapatnam.

Ghee.—Ghee adulteration was heavy in Anantapur, Bellary and East Godavari districts.

In Table VIII, the districts are ranked according to the extent of adulteration prevalent in them.

Fines ranging from Rs. 100 to Rs. 200 were imposed in 40 local bodies, as against 74 local bodies in 1952-53 and 89 local bodies in 1951-52.

Some local bodies have taken action in non-analysis cases under Part III of the Rules for exposure of food to dust and flies and for preventing the Sanitary Inspector (section 14-3) from taking samples. Fines imposed under these categories are given below:—

<i>Municipalities.</i>				<i>Panchayats.</i>			
		RS.				RS.	
Kakinada		85		Rajampet		100	
Rajahmundry		106		Samalkot		74	
Anakapalle		40		Turaiyur		25	
Tuticorin		25		Kadayanallur		395	
Cuddapah		45		Tiruchendur		50	
Salur		80		Sompeta		30	

The following 69 local bodies have not been able to recoup the contribution paid to Government as fees for analysis. It should however be mentioned that in several cases there was a large number of cases pending disposal:—

<i>Municipalities.</i>				Contribution to Government for six months.	Fines collected.
		RS.		RS.	
1. Tiruchirappalli		1,350		1,178	
2. Guntur		1,080		125	
3. Cuddalore		540		430	
4. Nagapattinam		540		505	
5. Palghat		540		510	
6. Vellore		540		500	
7. Cannanore		360		230	
8. Chidambaram		360		295	
9. Dindigul		360		135	
10. Hospet		360		245	
11. Karaikudi		360		335	
12. Mayuram		360		185	
13. Pudukottai		360		300	
14. Virudhunagar		360		136	
15. Vilupuram		360		235	
16. Bodinayakanur		270		100	
17. Devakottai		270		100	
18. Proddatur		270		155	
19. Dharapuram		180		95	
20. Gudiyattam		180		75	
21. Melapalayam		180		31	
<i>Panchayats.</i>					
Anantapur district—					
22. Dharmavaram		180		110	
North Arcot district—					
23. Ranipet		180		100	
South Arcot district—					
24. Nellikuppam		180		75	

				Contribution to Government for six months.	Fines collected.
		RS.		RS.	
<i>Panchayats—cont.</i>					
Coimbatore district—					
25. Kurichi		180		105	
Chittoor district—					
26. Vayalpad		180		33	
Cuddapah district—					
27. Badvel		180		120	
28. Pulivendla		180		75	
29. Rajampet		180		95	
East Godavari district—					
30. Tuni		180		160	
West Godavari district—					
31. Nidadavole		180		80	
32. Polavaram		180		140	
Guntur district—					
33. Repalle		180		65	
Krishna district—					
34. Tiruvur		180		60	
Kurnool district—					
35. Dhone		180		125	
36. Giddalore		180		150	
37. Markapur		180		..	
Madurai district—					
38. Allinagaram		180		..	
39. Ayyakudi		180		..	
40. Batlagundu		180		25	
41. Chinnamanur		180		..	
42. Cumbum		180		45	
43. Nilakottai		180		..	
44. Sholavandan		180		..	
45. Tirumangalam		180		30	
46. Usilampatti		180		135	
Nellore district—					
47. Kovvur		180		..	
48. Nayudupet		180		..	
49. Sulurpet		180		25	
Nilgiris district—					
50. Kotagiri		180		100	
Ramanathapuram district—					
51. Mudukulathur		180		..	
52. Kilakarai		180		..	
53. Kandanur		180		..	
54. Ramanathapuram		180		85	
55. Sattur		180		45	
56. Sivaganga		180		90	
Salem district—					
57. Shevaroy		180		160	
Tanjore district—					
58. Naunilam		180		100	
59. Papanasam		180		45	
60. Pattukkottai		180		130	

TABLE VIII. *

Districts arranged according to the increasing order of adulterated samples.

Name of district.	Rank for the half year under report (April to September).	Percentage of adulteration.	Rank for the previous year (1952-53).	Percentage of adulteration
Madurai ..	1	28.2	1	29.7
South Arcot ..	2	37.8	4	38.5
Tiruchirappalli ..	3	40.3	8	44.4
Nilgiris	4	40.7	15	46.8
Ramanathapuram.	5	41.0	2	33.0
Cuddapah ..	6	41.2	3	36.7
Visakhapatnam.	7	43.0	10	45.9
South Kanara ..	8	43.5	6	41.8
Malabar	9	43.6	9	44.9
North Arcot ..	10	43.7	5	40.7
Nellore	11	44.6	16	47.7
Chittoor	12	45.8	14	46.7
Madras City ..	13	46.1	23	54.8
Tanjore	14	47.1	12	46.1
Chingleput ..	15	47.6	13	46.4
Kurnool	16	48.3	17	48.4
Guntur	17	48.5	7	43.8
Anantapur ..	18	49.7	22	53.6
Bellary	19	50.6	21	53.4
Salem	20	52.0	18	50.0
Tirunelveli ..	21	53.7	11	46.1
Coimbatore ..	22	57.6	25	58.7
West Godavari ..	23	58.0	20	53.1
Krishna	24	58.4	19	50.5
East Godavari ..	25	58.8	24	55.2

There is an improvement in the extent of adulteration in Madras City, Nilgiris and Tiruchirappalli. On the other hand Guntur which had the seventh rank gets only the 17th rank and Tirunelveli had deteriorated from 11th to 21st rank. As stated in the last year's report, the Andhra districts of East Godavari, West Godavari, and Krishna and the Tamil districts of Coimbatore, Salem and Tirunelveli continue to show the prevalence of heavy adulteration.

V. NOTE ON ADULTERATION.

Milk.—Out of 5,639 milk samples, 3,252 (57 per cent) were adulterated, as compared to 55.8 per cent adulterated samples in the previous year.

Butter.—Adulteration in butter has shown a marked increase. Two hundred and twelve samples were received of which 133 (62 per cent) were adulterated as against 55.1 per cent in the previous year. As usual some samples contained moisture in excess of the permitted limit of 20 per cent, some were adulterated with foreign fat, while some were adulterated with both excess water and foreign fat.

Ghee.—Of 513 samples, 241 (47 per cent) were adulterated with foreign fat while in the previous year 43.7 per cent of the samples were adulterated.

Oils.—It is gratifying to note that adulteration in oils is decreasing. During the year only 5 per cent of the gingelly oil samples (32 out of 597) were adulterated with groundnut oil as against 8.3 per cent in the previous year. Seventeen samples of groundnut oil were adulterated with gingelly oil and of these six consisted of gingelly oil only. These were instances where the vendor played for safety by declaring the oil as groundnut oil.

Adulteration in coconut oil is also on the decrease. Only 6 out of 399 were adulterated, three with mineral oil.

Coffee.—The adulterants of coffee, as usual, were chicory and roasted wild date seed powder and, in a few cases Nathachuri, bengalgram, smooth pea and clearing nut were detected. One hundred and eighty-seven (31 per cent) out of 601 samples were adulterated.

Tea.—While there has been an increase in adulteration in tea during recent years it is noteworthy that only 4 out of 112 samples were found to be adulterated during the half-year under report. The adulterant detected was foreign leaf.

Dhall.—Out of 363 samples of dhall and flour received, 30 were reported as adulterated, the usual adulterants being kesari dhall or a yellow coal-tar dye, the use of which has been prohibited by Government.

Turmeric.—Out of 103 samples, 17 were reported as adulterated. Two samples contained foreign starch and the rest lead in excess of the permitted limit of 5 parts per million.

Honey.—Out of 76 samples, 18 were certified as adulterated, three with excess water above the permitted limit of 25 per cent and the rest with cane sugar in excess of the permitted limit of 5 per cent.

VI. FINES.

Appendix "B" at the end of the report gives the number of convictions, fines in analysis and non-analysis cases, maximum, minimum and average fine in each local body. The number of pending cases has also been indicated.

The average fines markedly decreased in the following municipalities when compared to those of the previous year:—

Municipalities.	1953-54 (1st April to 30th September 1953).		1952-53.	
	RS.		RS.	
Nagapattinam	..	..	36	83
Bodinayakanur	..	..	20	62
Panchayats.				
Arkonam	..	..	40	85
Vayalpad	..	..	11	29
Tiruvur	..	..	10	47

In some local bodies there is some improvement in the average fine, but the average fine for the whole State has gone down to Rs. 31 as compared to Rs. 40 in the previous year.

Highest fine imposed.

The highest fine imposed during the half-year was Rs. 205 at Kodaikanal as against maximum fines of Rs. 300 in the previous year in Coimbatore and Rs. 350 in Nagapattinam.

A maximum of Rs. 200 was imposed in the municipalities of Madurai, Tuticorin, Tenali, Mannargudi, Bapatla and Tiruvallur and the Panchayats of Srivakuntam and Sompeta.

Contribution to
Government
for six months. Fines collected.

<i>Panchayats—cont.</i>	RS.	RS.
Tiruchirappalli district—		
61. Kulittalai	180	80
62. Jayankondan	180	..
63. Musiri	180	..
Tirunelveli district—		
64. Ettayapuram	180	90
65. Kovilpatti	180	20
66. Puliangudi	180	130
67. Tenkasi	180	118
Visakhapatnam district—		
68. Palakonda	180	55
Srikakulam district—		
69. Parvathipur	180	35

VII. WORK FOR OTHER GOVERNMENT DEPARTMENTS.

The various Government Departments from which samples have been sent are given in Table XI below, and in fuller detail in Table XII.

TABLE XI.

	Half-year (1st April to 30th September 1953).	Full year, 1952-53.	
	Total.	Number adulterated or otherwise unsatisfactory.	Total.
1. Government Hospitals	3,286	589	6,187
2. Civil Supplies	183	11	408
3. Government Milk Factory	86	1	183
4. Rationing Department	..	..	11
5. Jails	75	18	119
6. Industries and Commerce	7	..	7
7. Magistrates and Police	12	8	17
8. Other Government Departments	56	13	100
9. Government of India Departments—			
(a) Railways	6	3	9
(b) Regional Food Commissioner.	31	6	41
(c) Deputy Superintendent of Police, Special Police Estab- lishment, Ambala	..	..	20
10. Unofficial sources	35	9	60
Total ..	3,777	658	7,172

TABLE XII.

Number and nature of samples received from various Government departments during the half-year April to September 1953.

	Number of samples sent.	Number adulterated or un- satisfactory.	Number of samples sent.	Number adulterated or un- satisfactory.
(1) Government hospitals.				
Bread	614	44		
Milk	651	84		
Butter	285	109		
Ghee	347	111		
Gingelly oil	414	188		
Coconut oil	107	2		
Dhall	323	33		
Coffee powder	182	4		
Iddlies	17	..		
Rice	2	..		
Brown sugar and jaggery	192	1		
Biscuits	84	7		
Tamarind	11	..		
Arrowroot starch	3	1		
Barley	7	3		
Pepper	9	..		
Washing soda	6	..		
Curry powder	4	2		
Total	3,286	589		
(2) Civil Supplies department.				
Rice	78	2		
Wheat	23	2		
Maida	14	1		
Wheat flour	2	2		
Jowar	7	..		
Atta	2	2		
Semolina	2	2		
Milk powder	2	2		
Milo	4	..		
Corn	1	..		
Millet	1	..		
Cholam	1	..		
Paddy	26	..		
Jowar	1	..		
Wheat	11	..		
Milo	5	1		
Tapioca	1	..		
Total	183	14		
(3) Government Milk Factory.				
Reconstituted milk	77	1		
Skimmed milk powder.	6	..		
Vanaspathi	2	..		
Total	85	1		
(4) Jails.				
Milk	6	..		
Ghee	29	9		
Gingelly oil	30	11		
Dhall	5	..		
Bread	2	..		
Tamarind	2	..		
Total	74	20		
(5) Industries and Commerce.				
Vanaspathi	6	..		
(6) Magistrates and Police.				
Milk	4	1		
Ghee	3	3		
Coffee	1	1		
Milk powder	2	..		
Neem cake	1	..		
Vincent kola	2	..		
Castor cake powder	1	..		
Total	14	5		
(7) Other Government departments.				
Milk	5	1		
Coffee	4	1		
Tea	3	..		
Wheat bran	4	..		
Gingelly oil	4	2		
Milo	2	..		
Cholam and flour	6	5		
Rice	4	1		
Soma grass	1	..		
Seeds (from Australian Sorghum)	1	..		
Milk powder	2	1		
Maida	1	1		
Distilled water	3	..		
"Toddy seeds" (wild date)	1	..		
Indian Chicory	3	3		
Acids	4	2		
Palm gur	1	..		
Red ink	1	1		
"Mottu paruppu"	1	..		
Total	51	18		
(8) Government of India.				
(a) Railways—				
Gram dhall	1	..		
Atta	1	1		
Gingelly oil	1	..		
Onion seeds	1	..		
Coffee seeds	1	1		
Biscuits	1	1		
Total	6	3		
(b) Regional Food Commissioner—				
Wheat	19	16		
Rice	1	1		
Milo	10	8		
Total	30	25		

GOVERNMENT HOSPITALS.

The number of diet articles received for analysis from the Government Hospitals during the half-year was 3,286 as against 6,187 samples during the previous year. The analysis is done with a view to see whether the contractors supply articles according to specifications.

Bread.—Of 614 samples, 44 were reported as unsatisfactory, 40 for excess acidity and 4 for defective baking.

Butter.—The number of samples received was 285 of which 109 were adulterated, 61 with excess water, 30 with foreign fat and 18 with both foreign fat and excess water. One sample contained as much as 70 per cent water. The percentage of foreign fat ranged from 10 to 95 per cent.

Ghee.—Out of 347 samples, 111 were reported as unsatisfactory of which 91 contained foreign fat and 20 had free fatty acid in excess of the permitted limit of 2.5 per cent.

Gingelly oil.—Of 414 samples 188 were reported as unsatisfactory; of these 23 were adulterated with groundnut oil, 4 with safflower oil and 161 had free fatty acid above the permitted limit of 3.0 per cent.

Coconut oil.—Only two out of 107 samples were reported as unsatisfactory for having excessive acidity.

Coffee.—Four out of 182 were adulterated.

Dhall.—Out of 323 samples, 33 were found to be unsatisfactory of which 28 were coloured with coal tar colours, one consisted of Kesari dhall and six were mouldy and infested with weevils.

Biscuits.—Eighty-four samples were received. Seven samples were reported as unsatisfactory because the extracted fat had high acidity.

Milk.—Of 654 samples received, 84 were adulterated; 71 contained added water, 11 were deficient in fat and two contained added water and were also deficient in fat.

Arrowroot.—Out of the three samples received one consisted of East Indian arrowroot.

Barley.—Of seven samples two contained earthy matter and one was adulterated with wheat and ragi.

Curry powder.—Of four samples, two contained sand and one sample was deficient in some of the prescribed ingredients like pepper and cumin.

CIVIL SUPPLIES DEPARTMENT.

Samples of fumigated grains were received from the Department of Civil Supplies to determine the quantity of residual hydrocyanic acid before they were released for human consumption. Two samples of rice contained 135 and 280 parts per million of hydrocyanic acid and the relative stocks were asked to be re-aerated. Some samples of grain were analysed for their moisture content.

GOVERNMENT MILK FACTORY.

Periodic analysis of reconstituted milk samples from the Government Milk Factory was continued to see whether the percentages of fat (Vanaspathi) and solids-not-fat corresponded to those for normal milk. One sample was reported as unsatisfactory.

Six samples of spray dried skimmed milk powder, tested for the Milk Factory, were found to be satisfactory.

The supply of carotenised Vanaspathi to the Milk Factory was discontinued from June 1953.

JAILS.

Seventy-five food samples were received from Jails of which 18 were reported as unsatisfactory. Four ghee samples were adulterated with foreign fat and three samples had high acidity. Eleven samples of gingelly oil were certified as unsatisfactory on account of high acidity.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

All the seven samples of Vanaspathi received from the Director of Industries and Commerce were found to conform to the specifications of the Vegetable Products Control Order, prescribed by the Government of India.

MAGISTRATES AND POLICE.

A total of 12 samples was received from Magistrates of which 6 were for referee analysis.

A sample of castor cake was received for analysis from the Principal Subordinate Judge, Coimbatore. The sample consisted mainly of castor cake but was contaminated with a small proportion of foreign vegetable matter, which, however, did not detract from the value of the cake. Two milk powders were received from the Sub-Magistrate, Kalahasti, of which one was reported as unfit for human consumption and the other was recommended to be used up quickly.

Two samples of kola, one authentic and the other spurious, were received from the Magistrate, Tiruchirappalli. The spurious sample was found to contain no kola and proved to be different from the authentic sample.

OTHER GOVERNMENT DEPARTMENTS.

Three samples of Indian chicory, sent through the Director of Medical Services, at the instance of the India Coffee Board were found to be prepared from wild date and not from genuine chicory root. A sample of palm gur received from the Central Palm Gur Training School, Cuddalore, for estimation of residual formaldehyde, used as preservative, was reported as being free from it. A sample of gingelly oil received from the District Health Officer, Madurai, contained Argemone oil, which is poisonous. Five samples of Australian Sorghum and flour received from the District Medical Officer, Ramanathapuram, were found to contain datura seeds, but some extraneous seeds found in some other consignments of Australian Sorghum sent by the Board of Revenue, Chepauk, were identified as Rozelle seeds (*Hibiscus sabdariffa* L.) which is non-poisonous.

A sample of grass said to have been responsible for high cattle mortality in Razole received from the Veterinary Assistant Surgeon, Razole, did not contain hydrocyanic acid. Further work on the grass was referred to the Veterinary Department. A sample of Maida flour from the Municipal Health Officer, Salem, was reported as unfit for human consumption as it contained 2.5 per cent sand. Two samples of varagu from the Municipal Health Officer, Salem, were found to be of the non-poisonous variety.

GOVERNMENT OF INDIA DEPARTMENTS.

Southern Railway.—A sample of atta was reported as unfit for human consumption as it was mouldy and had a musty smell. A sample of damaged coffee seeds was reported as unfit for human consumption as about 19 per cent had been charred by the action of sulphuric acid. A sample of onion seeds alleged to have been damaged was reported as fit for seedling purposes. A sample of biscuits was reported as unfit for human consumption.

Regional Food Commissioner.—A total of 30 samples (foodgrains, etc.) was received from the Central Storage Depot, Avadi. Eleven were reported as unfit for human consumption as they were mouldy and tunnelled by insects and had a musty smell. Four wheat samples and a sample of milo were reported as fit for cattle and poultry feeds.

VIII. FOOD SAMPLES FROM UNOFFICIAL SOURCES.

TABLE XIII.

Statement showing food samples received from unofficial sources in the half year.

						Number of samples sent.	Number adul- terated or unsatisfactory.
Milk powder	..	..	..	..	..	2	2
Ghee ..	..	..	..	..	..	12	4
Milk ..	..	..	..	..	..	2	2
Curry powder	..	..	..	..	..	1	..
Arrowroot ..	..	..	..	..	..	1	..
Damaged Rice	..	..	..	..	..	1	1
Tea ..	..	..	..	..	..	1	..
Groundnut oil	..	..	..	..	..	1	..
Chicory powder	..	..	..	..	..	1	1
Sugar ..	..	..	..	..	..	3	3
Gunny Bags	..	..	..	..	..	3	3
Sugar and gunny piece	contaminated	by	sea			1	..
water ..	..	..	..	..	..	1	..
Ragi ..	..	..	..	..	..	1	1
Palm oil ..	..	..	..	..	..	1	..
Saccharin ..	..	..	..	..	..	1	..
Total ..						32	17

SAMPLES FROM UNOFFICIAL SOURCES.

Thirty-five samples were received. Two samples of skimmed milk powder contained water insoluble matter in excess and were reported as unfit for human consumption. Two ghee samples were found to be adulterated with foreign fat. Two samples of milk received from the Resident Magistrate, Ambala, Punjab, for referee analysis were certified as being adulterated with 22 per cent and 6 per cent added water respectively.

A sample of damaged rice received from the Sub-Judge, Ootacamund, was contaminated with a viscous oil consisting of castor oil, but was free from any injurious matter.

Three samples of sugar and three samples of gunny covering received from an Insurance Company were reported as contaminated with sea water. Two sugar samples alleged to have been damaged by sea water were received from Lloyds Agents, but they were reported as not having been appreciably damaged.

A sample of palm oil received from the East Asiatic Company, Limited, was reported as not fit for human consumption on account of its high melting point.

SUGGESTION BY HEALTH OFFICER.

One Health Officer (Madurai) suggests the supply of hand cameras so that vendors who are suspected to give doubtful addresses could be snapped, which

would enable the Sanitary Inspectors to easily trace the accused at a later date when summons are taken out.

IX. HIGH COURT JUDGMENTS.

The following are some important judgments delivered by the High Court in food adulteration cases:—

(1) *C.A. No. 831 of 1952—Sale of Dalda Ghee an offence.*—A sample of adulterated ghee was sold as "Dalda Ghee" by a vendor in Anantapur. The Magistrate acquitted the accused upholding the contention of the accused that the article was merely sold as "Dalda Ghee". The High Court quashed the acquittal and convicted the accused as rule 28 prohibits the sale of adulterated ghee "under any description". The following are extracts from the High Court judgment:—

JUDGMENT.

This is an appeal against acquittal preferred by the learned Public Prosecutor in C.C. No. 1325 of 1952 on the file of the Stationary Sub-Magistrate, Anantapur.

2. *The facts are:* The accused Venkatasubbiah runs a retail shop in the first road extensions, Anantapur town. P.W. 1, Govinda Reddi, the Sanitary Inspector of Anantapur, inspected the retail shop on 29th May 1952. He found ghee stored in a brass vessel in the shop of the accused for sale. He purchased 1½ seers of ghee for Re. 0-11-3 and the receipt, Exhibit P-1, passed by this accused for taking the money and handing over the ghee mentions that he had been paid that sum for the purchase of dalda-ghee. Samples of this ghee were taken, and sent to the Government Analyst, King Institute, Guindy. This concoction was found to contain 85 per cent of foreign vegetable oil and 15 per cent of ghee. Sanction has been obtained for prosecuting this accused and he has been put up under section 18 of the Madras Prevention of Adulteration Act read with section 16 of the Madras Public Health Act, 1939.

The case for the accused seems to have been that what he sold was not ghee but dalda and in support of it he examined a neighbour who stated that this accused was only selling dalda and not ghee.

The learned Sub-Magistrate came to the conclusion that the accused was not selling dalda-ghee but only dalda, for the following reasons, namely, that the accused charged only Re. 0-11-3 for 1½ seers whereas in the case of pure ghee it ought to have been at Re. 1-2-0 or Re. 1-3-0 and secondly that the receipt mentions the hyphenated name 'dalda-ghee' and thirdly that D.W. 1 supports the version of the accused.

There cannot be the slightest doubt that the learned Sub-Magistrate has strangely mis-read the evidence and has come to a conclusion which can only be described as manifestly perverse. The accused was not selling dalda pure. On the other hand, Exhibit P-1 which has been passed shows that what he was selling was dalda-ghee probably meaning that it was not cent per cent pure butter-ghee but adulterated with dalda. This would not enable this accused to escape the penal provisions with which he has been charged because rule 28 of the rules framed under the Madras Prevention of Adulteration Act, states:—

"Except as permitted in rule 28-A no person shall sell or have in his possession for the purpose of sale or for use as an ingredient in the preparation of an article of food for sale a mixture of ghee or butter and any substance."

In this case it is precisely such a mixture which has been kept in the shop for sale and which has been seized and purchased by the Inspector. It is idle to contend that people who purchased this dalda used it for frying purposes. Inasmuch as it was offered as ghee with a trace of pure ghee it would have been used only as ghee and thereby the health of the Anantapur public was bound to suffer deleteriously. Consequently the reasoning of the learned Sub-Magistrate, if it can be called reasoning at all, is thoroughly fallacious and the acquittal has got to be and is hereby set aside.

The accused is convicted as charged and taking into consideration all the circumstances he is fined Rs. 15. Time for payment of fine is three weeks from the date of the receipt of this order in the lower court. The Sub-Magistrate should intimate to this court the collection of fine in due course.

(2) *Criminal Revision Case No. 1166 of 1952—Enhancement of fine.*—A jail contractor in a good way of business, who supplied adulterated gingelly oil was fined only Rs. 10 by the Sub-Magistrate. In revision the High Court enhanced the fine to Rs. 75. The following is an extract from the High Court judgment:—

Petition under sections 435 and 439 of the Code of Criminal Procedure, 1898, praying the High Court to revise the judgment of the Court of the Stationary Sub-Magistrate, Tiruvallur, in C.C. No. 920 of 1952.

This case coming on for hearing, upon perusing the petition and the judgment of the lower court, and the record in the case, and upon hearing the arguments of the Public Prosecutor, the petitioner herein, and of Mr. O. Radhakrishnan, advocate for the respondent, the court made the following order:—

Order.

This is a criminal revision preferred by the State for enhancement of the sentence of fine of Rs. 10 in C.C. No. 920 of 1952 on the file of the Stationary Sub-Magistrate, Tiruvallur.

The facts are: The Sub-Magistrate of Poonamallee, testified that the accused was a contractor for the year 1951-52 of the Poonamallee Sub-jail. On 31st January 1952 the Sub-Magistrate visited the sub-jail and found that the gingelly oil supplied by the contractor was such that it required investigation as it smelt of rank groundnut oil. Therefore, he seized the oil supplied, poured it into a bottle and kept it under his custody. Next morning he sent for the Health Inspector of the place who came there at about 10 or 10-30 a.m. The accused was also sent for, and there in the presence of the accused the Sub-Magistrate handed the bottle of oil kept under his custody to the Health Inspector and then went to attend to his work in court. The Health Inspector states that after the bottle of oil was handed over to him by the Sub-Magistrate, he questioned the accused who replied in the presence of the Sub-Magistrate that the oil supplied by him was gingelly oil. Thereupon the Health Inspector took samples and wanted to carry out the procedure prescribed by the Act, but the accused refused to receive one of the sealed bottles and also the cost for the oil seized. The sample was sent to the Chemical Analyst and his report showed that the sample oil contained 90 per cent of groundnut oil and 10 per cent of gingelly oil. Thereupon a case was put up against the accused for an offence under rule 27 (a) read with rule 29 (a), clause (F) of sub-section (2) of the Madras Prevention of Adulteration Act, 1918. His plea was that he supplied oil which he purchased from bazaar, suggesting thereby that the person from whom he had purchased the oil in question should be made liable for the commission of the offence. This accused, in setting up his plea, has overlooked the provisions of section 6 of the Act. The conviction of the accused for the offence with which he stands charged is therefore correct.

The learned Sub-Magistrate who disposed of the case has given a curious ground for imposing a trifling fine of Rs. 10. He says that he had already convicted the same accused for a similar offence with a lesser percentage of groundnut oil, and in view of that, the ends of justice would be met by imposing a fine of Rs. 10. On the other hand a repetition of the same offence should entail a severe penalty. The accused is not a novice but an old hand at the game of supplying adulterated oil to helpless prisoners who have to consume this kind of gingelly oil. This is an attempt to defeat the very purpose for which the rules have been framed to ensure supply of healthy foodstuffs to the under-trial prisoners, and to make huge profits by selling adulterated stuffs at high prices. Therefore this is a case where the punishment should have been proportionate to the gravity of the offence.

I enhance the fine to Rs. 75 and, in default, prescribe simple imprisonment for two weeks.

(3) *C.A. No. 827 of 1952.*—The Sub-Magistrate, Bundar, acquitted a milk depot keeper on flimsy grounds, viz., that the accused was not at the depot when the sample was taken, that the milk sample was not intended for sale and that the Sanitary Inspector did not state whether the milk purchased was cow's or buffalo's. The High Court set aside the order of acquittal and convicted the accused. The following is an extract from the High Court judgment:—

JUDGMENT.

This is an appeal by the State against the order of the Sub-Magistrate, Bundar, acquitting the accused of an offence under rules 27 (1) and 29 (1) of the rules framed under the Madras Prevention of Adulteration Act.

The case for the prosecution was this: The accused runs a milk supply society for which he has a licence from the municipality. About 9 a.m. on 20th March 1952, P.W. 1, one of the Sanitary Inspectors of Bundar Municipality, went to the place of business of the accused and purchased a certain amount of milk from him. For the money he paid, P.W. 1 obtained a receipt, Exhibit P-2. P.W. 1 split the milk which he purchased into three parts. One part he handed over to the accused, a second part he retained in the office of the municipality and the third part he sent to the Government Analyst. The report of the Analyst shows that the milk was diluted with 20 per cent water. P.W. 2, a maistry working under the Sanitary Inspector, confirmed his evidence regarding the purchase of milk from the accused, and its division into parts and other details.

The accused denied the offence. According to him, he was not there at all when the sample was taken. Further the milk in the can from which the Sanitary Inspector took the sample was not intended for sale.

The learned Magistrate took the view that the sale to the Sanitary Inspector was not a sale within the meaning of the Act. He also thought that the milk in respect of which the Government Analyst gave his report may not have been the milk which the Inspector purchased from the accused. It seems to me that his conclusions are manifestly erroneous. The Act does not say that a sale to a Sanitary Inspector or a sale of what is intended to be treated as a sample for submission to the Analyst does not amount to a sale for purposes of the Act. The story of the accused that he was not there is demonstrated to be false by the receipt which he passed for the money paid to him. The theory that the milk sent to the Analyst may have been different from the milk purchased from the accused is a far-fetched one and on the face of it improbable. The plea that the milk of which P.W. 1 took a sample was not intended for sale has not been made out.

An argument was advanced that the evidence for the prosecution does not show whether the milk which the Sanitary Inspector purchased was cow's milk or buffalo's milk. I do not think that this makes any difference under the Act. It is an offence to add water to milk, whether it is cow's or buffalo's milk.

The order of the court below is wrong. I, therefore, allow the appeal and set aside the acquittal of the accused. I convict him of the offence with which he was charged and sentence him to pay a fine of Rs. 25. Time for payment of fine is one month. In default of payment of fine the accused will undergo simple imprisonment for one month.

In matters of this kind it will help the court to determine the proper amount of fine that should be imposed, if the prosecution lets in evidence to show what the volume of business of the person proceeded against is.

(4) *Criminal Revision Case No. 1267 of 1952.*—Fine enhanced for the sale of 100 per cent "Imitation tea". The following is an extract from the High Court judgment:—

Order.—This revision is by the State for enhancement of the sentence passed on the respondent.

The Municipal Health Officer, Tiruppur, filed a complaint against the respondent herein for an offence under section 5 (1) (b) of the Madras Prevention of Adulteration Act of 1918. The case against the respondent is that, on 26th April 1952, in his shop No. 74/16, Eswaran Koil Street, Tiruppur town, he was keeping for sale tea which was not actual tea but foreign leaves which are said to possess the qualities of tea. The leaves were taken and sent to the Public Analyst and, according to the certificate issued by the Analyst, it is clear that the sample contained no percentage of tea at all but consisted entirely of a preparation of foreign leaves. The accused has pleaded 'guilty' to the charge. The lower court has sentenced him only to a fine of Rs. 10.

It is clear from the certificate that what was sold was not tea but some foreign leaves. It is a clear case of cheating the public. The lower court ought to have given him a deterrent sentence in a case of this nature. The sentence appears to be very inadequate.

The sentence of fine is enhanced to Rs. 50. In default, the respondent will undergo simple imprisonment for two weeks. The petition is allowed.

X. ANALYSIS OF DRUGS.

Report for the period 1st April 1953 to 30th September 1953.

Drugs from the following three sources are examined in the Government Analyst's Laboratory:—

(1) *Under the Drugs Act*, taken by Drugs Inspectors from manufacturing concerns. All samples under this category are analysed by the Government Analyst (Drugs) except items in Schedule C which are dealt with by the Assistant Director, Department of Biological Control, who has also been appointed Government Analyst (Drugs Special) for the purpose.

(2) From Government hospitals and other Government institutions. This includes drugs, and stock mixtures prescribed for hospital patients. A new development during the half-year was the seizure by the Police of spurious imitations of well-known patent and proprietary drugs.

(3) From private parties—individuals and firms.

TABLE XIV.

Number and source of drugs analysed in the Government Analyst's Laboratory

	April to September 1953. (First half-year of 1953-54.)	1952-5
Under the Drugs Act	60	92
From Government hospitals and other Government institutions	109	273
From private parties	1	19
Total ..	170	384

During the half-year under review the examination of drugs has made further progress. Not only has there been an increase in the number and variety of samples examined, but precision methods of analysis requiring highly specialised technique, have come to be employed as routine methods in this laboratory; for example, the spectrophotometric determination of Vitamin A, the fluorimetric determination of thiamine and riboflavin and the absorptiometric determination of nicotinic acid, folic acid, etc. The bewildering array of ever

newer pharmaceuticals and proprietaries which is characteristic of the present era in therapeutics poses intricate problems for the Analyst. In the recognized pharmacopoeias chemical assay is fast replacing biological and micro-biological methods of assay and becoming the keystone of drug control, thanks to the chemist's success in elucidating the constitution of many chemotherapeutic agents and antibiotics and synthesising them. It is a matter for satisfaction that our laboratory, although only of recent origin, has kept pace with the latest developments in drug analysis.

Details of the number and nature of drugs analysed during the half-year are furnished in the Table XV.

UNDER THE DRUGS ACT.

TABLE XV.

*Drugs received under the Madras Drugs Rules in 1953-54
(1st half-year.)*

	Total received. (1)	Standard Quality. (2)	Below stan- dard. (3)	Percentage below standard. (4)
Proprietary medicines	22	12	10	45.5
Pharmacopoeial drugs	34	24	10	29.4
Total ..	56	36	20	35.7

TABLE XVI.

Particulars of drugs reported unsatisfactory under Madras Drugs Rules.

Serial number and name of drug. (1)	Ingredients determined. (2)	Strength as declared on label. (3)	Results of analysis. (4)
<i>"A"—Proprietary Drugs.</i>			
1 Liquid Extract of Kamala.	Alcohol	Not declared ..	83.9 per cent sample not labelled as per Rules 101 and 103 (3) of Madras Drugs Rules.
2 Liquid Extract of Shatavari.	Do.	Do.	67.3 per cent sample not labelled as per Rules 101 and 103 (3). Con- travenes Section 18 of Drugs Act and Rule 103 (3) of Drugs Rules.
3 Iodisal .. .. .	.. .. .	.. .. .	.. .. .
4 Oreus Gripe Dil Water.	Sodium Citrate ..	21 gr. per oz. . .	51.2 per cent deficient.
5 Gripe Dil Water.	Sodium Citrate ..	12 gr. per oz. ..	13.1 per cent deficient.
	Liquor Calcis ..	40 min. per oz. .	19.3 per cent deficient.
6 C.B. Complex Tablets.	Vitamin C	29 mg. per tab	100 per cent deficient.
7 Vical Min with D.	Calcium Phosphate.	7 gr. per oz. ..	Do.
8 Muvilux	Nicotinamide ..	100 mg. per oz. .	39.3 per cent deficient.
	Vitamin C	200 mg. per oz. .	77.5 per cent deficient.
9 Jupiter's Bis- muth Co.	Liq. Bismuth et Amm. Citras.	240 min. per oz. .	.. .. .
	Acid Hydrocyanic.	8 min.	100 per cent deficient.
	Chloroform	2 min.	65 per cent deficient.
	Tinct. Nux Vo- mica.	60 min.	92 per cent deficient.
10 Shanti Vitamin B Complex.	Vitamin B 1	25 mg. per oz. .	.. .. .
	Vitamin B 2	7.5 mg. per oz. .	62.1 per cent deficient.
	Nicotinic acid ..	50 mg. per oz. .	.. .. .

TABLE XVII.

Serial number and name of drug.	Ingredients determined.	Strength as per Pharmacopœia.	Result of analysis.
(1)	(2)	(3)	(4)
<i>"B"—Pharmacopœial Drugs.</i>			
1 Olive Oil ..	....	....	100 per cent Arachis oil.
2 Spiritus Aetheris Nitrosi B.P.	Ethyl Nitrite ..	1.25—25 per cent ..	100 per cent deficient.
	Alcohol ..	84 to 87 per cent ..	22.6 per cent deficient.
3 Tinct. Valerianæ B.P.C.	Total Solids ..	2.25 per cent (Calc.)..	98.2 per cent deficient.
	Alcohol ..	55—58 per cent ..	Coal tar dye present.
4 Tinct. Cubeb B.P.C.	Alcohol ..	83—87 per cent ..	11.8 per cent deficient.
5 Tr. Camphor Co. B.P. 1932.	Morphine ..	0.045—0.055 per cent.	
	Benzoic Acid ..	0.5 per cent ..	25.8 per cent deficient.
	Alcohol ..	56—60 per cent ..	
6 Tinct. Ipecac B.P.	Total Alkaloids ..	0.095—0.105 per cent.	15.4 per cent deficient.
	Alcohol ..	20—24 per cent ..	
7 Eucalyptus Oil..	Specific Gravity ..	0.965—0.9155 ..	Specific gravity 0.9294 does not conform to I.P.L.
8 Sodii Citras B.P.	Sodium Citrate ..	Not less than 99 per cent.	86.35 per cent.
9 Liquid Acetas B.P.	Amm. Acetate ..	55—60 per cent ..	4.2 per cent deficient.
10 Tinct. Valerian Simplex B.P.C.	Alcohol ..	55—58 per cent ..	5.6 per cent deficient.

COMMENTS ON SAMPLES RECEIVED UNDER THE DRUGS ACT.

One form of infringement of the Drugs Act was exemplified by the samples "Liquid Extract of Kamala" and "Liquid Extract of Shatavari" hailing from Calcutta and Hyderabad respectively. Names chosen for these drugs suggest that they are listed in pharmacopœias but actually they are not. The samples were certified as not of standard quality under Rule 103 (3) as the composition was not declared and under rule 101 as they contained 83.9 and 67.3 per cent of alcohol which was not declared.

"C.B. Complex Tablets" which purported to contain 20 mg. of vitamin C per tablet, in addition to some vitamins of the B-Complex was found to be totally devoid of vitamin C. Similarly, one of the listed ingredients, Calcium Phosphate (7 gr. per oz.) was totally absent in the proprietary "Vical-Min."

"Iodisal" contravened 106 (1) of the Drugs Rules as it claimed to be a cure for "Syphilitic Affections". In this connection it may be pointed out that attempts to circumvent this important rule for example by the use of the words "indicated in Syphilis" have been frustrated by the amended rule 106 (1) which reads as follows:—

"No drug may purport or claim to prevent or cure, or may convey to the intending user thereof any idea that it may prevent or cure one or more of the diseases or ailments specified in Schedule J."

The proprietary "Oreus Gripe Dill Water" contained 10.2 gr. of Sodium Citrate instead of 21 gr. per ounce as declared on the label. "Gripe Dil Water" contained 10.4 gr. of Sodium Citrate instead of 12 gr. and 32 minims of Liquor

Calcis instead of 40 minims per ounce. There is a spate of these gripe preparations on the market. There is nothing magical about their formulæ, and one is at a loss to understand in what particular they are superior to a prescription drawn by a qualified physician and dispensed by a qualified pharmacist. Apart from that it is really surprising that any concern which lacks the rudimentary technical skill necessary for preparing a sodium citrate solution of desired strength should embark on drug manufacture.

A Vitamin tonic "Muvilux" with an impressive formulæ which included practically all the known vitamins, the latest members of the B-Complex not excepted, was found to contain 60.7 mg. of nicotinamide instead of 100 mg., and 45 mg. of Ascorbic acid instead of 200 mg. Now that synthetic vitamins are available from foreign sources, syrups and tablets containing large numbers of vitamins seem to find favour with manufacturers. It is necessary to sound a note of caution in this connection. The stability of most of the vitamins is dependent on such factors as temperature, access to light, pH and the presence of interfering substances, the last factor requiring further investigation. It is not enough if manufacturers merely make a concoction of known quantities of the vitamins in tablet or syrup form according to their fancy and hope for the best. They should subject their products to periodic check-ups and arrive at the optimum conditions for stability by scientific investigation.

Pharmacopœial drugs.

Eucalyptus oil figured prominently among the samples under this head during the half-year. Nineteen samples were examined for conformity to the specifications of the I.P.L. and only one was found to be non-standard.

A sample of olive oil received from Ootacamund was found to consist entirely of groundnut oil.

Of the alcoholic galenicals analysed during the half-year, mention must be made of a sample of "Spiritus Aetheris Nitrosi" which contained no Ethyl Nitrite at all, and a sample of "Tincture Valerianæ Simplex" B.P.C. which was for all practical purposes, nothing but diluted alcohol coloured with a coal tar dye. It may or may not be a coincidence that both the products emanated from the same source, a firm in Ernakulam but there can be no doubt that the firm was not in the least bothered about the therapeutic value of the preparations in question.

FROM GOVERNMENT HOSPITALS AND OTHER GOVERNMENT SOURCES.

TABLE XVIII.

Showing number of samples received from each hospital or other Government source.

Name of the Institution.	Total.	Standard quality.	Not of Standard quality.
(1)	(2)	(3)	(4)
1 Government General Hospital, Madras ..	7	5	2
2 Government Stanley Hospital, Madras* ..	11	1	9
3 Government Women and Children Hospital, Madras ..	2	2	..
4 Raja Sir Ramaswamy Mudaliar Lying-in Hospital, Madras.	2	..	2
5 T. B. Institute, Madras ..	2	1	1
6 Diagnostic Section, King Institute Guindy, Madras-15 ..	1	1	..
7 Department of Biological Control, King Institute, Guindy, Madras-15† ..	1	1	..
8 Government Headquarters Hospital, Ootacamund ..	17	5	12
9 Government Hospital, Banganspalle ..	1	..	1

* One sample was not analysed.

† Ampoule of Vitamin B-1

TABLE XVIII—cont.

Showing number of samples received from each hospital or other Government source—cont.

Name of the Institution.	Total.	Standard quality.	Not of Standard quality.
(1)	(2)	(3)	(4)
10 King George Hospital, Visakhapatnam *	26	6	15
11 Victoria Hospital for Women and Children, Visakhapatnam†	1	..	..
12 Government Hospital, Eluru ..	4	2	2
13 Government Hospital, Kurnool ..	1	1	..
14 Government Hospital, Kakinada ..	12	4	8
15 Government Headquarters Hospital, Machilipatnam ..	9	1	8
16 Private Secretary to the Chief Minister, Madras† ..	1	1	..
17 Deputy Commissioner of Police, Crime Branch, Madras ..	8	2	6
18 C.I., B.I., Central, Madurai ..	2	1	1
Total ..	108	34	67

Particulars of samples from hospitals and other Government sources reported as unsatisfactory.

Serial number and sample analysed.	Ingredients determined.	Strength as declared.	Result of analysis.
(1)	(2)	(3)	(4)
<i>Government General Hospital, Madras.</i>			
1 Potassium Citrate B.P.	....	....	Does not conform to standards for chloride tartrate and Acidity.
2 Yeast Powder ..	Moisture ..	....	26.2 per cent.
<i>Government Stanley Hospital, Madras.</i>			
3 Atropine Sulphate Hypodermic tablets.	....	....	Does not conform to B.P. Standard for clarity of solution.
4 Mist. Iodide	Pot. Iodide ..	5 grs. per oz.	.. 34 per cent excess.
5 Mist. Quinine Sulph.	Spt. Amm. Aromat. Quinine Sulph ..	10 min. per oz. 5 grs. per oz.	.. 30 per cent deficient .. 20 per cent excess.
6 Mist. Asthmatica.	Amm. Carbonate ..	3 grs. per oz.	.. 100 per cent deficient.
7 Mist. Carminativa.	Sod. Carbonate ..	10 grs. per oz.	.. 17 per cent deficient.
8 Mist. Pot. Iodide	Spt. Amm. Aromat.	10 min. per oz.	.. 40 per cent deficient.
9 Mist. Sod. Salicylas.	Sod. Bicarbonate .. Sod. Salicylate ..	10 grs. per oz. 10 grs. per oz.	.. 62 per cent excess. .. 131 per cent excess.
10 Mist. Ferri Sulph.	Spt. Amm. Aromat. Ferrous Sulph ..	10 min. per oz. 3 grs. per oz.	.. 66 per cent excess. .. 73 per cent deficient.
11 Mist. sod. Salicylas.	Acid Sulph dil Sod. Salicylate ..	10 min. per oz. 10 grs. per oz.	.. 20 per cent deficient. .. 36 per cent excess.
<i>R.S.R.M. Lying-in Hospital, Madras.</i>			
12 Mist. Alkaline Diuretica.	Pot. Citrate ..	15 grs. per oz.	.. 21.3 per cent excess.
13 A.P.C Powder.	Caffeine Citrate .. Aspirin ..	2 grs. per 10 grs. 5 grs. per 10 grs.	.. 48 per cent deficient. .. 14 per cent excess.
<i>Tuberculosis Institute, Madras 8.</i>			
14 P.A.S. Tablets.	Para-amino—salicylic acid.	5 grs. per tab	.. 16 per cent deficient.

* Five samples were not analysed.

† The sample was identified.

‡ A proprietary drug which was examined for Bellafoline Ergotamine tartrate and Phenobarbitone.

Particulars of samples from hospitals and other Government sources reported as unsatisfactory—cont.

Serial number and sample analysed.	Ingredients determined.	Strength as declared.	Result of analysis.
(1)	(2)	(3)	(4)
<i>Government Headquarters Hospital, Ootacamund.</i>			
15 Mist. Sed. Ex-pect.	Pot. Iodide .. Tr. Camphor Co. ..	4 grs. per oz. 40 mins. per oz.	.. 45 per cent excess. .. 57.5 per cent deficient.
16 Mist. Alkaline Diuretica.	Sodi Citrate .. Sodi Bicarb ..	20 grs. per oz. 20 grs. per oz.	.. 103 per cent excess. .. 34 per cent deficient.
17 Mist. Asthmatica.	Amm. Carbonate ..	6 grs. per oz.	.. 20 per cent excess.
18 Mist. Stim. Ex-pect.	Amm. Carbonate ..	10 grs. per oz.	.. 18 per cent excess.
19 Mist. Pot. Iodide	Pot. Iodide .. Sodi Bicarb. ..	20 grs. per oz. 20 grs. per oz.	.. 29.5 per cent deficient. .. 31.5 per cent deficient.
20 Mist. Sed Ex-pect.	Spt. Amm. Aromat. Soda Bicarb ..	20 min. per oz. 6 grs. per oz.	.. 38.0 per cent deficient. .. 24.0 per cent excess.
21 Mist. Asthmatica	Tr. Camphor Co. .. Amm. Carb ..	40 min. per oz. 6 grs. per oz.	.. 24.0 per cent deficient. .. 18.3 per cent excess.
22 Mist. Asthmatica	Pot. Bromide .. Pot. Iodide ..	20 grs. per oz. 3 grs. per oz.	.. 18.5 per cent deficient. .. 33.3 per cent excess.
23 Mist. Diaphoretica.	Amm. Carbonate .. Liq. Amm. Acetatis.	5 grs. per oz. 15 min. per oz.	.. 28.0 per cent excess. .. 13.0 per cent excess.
24 Mist. Acid Tonic.	Acid Nitro-hydrochloric.	20 min. per oz.	.. 18.0 per cent deficient.
25 Mist. Stim. Ex-pect.	Amm. Carbonate ..	10 grs. per oz.	.. 23.0 per cent deficient.
26 Mist. Diaphoretica.	Spt. Amm. Aromat. Spt. Aeth. Nitrosi.	20 min. per oz. 20 mins.	.. 900.0 per cent excess. .. 40.0 per cent deficient.
<i>Government Hospital, Banganapalle.</i>			
27 Mist. Quinine Sulphas.	Quinine Sulphate .. Acid Sulph dil ..	5 grs. per oz. 5 min. per oz.	.. 20.0 per cent deficient. .. 148.0 per cent excess.
28 Mist. Infant Ipeacae.	Amm. Carbonate ..	8 grs. per oz.	.. 21.3 per cent excess.
29 Mist. Diaphoretica.	Pot. Citrate .. Pot. Acetate ..	20.0 grs. per oz. 20 grs. per oz.	.. 20.0 per cent deficient. .. 18.0 per cent deficient.
30 Mist. Asthmatica	Amm. Bromide .. Spt. Amm. Aromat.	10 grs. per oz. 10 M. per oz.	.. 21.0 per cent deficient. .. 30.0 per cent deficient.
31 Mist. Quinine Sulph.	Quinine Sulphate ..	7½ grs. per oz.	.. 15.8 per cent deficient.
32 Mist. Quinine Sulph.	Quinine Sulphate .. Ferrous Sulphate ..	2 grs. per oz. 2 grs. per oz.	.. 15.0 per cent deficient. .. 85.0 per cent excess.
33 Mist. Ferri et Amm. Citras.	Acid hydrochlor dil. Iron and Amm. Citrate.	10 mins. per oz. 30 grs. per oz.	.. 28.0 per cent deficient. .. 21.0 per cent deficient.
34 Vit. B. Complex Tabs.	Vitamin Bl.	5 mg per tab	.. 41.4 per cent excess.
35 Mist. Quinine Sulph.	Quinine Sulphate .. Acid Sulphate dil ..	7.5 grs. per oz. 10 mins. per oz.	.. 32.0 per cent deficient. .. 70.0 per cent excess.
36 Mist. Sed. Ex-pect.	Pot. Iodide ..	5 grs. per oz.	.. 100.0 per cent deficient.
37 Mist. Sodi Salicylas.	Soda Bicarbonate ..	5 grs. per oz.	.. 18.0 per cent excess.
38 Vit. B. Complex Tabs.	Vitamin Bl.	5 mg. per tab	.. 76.0 per cent deficient.
39 Potassium Citrate.	....	Does not pass B.P.	..
40 Mist. Quinine Sulph.	Quinine Sulphate .. Acid Sulph dil ..	7.5 grs. per oz. 10 M. per oz.	.. 14.7 per cent deficient. .. 76.0 per cent excess.
41 Mist. Sodi Salicylas.	Sod. Salicylate ..	10 grs. per oz.	.. 19.0 per cent excess.
42 Mist. Sed Ex-pect.	Pot. Iodide .. Sod. Bicarb ..	5 grs. per oz. 15 grs. per oz.	.. 24.0 per cent deficient. .. 38.0 per cent deficient.

Particulars of samples from hospitals and other Government sources reported as unsatisfactory—cont.

Serial number and sample analysed. (1)	Ingredients determined. (2)	Strength as declared. (3)	Result of analysis. (4)
<i>Government Headquarters Hospital, Eluru.</i>			
43 Mist. Pot Iodide.	Spt. Amm. Arom ..	10 min. per oz.	.. 26 per cent excess.
44 Mist. Ferri et Strychnine.	Tr. Ferri Perchlor.	5 min. per oz.	.. 110 per cent excess.
<i>Government Headquarters Hospital, Kakinada.</i>			
45 Mist. Triple Sulph.	Quinine Sulphate ..	4 grs. per oz.	.. 40 per cent deficient.
	Ferrous Sulphate ..	2 grs. per oz.	.. 270 per cent excess.
46 Mist. Alakline Diuretica.	Pot. Bicarbonate ..	20 grs. per oz.	.. 19 per cent deficient.
	Sodi citrate ..	20 grs. per oz.	.. 25.5 per cent deficient.
47 Mist. Carminative.	Soda Bicarb ..	20 grs. per oz.	.. 14.5 per cent deficient.
	Spt. Amm. Aromat.	15 min. per oz.	.. 14.6 per cent deficient.
48 Mist. Quinine Sulph.	Quinine Sulphate ..	5 grs. per oz.	.. 44.0 per cent deficient.
	Acid Sulph dil ..	10 min. per oz.	.. 126 per cent excess.
49 Mist. Ferri et Strychnine.	Liq. Ferri perchlor.	10 min. per oz.	.. 18 per cent deficient.
	Acid Nitrohydrochlor.	10 min. per oz.	.. 82 per cent deficient.
50 Mist. Asthmatica.	Amm. Carbonate ..	5 grs. per oz.	.. 40 per cent excess.
51 Mist. Diaphoretica.	Pot. Nitrate ..	10 grs. per oz.	.. 24 per cent deficient.
	Spt. Aeth. Nitrosi ..	10 min. per oz.	.. 41 per cent excess.
52 Mist. Alkaline Diuretica.	Pot. Bicarbonate ..	10 grs. per oz.	.. 21 per cent deficient.
	Pot. Citrate ..	10 grs. per oz.	.. 40 per cent excess.
<i>Government Headquarters Hospital, Machilipatnam.</i>			
53 Mist. Sodi Salicylas.	Sod. Salicylate ..	10 grs. per oz.	.. 17 per cent deficient.
	Sod. Bicarbonate ..	5 grs. per oz.	.. 16 per cent deficient.
54 Mist. Diaphoretica.	Pot. Nitrate ..	5 grs. per oz.	.. 54 per cent deficient.
	Amm. Carbonate ..	5 grs. per oz.	.. 38 per cent deficient.
55 Mist. Asthmatica.	Sod. Bromide ..	5 grs. per oz.	.. 30 per cent deficient.
56 Mist. Alkaline Diuretica.	Sod. Citrate ..	10 grs. per oz.	.. 16 per cent deficient.
	Sod. Bicarb ..	10 grs. per oz.	.. 17 per cent excess.
57 Mist. Quinine Sulph.	Acid Sulph dil ..	10 min. per oz.	.. 55 per cent excess.
58 Mist. Quinine Sulph.	Acid Sulph dil ..	10 min. per oz.	.. 61 per cent excess.
59 Mist. Alakline Diuretica.	Sod. Citrate ..	10 grs. per oz.	.. 13 per cent deficient.
	Sod. Bicarb ..	10 grs. per oz.	.. 39 per cent excess.
60 Mist. Alkaline Belladonna.	Soda Bicarb ..	10 grs. per oz.	.. 18 per cent excess.

Deputy Commissioner of Police, Crime Branch, Madras.

61 to 63—Three samples of "Saridon" tablets suspected to be spurious were analysed and found to consist entirely of aspirin.

64 to 66—Three samples of "Anacin" tablets suspected to be spurious were analysed and found to consist entirely of aspirin.

G. I., B. I. Central, Madurai.

67 —One sample of "Saridon" tablets suspected to be spurious was analysed and found to consist entirely of aspirin.

The proportion of incorrectly dispensed hospital mixtures continued to be high as in previous years. If the samples sent to this laboratory are representative of dispensing standards obtaining in Government Hospitals, the matter requires enquiry and strong action.

Of the samples in which there was serious deficiency of active ingredients special mention must be made of two in which the declared constituents were not present at all. They were a Mist. Sed. Expectorant from the King George

Hospital, Visakhapatnam, in which Potassium Iodide was absent and Mist. Asthmatica from the Government Stanley Hospital, Madras, in which there was no trace of the ingredient Ammonium Carbonate.

No less objectionable have been samples in which certain drugs have been present in very large excess, twice, thrice, four times, and in one case, ten times the prescribed quantity. A sample of Mist. Sodi Salicylas from the Government Stanley Hospital contained 23 grains of Sodium Salicylate instead of 10 grains. The other ingredients in this mixture were also dispensed in generous measure. A Triple Sulphate Mixture from the Kakinada Hospital contained 7.4 grains of Ferrous Sulphate instead of 2 grains. Sodium Citrate was present to the extent of more than 40 grains per ounce instead of 20 grains in an Alkaline Diuretic mixture from the Headquarters Hospital, Ootacamund. A Mist Asthmatica from the same hospital contained more than three times the stated quantity, 6 grains per ounce, of Ammonium Carbonate. A Mist. Diaphoretica from the Ootacamund Hospital contained 200 minims of Spt. Amm. Arom. per ounce instead of 20 minims.

Of special interest this year, is the analysis of spurious drugs and cosmetics sent by the Police and Magistrates. A sample of Saridon tablets received from the Madurai Police, three samples of Saridon and three samples of Anacin tablets from the Commissioner of Police, Crime Branch, Madras, were analysed. The samples of Saridon were all found to be spurious, consisting wholly of acetylsalicylic acid.

S. NARAYANA AYYAR,
Government Analyst.

KING INSTITUTE, GUINDY, MADRAS-15,
Dated 18th November 1954.

APPEN

Number of samples received and found adulterated from municipalities during the period from 1st April

Serial number and name of district.			Percentage of adulterated.	Milk.		Ghee.		Butter.		Gingelly oil.	
	Total.	Adulterated.		Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1 Anantapur ..	221	110	49.7	113	69	21	13	..	..	..	..
2 North Arcot ..	322	141	43.7	232	119	16	4	4	3	22	1
3 South Arcot ..	330	125	37.8	220	102	12	3	13	10	29	1
4 Bellary ..	229	116	50.6	111	68	15	14	22	12	5	..
5 Coimbatore ..	543	313	57.6	375	265	41	16	22	12	18	1
6 Chingleput ..	253	123	47.6	146	101	14	6	5	5	36	2
7 Chittoor ..	264	121	45.8	175	105	15	4	1	..	12	1
8 Cuddapah ..	194	80	41.2	81	52	40	15	..	..	8	2
9 East Godavari.	462	272	58.8	289	221	33	23	5	4	32	1
10 West Godavari.	286	166	58.0	164	125	36	23	10	6	16	3
11 Guntur ..	457	222	48.5	177	146	52	21	47	26	27	1
12 South Kanara.	154	67	43.5	103	58	6	3	2	..	10	..
13 Krishna ..	371	217	58.4	209	153	31	19	15	13	31	4
14 Kurnool ..	153	74	48.3	73	47	19	11	..	..	3	3
15 Mathurai ..	1,038	293	28.2	583	213	29	12	27	16	108	2
16 Malabar ..	316	138	43.6	186	114	16	2	4	1	15	..
17 Nellore ..	226	101	44.6	132	84	27	13	..	..	17	..
18 Nilgiris ..	206	284	40.7	116	54	8	3	3	1	6	..
19 Ramanathapuram ..	475	195	41.0	330	155	12	6	1	1	41	4
20 Salem ..	342	178	52.0	280	165	5	2	..	..	12	..
21 Tanjore ..	551	260	47.1	436	285	17	5	13	11	52	3
22 Tiruchirappalli.	444	179	40.3	304	142	12	4	4	2	36	2
23 Tirunelveli ..	581	312	53.7	450	263	28	16	6	4	25	..
24 Visakhapatnam ..	492	212	43.0	354	196	8	3	8	6	36	1
Total ..	8,915	4,099	46	5,639	3,252	513	241	212	133	597	32

DIX A.

and panchayat boards working the Madras Prevention of Adulteration Act to 30th September 1953.

Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
8	..	..	..	28	9	2	..	6	..	37	17	6	2
20	2	9	1	14	7	..	..	2	2	2	2	1	..
13	..	3	..	22	8	11	..	..	..	..	..	7	1
19	1	7	1	26	12	1	..	2	..	15	7	6	1
4	..	9	1	30	5	20	4	2	..	6	2	16	7
14	..	5	1	23	5	3	..	1	..	5	..	6	3
10	..	8	..	11	3	..	..	2	1	29	7	1	..
4	1	7	..	20	..	1	..	7	..	23	9	3	1
22	..	12	..	26	6	..	..	2	..	29	10	12	7
10	..	5	..	13	..	..	..	3	..	18	5	11	4
30	..	27	1	37	10	1	..	12	..	25	8	22	9
9	..	..	..	16	5	4	..	..	..	2	1	2	..
12	..	13	1	23	12	1	..	1	..	24	8	11	7
13	..	2	..	21	6	..	..	4	1	7	2	11	4
82	..	15	4	114	29	16	..	17	1	25	4	22	12
19	..	1	1	8	5	31	..	6	4	26	10	4	1
20	..	7	1	5	..	1	..	2	..	9	1	6	2
..	..	1	1	34	11	5	..	9	2	19	10	5	2
21	1	1	..	37	15	2	..	3	..	18	12	9	1
8	..	3	1	13	7	..	..	13	1	6	2	2	..
8	..	5	..	10	3	2	..	3	3	3	..	2	..
17	1	7	1	28	14	4	..	6	2	1	1	25	10
9	..	1	..	30	15	6	..	..	..	19	10	7	4
27	..	24	2	12	..	1	..	..	..	15	2	7	2
399	6	172	17	601	187	112	4	103	17	363	130	204	80

APPEND

Number of samples received and found adulterated from municipalities during the period from 1st April

Serial number and places.	(1)	Annual quota samples.	Grand total.			Milk.		Ghee.		Butter.	
			Total.	Adulterated.	Percentage adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
1. Anantapur district.											
1 Anantapur .. M.	72	36	22	61	28	20	2	1	..	..	
2 Hindupur .. M.	72	34	14	41	11	6	..	..	..	..	
3 Guntakal .. M.	48	20	17	85	15	13	4	4	..	..	
4 Tadpatri .. M.	48	24	13	54	5	3	2	2	..	..	
5 Dharmavaram .. Pt.	48	18	8	44	2	2	2	1	..	..	
6 Gooty .. Pt.	48	24	13	54	21	12	..	..	..	..	
7 Kadiri .. Pt.	48	20	9	45	18	7	..	..	..	..	
8 Penukonda .. Pt.	48	21	8	38	13	6	8	2	..	..	
9 Uravakonda .. Pt.	48	24	6	25	..	..	3	3	..	..	
Total ..	221	110	50	113	69	21	13	..	..		
2. North Arcot district.											
10 Vellore .. M.	144	71	30	42	48	22	5	..	4	3	
11 Tiruvannamalai .. M.	72	36	23	64	33	22	2	..	..	..	
12 Tiruppattur .. M.	48	23	5	21	18	4	2	..	..	..	
13 Gudiyattam .. M.	48	24	3	13	10	..	..	..	..	..	
14 Vaniyambadi .. M.	48	24	12	50	22	11	..	..	..	..	
15 Walajapet .. M.	48	23	7	30	11	6	..	..	..	..	
16 Ambur .. M.	48	23	14	61	16	12	3	2	..	..	
17 Arni .. M.	48	24	10	41	13	7	3	1	..	..	
18 Arcot .. Pt.	48	25	28	32	23	8	..	..	..	..	
19 Arkonam .. Pt.	48	25	19	76	21	17	1	1	..	..	
20 Ranipet .. Pt.	48	24	10	42	17	10	..	..	..	..	
Total ..	322	141	44	232	119	16	4	4	4	3	
3. South Arcot district.											
21 Cuddalore .. M.	144	72	23	32	51	21	6	..	1	1	
22 Chidambaram .. M.	96	49	14	28	18	10	3	1	4	2	
23 Villupuram .. M.	96	44	13	29	25	12	..	..	..	..	
24 Tindivanam .. M.	48	24	10	83	18	10	..	..	..	..	
25 Bhuvanagiri .. Pt.	48	17	8	47	11	4	..	..	5	4	
26 Kallakurichi .. Pt.	48	24	8	33	24	8	..	..	..	..	
27 Nellikuppam .. Pt.	48	24	4	17	14	1	1	..	..	..	
28 Panruti .. Pt.	48	30	14	46	26	13	1	1	..	..	
29 Tirukkoyilur .. Pt.	48	20	11	55	16	8	..	..	..	..	
30 Vriddhachalam .. Pt.	48	26	20	77	17	15	1	1	3	3	
Total ..	330	125	38	220	102	12	3	13	10		
4. Bellary district.											
31 Bellary .. M.	144	73	39	53	37	25	4	4	4	2	
32 Adoni .. M.	96	48	23	48	11	17	4	4	8	5	
33 Hospet .. M.	96	48	21	44	25	15	1	1	3	..	
34 Harpanahalli .. M.	48	16	11	69	8	5	1	1	7	5	
35 Rayadrug .. Pt.	48	19	7	37	10	5	..	..	..	..	
36 Yemmiganur .. Pt.	48	25	15	60	20	11	5	4	..	..	
Total ..	229	116	60	68	68	15	14	22	12		

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act to 30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
..	..	2	..	..	..	2	..	1	..	..	..	3	1	..	..
..	..	..	..	..	..	4	..	..	..	2	..	13	6	2	2
..	..	1	..	..	..	1	..	..	..	..	..	9	6	1	..
..	..	2	..	..	..	6	2	..	..	..	..	1	..	1	..
..	..	..	..	..	..	1	1	..	..	..	..	2	2	..	..
..	..	..	..	..	..	..	..	..	..	..	..	8	2	1	..
..	..	3	..	..	..	4	1	1	..	4	..	..	..	..	..
..	..	8	..	..	..	28	9	2	..	6	..	37	17	6	2
2	..	3	..	2	1	5	3	..	..	..	..	1	1	1	..
..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	1	1	..	..	..	..
4	..	5	..	1	..	2	1	..	..	1	1	1	1	..	..
..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..
8	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..
1	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..
1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
3	1	2	..	..	..	3	1	..	..	..	..	..	..	..	..
1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
2	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
1	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..
22	1	20	2	9	1	14	7	..	..	2	2	2	2	1	..
9	..	..	..	..	..	5	1	..	..	..	..	..	..	..	..
9	..	2	..	..	..	5	1	4	..	..	..	..	..	4	..
6	..	5	..	2	..	3	1	3	..	..	..	..	..	..	..
2	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
1	..	2	..	..	..	6	3	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
1	1	..	..	..	..	3	2	..	..	..	..	..	..	2	1
..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..
29	1	12	..	3	..	22	8	11	..	..	..	..	..	7	1
3	..	5	..	1	..	9	2	1	..	1	..	6	5	2	1
1	..	7	..	4	..	8	7	..	..	1	..	1	..	3	..
..	..	3	..	2	1	6	2	..	..	..	..	7	2	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	4	1	..	..	3	1	..	..	..	..	1	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	19	1	7	1	26	12	1	..	2	..	15	7	6	1

APPENDIX

Number of samples received and found adulterated from municipalities during the period from 1st April

Serial number and places.	(1)	Annual quota of samples.	Grand total.			Milk.		Ghee.		Butter.	
			(3) Total.	(4) Adulterated.	(5) Percentage adulterated.	(6) Total.	(7) Adulterated.	(8) Total.	(9) Adulterated.	(10) Total.	(11) Adulterated.
5. Coimbatore district.											
37 Coimbatore .. (M)		288	151	86	57	68	51	36	14	21	11
38 Erode .. (M)		96	48	26	54	38	24	3	1	..	..
39 Pollachi .. (M)		120	66	34	57	48	35	..	..	..	..
40 Tiruppur .. (M)		96	56	30	53	50	28	..	..	..	..
41 Udumalpet .. (M)		96	48	24	50	35	24	..	..	..	..
42 Dharapuram .. (M)		48	19	10	52	12	9	..	..	..	..
43 Mettupalayam. (M)		48	39	26	66	29	25	1	1	..	..
44 Gobichettipalayam. (M)		48	24	24	100	23	23	..	..	..	..
45 Avanashi .. (P)		48	26	20	77	25	19	..	..	1	1
46 Bhavani .. (P)		48	22	6	27	12	5	..	..	..	..
47 Kurichi .. (P)		48	18	4	22	12	3	..	..	..	..
48 Satyamangalam. (P)		48	26	9	73	23	19	1	..	..	..
Total ..			543	313	58	375	265	41	16	22	12
6. Chingleput district.											
49 Kanchepuram. (M)		144	96	54	56	66	50	3	1	2	2
50 Chingleput .. (M)		48	24	9	37	7	6	3	1	1	1
51 Tiruvallur .. (M)		48	27	18	66	14	13	3	3	..	..
52 Alandoor .. (P)		48	24	13	54	17	11	1	..	2	2
53 Maduranthakam. (P)		48	27	9	33	13	5	2	1	..	..
54 Poonamallee .. (P)		48	18	5	28	11	4	1	..	..	..
55 Tiruvotthiyur .. (P)		48	24	8	33	9	6	..	..	..	..
56 Sriperumbudur. (P)		..	18	7	39	9	6	1	..	..	..
Total ..			258	123	48	146	101	14	6	5	5
7. Chittoor district.											
57 Chittoor .. (M)		48	16	6	38	9	4	3	1	..	..
58 Tirupati .. (M)		48	24	12	50	17	11	1	..	1	..
59 Kalahasti .. (P)		48	24	13	54	17	12	1	1	..	..
60 Kuppam .. (P)		48	23	13	56	17	13	4	..	..	..
61 Madanapalle .. (P)		48	24	8	33	15	5	2	2	..	..
62 Madanapalle (Sanatorium). (P)		48	28	18	64	25	17	..	..	..	..
63 Palmaner .. (P)		48	24	6	25	9	2	..	..	..	..
64 Punganur .. (P)		48	23	11	48	15	9	..	..	..	..
65 Puttur .. (P)		48	24	8	33	11	7	1	..	..	..
66 Tirumalai Hills (P)		48	8	..	..	44	..	..	..	..	..
67 Tiruttani .. (P)		48	28	21	75	26	21	..	..	..	..
68 Vayalpad .. (P)		48	18	5	28	10	4	3	..	..	..
Total ..			264	121	46	175	105	15	4	1	..
8. Cuddapah district.											
69 Cuddapah .. (M)		96	46	31	67	31	23	8	3	..	..
70 Proddatur .. (M)		72	39	8	20	11	7	12	1	..	..
71 Badvel .. (P)		48	24	13	54	11	9	2	2	..	..
72 Jammalamadugu. (P)		48	23	8	35	..	..	14	8	..	..
73 Pulivendla .. (P)		48	24	4	17	3	..	1	..	..	..
74 Rajampet .. (P)		48	20	9	45	10	7	..	..	..	..
75 Rayachoti .. (P)		48	18	7	39	15	6	3	1	..	..
Total ..			194	80	46	91	52	40	15	..	..

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act to 30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
2	..	..	..	3	..	2	1	..	..	..	..	3	2	16	7
3	..	..	..	..	..	2	1	1	..	1	..	..	..	..	..
4	..	..	..	..	..	9	2	5	1	..	..	..	..	..	..
2	..	..	..	..	..	..	..	4	2	..	..	..	..	..	..
1	..	2	..	..	..	6	..	4	..	..	..	..	..	..	..
1	..	1	..	3	1	..	..	1	..	..	..	1	..	..	..
2	..	..	..	..	..	3	..	4	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	1	..	3	..	4	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	4	1	..	..	1	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
18	1	4	..	9	1	30	5	20	4	2	..	6	2	16	7
10	..	3	..	..	..	11	1	..	..	..	..	1	..	..	..
7	..	1	..	..	..	2	1	3	..	..	..	..	..	..	..
4	..	..	..	..	..	1	1	..	..	..	..	3	..	2	1
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	3	..	..	..	6	1	..	..	..	..	..	..	2	2
3	1	2	..	1	..	..	..	..	..	..	..	..	..	..	..
5	1	5	..	3	..	2	1	..	..	..	..	..	..	..	..
2	..	..	..	1	1	1	..	..	..	1	..	1	..	2	..
36	2	14	..	5	1	23	5	3	..	1	..	5	..	6	3
2	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..
3	1	1	..	..	..	1	..	..	..	..	..	1	..	..	..
2	..	1	..	1	..	1	..	..	..	..	..	1	..	..	..
1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	3	..	2	..	2	1	..	..	1	..	8	4	..	..
1	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..
1	..	1	..	..	..	..	..	..	..	..	..	10	1	..	..
1	1	..	..	..	..	1	..	..	..	..	..	2	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
1	..	1	..	..	..	1	..	..	..	..	..	2	1	..	..
12	2	10	..	8	..	11	3	..	..	2	1	29	7	1	..
2	2	1	..	..	..	1	..	..	..	..	..	2	2	1	1
2	..	1	..	..	..	11	..	..	..	2	..	..	..	..	..
..	..	1	..	3	..	1	..	1	..	..	..	4	2	1	..
..	..	..	..	1	..	3	..	..	..	2	..	3	..	..	..
3	..	..	..	1	..	4	..	..	..	2	..	9	4	1	..
1	..	1	1	2	..	..	..	..	..	1	..	5	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	2	4	1	7	..	20	..	1	..	7	..	23	9	3	1

APPEN

Number of samples received and found adulterated from municipalities during the period from 1st April

Serial number and places.	(1)	Annual quota of samples.	(2)	Grand total.			Milk.		Ghee.		Butter.	
				(3) Total.	(4) Adulterated.	(5) Percentage adulterated.	(6) Total.	(7) Adulterated.	(8) Total.	(9) Adulterated.	(10) Total.	(11) Adulterated.
9. East Godavari district.												
76 Kakinada .. (M)		288	143	93	65	93	83	10	5	..	..	
77 Rajahmundry. (M)		216	98	67	69	53	46	17	15	3	2	
78 Peddapuram .. (M)		72	36	20	55	22	15	2	1	..	..	
79 Amalapuram .. (M)		66	50	26	52	34	23	2	2	..	..	
80 Mandapeta .. (P)		48	24	17	70	9	9	..	..	2	2	
81 Pithapuram .. (P)		48	24	12	50	13	11	..	..	..	..	
82 Samalkot .. (P)		48	24	14	58	20	12	..	..	..	..	
83 Ramachandra- puram (P)		48	23	5	21	14	5	2	..	..	..	
84 Razole .. (P)		48	23	7	30	17	7	..	..	..	..	
85 Tuni .. (P)		48	17	11	65	14	10	..	..	..	..	
Total ..			462	272	59	281	221	33	23	5	4	
10. West Godavari district.												
86 Eluru .. (M)		144	72	38	53	43	28	8	7	2	1	
87 Bhinavaram .. (M)		48	25	16	64	17	14	2	2	2	..	
88 Palacole .. (M)		48	24	16	66	9	8	9	8	..	..	
89 Akividu .. (P)		48	24	6	25	6	4	4	4	..	..	
90 Kovvur .. (P)		48	25	21	84	17	16	2	2	2	2	
91 Narasapur .. (P)		48	24	16	66	19	13	5	3	..	..	
92 Nidadavole .. (P)		48	24	18	75	15	13	..	..	3	2	
93 Polavaram .. (P)		48	24	9	37	4	4	3	1	..	..	
94 Tadepalligudem (P)		48	20	17	85	16	10	1	..	1	1	
95 Tanuku .. (P)		48	24	9	38	18	9	2	..	..	..	
Total ..			236	166	58	164	125	36	23	10	6	
11. Guntur district.												
96 Guntur .. (M)		288	144	59	41	64	43	21	10	8	2	
97 Ongole .. (M)		96	49	24	48	20	19	12	2	1	1	
98 Chirala .. (M)		96	48	26	54	20	18	..	..	15	6	
99 Tenali .. (M)		96	46	32	69	26	25	..	..	8	5	
100 Narasaraopet .. (M)		48	24	9	38	3	3	..	..	1	..	
101 Bapatla .. (M)		48	23	11	48	7	4	9	3	3	2	
102 Mangalagiri .. (P)		48	23	12	52	7	7	4	3	1	..	
103 Ponnur .. (P)		36	23	12	52	6	6	2	1	1	1	
104 Nidubrolu .. (P)		24	8	6	75	2	2	..	..	2	2	
105 Repalle .. (P)		48	24	12	50	8	6	1	1	3	3	
106 Sattenapalle .. (P)		48	22	9	40	7	7	..	..	2	2	
107 Vetapalem .. (P)		48	23	10	43	7	6	3	1	2	2	
Total ..			457	222	48	177	146	53	21	47	26	
12. South Kanara district.												
108 Mangalore .. (M)		216	103	38	35	67	32	5	2	2	..	
109 Udipi .. (M)		48	22	13	59	20	13	..	..	..	..	
110 Kasaragod .. (P)		48	24	16	67	16	13	1	1	..	..	
Total ..			154	67	44	103	58	6	3	2	..	

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act to 30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
13	1	12	..	2	..	5	..	..	..	..	..	5	2	3	2
5	..	5	..	1	..	12	4	..	..	..	..	3	..	2	..
1	..	..	..	3	..	1	..	..	..	..	..	9	1	4	4
..	..	2	..	..	..	3	..	..	..	..	..	6	3	1	1
3	..	..	..	4	..	3	2	..	..	..	..	2	1	..	..
3	..	2	..	..	..	..	..	..	..	..	..	2	2	..	..
1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	2	..	..	..	2	..	..	..	1	..
4	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	1	1	1	..
32	1	22	..	12	..	26	6	..	..	..	..	10	12	7	..
9	2	1	..	2	..	2	..	..	..	..	..	..	..	2	..
1	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..
1	..	1	..	2	..	2	..	..	..	..	..	..	..	2	..
1	1	1	..	..	..	3	..	..	..	..	..	5	1	..	..
..	..	..	..	..	..	2	..	..	..	..	..	2	1	..	..
2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
1	..	5	..	1	..	2	..	..	..	..	..	..	..	4	4
1	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
16	3	10	..	5	..	13	..	..	..	..	..	18	5	11	4
13	..	10	..	6	..	8	4	..	..	2	..	5	..	7	..
2	..	1	..	6	..	3	1	1	..	..	..	2	1	1	..
..	..	1	..	1	..	1	..	..	..	3	..	4	..	3	2
2	..	2	..	3	1	4	1	..	..	..	..	..	..	1	..
2	..	2	..	4	..	2	..	..	..	1	..	7	5	2	1
2	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
1	..	..	..	1	..	5	..	..	..	..	..	1	..	3	2
2	..	1	..	2	..	2	..	..	..	..	..	2	..	5	4
2	1	1	..	..	..	..	..	..	..	..	..	1	1	..	..
1	..	2	..	..	..	8	2	..	..	..	..	..	..	..	..
..	..	6	..	4	..	..	..	..	..	..	..	..	..	..	..
..	..	4	..	..	..	2	..	..	..	..	..	1	1	..	..
27	1	30	..	27	1	37	10	1	..	12	..	25	8	22	9
8	..	8	..	..	..	13	3	3	..	..	..	2	1	..	..
2	..	1	..	..	..	2	2	1	..	..	..	..	..	1	..
10	..	9	..	..	..	16	5	4	..	..	..	2	1	2	..

APPENDIX

Number of samples received and found adulterated from municipalities
from 1st April to 30th September 1953—cont.

Serial number and places.	(1)	Annual quota of samples.	Grand total.			Milk.		Ghee.		Butter.	
			Total.	Adulterated.	Percentage adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
13. Krishna district.											
111 Vijayavada .. (M)	360	179	112	62	119	86	16	7	8	7	7
112 Masulipatnam .. (M)	144	72	45	62	42	31	4	3	4	3	3
113 Gudivada .. (M)	96	47	24	51	23	13	3	3	3	3	3
114 Avanigada .. (P)	48	19	8	42	5	5	2	1	..	..	..
115 Jaggayyapeta .. (P)	48	18	12	66	10	9	2	1	..	..	..
116 Nuzvid .. (P)	48	19	9	47	7	5	4	4	..	..	..
117 Tiruvur .. (P)	48	17	7	41	3	2	..	..	..	..	..
Total ..		371	217	58	209	153	31	19	15	13	13

14. Kurnool district.

118 Kurnool .. (M)	96	43	18	42	20	10	8	4	..	..	..
119 Nandyal .. (M)	72	36	21	58	14	13	1	1	..	..	..
120 Dhone .. (P)	48	25	18	72	18	15	3	3	..	..	..
121 Giddalore .. (P)	48	25	12	48	11	6	7	3	..	..	..
122 Markapur .. (P)	48	24	5	20	10	3	..	..	..	..	..
Total ..		153	74	48	73	47	19	11	..	..	..

15. Madurai district.

123 Madurai .. (M)	1,200	608	168	27	303	108	16	9	21	13	13
124 D. and gul .. (M)	96	47	17	36	41	17	2	..	1	..	..
125 Palni .. (M)	96	48	21	44	41	18	..	..	..	..	..
126 Bodinayakanur .. (M)	72	38	8	21	20	6	3	1	1	..	..
127 Kodakanal .. (M)	48	37	14	38	28	11	..	..	2	1	1
128 Periyakulam .. (M)	48	24	13	54	12	9	1	..	1	1	1
129 All nagaram .. (P)	48	24	5	20	13	5	..	..	..	..	..
130 Ayakudy .. (P)	48	20	3	15	12	8	..	..	..	..	..
131 Batlagundu .. (P)	48	24	1	4	2	..	2	..	..	..	..
132 Chinnamanur .. (P)	48	24	4	16	8	3	3	1	..	..	..
133 Cumbum .. (P)	48	24	12	50	18	7	2	1	..	..	..
134 Melur .. (P)	48	26	8	30	26	8	..	..	..	..	..
135 N. Iakkottai .. (P)	48	24	..	..	7	..	..	..	..	..	..
136 Sholavandan .. (P)	48	23	5	21	13	4	..	..	1	1	1
137 Tirumangalam .. (P)	48	23	5	21	19	5	..	..	..	..	..
138 Usilampatti .. (P)	48	24	9	38	21	9	..	..	..	..	..
Total ..		1,038	293	28	583	213	29	12	27	16	16

16. Malabar district.

139 Kozhikode .. (M)	288	136	52	38	63	39	10	1	1	..	..
140 Palghat .. (M)	144	72	38	53	64	36	1	..	1	..	..
141 Cannanore .. (M)	96	48	26	54	32	23	3	1	1	..	..
142 Cochin .. (M)	48	24	7	29	7	5	..	..	1	1	1
143 Tellicherry .. (M)	72	36	15	41	20	11	2	..	..	..	..
Total ..		316	138	43	186	114	16	2	4	1	1

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act
30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
10	2	3	..	6	1	10	6	1	..	..	..	5	2	1	1
6	1	4	..	2	..	3	1	..	..	..	..	1	..	6	4
5	1	1	..	1	..	4	1	..	..	1	..	3	1	3	2
1	..	4	..	3	..	3	2	..	..	..	..	..	..	1	..
1	..	..	..	..	..	..	..	..	..	..	..	5	2	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	3	2	..	..	..	..	10	3	..	..
31	4	12	..	13	1	23	12	1	..	1	..	24	8	11	7

..	..	1	..	..	..	8	1	..	..	1	1	1	..	4	2
3	3	4	..	..	..	4	..	..	..	..	..	3	2	7	2
..	..	1	..	..	..	2	..	..	..	..	..	1	..	..	..
..	..	3	..	..	..	4	3	..	..	..	..	..	..	..	..
..	..	4	..	2	..	3	2	..	..	3	..	2	..	..	..
3	3	13	..	2	..	21	6	..	..	4	1	7	2	11	4

62	..	62	..	10	3	80	19	5	..	12	1	19	4	18	11
2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	5	3	..	..	1	..	..	..	..	..
8	1	1	..	..	..	3	..	2	..	..	..	..	..	..	..
1	..	..	..	1	..	5	2	..	..	..	..	..	..	..	..
3	1	1	..	1	1	3	1	1	..	..	..	..	..	1	..
2	..	2	..	1	..	4	..	2	..	..	..	..	..	..	..
4	..	3	..	..	..	..	..	1	..	..	..	..	..	..	..
3	..	3	..	1	..	3	..	..	..	3	..	6	..	1	1
5	..	1	..	..	..	1	..	4	..	1	..	..	..	1	..
..	..	..	..	..	..	4	4	..	..	..	..	..	..	..	..
11	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	2	..	1	..	2	..	1	..	..	..	..	..	1	..
1	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..
2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
108	2	82	..	15	4	114	29	16	..	17	1	25	4	22	12

9	..	1	..	1	1	5	2	20	..	3	3	21	6	2	..
..	..	1	..	..	..	2	2	3	..	..	..	..	..	..	..
..	..	5	..	..	..	1	1	3	..	..	..	1	..	2	1
5	..	9	..	..	..	..	..	1	..	..	..	1	1	..	..
1	..	3	..	..	..	..	..	4	..	3	1	3	2	..	..
15	..	19	..	1	1	8	5	31	..	6	4	26	10	4	1

APPEN

Number of samples received and found adulterated from municipalities
from 1st April to

Serial number and places.	Annual quota of samples.	Grand total.			Milk.		Ghee.		Butter.	
		Total.	Adulterated.	Percentage adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
17. Nellore district.										
144 Nellore .. (M)	144	71	49	69	46	37	15	10	..	..
145 Gudur .. (M)	48	24	14	58	13	12	2	2	..	..
146 Kandukur .. (P)	48	24	7	29	7	6	10	1	..	..
147 Kovur .. (P)	48	11	3	27	3	3	..	..	..	..
148 Kavali .. (P)	48	24	12	50	21	11	..	..	..	..
149 Nayudupet .. (P)	48	24	6	25	8	5	..	..	..	..
150 Sulurpet .. (P)	48	24	1	4	14	1	..	..	..	..
151 Venkatagiri .. (P)	48	24	9	37	20	9	..	..	..	..
Total ..	226	101	45	132	84	27	13	..	..	..
18. Nilgiris district.										
152 Ootacamund .. (M)	216	110	53	48	55	34	5	2	..	..
153 Coonoor .. (M)	144	72	21	29	41	12	3	1	3	1
154 Kotagiri .. (P)	48	24	10	41	20	8	..	..	..	..
Total ..	206	84	41	116	54	8	3	3	1	1
19. Ramanathapuram district.										
155 Virudhunagar .. (M)	96	48	16	33	18	7	3	1	1	1
156 Karaikudi .. (M)	96	48	30	62	40	24	..	..	..	..
157 Devakottai .. (M)	72	34	12	35	23	11	2	..	..	..
158 Rajapalayam .. (M)	72	41	15	36	26	10	..	..	..	..
159 Srivilliputtur .. (M)	72	35	10	28	18	8	..	..	..	..
160 Aruppukottai .. (M)	48	24	11	46	20	9	1	..	..	..
161 Sivakesi .. (M)	48	24	8	33	15	7	1	..	..	..
162 Mudukulathur .. (P)	..	6	2	33	5	2	..	..	..	..
163 Kilakarai .. (P)	48	15	3	20	11	3	..	..	..	..
164 Kandanur .. (P)	48	24	7	29	18	5	1	1	..	..
165 Pallathur .. (P)	48	23	8	35	19	6	2	2	..	..
166 Paramakudi .. (P)	48	25	15	60	9	6	2	2	..	..
167 Ramanathapuram .. (P)	48	20	5	25	14	5	..	..	..	..
168 Rameswaram .. (P)	48	24	12	60	24	12	..	..	..	..
169 Sattur .. (P)	48	25	13	52	23	13	..	..	..	..
170 Sivaganga .. (P)	48	23	14	61	20	13	..	..	..	..
171 Venkateswaram .. (P)	..	5	..	..	..	..	..	..	..	..
172 Kannaseri .. (P)	..	12	7	58	12	7	..	..	..	..
173 Tirupattur .. (P)	48	19	7	37	15	7	..	..	..	..
Total ..	475	195	41	330	165	12	6	1	1	1
20. Salem district.										
174 Salem .. (M)	288	172	77	45	141	73	5	2	..	..
175 Rasipuram .. (M)	48	26	17	65	23	17	..	..	..	..
176 Dharmapuri .. (P)	48	22	12	54	16	12	..	..	..	..
177 Harur .. (P)	..	21	17	81	18	16	..	..	..	..
178 Iddapadi .. (P)	48	24	11	46	21	10	..	..	..	..
179 Namakkal .. (P)	48	28	22	78	19	17	..	..	..	..
180 Shevaroy .. (P)	48	21	5	24	18	4	..	..	..	..
181 Tiruchengode .. (P)	48	28	17	60	24	16	..	..	..	..
Total ..	342	178	52	280	165	5	2	..	..	..

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act
30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
2	..	2	..	..	..	1	..	..	..	..	..	..	..	5	2
1	..	3	..	2	..	..	..	..	..	1	..	2	..	1	..
1	..	4	..	1	..	..	..	..	..	..	..	2	..	..	..
2	..	3	..	1	..	..	..	..	..	..	..	2	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..
3	..	6	..	2	1	1	..	..	..	1	..	3	..	..	..
5	..	1	..	..	..	3	..	1	..	..	..	..	..	..	..
3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	20	..	7	1	5	..	1	..	2	..	9	1	6	2
2	..	..	..	..	..	15	4	1	..	9	2	19	10	4	1
3	..	..	..	1	1	18	6	3	..	..	..	..	..	..	..
1	..	..	..	..	..	1	1	1	..	..	..	..	..	1	1
6	..	..	..	1	1	34	11	5	..	9	2	19	10	5	2
7	1	5	..	1	..	12	5	..	..	..	..	..	..	1	1
1	..	..	..	..	..	..	..	..	..	..	..	7	6	..	..
3	..	2	..	..	..	4	1	..	..	..	..	..	..	..	..
7	..	2	1	..	..	4	4	1	..	1	..	..	..	..	..
2	..	3	..	..	..	6	2	..	..	1	..	..	..	5	..
2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
5	1	1	..	..	..	..	..	..	..	..	..	..	..	2	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..
3	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..
1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	5	2	1	..	..	..	7	5	1	..
1	..	..	..	..	..	2	..	..	..	..	..	3	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	2	1	..	..	..	..	..	..	..	..
3	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
41	4	21	1	1	..	37	15	2	..	3	..	18	12	9	1
6	..	3	..	..	..	7	2	..	..	7	..	2	..	1	..
..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..
2	..	2	..	1	..	..	..	..	..	1	1	1	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
2	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	4	3	..	..	2	..	2	2	..	..
1	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..
..	..	1	..	..	..	1	1	..	..	1	..	1	..	..	..
12	..	8	..	3	1	13	7	..	..	13	1	6	2	2	..

APPEN

Number of samples received and found adulterated from municipalities
from 1st April

Serial number and places.	Annual quota of samples.	Grand total.			Milk.		Ghee.		Butter.	
		Total.	Adulterated.	Percentage adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
21. Tanjore district.										
182 Tanjore .. (M)	216	107	70	65	92	61	2	2	7	5
183 Kumbakonam .. (M)	144	84	50	59	82	48	1	1	1	1
184 Nagapattinam .. (M)	144	72	17	23	48	12	6	..	3	3
185 Mayuram .. (M)	96	48	21	43	33	17	3	1	2	2
186 Mannargudi .. (M)	48	24	11	46	16	11	1	..	..	..
187 Tiruvarur .. (M)	48	24	15	62	22	15	2	..	..	..
188 Ayyampet .. (P)	48	20	11	55	13	11	..	..	..	..
189 Nannilam .. (P)	48	24	7	29	24	7	..	..	..	..
190 Papanasam .. (P)	48	24	3	12	21	23	..	..	..	..
191 Pattukkottai .. (P)	48	24	5	21	7	1	..	..	..	..
192 Sirkali .. (P)	48	27	16	59	23	16	..	..	..	..
193 Tiruvaiyaru .. (P)	48	24	6	25	18	6	..	..	..	..
194 Tiruturaiyandi .. (P)	48	24	17	70	22	17	..	..	..	..
195 Tiruvadamardur .. (P)	48	25	11	44	15	10	2	1	..	..
Total ..	551	261	47	436	235	17	5	13	11	..
22. Tiruchirappalli district.										
196 Tiruchirappalli .. (M)	336	166	59	35	109	43	1	..	..	..
197 Karur .. (M)	96	48	20	21	..	..	1	1	..	..
198 Pudukkottai .. (M)	96	48	15	31	29	9	1	..	..	..
199 Srirangam .. (M)	48	25	13	52	14	8	7	2	..	..
200 Gunesalam (for festival only) .. (P)	..	4	1	25	3	1	..	..	..	..
201 Ariyalur .. (P)	48	20	8	40	10	6	..	..	1	1
202 Kulitalai .. (P)	48	20	6	30	5	3	2	1	3	1
203 Lalgudi .. (P)	48	24	11	46	19	10	..	..	..	..
204 Jayankondam .. (P)	48	19	9	47	16	9	..	..	..	..
205 Musiri .. (P)	48	21	13	51	20	12	..	..	..	..
206 Manapparai .. (P)	48	24	13	54	22	11	..	..	..	..
207 Turaiyur .. (P)	48	22	11	50	17	10	..	..	..	..
Total ..	444	179	40	304	142	12	4	4	2	..
23. Tirunelveli district.										
208 Tirunelveli .. (M)	216	132	76	61	122	72	3	1	2	..
209 Tuticorin .. (M)	144	74	33	44	60	28	3	1	2	2
210 Palayamkottai .. (M)	96	47	24	51	32	16	8	6	1	1
211 Molapalayam .. (M)	48	24	8	33	12	6	1	..	..	..
212 Ambasamudram .. (P)	48	23	17	74	12	10	6	6	..	..
213 Courtallam .. (P)	48	23	14	61	16	12	1	..	..	..
214 Ettayapuram .. (P)	48	17	6	35	10	4	..	..	1	..
215 Kalladaikurichi .. (P)	48	24	10	41	20	8	..	..	1	1
216 Kadayannallur .. (P)	48	24	19	79	22	18	..	..	..	..
217 Koilpatti .. (P)	48	24	9	38	16	9	..	..	..	..
218 Puliyangudi .. (P)	48	24	11	46	21	11	..	..	..	..
219 Sankarankoil .. (P)	48	24	10	41	19	10	..	..	..	..
220 Srivaikuntam .. (P)	48	24	18	75	11	8	3	2	..	..
221 Tenkasi .. (P)	48	16	6	37	7	4	2	..	..	..
222 Tiruchendur .. (P)	48	25	16	64	19	13	1	..	..	..
223 Vikramasingapuram .. (P)	48	30	18	60	25	17	..	..	..	..
224 Viravanallur .. (P)	48	26	17	65	26	17	..	..	..	..
Total ..	581	312	53	450	263	28	16	6	4	..

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act
to 30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
4	1	1	..	..	..	1	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	2	2	..	..	..	..
10	..	2	..	..	..	2	1	2	..	..	..	2	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
1	..	1	..	..	..	2	1	..	..	1	1	..	..	..	..
14	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..
1	..	1	..	1	..	1	..	..	..	..	..	..	..	2	..
4	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
6	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
52	3	8	..	5	..	10	3	2	..	3	3	3	..	2	..
15	2	7	1	3	..	7	4	..	..	5	1	..	..	19	8
..	..	2	..	..	..	..	..	3	..	..	..	..	..	..	..
7	..	3	..	1	..	7	5	..	..	..	..	..	..	2	1
..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
4	..	1	..	..	..	3	..	..	..	1	1	..	..	..	..
6	..	2	..	..	..	1	1	1	..	..	..	1	1	..	..
1	..	1	..	..	..	2	..	..	..	..	..	..	..	1	..
1	..	1	..	..	..	1	..	..	..	..	..	..	..	3	1
1	..	..	..	3	1	1	..	..	..	..	..	..	..	..	..
1	..	..	..	3	1	1	..	..	..	..	..	..	..	..	..
36	2	17	1	7	1	28	14	4	..	6	2	1	1	25	10
..	..	..	..	..	..	4	3	1	..	..	..	..	..	..	..
..	..	2	..	..	..	2	1	..	..	..	..	2	2	1	..
4	..	..	..	..	..	4	1	2	..	..	..	1	1	..	..
2	..	2	..	..	..	..	..	..	..	..	..	5	1	..	..
..	..	..	..	1	..	1	1	..	..	..	..	2	1	1	..
1	..	..	..	..	..	2	1	..	..	..	..	2	1	..	..
3	..	..	..	..	..	2	1	..	..	..	..	1	..	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
1	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..
3	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	3	3	..	..	..	..	2	2	3	3
2	..	..	..	..	..	4	1	1	..	..	..	1	1	1	..
..	..	..	..	..	..	2	2	..	..	..	..	2	1	..	..
1	..	..	..	..	..	2	..	..	..	..	..	1	..	1	1
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	..	9	..	1	..	30	15	6	..	..	..	19	10	7	4

APPENDIX

Number of samples received and found adulterated from municipalities from 1st April

Serial number and places.	Annual quota of samples.	Grand total.			Milk.		Ghee.		Butter.	
		Total.	Adulterated.	Percentage adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
24. Visakhapatnam district.										
225 Visakhapatnam. (M)	288	143	83	58	128	80	3	1	2	1
226 Anakapalle .. (M)	144	76	25	33	27	33	..	..	..	..
227 Vizianagaram .. (M)	96	48	17	35	41	16	3	1	..	..
228 Bheemunipatnam (M)	48	23	10	43	16	10	..	..	..	..
229 Srikakulam .. (M)	48	24	7	29	22	7	..	..	..	..
230 Salur (M)	48	24	14	58	19	13	..	..	..	..
231 Bobbili .. (P)	48	24	8	33	20	8	..	..	..	..
232 Ohodavaram .. (P)	48	17	8	47	11	4	..	..	5	4
233 Narasapatnam. (P)	48	24	12	50	18	12	1	..	..	..
234 Palakonda .. (P)	48	23	2	8	14	1	1	1	..	..
235 Parvathipuram. (P)	48	23	8	34	13	8	..	..	..	..
236 Sompeta .. (P)	..	25	10	40	14	8	..	..	..	..
237 Yellamanchili. (P)	48	18	8	44	11	6	..	..	1	1
Total ..		492	212	43	354	196	8	3	8	6

DIX A—cont.

and panchayat boards working the Madras Prevention of Adulteration Act to 30th September 1953—cont.

Gingelly oil.		Coconut oil.		Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and Flours.		Miscellaneous.	
Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
4	..	4	..	1	1	1	..	..	..	..	..	..	..	..	..
15	..	12	..	14	1	7	..	..	..	..	..	..	..	1	1
1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..
..	..	4	..	2	..	..	..	..	..	..	..	..	..	1	..
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
1	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..
4	..	1	..	1	..	..	..	..	..	..	..	2	..	..	..
1	..	2	..	1	..	2	..	..	..	..	..	2	..	2	..
1	..	..	..	..	..	1	..	..	..	..	..	7	1	2	1
2	..	..	..	..	..	..	..	1	..	..	..	2	1	1	..
36	1	27	..	24	2	12	..	1	..	..	..	15	2	7	2

APPENDIX B.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953.

Names of municipalities.	Number of pending cases.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1952-53.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.

MUNICIPALITIES.

CLASS A.

1 Madurai ..	20	148	5,850	..	5,850	200	10	39	45
2 Vijayavada ..	35	77	2,045	..	2,045	75	5	26	31
3 Tiruchirappalli ..	24	35	1,203	..	1,203	80	18	34	29
4 Kozhikode ..	11	41	1,305	..	1,305	100	15	32	36
5 Coimbatore ..	9	74	3,005	..	3,005	115	15	40	68
6 Kanyakumari ..	22	71	4,117	85	4,282	100	20	60	44
7 Guntur ..	55	4	125	..	125	50	20	31	34
8 Salem ..	22	55	1,745	..	1,745	75	35	37	26
9 Visakhapatnam ..	8	75	3,610	..	3,610	100	15	48	36
10 Ootacamund ..	1	51	1,501	..	1,501	75	15	29	29
11 Rajahmundry ..	7	60	4,105	106	4,211	150	35	68	79
12 Mangalore ..	16	22	1,110	..	1,110	100	15	50	67
13 Tanjore ..	1	69	3,450	..	3,450	120	10	50	59
14 Tirunelveli ..	25	51	1,570	..	1,570	50	10	30	31
15 Anakapalle ..	..	25	745	40	785	40	15	30	36
16 Bellary ..	39	..	..	..	..	..	..	..	36
17 Kancheepuram ..	6	48	1,410	..	1,410	60	15	29	36
18 Coonoor ..	12	9	590	..	510	125	15	65	51
19 Cuddalore ..	..	23	696	..	696	60	10	30	46
20 Eluru ..	5	33	1,278	..	1,278	90	12	38	25
21 Kumbakonam ..	22	28	1,450	..	1,450	100	15	52	58
22 Masulipatnam ..	..	45	1,010	..	1,010	50	10	22	30
23 Nellore ..	11	38	1,605	..	1,605	160	15	42	28
24 Nagapattinam ..	..	17	635	..	635	50	20	37	83
25 Palghat ..	..	38	1,840	..	1,840	100	5	48	34
26 Tuticorin ..	..	33	2,370	25	2,395	100	10	72	30
27 Vellore ..	4	26	690	..	690	50	10	26	32
28 Pollachi ..	..	38	1,338	..	1,338	95	8	35	29

CLASS B.

29 Amalapuram ..	5	21	870	..	870	80	10	41	45
30 Adoni ..	2	21	620	..	620	50	10	29	18
31 Cannanore ..	..	26	602	..	602	75	4	23	38
32 Chidambaram ..	6	8	295	..	295	50	20	37	32
33 Chingleput ..	2	24	845	..	845	60	20	35	43
34 Cuddapah ..	3	28	777	45	822	100	2	27	29
35 Dindigul ..	4	13	182	..	182	25	5	14	22
36 Erode ..	2	24	1,315	..	1,315	80	30	54	36
37 Gudivada ..	..	23	810	..	810	60	15	35	52
38 Hospet ..	11	10	245	..	245	40	10	24	50
39 Karaikudi ..	4	26	781	..	781	90	7	30	28
40 Karur ..	..	20	808	..	808	100	20	40	43
41 Kurnool ..	1	15	665	..	655	100	15	44	42
42 Mayuram ..	16	5	185	..	185	50	25	37	73
43 Ongole ..	..	24	960	..	960	90	15	40	42
44 Palni ..	8	13	510	..	510	100	25	39	49
45 Palayamkottai ..	4	20	444	..	444	35	16	22	28
46 Padukottai ..	3	12	290	..	290	50	5	24	37
47 Tenali ..	1	31	1,650	..	1,650	200	15	53	63
48 Tiruppur ..	1	29	1,155	..	1,155	100	10	39	26
49 Udumalpet ..	1	23	595	..	595	75	5	26	41
50 Virudunagar ..	4	12	201	..	201	30	5	16	31
51 Vizianagaram ..	4	13	312	..	312	50	10	24	34
52 Villupuram ..	4	9	255	..	255	50	15	28	27

APPENDIX B—cont.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953—cont.

Name of municipalities.	Number of pending cases.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1952-53.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.

MUNICIPALITIES—cont.

CLASS B—cont.

53 Bodinayakanur ..	3	5	100	..	100	32	5	20	62
54 Anantapur ..	2	20	415	..	415	50	15	21	25
55 Devakottai ..	1	11	365	..	365	45	15	33	39
56 Hindupur ..	3	11	270	..	270	30	15	24	31
57 Peddapuram ..	9	11	255	..	255	40	10	23	37
58 Nandyal ..	..	21	510	..	510	40	20	24	33
59 Proddatur ..	2	6	115	..	115	30	10	19	24
60 Rajapalayam ..	1	13	555	..	555	50	20	43	32
61 Srivilliputtur ..	..	10	290	..	290	60	10	29	27
62 Tellicherry ..	..	15	445	..	445	100	15	29	37
63 Tiruvannamalai ..	1	22	995	..	995	100	10	45	34

CLASS C.

64 Ambur ..	8	6	285	..	285	100	25	47	25
65 Aruppukottai ..	..	11	555	..	555	75	30	50	39
66 Bhimavaram ..	..	16	840	..	840	80	30	52	54
67 Bheemunipatnam ..	1	9	380	..	380	100	30	42	36
68 Cochin ..	..	7	320	..	320	100	15	45	43
69 Srikakulam ..	..	7	385	..	385	120	15	55	53
70 Chingleput ..	1	8	245	..	245	50	10	30	29
71 Chittoor ..	6	..	..	..	..	..	..	..	40
72 Dharapuram ..	..	10	180	..	180	50	10	18	25
73 Gobichettipalayam ..	21	..	1,390	..	1,390	80	15	58	49
74 Gudiyatham ..	..	3	125	..	125	50	25	41	49
75 Guntakal ..	1	16	610	..	610	70	15	38	25
76 Kodaikanal ..	..	14	1,040	..	1,040	210	50	74	83
77 Melapalayam ..	6	2	31	..	31	16	15	15	36
78 Mettupalayam ..	2	24	1,080	..	1,080	80	15	45	27
79 Mannargudi ..	..	11	960	..	960	200	50	87	73
80 Narasaraopet ..	..	9	385	..	385	50	30	42	40
81 Palacole ..	4	12	275	..	275	40	20	23	41
82 Periyakulam ..	..	13	441	..	441	60	5	34	55
83 Rasipuram ..	..	17	575	25	600	70	30	33	37
84 Srirangam ..	..	13	415	..	415	55	15	82	38
85 Salur ..	..	14	545	80	625	100	20	39	57
86 Sivakasi ..	..	8	185	..	185	30	10	23	26
87 Tadpatri ..	..	12	485	..	485	100	20	40	35
88 Tindivanam ..	2	8	195	22	195	50	10	24	41
89 Tirupati ..	12	..	..	..	..	..	..	..	32
90 Bapatla ..	..	11	595	..	595	200	25	54	51
91 Tiruvallur ..	2	16	1,010	..	1,010	200	15	63	37
92 Tirupattur ..	5	..	..	..	..	..	..	..	22
93 Tiruvavur ..	2	14	575	..	575	100	5	41	42
94 Udipi ..	..	13	330	..	330	40	15	25	22
95 Vaniyambadi ..	1	11	510	..	510	50	20	46	56
96 Walajahpet ..	2	5	210	..	210	75	25	42	35
97 Arni ..	..	10	245	..	245	30	20	24	10
98 Gudur ..	2	12	449	..	449	50	15	37	22

APPENDIX B—*cont.*

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953—cont.

Name of panchayat.		Number of pending cases.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1962-63.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
PANCHAYAT BOARDS.										
<i>I. Anantapur district.</i>										
1 Dharmavaram ..	..	8	215	..	215	60	15	26	21	
2 Gooty ..	..	12	323	..	323	40	5	27	18	
3 Kadiri ..	..	9	180	..	180	60	5	20	16	
4 Penukonda ..	..	1	357	..	357	76	15	51	47	
5 Uravakonda ..	..	6	330	..	330	100	40	55	38	
<i>II. North Arcot district.</i>										
6 Arkonam ..	..	1	18	760	..	760	80	20	42	85
7 Arcot ..	..	8	238	..	238	30	25	29	29	
8 Ranipet ..	..	10	260	..	260	50	20	26	33	
<i>III. South Arcot district.</i>										
9 Bhuvanagiri ..	..	8	235	..	235	60	20	29	24	
10 Kallakurichi ..	..	8	..	..	..	..	..	..	46	
11 Nellikuppam ..	..	4	75	..	75	25	10	18	27	
12 Panruti ..	..	1	13	415	..	415	60	20	31	27
13 Tirukkoyilur ..	..	12	325	..	325	50	25	27	24	
14 Vriddhachalam ..	..	20	499	..	499	50	10	24	39	
<i>IV. Bellary district.</i>										
15 Harpanahalli ..	..	11	..	..	..	..	..	..	48	
16 Rayadrug ..	..	7	215	..	215	60	15	30	25	
17 Yemmiganur ..	..	15	435	..	435	50	20	29	40	
<i>V. Coimbatore district.</i>										
18 Avanasahi ..	..	20	465	..	465	50	10	23	52	
19 Bhavani ..	..	6	210	..	210	45	15	35	24	
20 Kurichi ..	..	4	105	..	105	50	10	26	54	
21 Satyamangalam ..	..	19	840	..	840	80	20	44	25	
<i>VI. Chingleput district.</i>										
22 Alandur ..	..	13	..	..	..	..	..	..	60	
23 Madurantakam ..	..	1	8	270	..	270	60	25	33	20
24 Poonamallee ..	..	3	2	66	..	66	40	26	33	..
25 Tiruvottiyur ..	..	8	..	..	..	..	..	..	25	
26 Sriperumbudur ..	..	7	140	..	140	30	10	20	25	
<i>VII. Chittoor district.</i>										
27 Kalahasti ..	..	1	12	445	..	445	75	25	37	39
28 Kuppam ..	..	13	320	5	325	30	5	24	35	
29 Madanapalle ..	..	5	175	..	175	50	15	35	24	
30 Madanapalle Sanatorium.	..	18	500	..	500	100	10	28	19	
31 Palmaner ..	..	6	150	..	150	50	10	25	48	
32 Punganur ..	..	10	300	..	300	100	15	30	20	
33 Puttur ..	..	8	265	..	265	60	20	33	35	
34 Tirumalai Hills ..	..	..	..	..	..	..	..	..	25	
35 Tiruttani ..	..	21	560	..	560	50	20	27	25	
36 Vayalpad ..	..	2	33	..	33	15	8	11	29	

APPENDIX B—cont.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953—cont.

Name of panchayat.		Number of pending cases.	Number of con- victions.	Fines in analy- sis cases.	Fines in non- analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1952-53.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				RS.	RS.	RS.	RS.	RS.	RS.	RS.
PANCHAYAT BOARDS—cont.										
VIII. Cuddapah district.										
37 Badvel	..	13	175	..	175	30	5	13	17	
38 Jammalamadugu ..	1	7	310	..	310	90	20	44	56	
39 Pulivendla	..	4	185	..	185	60	15	46	35	
40 Rajampet	..	9	195	100	295	40	10	21	30	
41 Rayachoti	..	7	250	..	250	60	20	35	41	
IX. East Godavari district.										
42 Mandapeta	..	17	755	..	755	100	20	44	36	
43 Pithapuram	..	12	375	..	375	50	20	31	20	
44 Samalkot	..	14	455	74	529	80	10	32	48	
45 Ramachandrapuram	1	4	310	..	310	100	60	77	27	
46 Razole	..	7	265	..	265	60	15	38	43	
47 Tuni	..	11	405	..	405	70	10	36	46	
X. West Godavari district.										
48 Akiividu	..	6	250	..	250	70	20	41	42	
49 Kovvur	8	12	495	..	495	100	15	41	37	
50 Narasapur	1	15	227	..	227	30	2	15	32	
51 Nidadavole	15	3	80	..	80	50	10	26	31	
52 Polavaram	..	9	135	..	135	45	5	15	32	
53 Tadepalligudem ..	17	..	..	..	..	..	..	..	41	
54 Tanuku	..	9	250	..	250	30	15	28	26	
XI. Guntur district.										
55 Mangalagiri	..	12	305	..	305	65	15	25	54	
56 Ponnur	2	10	235	..	235	40	15	24	31	
57 Nidubrolu	..	6	181	..	181	50	15	30	37	
58 Repalle	9	3	65	..	65	25	20	22	29	
59 Sattenapalle	2	7	248	..	248	58	20	35	23	
60 Vetapalem	..	10	560	..	560	100	25	51	51	
XII. Krishna district.										
61 Avanigadda	7	1	40	..	40	40	40	40	25	
62 Jaggayyapeta	1	11	595	..	595	90	15	54	29	
63 Nuzvid	3	6	190	5	195	90	15	31	59	
64 Tiruvur	1	6	60	..	60	10	10	10	47	
XIII. South Kanara district.										
65 Kasaregod	..	16	465	..	465	90	10	29		
XIV. Kurnool district.										
66 Dhone	..	18	1,000	..	1,000	100	25	55	33	
67 Giddalur	..	12	730	..	730	100	50	61	53	
68 Markapur	4	1	40	..	40	40	40	40	34	
XV. Madurai district.										
69 Allinagaram	2	3	63	..	63	28	10	21	30	
70 Ayakudi	1	2	80	..	80	40	40	40	42	
71 Batlagundu	..	1	25	..	25	25	25	25	31	
72 Chinnamanur	4	..	..	..	..	..	..	..	50	
73 Cumbum	1	11	270	..	270	40	15	24	34	
74 Melur	..	8	495	..	495	75	50	62	29	
75 Nilakottai	..	..	..	..	..	..	..	..		

**Report of the Government Analyst, Madras, for the Residuary
Madras State for the half-year 1st October 1953 to 31st
March 1954.**

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APPENDIX B—cont.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953—cont.

Name of panchayat.	Number of pending cases.	Number of convictions.	Fines in analysed cases.	Fines in non-analysed cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1952-53.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.
PANCHAYAT BOARDS—cont.									
XV. Madurai district—cont.									
76 Sholavandan ..	5	..	..	..	..	..	..	..	41
77 Tirumangalam ..	3	2	30	..	30	25	5	15	22
78 Usilampatti ..	4	5	135	..	135	50	20	27	36
XVI. Nellore district.									
79 Kandukur ..	..	7	250	..	250	75	10	35	36
80 Kovvur ..	3	..	..	..	..	..	..	..	25
81 Kavali ..	..	12	465	..	465	65	20	38	32
82 Nayudupet ..	6	..	..	..	..	..	..	..	32
83 Sufurpet ..	..	1	25	..	25	25	25	25	37
84 Venkatagiri ..	..	10	375	..	375	50	25	37	33
XVII. Nilgiris district.									
85 Kotagiri ..	..	10	435	..	435	75	25	43	70
XVIII. Ramanathapuram district.									
86 Mudukulathur ..	2	..	..	..	..	..	..	..	26
87 Kilakarai ..	..	3	85	..	85	40	20	28	40
88 Kandanur ..	..	7	167	..	167	30	15	23	15
89 Palathur ..	1	7	190	..	190	35	10	27	17
90 Paramakudi ..	2	13	340	..	340	40	10	26	28
91 Ramanathapuram ..	..	5	160	..	160	50	25	32	48
92 Rameswaram ..	..	12	345	..	345	40	20	28	31
93 Sattur ..	..	13	315	..	315	40	15	24	24
94 Sivaganga ..	11	3	90	..	90	45	20	30	47
95 Tirupattur ..	..	7	230	..	230	60	20	33	25
96 Venkateswara-puram ..	..	..	..	..	..	..	..	..	..
97 Kannisseri ..	7	..	..	..	..	..	..	..	..
XIX. Salem district.									
98 Dharmapuri ..	..	12	737	..	737	100	16	61	59
99 Harur ..	..	17	660	15	675	100	15	38	35
100 Idappadi ..	..	11	200	..	200	25	15	18	18
101 Namakkal ..	..	22	516	..	516	60	16	23	21
102 Shevaroyas ..	..	5	160	..	160	40	25	32	33
103 Tiruchengode ..	..	17	915	..	915	160	15	53	26
XX. Tanjore district.									
104 Ayyampet ..	1	10	370	..	370	55	30	37	49
105 Nannilam ..	..	7	100	..	100	20	10	14	28
106 Papanasam ..	..	3	55	..	55	25	15	18	34
107 Pattukkottai ..	3	2	130	..	130	100	30	65	37
108 Sirkali ..	..	16	550	..	550	50	20	34	59
109 Tiruvaiyar ..	3	3	90	..	90	30	30	30	51
110 Tiruthurai-pundi ..	..	17	585	..	585	50	20	34	43
111 Tiruvidamarudur ..	..	11	570	..	570	100	40	51	58

APPENDIX B—cont.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st April to 30th September 1953—cont.

Name of panchayat.	Number of pending cases.	Number of convictions.	Fines in analysed cases.	Fines in non-analysed cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine in 1952-53.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			RS.	RS.	RS.	RS.	RS.	RS.	RS.
PANCHAYAT BOARDS—cont.									
XXI. Tiruchirappalli district.									
112 Gunaseelam ..	1	..	..	..	..	..	..	..	..
113 Ariyatur ..	..	8	235	..	235	45	10	29	28
114 Kulittalai ..	2	..	..	..	..	..	..	..	39
115 Lalgudi ..	..	11	445	..	445	80	20	40	29
116 Jayankondam ..	1	8	210	..	210	30	30	26	26
117 Musiri ..	13	..	..	..	..	..	..	..	24
118 Manapparai ..	..	13	420	..	420	50	25	32	24
119 Turaiyur ..	..	11	190	25	215	25	5	17	24
XXII. Tirunelveli district.									
120 Ambasamudram ..	..	17	640	..	640	100	15	37	40
121 Courtallam ..	1	13	525	..	525	100	30	48	35
122 Ettayapuram ..	..	6	90	..	90	30	5	15	30
123 Kallidaikurichi ..	4	6	235	..	235	50	25	39	33
124 Kadayannallur ..	..	19	850	395	1,245	80	10	44	35
125 Koilpatti ..	8	1	20	..	20	20	20	20	30
126 Puliyaugudi ..	..	11	200	..	200	30	10	18	19
127 Sankarankoil ..	..	10	210	..	210	75	10	21	25
128 Srivaikuntam ..	..	18	990	..	990	200	15	55	17
129 Tenkasi ..	2	4	118	38	156	50	2	29	31
130 Tiruchendur ..	..	16	975	50	1,025	100	20	61	31
131 Vikramasingapuram ..	..	18	460	..	460	50	15	25	36
132 Viravanallur ..	..	15	410	..	410	50	15	27	31
XXIII. Visakhapatnam district.									
133 Chodavaram ..	..	10	440	..	440	70	10	44	27
134 Narasapatam ..	..	12	552	..	552	170	12	43	32
135 Yellamanchili ..	..	8	330	..	330	75	20	41	34
XXIV. Srikakulam district.									
136 Bobbili ..	..	8	205	..	205	55	15	25	40
137 Palakonda ..	..	2	55	..	55	30	25	27	35
138 Parvathipur ..	..	8	265	..	265	50	15	33	39
139 Sompeta ..	..	10	752	30	782	200	2	75	66

I. STAFF.

Government Analyst	Sri S. Narayana Ayyar, M.A., A.I.I.S.C., F.R.I.C.
Deputy Government Analyst ..	Sri Y. G. Doraiswami, M.Sc., F.R.I.C., from 1st October to 22nd November 1953 and from 1st January to 31st March 1954. Sri K. R. Srinivasan, M.A., F.R.I.C., from 23rd November to 31st December 1953.
Senior Assistants to the Government Analyst.	Sri K. R. Srinivasan, M.A., F.R.I.C. Sri K. Narayanaswami, M.A., A.R.I.C. Sri M. Krishnamurthi, M.Sc. Sri P. S. Nataraja Sarma, M.A. Sri K. Balasubramaniam, B.A. (Hons.). Sri K. Ramachandran, M.A. Sri N. Srinivasan, M.A., from 23rd November to 31st December 1953.
Junior Assistants to the Government Analyst.	Sri N. Srinivasan, M.A. Sri M. V. Narayanan, B.Sc. (Hons.). Sri C. S. Raghunathan, B.Sc. (Hons.). Sri G. Balasubramaniam, B.Sc. (Hons.). Sri S. A. Subramaniam, M.Sc., till 25th February 1954. Sri V. Seshagiri Rao, B.Sc. (Hons.). Sri M. R. Gopalan, B.Sc. (Hons.). Sri T. R. Krishnaswamy, B.Sc. (Hons.). Sri P. Appavu, B.Sc. (Hons.). Sri S. Kasturi, B.Sc. (Hons.). Sri K. Sambandam, B.Sc.

The Laboratory staff included one Technical Assistant, three First Grade Attendants, one Second Grade Attendant and seven peons. The office staff consisted of two Upper Division Clerks, one Steno-typist, three Typists and two Lower Division Clerks.

LEAVE.

Sri Y. G. Doraisami, Deputy Government Analyst was on leave on average pay for one month and nine days from 23rd November 1953 and Sri K. R. Srinivasan, Senior Assistant to Government Analyst acted in his place and Sri N. Srinivasan, Junior Assistant was promoted to act as Senior Assistant.

The following Junior Assistants were on earned leave for the period shown against them :—

Sri N. Srinivasan for 41 days from 22nd February 1954.

Sri M. V. Narayanan for ten days from 9th December 1953.

Sri G. Balasubramaniam for six days from 1st February 1954.

Sri V. Seshagiri Rao for 12 days from 11th January 1954.

II. INTRODUCTION.

This report for the half year 1st October 1953 to 31st March 1954 relates to the residuary Madras State only. The report relating to the Andhra State is prepared separately. The Government Analyst Laboratory, will continue to serve the needs of the Andhra State also for five years from 1st October 1953.

This laboratory, as usual, analysed foods samples from 143 local bodies in the Madras State and from hospitals and other institutions. Drugs samples were analysed under the Drugs Act and the Madras Drugs Rules. Drugs suspected to be spurious were also analysed to see whether they conform to the description on the label or whether they were spurious and infringed the Trade Marks.

The total number of samples under the different categories analysed during the half year is given in Table I.

TABLE I.

Number of samples under different categories analysed in the Government Analyst Laboratory from the Madras State.

Source.	Half year (1st October 1953 to 31st March 1954.)	
	Number of samples.	Number of adulterated or otherwise unsatisfactory.
Food samples under the Madras Prevention of Adulteration Act.	5,763	2,384
Food samples from Government Hospitals	3,917	661
Food samples from other Government Departments	462	58
Food samples from unofficial sources	61	15
Total (Foods) ..	10,203	3,118
Drugs under the Madras Drugs Rules	70	34
Drugs from Government Hospitals and other Government Institutions, including spurious drugs sent by the Police.	73	42
Drugs from unofficial sources	9	..
Total (Drugs) ..	152	76

III. FINANCE.

The estimated receipt for the half year ended 31st March 1954 was Rs. 96,932 and the estimated expenditure Rs. 58,773 as shown in Table II below :—

The total fines credited to the Judicial Budget amounted to Rs. 77,401 (for Adulterated samples Rs. 76,730 and non-analysis cases Rs. 671).

TABLE II.

Financial Statement of Government Analyst Department for the half year 1st October 1953 to 31st March 1954.

ESTIMATED RECEIPTS.

	RS.	A.	P.
1 Contribution to Government from local bodies working the Madras Prevention of Adulteration Act at Rs. 7-8-0 per sample in Madras State.	44,092	8	0
2 Value for analysis done for Government Institutions in Madras State.	46,650	0	0
3 Fees received from unofficial sources for analysis of food samples in Madras State.	1,330	0	0

RS. A. P.

Drugs.

4 Value for drug samples analysed for hospitals and samples under the Madras Drug Rules in Madras State.	4,610	0	0
5 Fees received from unofficial sources for analysis of drug samples in Madras State.	250	0	0
Total ..	96,932	8	0

ESTIMATED EXPENDITURE.

1 Salaries and allowances of the staff of Government Analysis.	41,851	15	0
2 Superannuation allowance and pension on above	401	0	0
3 Proportionate cost of certain common staff of the King Institute, Guindy.	720	0	0
4 Proportionate cost of management and supervision by the Director of Medical Services and the Director, King Institute, Guindy.	153	0	0
5 Instruments, Stores and Chemicals including Gas and water charges.	16,332	1	0
6 Customs duty	28	5	0
7 Contingencies	12,469	0	0
8 Electric current	606	11	0
9 Cost of stationery, clothing and printing	340	0	0
10 Proportionate charges on cost of audit, maintenance, interest and depreciation on building, electric installation and other plants.	3,642	0	0
Total ..	76,544	0	0

Share of the fines accruing to Madras Government on account of the working of the Madras Prevention of Adulteration Act (10 per cent of total fines plus half the excess fines over the contribution by the local body to Government towards fees for analysis).

20,222 0 0

IV. WORKING OF THE MADRAS PREVENTION OF ADULTERATION ACT.

During the half year the number of food samples received from 143 local bodies (61 municipalities and 82 panchayats) working the Act was 5,763 of which 2,384 were adulterated. In the place of Bellary, Hospet and Harpanahalli which were merged in Mysore State from 1st October 1953 consequent on the formation of the Andhra State, the Act was extended to the Panchayats of Arantangi (Tanjore district), Badagara (Malabar district), Attur (Salem district), Kollegal (Coimbatore district), Polur (North Arcot district). (G.O. No. 4215, Health, dated 24th December 1953) and Tambaram (Chingleput district)—(G.O. No. 4218, Health, dated 24th December 1953).

The Act was also extended to the following Panchayat Boards in Madurai district for the months indicated on account of local festivals :—

Name of the Panchayat.	Months during which the Act applies.
Mecheri	February and March.
Veerapandi	May.
Salaipudur	June and July.
Saduragiri Hills	July and August.
Alagarkoil	Do.

Mecheri sent six samples during the half year.

The Panchayats of Mudukalathur and Harur continued to work the Act without any prescribed quota and sent 3 and 24 samples respectively during the half-year.

The Act is in force in the Panchayats of Sriperumbudur, Venkateswarapuram and Gunaseelam for the duration of the local festivals. Eight samples were received from Venkateswarapuram.

Table III gives the number of samples sent by the Municipalities and Panchayat Boards and Table IV gives the extra samples sent by some local bodies. Table V gives particulars of the nature of samples taken under the Act for the Madras State including Madras City. Table VI gives particulars of samples taken in Madras City and analysed in the Madras Corporation Laboratory by its own Public Analyst. Table VII gives the particulars of samples received from 143 local bodies of the Madras State and analysed in the Government Analyst's Laboratory.

TABLE III.

Number of samples analysed and found adulterated in 143 local bodies and the Madras Corporation during the half year.

	Half-year from 1st October 1953 to 31st March 1954.		
	Number of samples taken.	Number adulterated.	Percentage adulterated.
<i>Municipalities.</i>			
18 Class A	2,435	1,014	41.6
14 Class B	675	291	43.1
29 Class C	801	326	40.7
<i>Panchayat Boards.</i>			
Eighty-two Panchayats Class C	1,852	753	40.6
Total for 143 local bodies analysed in the Government Analyst Laboratory.	5,763	2,384	41.4
<i>Corporation.</i>			
Samples from Madras City analysed in the Corporation Laboratory.	2,870	1,273	44.4
Total for 144 local bodies in the Madras State.	8,633	3,657	42.3

TABLE IV.

Extra samples sent by local bodies during the half-year 1st October 1953 to 31st March 1954.

Municipalities—		Panchayats—	
Madurai	1	Allinagaram	1
Coimbatore	12	Ayyampet	1
Salem	61	Ayakudi	2
Tirunelveli	30	Dharmapuri	5
Kumbakonam	12	Sivaganga	1
Kancheepuram	24	Satyamangalam	17
Palghat	2	Viravanallur	1
Tiruppur	6	Melur	2
Udamalpet	4	Tiruthuraiipundi	2
Devakkottai	1	Arcot	1
Dharapuram	1	Jayankondan	1
Rasipuram	1	Bhuvanagiri	1
Tirupattur (North Arcot)	7	Tiruchendur	1
Udipi	6	Ettayapuram	11
Nagapattinam	12	Puliyangudi	4
Mannargudi	1	Srivaikuntam	3
Aruppukottai	2	Vridhachalam	4
Pudukkottai	1	Kollegal	1
		Kovilpatti	3
Rajapalayam	4	Musiri	5
Villupuram	2	Shevaroyis	2
Tiruvannamalai	2	Sattur	3
Srirangam	1		
		Total	265

TABLE V.

Nature of samples taken in 144 local bodies (including Madras City) working the Act in the Madras State.

Nature of samples.	Half-year from 1st October 1953 to 31st March 1954.		
	Total.	Number adulterated.	Percentage adulterated.
Milk	5,567	2,940	52.7
Ghee	689	196	28.3
Butter	441	172	38.9
Gingelly oil	696	106	15.2
Coconut oil	304	20	6.6
Groundnut oil	63	8	12.7
Coffee powder	390	84	21.7
Chicory	3	3	100.0
Sweets	19	14	73.7
Turmeric	47	14	29.7
Tea	159	7	4.4
Honey	23	1	4.3
Dhall and flour	131	47	35.8
Hydrogenated vegetable oils	22	3	13.6
Miscellaneous	79	42	53.1
Total	8,633	3,657	42.3

TABLE VI.

Nature of samples taken in Madras City alone in the half-year 1st October 1953 to 31st March 1954.

Nature of sample.	Total.	Number adulterated.	Percentage adulterated
Milk	1,670	949	56.8
Butter	348	110	31.6
Ghee	472	122	25.8
Gingelly oil	145	36	24.8
Groundnut oil	11	2	18.2
Coconut oil	80	3	3.8
Coffee powder	53	17	32.1
Tea	19	1	5.3
Ghee substitutes	9	1	11.1
Other articles.. .. .	63	32	50.8
Total ..	2,870	1,273	44.4

TABLE VII.

Particulars of samples taken in 143 local bodies of the Madras State (excluding Madras City) in the half-year October 1953 to March 1954 and analysed in the Government Analyst's Laboratory.

Nature of sample.	Total.	Number adulterated.	Percentage adulterated.
Milk	3,897	1,991	51.0
Ghee	217	74	33.9
Butter	93	62	67.0
Gingelly oil	551	70	12.7
Coconut oil	224	17	8.0
Groundnut oil	52	6	11.5
Coffee powder	337	67	20.0
Sweets	19	14	74.0
Turmeric	47	14	29.0
Tea	140	6	4.3
Honey	23	1	4.3
Dhall and flour	131	47	35.8
Hydrogenated vegetable oil	13	2	15.3
Chicory	3	3	100.0
Miscellaneous	16	10	62.5
Total ..	5,763	2,384	41.3

The percentage of adulterated samples during the half-year under report is 41.3 per cent as against 45.9 per cent for the composite Madras State for the previous half-year and records a slight improvement. The adulteration shows a decrease in the case of practically all types of food stuffs except butter in respect of which the percentage of adulteration records a higher figure of 67.0 per cent as compared to 62.0 per cent for the previous half-year. The Health Officers are being instructed to seize stocks of butter by surprise from merchants who had previous convictions and start a campaign to bring the adulteration under control.

Milk was heavily adulterated in the following local bodies :—

	Number of milk samples.	Number adulterated.
Ranipet	25	21
Panruti	19	16
Coimbatore	133	111
Pollachi	50	41
Gobichettipalayam	24	23
Kollegal	5	5
Cochin	7	6
Badagara	4	4
Dharmapuri	19	18
Mannargudi	19	16
Tiruvarur	19	15
Palni	36	26
Tellicherry	11	9

The places where the adulteration in butter, ghee and gingelly oil and coconut oil was particularly high are given below :—

				Ghee.	
				Number of samples.	Number adulterated.
Erode	..	..	..	3	3
Rasipuram	..	..	..	2	1
Ambasamudram	..	..	..	3	3
Palayamkottai	..	..	..	3	3
Kallidaikurichi	..	..	..	4	3
Srirangam	..	..	..	10	5

				Butter.	
				Number of samples.	Number adulterated.
Erode	..	..	..	3	3
Tanjore	..	..	..	7	7
Nagapattinam	..	..	..	3	3
Tirunelveli	..	..	..	7	7
Bhuvanagiri	..	..	..	13	12
Madurai	..	..	..	8	6

No ghee samples were received from Tirupur and Karur although these are important centres for ghee trade.

Gingelly oil.		Coconut oil.	
Total.	Ad.	Total.	Ad.
Kancheepuram ..	18	7	Tiruvannamalai .. 10 5
			Vaniyambadi .. 2 2
			Kancheepuram .. 8 3

In Table VIII the districts are arranged according to the extent of adulteration prevalent in them.

Coimbatore district appears to keep up its position as the district where the adulteration is heaviest (58.4 per cent). Madurai district on the other hand maintains the lowest percentage of adulterated samples, namely 30 per cent though even this figure should be considered very high.

TABLE VIII.

Districts arranged according to the increasing percentage of adulterated samples.

Name of district.	Rank for the half-year under report.	Percentage of adulterated samples.
1 Madurai	1	29.9
2 Ramanathapuram	2	33.4
3 Malabar	3	34.4
4 South Kanara	4	34.7
5 Chingleput	5	39.3
6 South Arcot	6	39.9
7 Tiruchirappalli	7	42.1
8 Tanjore	8	43.2
9 Nilgiris	9	44.1
10 Madras City	10	44.4
11 Salem	11	46.1
12 North Arcot	12	46.6
13 Tirunelveli	13	48.8
14 Coimbatore	14	58.4

V. NOTES ON ADULTERATION.

Milk.—The total number of milk samples analysed was 3,897 of which 1,991 (51 per cent) were adulterated.

Butter.—Adulteration in butter shows a notable increase. Of 93 samples, 62 were adulterated (67 per cent), as against 62 per cent in the previous half-year. Some samples contained excess water, some contained foreign fat while some contained both excess water and foreign fat. Over 60 per cent foreign fat was present in butter samples received from Madurai, Coimbatore, Periyakulam, Tirunelveli, Cuddalore and Tanjore.

Ghee.—Of 217 samples 74 (33.9 per cent) were adulterated with foreign fat as against 47 per cent in the previous half-year.

No standard has been fixed under the Madras Prevention of Adulteration Act for the free fatty acid in ghee. Data were however collected to ascertain the range of free fatty acid in the samples as ordinarily received in this laboratory for one year from November 1952. The values obtained are given below :—

Range of free fatty acid.	Number of ghee samples examined.
0.0 — 0.5 per cent ..	64
0.6 — 1.0 „ ..	143
1.1 — 1.5 „ ..	106
1.6 — 2.0 „ ..	76
2.1 — 2.5 „ ..	53
2.6 — 4.0 „ ..	57
Above 4.1 „ ..	32
Total ..	531

Oils.—There is a slight increase in the adulteration of oils. Out of 551 gingelly oil samples 70 (12.7 per cent) were adulterated as against 5 per cent in the previous half-year. In Kancheepuram out of 18 gingelly oils 7 were adulterated.

Adulteration in coconut oil was also low. Out of 301 samples 20 (6.6 per cent) were adulterated. But adulteration was noticeably high in the following local bodies :—

Tiruvannamalai	5 out of 10 samples.
Vaniyambadi	2 out of 2 samples.
Kancheepuram	3 out of 8 samples.

A few samples from Tiruvannamalai contained mineral oil also as adulterant.

Sweets.—According to the latest rules, hotels should exhibit notice boards stating which sweets and savouries are made in ghee and which are not made in ghee. Prosecution is launched only if the extracted ghee from the preparation is found to be adulterated. In this connexion the Reichert Wollny value of the fat extracted from a few samples of different varieties of sweets and savouries received in this laboratory was determined and the values are given below :—

Name of preparation.	Reichert Wollny value.
Mysore pak	31.9, 28.6, 29.5, 31.0.
Laddu	26.7, 26.4, 29.9, 26.3.
Athirasam	26.8.
Halwa	30.7, 26.3, 25.1, 29.6, 29.1.
Karaboondi	30.4, 27.8, 30.2.
Kova barfi	26.0.
Vadai	31.0.
Jangiri	26.6.
Uppurina	27.0.

The above values clearly show that ghee extracted from the sweets and savouries gives the usual Reichert Wollny value of genuine ghee and the presence of the cereal or pulse flour in the sweets and savouries does not appreciably depress the R.M. value of the ghee extracted from such preparations. It should also be stated in this connexion that the cereals and pulses such as rice, wheat, blackgram, bengalgram, toor dhall, etc., ordinarily used for such preparations contain only about 1 per cent fat, the effect of which is negligible but, in computing the amount of foreign fat, allowance is made for the presence of this fat also. It can therefore be inferred that if the ghee extracted from these preparations gives a low Reichert value, it should be due to the presence of foreign fat in the ghee used for the preparation.

Coffee.—Chicory, wild date, bengalgram, smooth pea, mahua flower and coffee husk were the adulterants detected in coffee samples. Of the 337 samples received, 67 (20 per cent) were adulterated.

Wild date is being marketed as “Indian Chicory” and action is being taken to stop the practice. Chicory which is the only permitted adulterant under a proper label has been defined in the rules as the dried and roasted root of “Cichorium Intybus Linn.”

Tea.—Blackgram husk, foreign leaf and sand were the principal adulterants found in admixture with tea. Another adulterant which is becoming common of late is spent tea leaves. Six out of 140 samples were adulterated.

Dhall and flour.—Kesari dhall and Kesari dhall flour, the sale of which has been prohibited by the rules are still being imported from North India and were detected in samples of toor dhall and bengalgram flour. The practice of using artificial coal-tar colour in dhall although prohibited by the rules is being extensively employed.

Turmeric.—Of 47 samples, 14 were found to be adulterated. The use of tapioca starch as an adulterant is becoming common. Some samples contained more lead than the permitted limit of five parts per million.

VI. FINES.

Appendix 'B' at the end of the Report gives the number of convictions, number of pending cases, fines in analysis and non-analysis cases and the maximum, minimum and average fine in each local body.

The average fine for the half-year under report is Rs. 36 as compared with Rs. 31 for the previous half-year for the composite Madras State.

There was a marked decrease in the average fine in the following local bodies when compared with that for the previous half-year :—

Municipalities.

	Average fine for the half- year.	Average fine for the previ- ous half-year.
	RS.	RS.
Madurai	34	45
Coimbatore	50	68
Mangalore	34	67
Tanjore	45	59
Cuddalore	31	46
Kumbakonam	44	58
Nagapattinam	54	83
Mayuram	34	73
Bodinayakanur	29	62
Gudiyatham	17	40
Kodaikanal	58	83
Mannargudi	44	73

There was an increase in the average fine in the following local bodies :—

Tuticorin	51	30
Chidambaram	43	32
Srivilliputtur	58	27
Mettupalaiyam	71	27
Tiruvallur	49	37
Arni	26	10

The highest fine imposed during the half-year was Rs. 350 in Coonoor.

Fines ranging from Rs. 100 to Rs. 200 were levied in 31 local bodies during the half-year as against 40 local bodies during the previous half-year.

Fines in non-analysis cases.

Some local bodies have enforced Part III of the rules for exposure of food to dust and flies and taken action for obstructing the sampling Inspector from taking samples. Fines imposed under the above categories are given below :—

Municipalities.

	RS.	From 4 Panchayats.
	RS.	RS.
Tanjore	40	130
Coonoor	60	
Tuticorin	251	
Dindigul	40	
Tirupur	50	
Rasipuram	50	
Tiruvarur	50	
Total	541	

The following local bodies were not able to recoup by way of fines, the contribution paid by them to Government for analysis of samples. It has to be mentioned however that there are still some prosecutions pending disposal in courts.

Half-year 1st October 1953 to
31st March 1954.

	Contribution for half-year. RS.	Fines collected. RS.
Municipalities—		
Pudukkottai	360	325
Virudunagar	360	140
Bodinayakanur	360	209
Ambur	180	140
Gudiyatham	180	53
Melapalaiyam	180	65
Walajapet	180	90
Arni	180	130
North Arcot district—		
Ranipet	180	119
South Arcot district—		
Nellikuppam	180	115
Madurai district—		
Batlagundu	180	115
Chinnamanur	180	160
Cumbum	180	165
Nilakottai	180	35
Sholavandan	180	..
Tirumangalam	180	120
Nilgiris district—		
Kotagiri	180	170
Ramanathapuram district—		
Kandanur	180	15
Pallattur	180	120
Paramakudi	180	96
Sattur	180	105
Salem district—		
Shevaroya	180	65
Tiruchirappalli district—		
Ariyalur	180	165
Lalgudi	180	80
Musiri	180	34
Tirunelveli district—		
Courtallam	180	165
Ettayapuram	180	..
Tanjore district—		
Papanasam	180	105
Tiruvaiyaru	180	90

VII. WORK FOR OTHER GOVERNMENT DEPARTMENTS.

The Government departments which send diet articles for analysis are given in Table XI below and in greater detail in Table XII.

TABLE XI.

		Half-year 1st October 1953 to 31st March 1954.	
		Total number of samples.	Number adul- terated or otherwise unsatisfactory.
1 Government Hospitals		3,917	661
2 Civil Supplies		178	3
3 Government Milk Factory		86	2
4 Jails		66	17
5 Industries and Commerce		6	..
6 Magistrates and Police		27	11
7 Other Government departments		32	12
8 Southern Railway		25	4
9 Unofficial sources		61	15
Total ..		4,398	725

TABLE XII.

Nature and number of samples received from various Government departments during the half-year October 1953 to March 1954.

		Total number of samples.	Number adulterated or otherwise unsatisfactory.
1. Government Hospitals—			
Bread		738	42
Milk		642	53
Butter		260	54
Ghee		413	133
Gingelly oil		394	299
Coconut oil		162	1
Dhall		433	23
Coffee powder		252	5
Curry powder		3	3
Barley		11	5
Pepper		2	1
Sago		5	5
Sugar		244	2
Jaggery		121	19
Biscuits		128	14
Rice		52	..
Iddly		18	..
Tamarind		18	..
Washing soda		7	..
Arrowroot		6	2
Honey		4	..
Tea		2	..
Chillies		1	..
Chicory		1	..
Total ..		3,917	661

		Total number of samples.	Number adulte- rated or otherwise unsatisfactory.
2. Civil Supplies Department—			
Rice		78	..
Milo		5	..
Wheat		27	..
Paddy		23	..
Jowar		8	2
Boiled rice		32	..
Broken rice		1	1
Sorghum		4	..
Total ..		178	3
3. Government Milk Factory—			
Reconstituted milk		78	1
Skimmed milk powder		5	..
Vanaspathi		3	..
Total ..		86	1
4. Jails—			
Gingelly oil		78	1
Ghee		24	13
Milk		7	..
Soap		3	..
Bread		2	..
Dhall		2	..
Total ..		66	14
5. Industries and Commerce			Total number of samples.
			6
6. Magistrates and Police—			
Manjanathi leaves			6
Congo red colour			1
Soda			2
Blackgram husk			6
Tea			1
Bell's East India arrowroot			1
King's arrowroot			1
Coffee powder			4
Butter			1
Coffee			2
Milk			1
7. Other Government departments—			
Ghee			1
Milk			1
Milk powder			21
Cholam			1
Butter milk			1
Pickles			1
Rice			1
Milo			4
Tea			1

	Total number of samples.
8. Southern Railway—	
Sugar	3
Groundnut oil	4
Cooking ghee	2
Coconut oil	4
Dhall	1
Gram	1
Gingelly oil	7
Kardi oil	3
9. Unofficial samples—	
Coffee powder	1
Ghee	27
Curry powder	4
Skimmed milk powder	4
Tea	2
Arrowroot	1
Bees-wax	1
Palm oil	1
Honey	1
Breastmilk	1
Tapioca	1
Butter milk	1
Gingelly oil	3
Malt extract	1
Wheat bran	4
Sugar	6
Total	61

(1) GOVERNMENT HOSPITALS.

The number of diet articles received from the hospitals during the half-year was 3,917 as compared with 3,286 during the previous half-year. The reasons for adverse report on some samples are given below :—

Bread.—Out of 738 samples 42 were unsatisfactory, 23 having acidity in excess of the prescribed limit and 4 being insufficiently baked. The remaining 15 were unsatisfactory for other reasons.

Milk.—The number of samples received was 642 of which 53 were reported as adulterated, 40 containing added water and 13 being deficient in fat.

Butter.—Of the 260 samples 54 were adulterated, 37 contained excess water, 15 contained foreign fat and one sample contained both excess water and foreign fat. Two samples from the Government Hospitals, Rasipuram and Tuticorin, contained 91 per cent and 77 per cent foreign fat respectively.

Ghee.—The number received was 413, out of which 133 were reported as unsatisfactory, 112 for being adulterated with foreign fat and 21 containing free fatty acid in excess.

Gingelly oil.—Out of 394 samples, as many as 264 were reported as unsatisfactory for having excess acidity over the prescribed maximum limit of 3.0 per cent, and 35 contained groundnut oil as adulterant. It has to be specially mentioned that samples of gingelly oil from the Government Hospitals at Melapalayam, Tiruppur, Villupuram and Tiruppattur consisted of ground nut oil on one or two occasions.

Dhall.—Of 433 samples 20 were reported as unsatisfactory for having been coated with water soluble yellow dye and 3 were mouldy.

Coffee powder.—Five out of 252 samples were adulterated, the adulterant being chicory.

Curry powder.—Three samples were reported as unsatisfactory as they did not contain some of the prescribed ingredients such as pepper, cummin seed.

Barley.—Out of 11 samples 5 were reported as unsatisfactory as they were adulterated with ragi.

Sago.—Five samples of sago were found to consist of tapioca starch.

Sugar.—Two samples out of 244 contained excess sand and were reported as unsatisfactory.

Eight lactometers received from Government hospitals for checking the calibration were found to be unreliable and the hospital authorities were asked to buy better lactometers from reliable firms.

(2) CIVIL SUPPLIES DEPARTMENT.

Samples of rice, wheat and paddy were received for the determination of moisture. Fumigated samples of milo, jowar and rice were analysed for the presence of residual fumigant (hydrocyanic acid) before they were released for human consumption.

(3) GOVERNMENT MILK FACTORY.

The Government Analyst's Laboratory continued to give technical advice and assistance to the Milk Factory. Five samples of spray-dried skimmed milk powder and three samples of Vanaspati (partly hydrogenated vegetable oil) were analysed. Routine samples of reconstituted milk were also analysed to see whether the correct proportions of milk powder and Vanaspati were used in the reconstituted milk.

(4) JAILS.

Eleven out of 28 samples of gingelly oil and 13 out of 24 ghee samples were reported as adulterated or otherwise unsatisfactory.

Three samples of soap prepared in Central Jail, Coimbatore, were received from the Director of Medical Services, Madras, to see whether they were suitable for use in Government departments. The soaps had the following composition and were reported as suitable for use :—

	Washing soap.	Sentol soap.	Carbolic soap.
	(1)	(2)	(3)
	PER CENT.	PER CENT.	PER CENT.
Moisture	24.5	20	21.3
Fatty acids	56.4	60.1	61.6
Free alkalinity	0.02	Nil.	0.02
Sodium chloride	0.5	0.1	0.2

(5) MAGISTRATES AND POLICE.

Three samples were received from Magistrates for referee analysis according to the request of the accused who wanted analysis of the samples left in their custody according to the provisions of the Madras Prevention of Adulteration Act.

The First-class Magistrate, Virudunagar, sent some samples of spurious tea and the necessary accessories used in their manufacture which included foreign leaf, colouring matter, etc. Four spurious samples of coffee powder were found to consist of a preparation of roasted wild date, chicory and exhausted coffee.

The Sub-Inspector of Police, Crime Branch, Madras, sent two improperly labelled packets of arrowroot. One of them labelled as Pure King's Arrowroot actually contained tapioca. Another sample labelled "Bells' East-Indian Arrowroot" contained only East-India Arrowroot (*Curcuma Angustifolia* Roxb) but did not bear a label as required by the Madras Prevention of Adulteration Rules.

VIII. SAMPLES FROM UNOFFICIAL SOURCES.

Out of four samples of skimmed milk powder received from a firm, three were reported as unsatisfactory as they contained excessive amount of water-insoluble matter.

A sample of tea from a firm was reported as unsatisfactory as it contained some tea stalk and did not conform to the specifications laid down in the Madras Prevention of Adulteration Rules.

A sample of bees-wax received from a firm was found to contain 40 per cent of paraffin wax.

A sample of malt extract received from a firm conformed to the British Pharmacopoeia Standards.

IX. NEW RULES AND CIRCULARS.

Government in G.O. No. 4023, Health, dated 27th January 1953, further amended Rule 28-B making it obligatory on the part of hotel-keepers to put up notice boards stating which of the sweets and savouries are made in ghee and which are not made in ghee.

The proviso to rule 37 (D) has been deleted (in G. O. No. 179, Health, dated 27th January 1954) so that it is now incumbent on the merchants who sell coffee-chicory mixtures to put up labels on the containers as required in the rules.

The High Court issued a circular, dated 31st May 1954, to the Magistrates to the effect that—

- (1) All food adulteration cases may be posted for hearing on a particular day in the week;
- (2) date of hearing should be intimated to the Prosecuting Officer; and
- (3) copies of judgments in acquittal cases should be prepared by the Magistrates in duplicate and one copy should be given to the Prosecuting Inspector as soon as the judgment is delivered after certifying to the correctness of the same.

X. IMPORTANT HIGH COURT JUDGMENTS.

(1) FINE ENHANCED FOR SALE OF IMITATION TEA.

Cr.R.C. No. 1267 of 1952.

The accused, a merchant in Tiruppur, who sold 100 per cent imitation tea and pleaded 'guilty' to the charge was fined Rs. 10. On appeal to the High Court, the fine was enhanced to Rs. 50. The following is an extract from the High Court Judgment:—

Petition under sections 435 and 439 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order, dated 29th August 1952, and made in C. C. No. 1883 of 1952 on the file of court of the Sub Magistrate of Palladam and to enhance the sentence passed on the accused.

This case coming on for hearing, upon perusing the petition and the memorandum of grounds filed therewith and order of the lower court and the record of evidence in the case and upon hearing the arguments of the Assistant Public Prosecutor on behalf of the State and the accused not appearing in person or by advocate, the Court made the following

Order.

This revision is by the State for enhancement of the sentence passed on the respondent.

The Municipal Health Officer, Tiruppur, filed a complaint against the respondent herein for an offence under section 5 (1) (b) of the Madras Prevention of Adulteration Act, 1918. The case against the respondent is that, on 26th April 1952, in his shop No. 74/16, Eswaran Koil Street, Tiruppur town, he was keeping for sale tea which was not actual tea but foreign leaves which are said to possess the qualities of tea. The leaves were taken and sent to the Public Analyst and, according to the certificate issued by the Analyst, it is clear that the sample contained no percentage of tea at all but consisted entirely of a preparation of foreign leaves. The accused has pleaded 'guilty' to the charge. The lower court has sentenced him only to a fine of Rs. 10.

It is clear from the certificate that what was sold was not tea but some foreign leaves. It is a clear case of cheating the public. The lower Court ought to have given him a deterrent sentence in a case of this nature. The sentence appears to be very inadequate.

The sentence of fine is enhanced to Rs. 50. In default, the respondent will undergo simple imprisonment for two weeks. The petition is allowed.

(2) IMITATION ARROWROOT.

Cr.R.C. No. 482 of 1953.

A merchant who sold tapioca starch as 'Arrowroot' was convicted by the Second Presidency Magistrate, Madras. He filed an appeal in the High Court and contended that what he sold was arrowroot. After thoroughly going into the question of what is arrowroot, the Hon'ble Judge of the High Court dismissed the appeal filed by the accused. The following is an extract from the judgment:—

Petition under sections 435 and 439 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order of the Court of the Second Presidency Magistrate, Georgetown, Madras, dated 10th April 1953 and made in No. 131 of 1953.

The case coming on for hearing, upon perusing the petition and the order of the Lower Court, and the material records in the case and upon hearing the arguments of Mr. V. Rajagopala Mudaliar, advocate for the petitioner, and of Messrs. B. Lakkappa Rai and A. S. Raman, advocates for the respondent, and of the Assistant Public Prosecutor for the State Prosecutor on behalf of the State of Madras, the Court made the following

Order.

This is a conviction under the Madras Prevention of Adulteration Act, 1918. The question in this case is "What is it that the accused sold as arrowroot"?

The substance that he sold as arrowroot was submitted for analysis and the Analyst has testified to the fact that his is made of tapioca starch and is not made from the Plant *Maranta Arundinacea* Linn. In fact, he has stated that it does not conform to the Government Order passed by the Government according to which arrowroot means the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea* Linn. Under the rules, "No person shall sell or offer or expose for sale or deposit in any place for sale or despatch or deliver to any purchaser, broker or agent, any sample of arrowroot which does not comply with the standard specified in the sub-rule (1) unless a label is affixed with the description thereon that the arrowroot is not suitable for invalid diet".

In this case, Exhibit P-1 is a bill which is issued to the purchaser and this contains on the back the following words:—

"Certified that the food described in this invoice is warranted to be pure and in accordance with this description and to comply with the provision of the Madras Prevention of Adulteration Act, 1918, and the rules, if any, made thereunder".

K.I.G.—10A

In short he assures the purchaser that his is an article which conforms to the description mentioned in the rules made under the Madras Prevention of Adulteration Act. The only rule which governs this is rule 41, according to which, as already stated, the definition of arrowroot has been given. It is "the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea* Linn". There can be no doubt, therefore, that from the evidence of the Public Analyst it is clear that what he sold is not what is in conformity with the rules framed under the Act. The accused, in my opinion, has falsely misrepresented to the purchaser that he is selling something which is not really what is in conformity with the rules. But the learned advocate who is appearing for the petitioner, contends that arrowroot name is given to many articles made not only from *Maranta Arundinacea* Linn but also applies to preparations from tapioca and several other things. As pointed out in the British Pharmaceutical Codex, 1934, Edition at page 631 :

"Arrowroot is the starch prepared from the rhizomes of *Maranta Arundinacea* Linn, a native of Central America, but cultivated in the West Indies, Natal and other tropical and sub-tropical countries."

The Book further states under the heading "substitutes" as follows :—

"Many starches have been described as arrowroots and are sometimes substituted for arrowroot; the most important of these substitutes are the starches of potato."

They are, as pointed out, substitutes and not arrowroot. Again the organ of the Society of Public Analysts and other Analytical Chemists, which is a monthly journal devoted to the advancement of analytical chemistry in volume 59 of 1934 at page 493 this is what is stated "Arrowroot has been defined by the Government of St. Vincent as 'the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea*' and this is the definition *Ordinarily accepted in the trade*."

In Adulteration and Analysis of Foods and Drugs by Liverseege at page 152, this is what he says :—

"The question 'What is arrowroot?' has given rise to much controversy. After consulting authorities, one considers that the position is fairly put by Squire ('Companion to B.P.'). The name arrowroot is properly applied only to the starch derived from *Maranta Arundinacea* but it is often loosely applied to the starch derived from other plants when used as food for invalids."

The description of potato and maize starches as 'British arrowroot' indicates a desire in some quarters to degrade the word till it merely becomes a synonym for starch. The underlying suggestion, that the substance is obtained from the same plant grown in another country, is quite incorrect. I have a list of the botanical names of eleven different plants from the many different natural orders, to each of which the name 'arrowroot' has been applied with a geographical prefix.

The definition given in the various books above mentioned clearly shows that 'arrowroot' means the starch prepared from *Maranta Arundinacea*. That is what exactly the State has defined in its rules under the rule making power under section 20 of the Act. One of the contentions of the learned advocate is that rule is *ultra vires* of its powers under the Act. Under section 20 "The Local Government may make rules to carry out all or any of the purposes of this Act and not inconsistent therewith."

The preamble to the Act clearly shows that "whereas it is expedient in the interest of the public health, to prevent the adulteration of food it is hereby enacted as follows :—In the interest of public health the Local Government therefore made rules to carry out all or any of the purposes of this Act. Certainly this rule is within the rule making power of the Government under section 20 of the Act. But what is contended is that this rule is inconsistent with section 5 of the Act."

Section 5 (1) (a) and (b) of the Act are as follows :—"Section 5 (1). Every person who (a) sells any food which is not of the nature, substance or quality of the article demanded by the purchaser or (b) manufactures, stores or offers for sale or hawk about or sells any food which is not the nature, substance or quality which it purports, or is represented to be."

Under the above section, he must not sell food which is not of the nature, substance or quality of the article demanded by the purchaser, or of the nature, substance or quality which it purports or is represented to be. From the definition given from the books which have been referred to, by arrowroot is meant only the starch, which was prepared from *Maranta Arundinacea*, and any other food, though under the same name, sold certainly does not conform to the nature, substance or quality of the article demanded by the purchaser. Section 5 is clearly therefore offended by the sale of this article. In my opinion, the rule framed under section 20 defining what arrowroot is, is not inconsistent with the provisions of section 5 of the Act. The offence is clearly made out and the conviction is confirmed. The sentence cannot be said to be excessive.

The petition is, therefore, dismissed.

(3) LIABILITY OF CO-OPERATIVE SOCIETIES.

C. A. No. 733 of 1953.

The two joint Secretaries, the Salesman and Manager of Kasaragod Co-operative Milk Supply Union were convicted by the Sub-Magistrate but, on appeal, the Sub-Divisional Magistrate, Puttur, acquitted the two joint Secretaries and the Manager confirming the sentence on the salesman alone. On appeal, the High Court clearly sets out that the society as such, represented by its chief executive officer who is to sue or be sued on behalf of the society, is responsible for the offence and that the other persons are also as abettors. The following is an extract from the High Court Judgment :—

Appeal under Section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid respondents (Accused Nos. 1, 2 and 4) by the Sub-Divisional Magistrate of Puttur, South Kanara, in Criminal Appeal No. 31 of 1953 on his file (C.C. No. 349 of 1952) on the file of the Stationary Sub-Magistrate, Kasaragod.

This appeal coming on for hearing on Wednesday the 21st day, 2nd Thursday the 22nd days of July 1954 and on Thursday the 19th day of August 1954, upon perusing the Petition of Appeal and the record of the evidence and proceedings before the said Lower Courts and upon hearing the Public Prosecutor the appellant herein on all the days and Mr. K. Vittal Rao, Advocate for the respondents (accused 1, 2 and 4) on all the days and the appeal having stood over for consideration till this day, the Court delivered the following

Judgment.

This is an appeal by the State against the acquittal of the respondents by the Sub-Divisional Magistrate, Puttur. The respondents are accused 1, 2 and 4 in C.C. No. 349 of 1952 on the file of the Stationary Sub-Magistrate, Kasargod. The respondents along with another accused, accused 3 in the trial court, were tried for an offence punishable under rule 29 read with rule 27 (1) of the rules framed under section 20 of the Madras Prevention of Adulteration Act.

Accused 1 and 2 were the Joint Secretaries, accused 4 the Manager and accused 3 the salesman of a co-operative milk supply society at Kasaragod. On 15th October 1952, P.W. 1, the Sanitary Inspector of Kasaragod, along with the Executive Officer of the Kasaragod Panchayat Board, P.W. 2, went to the society's premises and purchased from the salesman, accused 3, 12 ounces of buffalo's milk and sent it to the Government Analyst for analysis. He observed the necessary formalities of dividing the milk purchased by him into three equal parts, putting them in three bottles and sealing all of them then and there. He gave one of the bottles

to the manager, accused 4 enclosing the same in a sealed cover, kept one to himself and sent the other to the analyst. A notice Exhibit P-1. was served on the accused 4 and his acknowledgment was obtained on the original. At the time of the sale accused 2 was not present, but accused 1 alone came. The business of the society is to purchase and sell milk. The sample, which was sent to the Government analyst, was found according to the report of the Deputy Government Analyst, Exhibit P-3, to be not of the quality as presented by the rules. The sample of milk was found to contain 24 per cent of water and only 4.3 per cent of fat and 6.8 per cent solids-not-fat when it should contain the minimum 4.5 per cent fat and 9 per cent solids-not-fat. Thus there can be no doubt that the milk was not of the standard prescribed by the rules and it was an adulterated stuff.

The defence of the accused is that the society had employed an expert, who said that the 3 degrees lactometer reading would comply with the rules and that they were following his advice. There is no proof that the milk sold to P.W. 1 showed 3 degrees lactometer reading. It was P.W. 1 who advised the society that 3 degrees lactometer reading would meet the requirements of law, but the milk that was sold was not submitted to him, nor as already stated there is any proof that it was of 3 degrees lactometer reading. In any event on the report of the Deputy Government Analyst there can be no doubt that the milk was an adulterated stuff and was not of the quality prescribed by the rules and that an offence has been committed. The trial Court convicted all the four accused but in appeal the respondents were acquitted. The appellate court finds that the accused 4 was only a manager and his main duty was to write and check up day-to-day accounts and has nothing to do with sales. It further finds that accused 1, 2 and 4 were not present at the time of the commission of the offence and could not have knowledge of the offence. The contravention of the rules therefore having taken place without their knowledge, the lower appellate court finds that they could not be held guilty of the offence. Hence it set aside the conviction and sentences of the respondents, who are accused 1, 2 and 4 in the case.

At the outset, I must mention that the Subdivisional Magistrate is wrong in coming to the conclusion that the 1st and the 4th accused were not present at the time. The 4th accused, according to the evidence of P.W. 1, was present and it is on him a copy of Exhibit P-1 was served immediately on purchasing the milk and he has acknowledged it in Exhibit P-1 (b). Accused 1 though he was not actually present at the time of the purchase, came in before the purchase was over and he has also signed on Exhibit P-1 and his signature is Exhibit P-1 (a). The Subdivisional Magistrate was therefore wrong in having come to the conclusion that the accused 1 and 4 were not present at the time. It is true that the accused 2 was not present. The main ground of acquittal was that the contravention took place without their knowledge and therefore they could not be held guilty. This appeal has been preferred more for the purpose of laying down the law rather than actually securing a conviction.

It is necessary to look into the rules to ascertain as to who all can be convicted under circumstances similar to this. Rule 27 under Section 20 of the Madras Prevention of Adulteration Act is as follows :—

“No person shall add any water, or any skimmed or separated milk to milk intended for sale and no person shall either by himself or by any servant or agent, sell or offer or expose for sale, and no person shall have in his possession for the purpose of sale any milk to which any such addition has been made.”

It is clear from the above rule that no person shall either by himself or by any servant or agent sell or offer or expose for sale any milk to which any such addition referred to has been made. The very rule clearly shows that although a servant may sell milk in contravention of the provisions of this rule, still the principal for whom the servant sells is liable in law. The principal in this case is the co-operative milk society. Under the by-laws framed by the society the executive management of the affairs of the society vests in a board of directors consisting of not more than seven members. There is another by-law to the effect that the president shall have a general control over all the affairs of the society and shall ex-officio be the

treasurer and shall have the custody of all the properties of the society. Under another by-law the secretary is made responsible for the executive administration of the society subject to the control of the president. According to the same by-law the secretary shall be the officer to sue or be sued on behalf of the society. There is also a provision for the appointment of an assistant secretary to assist the secretary. This shows therefore that the constitution of the society has provided for the management of the business of the society. *In such cases the question is, when the sale is effected by a servant in contravention of the provisions of law, who is really liable, whether it is only the actual salesman, the servant who sells the milk or whether the society which acts by its executive officers is also liable. With regard to the liability of the society in such circumstances the observations of Hallett J. in *Director of Public Prosecution v. Kent and Sussex Contractors, Ltd.* (1) are worth quoting Hallett J. observes at page 157 as follows :—

With regard to the liability of a body corporate for torts of crimes, a perusal of the cases shows to my mind, that there has been a development in the attitude of the Courts arising from the large part played in modern times by limited liability in tort was a matter of doubt, due partly to the theoretical difficulty of imputing wrongful acts or omissions to fictitious “Person, and it required a long series of decisions to clear up the position. Similarly, the liability of a body corporate for crimes was at one time a matter of doubt, partly owing to the theoretical difficulty of imputing a criminal intention to a fictitious person and partly to technical difficulties or procedure. the theoretical difficulty of imputing criminal intention is no longer felt to the same extent.”

In *Pharmaceutical Society v. London and Provincial Supply Association* (2) Lord Blackburn said : “If you could get over the first difficulty or saying that the word ‘person’ here may be construed to include an artificial person, a corporation, I should not have the least difficulty upon these other grounds which have been suggested.” In *Reg. v. Tylar* (3) Rowen L. J. said “I take it, therefore, to be clear that in the ordinary case of a duty imposed by statute, if the breach of the statute is a disobedience to the law, punishable in the case of a private person by indictment the offending corporation cannot escape from the consequences which would follow in the case of an individual by showing that they are a corporation”. Kay L. J. said “therefore that part of the arguments, that in as much as a criminal act involves a *mens rea* a corporation which has no *mens rea* at all is not subject to criminal proceedings in any case, is untenable”.

Viscount Caldecote C. J. observes. *Director of Public Prosecutions v. Kent and Sussex Contractors, Ltd.* (1) at page 151 as follows :—

“There is no reason why a warranty should not be given by a corporation. It can give a warranty through its agents, and through its agents it can believe, or not believe as the case may be that the statements in the warranty are true. A similar point has been raised in cases concerning the liability of a corporation in actions which, in the case of an individual, would involve an enquiry into a state of mind, such as fraud, libel or malicious prosecution. It is well settled that a corporation may be liable in all those actions.”

These observations clearly show that in cases where the Legislature has prohibited an act or enforce a duty in such words as to make the prohibition or the duty absolute the principal is liable, if the act is in fact done by his servant. As observed by Atkin, J. in *Mousell Bros Ltd. v. London and North Western Railway Company*. [1917 (2) K. B. 836] when once it is decided in one of these cases that the principal may be held liable originally for the act of his servant, there is no difficulty in holding that a corporation may be principal. No *mens rea* is necessary to make the principal liable. A corporation is exactly in the same position as a principal, who is not a corporation. As already stated Rule 27 under Section 20 of the Madras Prevention of Adulteration Act clearly shows that no person shall either by himself or by any servants or agents, do any of the things prohibited under the rule. A corporate society is therefore undoubtedly liable for the offence committed. As pointed out in the *King v. Patrick and Planner* (1) (Leach 253-168 M.R. 229) it is the corporation

* One of the objects of the Society is to arrange for the sale of milk, and milk is therefore sold by the society.

that must prosecute in their corporate name, and if it is to be prosecuted it should be in the corporate name. According to the rules, it is the secretary of this co-operative society, who shall sue or be sued on behalf of the society. The prosecution should, therefore, be against the secretary of the co-operative society, if it is to make the co-operative society liable for the offence. This does not mean that the actual persons who sold are not liable. They are liable as abettors, primarily the sale being by the society. In this case the 1st and the 2nd accused are said to be Joint Secretaries. There is no provision under the by-laws for the appointment of joint secretaries. It is only the secretary who will be responsible for the executive administration of the society subject to the control of the president and will sue or be sued upon on behalf of the society. There is no evidence that of the 1st and 2nd accused as to who exactly was the secretary and who was the joint secretary. In the absence of evidence I do not think that either of them can be convicted. As regards the 4th accused the findings of the Subdivisional Magistrate that his main duty was to write and check up day-to-day accounts and that he has nothing to do with sales is not justified by the evidence in this case. As already stated, Exhibit P-1 was served on him and he has acknowledged it. A reading of Exhibit P-1 shows that he is a seller. He has made no attempt to contradict the fact that he is a seller, except by stating in Court that it is the salesman that purchases and sells the milk and that he has not committed the offence. It is true that this conduct is not denying immediately when Exhibit P-1 was served on him and acknowledged by him that he is a seller will ordinarily be sufficient along with other circumstances to prove that he is a seller. Still in appeal against the acquittal I am not prepared to rely solely on this conduct alone and find accused 4 guilty of the offence. In my view in all such cases, where a co-operative society or a corporation is involved, it is necessary to find a complaint against the society as such by its secretary, as in the present case, who under the by-laws is to sue or be sued, or by such other officer, who represents the society. In this case, if accused 1 or accused 2 has been proved to be the Secretary, there would be no difficulty in convicting him of the offence. But as already stated there is no proof as to who exactly of the two was the Secretary. Neither of them therefore can be found guilty of the offence. In the result the acquittal was to be maintained, though not for the reasons given by the Subdivisional Magistrate. The appeal is dismissed.

(4)

In another case C.A. Nos. 454 and 455 of 1954 the Hon'ble High Court Judge convicted the Co-operative Stores and ordered the recovery of the fine from the President or Secretary who is in executive management of the Stores. The following is an extract from the judgment :—

Appeal under Section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid Respondent (Accused 1) by the Stationary Sub-Magistrate, Tuticorin, in C.C. No. 257 of 1954 on his file.

These appeals coming on for hearing upon perusing the petitions of appeals and the record of the evidence and proceedings before the said Lower Courts and upon hearing the Public Prosecutor, the appellant in both the appeals and Mr. C. K. Venkatanarasimhan, Advocate for the Respondent in both the Appeals, the Court delivered the following

Judgment.

The two appeals arise out of C.C. No. 257 of 1954 on the file of the Stationary Sub-Magistrate, at Tuticorin. In the case, four accused were charged for an offence under Rule 28-D read with rule 29 framed under Section 20 of the Prevention of Food Adulteration Act. The first accused was the co-operative stores, the second accused was the salesman, the third accused a bill clerk and the fourth accused, the Manager. The prosecution has been launched in connection with the sale of Toor dhal which was found to be adulterated. The trial Court convicted the Manager alone and acquitted the rest. In appeal the Manager was acquitted. Hence these two appeals have been preferred, one against the acquittal by the trial Court of the first accused and the other against the acquittal of the Manager by the appellate Court. I have

held in C.A. No. 733 of 1953, that when a Co-operative Society which is selling food-stuffs which are found to be adulterated, it is the co-operative society that must be charged. In such case, the co-operative society is either represented by the President or the Secretary according as the rules vest the Management in either the President or the Secretary. In this case the first accused has been charged only because he was a Manager. In the absence of any specific rules, that the executive management vests in him, he cannot be convicted. Therefore criminal Appeal 454 of 1954 which is filed against the acquittal is dismissed.

As regards C. A. No. 455 of 1954, the appeal is against the Co-operative Stores. It must be represented either by the President or the Secretary. Whoever it may be, the conviction against the Co-operative Stores must be registered. Therefore C.A. No. 456 of 1954 is allowed and the Co-operative Stores is convicted and is sentenced to a fine of Rs. 25. The fine will be paid by either the President or the Secretary whoever is the executive management of the stores.

In the result C.A. No. 454 of 1954 is dismissed and C.A. No. 455 of 1954 is allowed.

(5) *G.A. No. 451 of 1954.*

Sale of Coffee adulterated with wild date preparation as Coffee Chicory mixture illegal. The plea of a merchant in Srirangam that he sold the mixture as received by him from his suppliers was rejected and the merchant and his servant were convicted. The following is an extract from the High Court Judgment :—

Appeal under Section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid Respondents (Accused Nos. 1 and 2) by the Stationary Sub-Magistrate of Tiruchirappalli in C.C. No. 2195 of 1953 on his file.

This appeal coming on for hearing, upon perusing the Petition of Appeal and the record of the evidence and proceedings before the said Lower Court and upon hearing the arguments of the Public Prosecutor, the Appellant and Mr. M. Srinivasagopalan for Mr. M. R. Narayanaswami, Advocate for the 1st Respondent (1st accused) and the 2nd Respondent (2nd accused) not appearing in person or by Advocate, the Court delivered the following

Judgment.

This is an appeal by the State of Madras against the acquittal of the two accused Parthasarathy Iyengar and Karuppan Konar, in C.C. No. 2195 on the file of the Sub-Magistrate, Tiruchirappalli.

The facts are briefly these. These two accused were charge-sheeted under Rule 37 (A) (a) of the Madras Prevention of Adulteration Act for having added a substance other than chicory to coffee intended for sale in their shop. The first accused was the proprietor of the shop and the second accused was a servant under him, aiding in sale of the jars containing coffee powder. On an analysis it was found that the jars contained 75 per cent coffee and 25 per cent foreign adulterant which was not chicory and which was identified as wild roasted date seeds. The correctness of the analysis was not disputed by the accused. What they said was that they were selling these jars of coffee powder obtained from Kumar Coffee works, and that they believed the assurance of the Company that the jars contained 75 per cent coffee and 25 per cent Chicory, which is permissible under the rules, and that they had no reason to believe that the Kumar Coffee Works had mixed a foreign adulterant other than chicory, like powdered wild date seeds. They also relied on Exhibit D-2, dated 5th September 1953, a communication by them to the Health Officer stating these facts, and on a communication, Exhibit D-1, dated 5th June 1953, from one Padmakumar, the proprietor of the Kumar Coffee Works. The learned Public Prosecutor rightly pointed out that the Prevention of Adulteration Act and rules framed thereunder are intended to protect the purchasers of coffee powder and other food from adulteration, and that under Section 6 (2) of the Prevention of Adulteration Act, certain conditions have to be fulfilled before an accused could rely on a defence that he had

no reason to believe at the time, when he sold the food, that it was not of such nature, substance or quality as described in the jars, and that in all such cases therefore it would be no defence to say merely that the vendor was ignorant of the thing, substance or quality. Here, the jars sold by the accused were clearly labelled as showing 75 per cent coffee and 25 per cent *chicory* and the accused failed to show that the jars supplied to them by Kumar and Company contained 75 per cent coffee and 25 per cent *foreign adulterant*, namely, powdered wild date seeds. We are not concerned here with the question whether powdered wild date seeds are inferior to *chicory*. The law has laid down that *chicory*, and no other substance shall be mixed with coffee, and, so the admixture of any other substance like powdered wild date seeds, will be an offence. The lower Court has overlooked the provisions of Section 6 (2) and has therefore not applied Rule 37 (A) (a) to this case. I set aside the acquittal of both the accused, and convict them of an offence under Rule 37 (A) (a). After taking all the circumstances into consideration, including the plea of Mr. Narayanaswami for light sentence, I direct each of the accused to pay a fine of Rs. 5 or, in default to undergo S.I. for seven days. Fifteen days time is given for them to pay the fine, as prayed for.

(6) ANDHRA HIGH COURT JUDGMENT.

Gr. R.G. No. 581 of 1954.

101 Bags of Lak dhal flour (Kesari dhal flour) ordered to be confiscated by the Stationary Magistrate, Parvathipur, against which the merchant appealed to the High Court. The Hon'ble Judge dismissed the appeal, but held that sample from each of the remaining bags should be examined before destruction.

Petition under Sections 435 and 436 and 520 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order of the Court of the District Magistrate of Visakhapatnam, dated 29th May 1954 and made in Criminal Appeal No. 55 of 1954 preferred against the Order of the Court of the Sub-Magistrate of Parvathipuram in C.C. No. 2032 of 1953.

This case coming on for hearing upon perusing the Petition and the judgments of the lower Courts, and upon hearing the arguments of Mr. G. Balaparameswari Rao, Advocate for the Petitioner and of the Public Prosecutor on behalf of the State, the Court passed the following

Order.

This is a petition in Revision against the Order of the District Magistrate confirming that of Sub-Magistrate, Parvathipur, under Section 12 (2) of the Madras Prevention of Adulteration Act. The petitioner was charged with an offence under Section 29 of the Madras Prevention of Adulteration Act read with Rule 28-E of the rules framed under the Act.

The case against him was that on the 31st of October 1953, he had in his possession 101 bags of lak-dhall flour, a prohibited article, for purposes of sale. This lak-dhall, otherwise known as Kesari dhal, was prohibited from use under rule 28-E which recites—

“No person shall, either by himself or by any servant or agent, sell or offer or expose for sale, or have in his possession for the purpose of sale, under any description, or use in an ingredient in the preparation of any article or food intended for sale—

- (a) Kesari gram (*Lathyrus Sativus*) and its products;
- (b) Kesari dhal (*Lathyrus Sativus*) and its products;
- (c) Kesari dhal flour (*Lathyrus Sativus*) and its products;

[(d) a mixture of Kesari gram (*Lathyrus Sativus*) and bengal gram (*Cicer Arietinum*) or any other gram;

(e) a mixture of Kesari dhal (*Lathyrus Sativus*) and bengalgram dhal (*Cicer Arietinum*) or any other dhal;

(f) a mixture of Kesari dhal flour (*Lathyrus Sativus*) and bengalgram flour (*Cicer Arietinum*) or any other flour”.

Any violation of this rule is punishable under Rule 29.

The defence was that the lak-dhal did not belong to him, that the bags were sent by Mahakoshal Roller Flour Mills, Raipur to one Ch. Visweswararao in Parvatipur and that, as the latter failed to take delivery of the goods on payment of money, the accused, who was a banker, was requested by the consignor to store the same in his godowns on condition of paying rent for the godown, and that these goods were to be transported to Rayagada for sale there. This defence found favour with the trial magistrate who thought that the accused did not have this dhal for purposes of sale and that he was only acting as the agent of the proprietors of Mahakoshal Roller Flour Mills, Raipur. In this view, he acquitted the accused. But he ordered the destruction of the goods under Section 12 (2) of the Madras Prevention of Adulteration Act.

This matter was taken in appeal to the District Magistrate under Section 520, Criminal Procedure Code who confirmed the order of destruction. Hence this Revision.

In support of this Revision case, Mr. G. Balaparameswara Rao argued that Section 12 (2) is attracted only to a case where an offence has been committed under the Act, and as the accused was acquitted, no order could be passed under that section. I do not think I can give effect to this contention.

Section 12 (2) is in these terms :—

“Whether or not complaint is laid before the magistrate of any offence under the Indian Penal Code, or under this Act, if it appears to the Magistrate on taking such evidence as he thinks necessary that any such article is adulterated or other than what it purports or is represented to be, or any such utensil or vessel is of such kind or in such state as is described in Section 9 he may order the same—

(a) to be forfeited to the local authority, or

(b) to be destroyed at the charge of the owner or person in whose possession it was at the time of seizure in such manner as to prevent the same being again exposed or hawked about for sale or used for human food or for the manufacture or preparation of or for containing any such article as aforesaid.”

On the language of this sub-section, it does not appear to be necessary that any one should be found guilty of any offence. All that is required is that the magistrate, on taking evidence, should think it necessary that the food concerned is of the nature described in Section 9. The intendment of this Section is that a deleterious stuff should not be exposed to sale, which would only be prevented by the destruction thereof. That apart, it cannot be said that no offence has been committed in this case. It may be that the person who is guilty of the offence cannot be punished in this case, surely, the principal of the petitioner was in possession of the stuff through the petitioner within the meaning of Rule 28-E. It cannot be postulated that no offence has been committed, merely because the person is beyond the reach of the court and so cannot be punished.

Authority for this view is found in a Bench decision of the Madras High Court in *Md. Ismail Abdull Sait* (1) 1944 M.L.J. 336. It follows that it was within the competence of the trial court to pass an order under Section 12 (2) of the Madras Prevention of Adulteration Act.

It was next urged by Mr. Balaparameswara Rao that having found that the title to this property is vested in a third person living in outside territory which has banned the use of this article, the proper course was to direct the transport of this dhal to that place. If effect is to be given to this argument, the very purpose of clause (b) of Section 12 (2) is defeated. The object of clause (b) is to prevent the same article again being exposed or hawked about for sale for use as human food. To give effect to the request of the counsel for the petitioner will be to violate the terms

of this sub-section. Therefore, the only proper course to be adopted is to destroy each of the bags in the possession of the petitioner as contained this lak-dhall.

It appears only samples were taken from five bags. It looks that it is desirable that, before destruction is carried out, every one of the bags should be tested and if some of them do not contain this injurious stuff, they should be returned to the petitioner. I would also direct that the empty gunnies of such of the bags as containing lak-dhall will be returned to the petitioner. In other respects, the petition is dismissed.

XI. ANALYSIS OF DRUGS.

The Drugs analysed in the Government Analyst's Laboratory comprised those received under the Drugs Act from the Drugs Inspectors requiring chemical assay and those from Government hospitals and other Government institutions including stock mixtures prescribed for hospital patients.

In addition samples of drugs were also received from the Police to see whether they were spurious and infringed trade marks of popular brand available in the market.

Details of the number and source of drugs analysed during half year are given in Table XIV.

TABLE XIV.

Categories of drugs analysed in the Government Analyst Laboratory.

Under the Drugs Act	71
From Government hospitals and other Government institutions	73
From private parties	8
Total	152

The number of genuine and non-standard drugs received is given in Table XV and detailed particulars of those reported as unsatisfactory are given in Tables XVI and XVII.

TABLE XV.

Particulars of drugs received under the Drugs Act.

	Total received.	Number of standard quality.	Number non-standard.	Per cent non-standard.
Proprietary medicines	40	28	14	35.0
Pharmacopoeial drugs	31	9	22	71.0
	71	35	36	53.0

TABLE XVI.

Particulars of drugs reported unsatisfactory under Madras Drugs Rules.

"A" Proprietary drugs.

Serial number and name of drug.	Ingredient determined.	Strength as declared on label.	Result of analysis.
1 Multivite	Vitamin C ..	250 I.U. ..	65.7 per cent deficient.
2 Estyvit	Vitamin B1 ..	330 I.U. ..	51.6 per cent deficient.
	Vitamin B2 ..	1.0 mg. ..	.....
	Vitamin C ..	500 I.U. ..	.....
3 Multiminol	Total phosphorous.	0.0259 gs. ..	117.3 per cent excess.
4 Calcibit D	Cal. Gluconate ..	5.0 gr. ..	.....
	Vit. B1 ..	333 I.U. ..	75.7 per cent deficient.

Serial number and name of drug.	Ingredient determined.	Strength as declared on label.	Result of analysis.
5 Utressed	Pot. Bromide ..	5.0 gr. ..	.....
	Sod. Bromide ..	5.0 gr. ..	18.8 per cent deficient.
6 Elixir Celtoplex	Riboflavin ..	20.0 mg. ..	.....
	Niacinamide ..	50.0 mg. ..	98.4 per cent excess.
7 Adorange	Vitamin A ..	200,000 USP units.	72.5 per cent deficient.
8 Syrtusol (Cough Syrup).	Calcium phosphate.	30.0 gr. ..	100.0 per cent deficient.
9 Geletta Haemoplastics Tablets.	Ferri Sulphas Exsiccatus.	1.5 gr. ..	.....
10 Chloroform CP	Boiling point ..	} Conforms to B.P. specifications.	
	Acidity ..		
	Aldehyde ..		
	Decomposition products.		
	Foreign organic compounds.	} Does not conform to B.P. specifications.	
	Foreign odour ..		
	Non-Volatile matter.		
11 Woodward's celebrated Gripe Water.	Sod. Bicarb ..	20.0 gr. ..	34.2 per cent deficient.
	Syrup ..	10.73 fl. dr. ..	Absent.
	Saccharin ..	Not declared ..	Present.
12 Shark Liver Oil	Vitamin A ..	1,500 I.U. ..	46.3 per cent deficient.
13 Jeevanjan	Thymol ..	1.5 ..	.....
	Methyl Salicylate.	1.5 ..	60.7 per cent excess.
14 Tr. Lemonis	Alcohol content.	48 to 54 ..	8.3 per cent deficient.
	Coal tar dye ..	Present ..	.....

TABLE XVII.

"B" Pharmacopoeial drugs.

Serial number and name of drug.	Ingredient determined.	Strength as per pharmacopoeia.	Result of analysis.
1 Tinctura Hyoscyami BP (Batch No. B217).	Alkaloids of Hyoscyamus calculated as Hyoscyamine.	0.005 per cent w/v.	94 per cent deficient.
2 Gum Acacia BP (B. No. 0336).	Optical rotation of a 10 per cent solution.	Slightly laevorotatory.	.....
3 Chloroform CP	The sample does not conform to B.P. Specifications in respect of decomposition products, foreign organic matter, foreign chlorine compounds, foreign odour and non-volatile matter.		
4 Cod Liver Oil BP	Vitamin A ..	Not less than 600 I.U. per g.	89 per cent deficient.
	Acid value ..	Not greater than 17.5	
	Stearin ..	1.2	
	Does not conform to BP specifications.		
5 Extract of Malt with Shark Liver Oil IPL. 1946.	Shark liver oil. Vitamin A per gram.	5.0 per cent w/w. Not less than 300 I.U.	67.3 per cent deficient.
6 Extract of Malt with Cod Liver Oil BP 1948.	Cod Liver Oil Vitamin A per g.	9.3 to 10.7 per cent w/w 55.8 to 64.2 I.U.	12.9 per cent deficient.
7 Extractum Ergotae Liquidum BP 1948.	Total alkaloids of Ergot calculated as ergotamine.	Not less than 0.04 per cent w/v.	87.5 per cent deficient.

Serial number and name of drug.	Ingredient determined.	Strength as per pharmacopoeia.	Result of analysis.
8 Tincture of Hyoscyamus BP 53.	Alkaloids of Hyoscyamus calculated as Hyoscyamine.	0.0045 to 0.0055 per cent w/v.	88.9 per cent deficient.
9 Tinct. Benzoin BPC ..	Wt. per ml at 20° Alcohol content. Total Balsamic acids.	0.850 g to 0.860 g. 65 to 85 per cent. Not less than 2.28 per cent and not more than 4.56 (calc).	100 per cent deficient.
10 Tincture Jalap BPC ..	Wt. per ml at 20° Alcohol content. Content of Resin.	0.895 to 0.910 g 65 to 85 per cent. 1.45 to 1.55.	2.9 per cent excess. Nil.
11 Tinct. Ipecac BP ..	Alcohol content.	20 to 24 per cent.	15 per cent deficient.
12 Ext. Viburni Liq. BPC.	Wt. per ml at 20° Alcohol content.	0.930 g. to 0.980 g. 57 to 63 per cent.	9.5 per cent excess.
13 Tinct. Gelsem BPC ..	Wt. per ml at 20° Alcohol content.	0.910 to 0.925 g. 56 to 59 per cent.	3.4 per cent excess.
14 Tinct. Asafoetida BPC.	Wt. per ml at 20° Alcohol content.	0.900 to 0.930 g. 60 to 65 per cent v/v.	4.6 per cent excess.
15 Spt. Ammon. Aromat BPC.	Ammon. Carb .. Free Ammonia. Alcohol content.	2.76 to 3.24 per cent w/v. 1.12 to 1.25 per cent w/v. 64 to 70 per cent v/v	98.6 per cent deficient. 99.7 per cent deficient.
16 Tinct. Opii Camph BP..	Morphine .. Alcohol content.	0.045 to 0.055 per cent w/v 56 to 60 per cent v/v Ethyl Alcohol.	Absent.
17 Tinct. Buchu BPC ..	Wt. per ml at 20° Alcohol content.	0.923 to 0.936 g. 55 to 59 per cent v/v.	
18 Tr. Podophylli BPC ..	Wt. per ml at 20° Alcohol content. Coal tar dye ..	0.840 to 0.850 g. 85 to 88 per cent. Present.	
19 Tinct. Colchici BP 1948.	Colchicine .. Alcohol content.	0.027 to 0.333 per cent w/v. 58 to 60 per cent v/v.	100 per cent deficient.
20 Tinct. Cascarilla BPC.	Wt. per ml at 20° Alcohol content. Total solids .. Coal tar dye present.	0.895 to 0.908 g. 64 to 67 per cent v/v. Not less than 2.4 per cent.	2.7 per cent excess. 92.7 per cent deficient.
21 Tinct. Cascarilla BPC 1949.	Wt. per ml at 20° Alcohol content. Total solids ..	0.895 to 0.908 g. 64 to 67 per cent. Not less than 2.4 per cent w/v.	95.8 per cent deficient.

COMMENTS ON SAMPLES RECEIVED UNDER DRUGS ACT.

A. Proprietary preparations.—Deficiency of Vitamins was noted in a number of proprietary preparations. "Adorange" contained only 55,000 units of Vitamin A instead of 200,000 units. A sample of Shark Liver Oil falsely declared to be a product of the Government Oil Factory, Kozhikode contained about 800 units of Vitamin instead of 1,500 units. Estyvit stated to contain 330 I.U. of Vitamin B1 contained less than half the stated quantity and Calcibit-D stated to contain

333 I.U. less than a fourth of the declared potency. Multivite declared to contain 250 I.U. of Vitamin C showed a deficiency of the Vitamin to the extent of 65.7 per cent. Elixir Celtoplex on the other hand contained an excess of Niacinamide about 99 milligram instead of 50 mg.

A cough syrup "Syrtusol" claimed to contain 30 grs. of Calcium Phosphate. This was intriguing as the preparation was a clear solution and calcium phosphate is an insoluble compound. As expected, analysis revealed that there was no trace of phosphate. It does not speak highly of the technical knowledge behind our pharmaceutical industry that such a gross error should have appeared on a label.

Multiminol, a preparation containing vitamins, Glycero-phosphates, etc., was found to contain 56 milligrams of combined phosphorous as against the calculated quantity of 26.

B. Pharmacopoeial preparations.—A large number of substandard tinctures and spirits containing alcohol were received during the half year. At a time when modern pharmacopoeias are omitting these galenicals from their formularies the sudden interest that the most obsolete of them have assumed for the indigenous drug manufacturers may appear odd. The explanation, however, is simple. The purpose of these tinctures is not to alleviate the suffering of the sick but the thirst of the liquor addict. One wonders whether in modern times any doctors prescribe, say, Tr. Buchu or Tr. Cubeba for their patients. It would be very desirable if the relevant recommendation of the Pharmaceutical enquiry Committee appointed by the Government of India is implemented without delay, namely, prohibiting the manufacture of tinctures which are not specified in modern pharmacopoeia.

FROM GOVERNMENT HOSPITALS AND OTHER GOVERNMENT INSTITUTIONS.

TABLE XVIII.

Statement showing number of samples received from each hospital or other Government Institution.

Serial number and name of Institution	Total.	Standard quality.	Not of Standard quality.	Not analysed.
1 Government General Hospital, Madras.	15	9	..	6
2 Government Stanley Hospital, Madras.	18	8	10	..
3 Government Women and Children Hospital, Madras.	14	3	11	..
4 Kasturba Gandhi Hospital for Women and Children, Madras.	1	..	1	..
5 R.S.R.M. Lying-in Hospital, Madras.	4	..	4	..
6 Royapettah Hospital, Madras ..	3	..	3	..
7 Department of Biological Control, King Institute, Guindy.	1	..	..	1
8 Headquarters Hospital, Ootacamund.	4	..	4	..
9 Government Hospital, Udumalpet ..	1	1	..	..
10 R.M. Hospital, Tanjore	3	2	1	..
11 District Medical Officer, Coimbatore ..	2	2	..	..
12 District Medical Officer, Cuddalore N.T.	2	..	2	..
13 District Medical Officer, Ramanathapuram.	3	..	3	..
14 Deputy Commissioner of Police (Crime).	2	..	..	..
	73	24	40	7

The proportion of incorrectly dispensed mixtures continues to be high. The following Table XIX gives data regarding mixtures in which inaccuracy in dispensing exceeded 25 per cent.

TABLE XIX.

Name of mixture.	Ingredient.	Quantity declared per oz.	Deficiency or excess.
<i>Government Stanley Hospital, Madras.</i>			
1 Mist Quinine Sulph ..	Quinine Sulph ..	5 gr. ..	30 per cent deficient.
	Acid citric ..	10 gr. ..	49 per cent deficient.
2 Mist Ferri Sulph ..	Ferri Sulph ..	3 gr. ..	53 per cent excess.
3 Mist. Alk. Diur. ..	Pot Acetate ..	10 gr. ..	87 per cent deficient.
4 Mist. Influenza ..	Sod. Salicylas ..	10 gr. ..	37 per cent deficient.
	Sod. Bicarb ..	10 gr. ..	32 per cent deficient.
5 Mist. Pod. Iodide ..	Pot. Iodide ..	5 gr. ..	166 per cent excess.
	Spt. Amm. Aromat ..	10 M ..	107 per cent excess.
6 Mist. Sed. Expect ..	Sod. Bicarb ..	10 gr. ..	65 per cent excess.
7 Mist. Triple Sulph ..	Quinine Sulph ..	2 gr. ..	30 per cent excess.
	Acid Sulph dil ..	5 M ..	553 per cent excess.
	Ferrous Sulph ..	3 gr. ..	47 per cent excess.
<i>Government Hospital for Women and Children, Madras-8.</i>			
8 Mist. Chloro Brom ..	Syrup Chloralis ..	60 M ..	72.5 per cent deficient.
9 Mist. Carminative ..	Sod. Bicarb ..	15 gr. ..	53 per cent deficient.
	Spt. Amm. Arom. ..	10 M ..	94 per cent deficient.
10 Mist. Utre. Sed ..	Triple Bromide ..	3 gr. ..	596 per cent excess.
	Syrup Chloralis ..	24 M ..	59 per cent deficient.
11 Mist. Ferri et Amm. Citras.	Ferri et Amm. Citras ..	10 gr. ..	37 per cent deficient.
12 Mist Quinine with Ergot.	Tota Quinine ..	5 gr. ..	40 per cent deficient.
	Acid sulph dil ..	10 M ..	70 per cent excess.
<i>Raja Sir Ramaswamy Mudaliar Lying-in Hospital, Madras.</i>			
13 Alk. Mixture ..	Pot. Citrate ..	15 grs. ..	78 per cent excess.
	Pot. Bicarb ..	10 grs. ..	69 per cent excess.
14 A.P.C. Powder ..	Aspirin ..	5 gr. ..	34 per cent excess.
<i>Government Royapettah Hospital, Madras-14.</i>			
15 Mist. Sod. Salicylas ..	Sod. Salicylate ..	10 gr. ..	39 per cent deficient.
16 Mist. Pot. Iodide ..	Pot. Iodide ..	10 gr. ..	41 per cent deficient.
<i>Government Headquarters Hospital, Ootacamund.</i>			
17 Mist. Carminative ..	Sod. Bicarb ..	10 gr. ..	66 per cent excess.
	Spt. Amm. Arom. ..	10 m ..	150 per cent excess.
18 Mist. Asthmatica ..	Pot. Iodide ..	5 gr. ..	100 per cent excess.
	Amm. Bicarb ..	5 gr. ..	140 per cent excess.
<i>Government Headquarters Hospital, Ramanathapuram.</i>			
19 Mist. Asthma ..	Amm. Bicarb ..	3 gr. ..	37 per cent deficient.
20 Mist. Alk. Diur. ..	Pot. Citrate ..	10 gr. ..	31 per cent deficient.

Nearly seven times the stated quantity of Triple Bromide was found in a mixture received from the Women and Children Hospital, Madras. This is a very serious mistake. No less so is the case of Mist. Triple Sulph from the Government Stanley Hospital, Madras, which contained about 35 minims of Acid Sulphuric dil instead of 5 minims.

In 12 cases ingredients were in excess to the extent of more than 50 per cent ; in seven of these the excess was more than 100 per cent. Deficiency of active medicaments was found in many mixtures as the above Table will show.

Two samples of Vitamin A and three samples of Vitamin K supplied to the General Hospital, Madras by the International Committee of the Red Cross for distribution to social organisations were examined and found to contain the stated potency.

A sample of Isonicotinyl Hydrazide tablets received from the R.M. Hospital, Tanjore was found to be 22 per cent deficient in the active ingredient.

A sample of Shark Liver Oil purporting to be a product of the Government Oil Factory, Kozhikode but bearing the label of a private manufacturer was found to be spurious, containing only 800 I.U. of Vitamin A as against the declared strength of 1,500 I.U.

SAMPLES FROM PRIVATE PARTIES.

Two samples of Eucalyptus Oil, one from the Royal Eucalyptus Oil Distillery, Coonoor and the other from Jayaraman Nilgiris Eucalyptus oil Coonoor were found to be of Standard Quality.

One sample of Vitamin C-B Complex Tablets received from Messrs. Sreevatsa Chemicals and Drugs, Limited, Madras-1 analysis was found to contain 16.5 mg. of Vitamin C as against 20 mg. declared on the label.

One sample of Alumino-Ferric sent by the District Medical Officer, Golden Rock, Southern Railway, Tiruchirappalli was on analysis, found to contain *no arsenic*.

Five samples of Sulphathiazole Powder B.P. received from Messrs. Wilson & Co., Madras, were found to be of Standard Quality.

XII. MISCELLANEOUS.

The Government Analyst attended a meeting of the Drug Technical Advisory Board at New Delhi on the 9th October 1953 and a meeting of the Central Committee for Food Standards at New Delhi on 3rd and 4th February 1954.

KING INSTITUTE, GUINDY, MADRAS-15,
Dated 19th February 1955.

S. NARAYANA AYYAR,
Government Analyst.

APPENDIX A.

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State).

Serial number and name of district.	Total.	Adulterated.	Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.		Groundnut oil.	
			Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
1 North Arcot ..	328	151	194	108	21	10	2	1	35	4	30	9	4	3
2 South Arcot ..	348	139	214	106	16	4	20	18	57	7	14	..	5	..
3 Coimbatore ..	581	340	451	308	13	4	22	12	25	3	5	1	3	..
4 Chingleput ..	246	96	162	74	39	4	..	..	39	12	18	4	6	1
5 Malabar ..	328	114	182	102	33	2	5	..	34	1	14	..	..	..
6 Nilgiris ..	204	90	126	63	4	2	5	1	7	..	..	..	1	..
7 Salem ..	402	185	326	168	11	5	..	..	23	5	8	..	6	..
8 South Kanara ..	164	57	108	53	5	1	..	..	2	1	10	..	1	..
9 Madurai ..	1,024	307	622	261	19	5	9	7	133	9	64	1	7	..
10 Ramnathapuram ..	499	167	335	140	9	2	..	..	54	7	17	..	13	2
11 Tanjore ..	557	241	426	207	18	8	13	11	71	10	5	..	1	..
12 Tiruchirappalli ..	472	199	295	153	33	10	9	4	45	8	28	1	4	..
13 Tirunelveli ..	610	298	456	250	26	17	8	8	26	3	11	1	1	..
Grand total ..	5,763	2,384	3,897	1,991	217	74	93	62	551	70	224	17	52	6

Serial number and name of district.	Total.	Adulterated.	Tea.		Turmeric.		Honey.		Dhal and flour.		Daida.		Sweeta.		Misc.		Chilcorv.	
			Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
1 North Arcot ..	15	5	..	..	2	1	..	..	6	4	3	2	..	1	..	..	..	..
2 South Arcot ..	13	3	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..
3 Coimbatore ..	34	10	1	..	3	..	3	..	9	1	1	..	..	..	3	2	..	..
4 Chingleput ..	6	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
5 Malabar ..	9	3	..	..	2	1	..	..	8	2	..	..	1	1	..	..	..	..
6 Nilgiris ..	24	6	..	..	4	1	..	..	32	17	..	..	..	..	1	..	..	..
7 Salem ..	4	4	..	..	..	..	..	..	7	1	..	..	1	1	2	1	..	..
8 South Kanara ..	17	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
9 Madurai ..	106	12	..	..	16	1	..	..	31	7	..	..	1	1	..	..	..	..
10 Ramnathapuram ..	33	6	..	..	9	5	..	..	8	2	..	..	..	..	1	1	2	3
11 Tanjore ..	12	2	..	..	1	1	2	1	..	..	..	..	1	..	1	1	..	..
12 Tiruchirappalli ..	26	11	..	..	6	4	..	..	5	..	..	..	10	7	..	..	1	1
13 Tirunelveli ..	28	3	..	..	..	..	..	..	22	12	9	..	4	3	1	1	..	..
Grand total ..	337	67	6	47	14	23	1	131	47	13	2	19	14	16	10	3	3	3

Serial number and name of places.	Annual quota of samples.	Extra samples.	Total.		Peppercorn.	Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.	
			Total.	Adulterated.		Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<i>I. North Arcot district.</i>															
1 Vellore (M)	144	..	72	32	44.4	52	27	4	2	2	1	3	..	2	1
2 Tiruvannamalai (M)	72	..	38	23	60.5	19	13	2	2	..	..	4	2	10	5
3 Tirupattur (M)	48	..	32	15	46.9	14	4	4	1	..	..	3	..	..	..
4 Gudiyatham (M)	48	..	24	3	12.5	6	1	1	..	..	..	6	..	3	..
5 Vaniyambadi (M)	48	..	24	16	66.6	18	13	1	..	..	..	2	..	2	2
6 Walajapet (M)	48	..	25	4	16.0	17	3	2	1	..	..	4	..	2	1
7 Ambur (M)	48	..	25	9	36.6	12	5	3	2	..	..	4	..	3	5
8 Arni (M)	48	..	24	8	33.3	10	6	3	2	..	..	4	..	..	..
9 Arkonam (P)	48	..	24	15	62.5	18	13	1	..	..	..	3	..	..	..
10 Ranipet (P)	48	..	32	24	75.0	25	21	..	..	..	..	..	..	1	..
11 Polur (P)	48	..	8	2	25.0	3	2	..	..	..	..	2	..	2	..
Total ..	..	..	328	151	46.6	194	108	21	10	2	1	35	4	30	9
<i>I. North Arcot district—cont.</i>															
1 Vellore (M)	1	4	..	..	..	..	..	..	1	..	..	..	..	..	..
2 Tiruvannamalai (M)	..	1	1	..	..	..	..	1	1	..	..	..	2	..	..
3 Tirupattur (M)	..	4	..	..	..	..	..	..	..	3	2	..	..	4	..
4 Gudiyatham (M)	1	..	4	..	2	..	..	..	..	..	..	..	..	..	..
5 Vaniyambadi (M)	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Walajapet (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Ambur (M)	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Arni (M)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Arkonam (P)	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
10 Ranipet (P)	..	1	..	..	..	..	..	5	3	..	..	..	..	..	..
11 Polur (P)	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	4	15	5	10	2	1	..	6	4	3	2	..	6	4	..

I. North Arcot district—cont.

Number of samples received and found adulterated from Municipalities and Panchaya Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

REPORT OF THE

Serial number and name of place.	Annual quota of samples.	Extra samples.	(3)		Percentage adulterated.	(6)		(7)		(8)		(9)		Total (10)
			Total	Number adulterated.		Total	Adulterated.	Total	Adulterated.	Total	Adulterated.			
II. South Arcot district.														
1 Cuddalore (M)	144	..	72	26	36.1	41	22	6	..	1	1	18	3	2
2 Chidambaram (M)	96	..	48	22	45.8	36	20	1	..	1	1	6	1	1
3 Villupuram (M)	96	..	52	19	36.5	30	15	4	2	2	2	5	..	3
4 Tindivanam (M)	48	..	24	9	37.5	11	8	..	..	1	1	10	..	1
5 Bhuvanagiri (P)	48	..	30	16	53.3	8	2	..	..	13	12	5	1	2
6 Kallakurichi (P)	48	..	22	5	22.7	21	5	..	..	..	..	..	..	1
7 Nellikuppam (P)	48	..	24	7	29.1	15	6	1	..	..	..	4	..	2
8 Panruti (P)	48	..	21	17	80.9	19	16	..	..	..	..	9	2	1
9 Tirukoilur (P)	48	..	27	7	49.7	9	2	3	2	..	..	..	..	1
10 Virudachalam (P)	48	..	28	11	39.3	24	10	1	..	2	1	..	..	..
Total ..			348	139	39.9	214	106	16	4	20	18	57	7	14
III. Coimbatore district.														
1 Coimbatore (M)	288	..	157	122	77.7	133	111	8	1	10	7	..	..	..
2 Erode (M)	96	..	47	24	51.0	23	13	3	3	3	3	5	1	1
3 Pollachi (M)	120	..	72	46	63.9	50	41	..	..	1	..	4	..	2
4 Tiruppur (M)	96	..	56	22	39.2	45	22	..	..	1	..	9	..	1
5 Udumalpet (M)	96	..	48	24	50.0	35	24	..	..	..	..	1	..	2
6 Dharapuram (M)	48	..	25	6	24.0	8	4	1	..	..	..	3	..	..
7 Mettupalayam (M)	48	..	24	16	33.3	23	16	..	..	..	..	..	..	..
8 Gobichettipalayam (M)	48	..	24	23	95.8	24	23	..	..	..	..	..	..	..
9 Avanasahi (P)	48	..	24	6	25.0	17	5	..	..	6	1	..	..	..
10 Bhavani (P)	48	..	24	14	58.3	17	11	..	..	..	..	2	2	..
11 Kurichi (P)	48	..	30	14	46.6	30	14	..	..	..	..	..	..	..
12 Sathyamangalam (P)	48	..	41	17	41.5	41	17	..	..	..	..	..	..	..
13 Kollegal (P)	48	..	9	6	66.6	5	5	1	..	1	1	1	..	..
Total ..			581	340	58.4	451	306	13	4	22	12	25	3	5

IV. Chingleput district.

1 Conjeevaram (M)	144	..	96	48	50.0	66	37	2	1	..	..	18	7	8	3
2 Chingleput (M)	48	..	24	5	20.8	21	4	..	..	..	..	3	1	..	..
3 Tiruvallur (M)	49	..	24	12	50.0	17	9	1	1	..	..	3	1	..	..
4 Alandoor (P)	48	..	24	11	45.8	16	9	1	1	..	..	4	1	1	..
5 Madurantakam (P)	48	..	24	7	29.1	18	7	1	..	..	..	2	..	1	..
6 Tambaram (P)	48	..	12	4	33.3	8	3	1	1	..	..	2	..	1	..
7 Poonamallee (P)	48	..	18	5	27.7	11	4	1	1	..	..	3	1	2	1
8 Truvattiyur (P)	48	..	24	4	16.6	5	1	2	..	..	..	4	1	5	1
9 Sriperumbudur (P)	No quota	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	246	96	39.3	162	74	9	4	..	..	39	12	18	4

V. Malabar district.

1 Kozhikode (M)	288	..	140	32	22.8	61	28	17	..	3	..	19	..	2	..
2 Palghat (M)	144	..	72	42	58.3	61	38	3	1	..	..	4	1	..	..
3 Cannanore (M)	96	..	48	17	35.4	38	17	1	..	..	..	2	..	3	..
4 Cochin (M)	48	..	24	7	29.1	7	6	1	..	..	..	7	..	8	..
5 Tellicherry (M)	72	..	36	12	33.3	11	9	10	1	1	..	2	..	1	..
6 Badagara (P)	48	..	8	4	50.0	4	4	1	..	1	..	..	..	..	..
Total ..	..	..	328	114	34.4	182	102	33	2	5	..	34	1	14	..

VI. Nilgiris district.

1 Ootacamund (M)	216	..	108	53	49.0	64	41	3	1	1	..	5	..	..	..
2 Coonoor (M)	144	..	72	32	44.4	45	19	1	1	3	..	2	..	..	..
3 Kotagiri (P)	48	..	24	5	20.8	17	3	..	..	1	..	..	..	..	..
Total ..	..	..	204	90	44.1	126	63	4	2	5	1	7	..	..	..

VII. Salem district.

1 Salem (M)	288	..	215	96	44.6	186	88	6	4	..	..	11	4	1	..
2 Rasipuram (M)	48	..	26	15	57.7	17	12	2	1	..	..	3	..	..	..
3 Dharmapuri (P)	48	..	29	19	65.5	19	18	..	..	..	..	2	..	4	..
4 Harur (P)	48	..	27	8	29.6	15	6	1	..	..	..	3	..	1	..
5 Idappadi (P)	48	..	24	10	41.6	21	10	..	..	..	..	1	..	..	..
6 Namakkal (P)	48	..	24	17	70.8	17	15	1	..	..	..	1	..	1	..
7 Shevaroya (P)	48	..	27	2	7.4	23	2	1	..	..	..	..	1	1	..
8 Tiruchengode (P)	48	..	22	15	68.1	21	14	..	..	..	..	1	..	..	..
9 Astur (P)	48	..	8	3	37.5	7	3	..	..	..	..	1	..	..	..
Total ..	..	..	402	185	46.1	326	168	11	5	..	..	23	5	8	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and place.	Groundnut oil.		Coffee.		Tea.		Turmeric.		Honey.		Dhali and flour.		Dalida.		Sweeta.		Miso.		Chloory.	
	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.
II. South Arcot district.																				
1 Cuddalore (M)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Chidambaram (M)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Villupuram (M)	5	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Tindivanam (M)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Bhuvanagiri (P)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Kallakurichi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Nellikuppam (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Panruti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Tirukoilur (P)	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Virudachalam (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	6	..	13	3	4	..	..	..	2	..	2	..	..	..	1	..	..	..	..	..
III. Coimbatore district.																				
1 Coimbatore (M)	..	..	5	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Erode (M)	1	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Pollachi (M)	..	..	10	4	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Tiruppur (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Udumalpet (M)	..	..	6	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Dharapuram (M)	1	..	5	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Mettupalayam (M)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Gobichettipalayam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Avanashi (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Bhavani (P)	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Kurichi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Sathyamangalam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Kollegal (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	3	..	34	10	9	1	3	..	3	..	9	1	1	..	..	..	3	2	..	..

IV. Chingleput district.

1 Conjeevaram (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Chinglepet (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Tiruvallur (M)	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Alandoor (P)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Madurantakam (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Tambaram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Poonamallee (P)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Tiruvottiyur (P)	4	1	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Sriperumbudur (P)	No quota.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	6	1	6	..	4	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..

V. Malabar district.

1 Kozhikode (M)	..	..	6	1	24	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Palghat (M)	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Cannanore (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Cochin (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Tellicherry (M)	..	..	..	..	8	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Badagara (P)	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	9	3	38	2	2	1	2	..	8	2	..	..	1	..	..	..	..	..

VI. Nilgiris district.

1 Ootacamund (M)	..	..	11	2	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..
2 Coonoor (M)	1	..	9	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Kotagiri (P)	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	24	6	..	..	4	1	..	..	32	17	..	..	..	..	..	..	..	..

VII. Salem district.

1 Salem (M)	3	..	6	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Rasipuram (M)	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Dharmapuri (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Harur (P)	1	..	3	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Idappadi (P)	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Namakkal (P)	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Shevaroya (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Tiruchengode (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Attur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	6	..	14	4	..	..	4	..	..	..	7	1	..	..	1	..	2	..	1	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and place.	Annual quota of samples.	Extra samples.	Samples.		Percentage adulterated.	Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.	
			Total.	Number adulterated.		Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)						
VIII. South Kanara district.															
1 Mangalore .. (M)	216	..	108	34	31.4	67	33	4	..	..	..	1	..	7	..
2 Udupi .. (M)	48	..	32	10	31.2	25	9	..	..	..	..	..	..	..	..
3 Kasargod .. (P)	48	..	24	13	54.1	16	11	1	1	..	..	1	1	3	..
Total ..			164	57	34.7	108	53	5	1	..	..	2	1	10	..
IX. Madurai district.															
1 Madurai .. (M)	1,200	..	601	154	25.6	337	126	9	3	8	6	81	2	43	1
2 Dindigul .. (M)	96	..	49	19	38.8	44	18	1	1	..	..	2	..	..	..
3 Palni .. (M)	72	..	47	27	57.4	36	26	..	..	..	..	3	..	..	..
4 Bodinayakanur .. (M)	48	..	36	13	36.1	30	12	..	..	..	..	2	..	1	..
5 Kodaikanal .. (M)	48	..	24	8	33.3	20	8	1	..	..	..	2	..	..	..
6 Periyakulam .. (M)	48	..	24	10	41.6	13	9	1	..	1	1	3	..	1	..
7 Allingaram .. (P)	48	..	25	8	32.0	22	8	1	..	..	..	..	..	..	..
8 Ayyakudi .. (P)	48	..	28	9	32.1	14	7	..	..	..	..	8	2	2	..
9 Battlagundu .. (P)	48	..	24	4	16.6	3	1	6	1	..	..	4	..	1	..
10 Chinamanur .. (P)	48	..	23	8	34.7	15	8	..	..	..	..	2	..	3	..
11 Cumbun .. (P)	48	..	25	6	24.0	22	6	..	..	..	..	1	..	1	..
12 Melur .. (P)	48	..	26	11	42.3	25	11	..	..	..	..	9	..	5	..
13 Nilakottai .. (P)	48	..	23	2	8.7	8	2	..	..	..	..	7	3	3	..
14 Sholavandan .. (P)	48	..	21	8	38.1	7	5	..	..	..	..	4	1	1	..
15 Tirumangalam .. (P)	48	..	24	9	37.5	12	6	..	..	..	..	5	..	3	..
16 Usilampatti .. (P)	48	..	24	11	45.8	14	8	..	..	..	..	..	..	3	..
Total ..			1,024	307	29.9	622	261	19	5	9	7	133	9	64	1
X. Ramanathapuram district.															
1 Virudhunagar. (M)	96	..	48	11	22.9	8	1	3	..	..	..	13	3	..	..
2 Kaseikudi .. (M)	96	..	48	27	56.2	43	24	1	1	..	..	3	1	..	..

X. Ramanathapuram district.

3 Devakottai .. (M)	72	..	37	13	35.1	23	13	..	..	..	..	3	..	1	..
4 Rajapalayam .. (M)	72	..	41	13	31.7	28	13	..	..	..	..	7	..	4	..
5 Srivilliputtur .. (M)	72	..	38	12	31.5	27	10	..	..	..	..	1	..	3	..
6 Aruppukkottai .. (M)	48	..	24	5	20.8	18	5	..	..	..	..	3	..	3	..
7 Sivakasi .. (M)	48	..	24	6	25.0	16	4	..	..	..	..	2	..	..	..
8 Mudukulathur .. (P)	48	..	29	13	4.5	13	9	..	..	..	..	..	..	..	..
9 Kilakarai .. (P)	48	..	23	2	8.6	19	2	1	..	..	..	2	..	1	..
9-A Kandanoor .. (P)	48	..	24	9	39.5	20	9	..	..	..	..	3	..	3	..
10 Pallattur .. (P)	48	..	24	4	16.6	11	1	3	1	..	..	3	1	..	..
11 Paramakudi .. (P)	48	..	29	7	24.1	21	7	1	..	..	..	5	..	..	..
12 Ramanathapuram. (P)	48	..	24	18	75.0	24	18	..	..	..	..	..	..	..	..
13 Rameswaram. (P)	48	..	25	7	28.0	15	6	..	..	..	..	3	1	..	..
14 Sattur .. (P)	48	..	25	8	32.0	24	7	..	..	..	..	3	..	..	..
15 Sivaganga .. (P)	48	..	28	6	21.4	20	6	..	..	..	..	3	..	3	..
16 Tirupattur .. (P)	..	..	8	1	12.5	..	..	..	..	..	..	3	1	..	..
17 Venkateswara-puram. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Kanniseeri .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..			499	167	33.4	336	140	9	2	..	..	64	7	17	..

XI. Tanjore district.

1 Tanjore .. (M)	216	..	103	51	49.5	70	40	3	1	7	7	19	3	1	..
2 Kumbakonam .. (M)	144	..	84	45	53.5	82	43	1	1	1	1	13	..	1	..
3 Nagapattinam. (M)	144	..	84	25	29.7	61	21	3	..	3	3	4	1	1	..
4 Mayuram .. (M)	96	..	36	16	44.4	24	12	4	2	1	1	4	1	1	..
5 Mannargudi .. (M)	48	..	25	18	72.0	16	16	2	1	..	..	3	1	1	..
6 Tiruvarur .. (M)	48	..	24	16	66.6	19	15	..	..	..	..	1	1	1	..
7 Ayyampot .. (P)	48	..	28	14	50.0	19	13	..	..	..	..	8	1	1	..
8 Arantangi .. (P)	48	..	7	3	..	..	..	2	1	..	..	3	1	..	..
9 Nannilam .. (P)	48	..	24	7	29.1	22	7	..	..	..	..	2	..	..	..
10 Papanasam .. (P)	48	..	24	4	16.6	21	4	..	..	..	..	1	1	..	..
11 Pattukottai .. (P)	48	..	22	5	22.7	12	3	2	1	..	..	7	1	..	..
12 Sirkali .. (P)	48	..	24	11	45.8	22	11	..	..	..	..	1	1	1	..
13 Tiruvayaru .. (P)	48	..	22	4	18.1	17	4	..	..	..	..	1	..	..	..
14 Tiruturaiyundi. (P)	48	..	26	15	57.7	23	15	..	..	..	..	2	..	..	..
15 Tiruvidanarudur. (P)	48	..	24	7	29.1	15	3	2	2	1	..	6	2	..	..
Total ..			557	241	43.2	426	207	18	8	13	11	71	10	6	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and places.	Groundnut oil.		Coffee.		Tea.		Turneric.		Honey.		Dhall and flour.		Dalda.		Sweets.		Misc.		Chicory.	
	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
VIII. South Kanara district.																				
1 Mangalore .. (M)	..	..	13	1	14	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..
2 Udipi .. (M)	..	..	3	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Kasargod .. (P)	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1	..	17	2	19	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..
IX. Madurai district.																				
1 Madurai .. (M)	..	..	79	6	85	3	10	1	1	..	27	6	..	..	..	..	..	..	..	..
2 Dindigul .. (M)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Palai .. (M)	..	..	4	..	4	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..
4 Bodinayakanur. (M)	..	..	2	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Kodaikanal .. (M)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Periyakulam .. (M)	1	..	3	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Allinagar .. (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Ayyakudi .. (P)	3	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Batlagundu .. (P)	..	..	4	1	5	..	3	..	1	..	3	1	..	..	..	..	..	..	..	..
10 Chinamanur .. (P)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Cumbum .. (P)	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
12 Melur .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Nilakottai .. (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Sholavandan .. (P)	3	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Tirumangalam. (P)	..	..	4	2	6	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..
16 Usilampatti .. (P)	..	..	2	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	7	..	106	12	118	3	16	1	5	..	31	7	..	..	1	1	..	..	..	..

X. Ramanathapuram district.

1 Virudhunagar. (M)	8	2	9	2	4	..	..	..	..	..	..	..	..	..	..	..	1	1	2	2
2 Karaikudi .. (M)	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

3 Devakottai .. (M)	..	..	5	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Rajapalayam .. (M)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Srivilliputtur .. (M)	1	..	3	1	4	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..
6 Aruppukottai .. (M)	..	..	2	..	2	..	4	2	..	..	..	..	..	..	..	..	..	..	..	..
7 Sivakasi .. (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Mudukulathur .. (P)	..	..	1	..	1	..	3	2	..	..	6	2	..	..	..	..	..	..	..	..
9 Kilakarai .. (P)	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
10 Kandanoor .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Pallattur .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Paramakudi .. (P)	1	..	6	1	7	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
13 Ramanathapuram (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Rameswaram .. (P)	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
15 Sattur .. (P)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Sivaganga .. (P)	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 Tirupattur .. (P)	3	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Venkateswara. put. n.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19 Kannisori ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	13	2	33	6	17	..	9	5	1	..	8	2	..	..	..	..	1	1	2	2

XI. Tanjore district.

1 Tanjore .. (M)	..	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Kumbakonam .. (M)	..	..	2	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Nagapattinam .. (M)	..	..	1	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
4 Mayuram .. (M)	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
5 Marthandapuram. (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Tiruvarur .. (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Ayyampet .. (P)	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
8 Arantangi .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Nannilam .. (P)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Papanasam .. (P)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Pattukottai .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Sirkali .. (P)	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Tiruvayaru .. (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Tiruturaiyandi. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Tiruvadanur .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1	..	12	2	6	..	1	1	2	1	..	..	..	..	..	..	1	1	..	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and places.	Annal quota of samples.	Extra samples.	Samples.		Percentage adulterated.	Milk.		Ghee.		Butter.	Gingelly oil.	Coconut oil.	
			Total.	Number adulterated.		Total.	Adulterated.	Total.	Adulterated.	Total.		Total.	Adulterated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
XII. Tiruchirappalli district.													
1 Tiruchirappalli. (M)	336	..	169	73	43.1	100	48	14	3	8	3	10	..
2 Karur .. (M)	96	..	48	28	58.3	45	28	..	..	..	..	1	..
3 Pudukottai .. (M)	96	..	52	7	13.4	13	4	..	..	..	..	8	..
4 Srirangam .. (M)	48	..	25	12	48.0	11	5	10	5	..	..	..	..
5 Gunaseelam .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Ariyalur .. (P)	48	..	28	8	28.5	20	6	1	1	..	..	2	..
7 Kulitalai .. (P)	48	..	28	13	46.4	21	11	2	1	1	..	1	..
8 Laigudi .. (P)	48	..	24	3	12.5	13	2	2	..	..	..	4	..
9 Jayankondam .. (P)	48	..	28	19	67.8	24	17	..	..	..	..	1	..
10 Musiri .. (P)	48	..	21	6	28.6	13	5	..	..	..	..	1	..
11 Manaparai .. (P)	48	..	23	13	56.5	17	13	2	..	..	..	..	..
12 Turaiyur .. (P)	48	..	26	17	65.3	18	14	..	..	..	..	..	..
Total ..	..	..	472	199	42.1	295	153	33	10	9	4	28	1

XIII. Tirunelveli district.

1 Tirunelveli .. (M)	216	..	138	68	49.2	102	53	8	4	7	7	..	..
2 Tuticorin .. (M)	144	..	72	35	48.6	40	20	2	1	..	..	2	..
3 Palayamcottai. (M)	96	..	48	28	58.3	44	25	3	3	..	..	..	..
4 Ambasamudram. (P)	48	..	25	12	48.0	12	7	3	3	1	..	..	..
5 Melapalayam .. (M)	48	..	24	3	12.5	19	3	..	..	..	..	1	..
6 Courtallam .. (P)	48	..	27	7	25.9	20	7	1	..	..	..	3	..
7 Ettayapuram .. (P)	48	..	30	10	33.3	13	7	..	..	..	..	..	..
8 Kalidukurichi .. (P)	48	..	22	11	50.0	17	8	4	3	..	..	..	..
9 Kadayannallur. (P)	48	..	24	15	62.5	19	15	..	..	..	..	..	..
10 Kovilpatti .. (P)	48	..	24	10	41.6	15	9	1	1	..	..	..	..
11 Puliyanagudi .. (P)	48	..	24	14	58.3	22	14	..	..	..	..	..	..
Total ..	..	..	1388	688	49.2	1022	533	33	10	9	4	28	1

12 Senbarkoil .. (P)	48	..	24	13	54.1	31	13	..	..	..	..	..	..
13 Srivaikuntam. (P)	48	..	23	10	43.5	17	9	3	1	..	..	..	..
14 Tenkasi .. (P)	48	..	32	21	65.6	32	21	..	..	..	..	..	..
15 Tiruchendur .. (P)	48	..	26	14	53.8	20	12	1	1	..	..	..	..
16 Vikramasingapuram. (P)	48	..	21	11	52.3	20	11	..	..	..	..	..	..
17 Virvanallur .. (P)	48	..	26	16	61.5	23	16	..	..	..	..	1	..
Total ..	..	..	610	298	48.8	456	250	26	17	8	8	11	1

M = Municipality.

P = Panchayat Board.

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and name of district.	Groundnut oil.		Coffee.		Tea.		Turmeric.		Honey.		Dhall and flour.		Dalia.		Sweets.		Mica.		Chicory.	
	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
XII. Tiruchirappalli district.																				
1 Tiruchirappalli. (M)	..	..	14	6	1	..	5	3	1	..	..	..	..	..	8	6	..	..	1	1
2 Karur .. (M)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Pudukottai .. (M)	4	..	3	1	3	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
4 Srirangam .. (M)	..	..	2	1	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
5 Gunaseelam .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Ariyalur .. (P)	..	..	2	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
7 Kulittalai .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Lalgudi .. (P)	..	..	1	1	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
9 Jayancondam .. (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
10 Musiri .. (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Marappurai .. (P)	..	..	1	1	2	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..
12 Turaiyur .. (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	4	..	26	11	8	..	6	4	2	..	5	..	..	..	10	7	..	..	1	1

XIII. Tirunelveli district.

1 Tirunelveli .. (M)	..	..	8	3	2	..	..	..	..	..	17	12	..	..	1	1	..	..	..	..
2 Tuticorin .. (M)	1	..	1	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Palayancottai .. (M)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Ambasamudram. (P)	..	..	1	..	1	..	..	..	..	..	2	..	..	..	2	1	..	..	..	..
5 Molapalayam .. (M)	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
6 Courtallam .. (P)	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Ettayapuram. (P)	..	..	9	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Kalidaiakuruchi. (P)	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
9 Kadayanallur .. (P)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Kovilpatti .. (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Puliyaugudi .. (P)	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

12 Sankarankoil .. (P)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Srivaikuntam. (P)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Tenkasi .. (P)	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	1	..	..	..	..
15 Tiruchendur .. (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Vikramasingapuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 Viravanallur .. (P)	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Total ..	1	..	28	3	14	..	..	..	4	..	22	12	9	..	4	3	1	1	..	..

APPENDIX B.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st October 1953 to 31st March 1954 (Madras State).

Name of Municipalities.	Number of pending cases.	Number of convictions.	Fines in analysis cases.	Fines in non-conviction cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine for 1st April 1953 to 30th September 1953.
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

MUNICIPALITIES.

CLASS A.

1 Madurai	31	133	4,407	..	4,407	100	10	33	39
2 Tiruchirappalli	20	53	2,300	..	2,300	100	10	43	34
3 Kozhikode	..	32	1,095	..	1,095	100	16	34	33
4 Coimbatore	..	111	5,551	..	5,551	115	25	50	40
5 Salem	14	82	2,450	..	2,450	70	10	29	37
6 Ootacamund	..	53	1,676	..	1,676	75	25	31	39
7 Mangalore	3	31	1,065	..	1,065	75	15	34	50
8 Tanjore	1	50	2,275	40	2,315	100	15	45	50
9 Tirunelveli	7	61	2,045	..	2,045	100	10	33	50
10 Kancheepuram	8	40	1,050	..	1,050	75	15	28	39
11 Coonoor	..	32	1,775	60	1,835	350	10	55	65
12 Cuddalore	..	26	819	..	819	60	15	31	30
13 Kumbakonam	1	44	1,959	..	1,959	100	25	44	52
14 Nagapattinam	..	25	1,370	..	1,370	150	25	54	37
15 Palghat	..	42	1,375	..	1,375	115	15	32	48
16 Tuticorin	..	35	1,785	251	2,036	100	10	51	73
17 Vellore	5	27	1,115	..	1,115	150	20	41	26
18 Pollachi	1	45	1,116	..	1,116	75	10	26	35

CLASS B.

19 Cannanore	..	17	720	..	720	75	20	42	23
20 Chidambaram	..	22	940	..	940	90	15	43	37
21 Dindigul	1	18	466	..	466	50	6	26	14
22 Erode	1	27	1,235	40	1,275	75	25	45	54
23 Karaikudi	3	24	545	..	545	70	10	22	30
24 Karur	..	28	1,165	..	1,165	150	20	41	40
25 Mayuram	1	15	506	..	506	100	15	33	73

26 Palni	13	15	445	..	445	55	5	29	39
27 Palayamkottai	2	26	710	..	710	75	15	27	22
28 Pudukottai	..	7	325	..	325	80	25	46	24
29 Tiruppur	..	23	940	50	990	75	15	44	39
30 Udumalpet	2	18	465	..	465	50	15	26	26
31 Virudhunagar	2	9	160	..	160	30	5	17	16
32 Villupuram	..	19	620	..	620	100	15	32	28
33 Bodinayakanur	6	7	209	..	209	40	19	29	20
34 Devakottai	1	17	445	..	445	75	10	26	33
35 Rajapalayam	..	13	601	..	601	75	16	46	43
36 Srivilliputtur	..	13	700	..	700	200	30	58	29
37 Tellicherry	1	11	390	..	390	100	10	35	29
38 Tiruvananthapuram	2	21	661	..	661	100	10	31	45

CLASS C.

39 Ambur	4	5	140	..	140	40	10	28	47
40 Aruppukottai	..	5	231	..	231	75	30	46	50
41 Cochin	1	6	270	..	270	50	20	45	45
42 Chingleput	..	5	170	..	170	50	35	34	30
43 Dharmapuri	..	6	175	..	175	35	25	29	18
44 Gobichettipalayam	..	23	1,370	..	1,370	100	30	59	58
45 Gudiyatham	..	3	53	..	53	30	3	17	41
46 Kodaikanal	..	8	470	..	470	100	50	58	74
47 Melapalayam	1	2	65	..	65	35	30	32	15
48 Mettupalayam	1	15	1,075	..	1,075	115	20	71	45
49 Mannargudi	..	18	805	..	805	120	20	44	67
50 Periyakulam	..	10	256	..	256	40	15	25	34
51 Rasipuram	..	15	645	50	695	100	15	43	33
52 Srirangam	4	8	240	..	240	45	25	30	32
53 Sivakasi	..	6	170	..	170	60	20	28	23
54 Tiruvannamalai	..	9	258	..	258	50	19	24	24
55 Tiruvallur	..	11	545	..	545	120	30	49	63
56 Tirupattur	12	3	100	..	100	50	25	33	41
57 Tiruvarur	2	14	380	50	430	50	10	27	25
58 Udipi	..	10	265	..	265	55	15	28	46
59 Vaniyambadi	2	14	490	..	490	75	20	35	42
60 Walajapet	..	4	90	..	90	25	20	22	22
61 Arni	3	5	130	..	130	40	20	26	24

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and name of municipality.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Number of pending cases.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine for 1st April to 31st September 1953.
PANCHAYAT BOARDS—cont.										
XI. Tanjore district.										
54 Ayyampet	..	2	12	388	..	388	43	25	32	37
55 Nannilam	..	..	7	230	..	230	60	10	32	14
56 Papanasam	..	..	4	105	..	105	35	30	26	18
57 Patukkottai	..	1	4	210	..	210	100	30	62	65
58 Sirkali	..	..	11	515	..	515	50	30	46	34
59 Tiruvayaru	..	1	3	90	..	90	50	10	30	30
60 Tiruturapundi	..	2	13	350	..	350	60	15	27	34
61 Tiruvidadamarudur	..	..	7	430	..	430	100	40	61	51
62 Arantangi	..	..	3	180	..	180	100	30	60	..
XII. Tiruchirappalli district.										
63 Gunaseelam	..	..	8	165	..	165	50	10	21	29
64 Ariyalur	..	..	11	375	..	375	50	30	34	..
65 Kulittalai	..	2	3	80	..	80	30	25	26	40
66 Lalgudi	..	..	17	505	..	505	30	25	29	26
67 Jayankondan	..	..	2	34	..	34	17	17	17	..
68 Musiri	..	4	13	415	..	415	65	25	31	32
69 Manaparai	..	..	17	445	25	470	40	15	26	17
70 Turaiyur	..	..	..	..	..	..	..	..	..	..
XIII. Tirunelveli district.										
71 Ambesamudram	..	..	12	295	..	295	40	15	24	37
72 Courtallam	..	..	7	165	..	165	35	15	23	48
73 Ettayapuram	..	10	..	..	..	..	..	..	..	15
74 Kallidaikurichi	..	..	11	350	..	350	50	20	31	39
75 Kadayannallur	..	..	13	615	20	635	70	20	46	44
76 Kovilpatti	..	10	..	..	..	..	..	..	..	20
77 Puliyanagudi	..	..	14	310	..	310	30	10	22	18
78 Sankarankoil	..	..	13	300	..	300	25	20	23	21
79 Srivaikuntam	..	..	10	211	..	211	30	10	21	55
80 Tenkasi	..	..	21	721	..	721	75	10	34	29
81 Tiruchendur	..	..	14	585	..	585	100	20	41	61
82 Vikramasingapuram	..	6	5	170	..	170	60	15	34	25
83 Viravanallur	..	2	14	450	..	450	50	15	32	37

REPORT OF THE GOVERNMENT ANALYST, MADRAS, FOR THE ANDHRA STATE FOR THE HALF-YEAR 1ST OCTOBER 1953 TO 31ST MARCH 1954.

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Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st October 1953 to 31st March 1954 (Madras State)—cont.

Serial number and name of municipality.	(1)	Number of pending cases.	(2)	Number of convictions.	(3)	Fines in analysis cases.	(4)	Fines in non-analysis cases.	(5)	Total fines.	(6)	Maximum fine.	(7)	Minimum fine.	(8)	Average fine.	(9)	Average fine for 1st April to 30th September 1953.	(10)
PANCHAYAT BOARDS.																			
I. North Arcot district.																			
1 Arkonam	..	..	..	15	..	480	..	..	..	480	..	50	..	10	..	32	..	42	..
2 Arcot	..	1	..	11	..	232	..	..	..	232	..	50	..	5	..	21	..	29	..
3 Ranipet	..	..	..	8	..	119	..	..	..	119	..	50	..	5	..	15	..	26	..
4 Polur	..	..	..	2	..	55	..	..	..	55	..	30	..	25	..	27	..	..	..
II. South Arcot district.																			
5 Bhuvanagiri	..	..	..	16	..	590	..	..	..	590	..	60	..	7	..	36	..	29	..
6 Kallakurichi	..	5	..	..	..	115	..	..	..	115	..	40	..	10	..	23	..	18	..
7 Nellikuppam	..	2	..	16	..	438	..	..	..	438	..	50	..	17	..	27	..	31	..
8 Panruti	..	1	..	7	..	170	..	..	..	170	..	40	..	20	..	24	..	27	..
9 Tirukkoyilur	..	..	..	11	..	330	..	..	..	330	..	50	..	21	..	31	..	24	..
10 Vridhaachalam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
III. Coimbatore district.																			
11 Avanashi	..	1	..	5	..	165	..	..	..	165	..	50	..	20	..	33	..	23	..
12 Bhavani	..	..	..	14	..	418	..	..	..	418	..	50	..	10	..	29	..	35	..
13 Kurichi	..	1	..	13	..	520	..	..	..	520	..	50	..	25	..	40	..	26	..
14 Satyamangalam	..	2	..	15	..	580	..	20	..	580	..	90	..	15	..	37	..	44	..
15 Kollegal	..	..	..	6	..	205	..	..	..	205	..	80	..	10	..	34	..	..	..
IV. Chingleput district.																			
16 Alandoor	..	..	..	11	..	366	..	..	..	366	..	50	..	20	..	33	..	..	..
17 Madurantakam	..	..	..	7	..	330	..	..	..	330	..	60	..	45	..	47	..	33	..
18 Poonamallee	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33	..
19 Tiruvottiyur	..	3	..	1	..	20	..	..	..	20	..	20	..	20	..	20	..	20	..
20 Sriperumbudur	..	No samples.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	..
21 Tambaram	..	..	..	4	..	155	..	..	..	155	..	60	..	15	..	38	..	..	..
V. South Kanara district.																			
22 Kasaragod	..	..	..	13	..	435	..	..	..	435	..	100	..	10	..	33	..	29	..
VII. Madurai district.																			
23 Badagara	..	..	..	..	..	100	..	..	..	100	..	25	..	25	..	25	..	..	..
24 Allinagaram	..	..	..	6	..	170	..	..	..	170	..	30	..	25	..	28	..	21	..
25 Ayyakudi	..	2	..	6	..	215	..	..	..	215	..	50	..	25	..	35	..	40	..
26 Batlagundu	..	..	..	4	..	100	..	..	..	100	..	50	..	15	..	25	..	25	..
27 Chinnamanur	..	2	..	6	..	160	..	..	..	160	..	50	..	20	..	28	..	..	..
28 Cumbum	..	..	..	6	..	165	..	..	..	165	..	35	..	15	..	27	..	24	..
29 Melur	..	..	..	11	..	495	..	..	..	495	..	75	..	20	..	45	..	62	..
30 Nilakottai	..	..	..	2	..	35	..	..	..	35	..	20	..	15	..	17	..	..	..
31 Sholavandan	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..
32 Tirunangalam	..	2	..	7	..	120	..	..	..	120	..	20	..	16	..	17	..	27	..
33 Usilampatti	..	2	..	9	..	330	..	..	..	330	..	70	..	30	..	36	..	..	..
VIII. Nilgiris district.																			
34 Kotagiri	..	..	..	5	..	170	..	..	..	170	..	50	..	25	..	34	..	43	..
IX. Ramanathapuram district.																			
35 Mudukalathur	..	..	..	1	..	75	..	..	..	75	..	75	..	75	..	75	..	..	..
36 Kilakarai	..	1	..	12	..	332	..	..	..	332	..	40	..	12	..	28	..	23	..
37 Kandanur	..	..	..	2	..	15	..	..	..	15	..	15	..	15	..	7	..	28	..
38 Pallatur	..	..	..	9	..	120	..	..	..	120	..	16	..	10	..	13	..	27	..
39 Paramakudi	..	..	..	4	..	96	..	..	..	96	..	30	..	16	..	24	..	26	..
40 Ramanathapuram	..	..	..	7	..	215	..	..	..	215	..	50	..	20	..	30	..	32	..
41 Rameswaram	..	4	..	14	..	399	..	..	..	399	..	50	..	4	..	28	..	28	..
42 Sattur	..	..	..	7	..	105	..	65	..	170	..	20	..	15	..	15	..	24	..
43 Sivaganga	..	..	..	8	..	200	..	..	..	200	..	35	..	5	..	25	..	30	..
44 Tirupattur	..	..	..	6	..	210	..	..	..	210	..	50	..	15	..	25	..	33	..
45 Venkateswarapuram	..	..	..	1	..	20	..	..	..	20	..	20	..	20	..	20	..	..	..
X. Salem district.																			
47 Dharmapuri	..	..	..	15	..	910	..	..	..	910	..	100	..	10	..	60	..	61	..
48 Harur	..	4	..	8	..	305	..	..	..	305	..	90	..	15	..	38	..	38	..
49 Idappadi	..	..	..	10	..	170	..	..	..	170	..	30	..	15	..	17	..	18	..
50 Namakkal	..	..	..	17	..	440	..	..	..	440	..	30	..	20	..	26	..	23	..
51 Shevaroya	..	..	..	2	..	65	..	..	..	65	..	35	..	30	..	32	..	32	..
52 Tiruchengode	..	..	..	15	..	685	..	..	..	685	..	110	..	10	..	45	..	53	..
53 Attur	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

I. STAFF.

Government Analyst	 Sri S. Narayana Iyer, M.A., A.I.I.S.C., F.R.I.C.
Deputy Government Analyst	 Sri Y. G. Doraisami, M.Sc., F.R.I.C., from 1st October to 22nd November 1953 and from 1st January to 31st March 1954. Sri K. R. Srinivasan, M.A., F.R.I.C., from 23rd November to 31st December 1953.
Senior Assistants to the Government Analyst.	Sri K. R. Srinivasan, M.A., F.R.I.C. Sri K. Narayanaswami, M.A., A.R.I.C. Sri M. Krishnamurthi, M.Sc. Sri P. S. Nataraja Sarma, M.A. Sri K. Balasubramaniam, B.A. (Hons.). Sri K. Ramachandran, M.A. Sri N. Srinivasan, M.A., from 23rd November to 31st December 1953.
Junior Assistants to the Government Analyst.	Sri N. Srinivasan, M.A. Sri M. V. Narayanan, B.Sc. (Hons.) Sri C. S. Raghunathan, B.Sc. (Hons.). Sri G. Balasubramanian, B.Sc. (Hons.). Sri S. A. Subramaniam, M.Sc. till 25th Feb- ruary 1954. Sri V. Seshagiri Rao, B.Sc. (Hons.). Sri M. R. Gopalan, B.Sc. (Hons.). Sri T. R. Krishnaswamy, B.Sc. (Hons.). Sri P. Appavu, B.Sc. (Hons.). Sri S. Kasturi, B.Sc. (Hons.). Sri K. Sambandan, B.Sc.

The Laboratory Staff included one Technical Assistant, three First Grade Attendants, one Second Grade Attendant and seven peons. The Office Staff consisted of two Upper Division Clerks, one Steno-typist, three typists and two Lower Division Clerks.

LEAVE.

Sri Y. G. Doraiswami, Deputy Government Analyst was on leave on average pay for one month and nine days from 23rd November 1953 and Sri K. R. Srinivasan, Senior Assistant to Government Analyst acted in his place and Sri N. Srinivasan, Junior Assistant was promoted to act as Senior Assistant.

The following Junior Assistants were on earned leave for the periods shown against them :—

- Sri N. Srinivasan for 41 days from 22nd February 1954.
- Sri M. V. Narayanan for 10 days from 9th December 1953.
- Sri G. Balasubramaniam for six days from 1st February 1954.
- Sri V. Seshagiri Rao for 12 days from 11th January 1954.

ESTIMATED RECEIPTS.

Estimated receipts of Government Analyst Department for the half year 1st October 1953 to 31st March 1954 with reference to Andhra State.

RS. A. P.

Food Analysis—

(1) Contribution to Government from local bodies working the Madras Prevention of Adulteration Act at Rs. 7-8-0 per sample	25,335	0	0
(2) Value for analysis done for Government Institutions ..	10,230	0	0
(3) Fees received from unofficial sources	Nil.		

Drugs Analysis—

(1) Value for drug samples analysed for hospitals and samples under the Madras Drug Rules	1,250	0	0
Total ..	36,815	0	0

II. INTRODUCTION.

This report deals with the working of the Madras Prevention of Adulteration Act and the Drugs Act in the Andhra State for the half-year period from 1st October 1953 to 31st March 1954.

The Government Analyst's Laboratory at Guindy analysed food samples from 96 local bodies (35 municipalities and 61 panchayat boards) and from Government Hospitals and Institutions. Drug samples sent under the Drugs Act were also examined.

The total number of samples under the various categories analysed during the half-year is given in Table I.

TABLE I.

Number of samples under the various categories analysed in the Government Analyst's Laboratory, Guindy, from the Andhra State.

Source.	Half-year 1st October 1953 to 31st March 1954.	
	Number of samples.	Number adulterated or otherwise unsatisfactory.
Food samples under the Madras Prevention of Adulteration Act.	3,309	1,404
Food samples from Government Hospitals	942	220
Food samples from other Government Departments ..	79	10
Food samples from unofficial sources	..	..
Total (Foods) ..	4,330	1,634
Drugs under the Drugs Act	3	..
Drugs from Government Hospitals, etc.	25	18
Total (Drugs) ..	28	18

III. WORKING OF THE MADRAS PREVENTION OF ADULTERATION ACT.

During the half year under report 96 local bodies (35 municipalities and 61 panchayat boards) sent 3,309 samples of which 1,404 (42·4 per cent) were adulterated.

Table II gives the number of samples sent by the municipalities and panchayat boards. Table III gives the extra samples in addition to the permitted quota of samples and Table IV gives in detail particulars about the nature of samples and number adulterated in each category.

TABLE II.

Number of samples analysed and found adulterated in 96 local bodies in the Andhra State during the half year.

	Number of samples.	Number adulterated.	Percent- age adulterated.
Municipalities—			
9 Class 'A'	1,032	524	51·2
9 Class 'B'	382	161	42·1
17 Class 'C'	465	197	42·4
Panchayat boards—			
61 Class 'C'	1,430	522	36·5
Total from 96 local bodies ..	3,309	1,404	42·4

TABLE III.

Extra samples sent by local bodies during the half year October 1953 to March 1954.

	Number.
Municipalities—	
Rajahmundry	9
Guntakal	1
Bapatla	1
Panchayats—	
Dharmavaram	7
Jaggayyapeta	4
Jammalamadugu	4
Kovur (Nellore district) ..	4
Rajampet	6
Tanuku	2
Tiruttani	2
Nuzvid	1
Parvathipuram	1
Tadepalligudem	1
Kadiri	1
Markapur	1
Tiruvur (Krishna district) ..	8
Vayalpad	4
Vetapalem	1
Total ..	58

TABLE IV.

Particulars of samples taken from local bodies, number adulterated and percentage adulterated.

Nature of sample.	Total.	Number adulterated.	Percentage adulterated.
Milk	1,892	1,129	59.6
Ghee	298	64	21.4
Butter	96	35	36.4
Gingelly oil	170	33	19.4
Coconut oil	164	1	0.6
Groundnut oil	100	6	6.0
Chicory	3	2	66.6
Coffee powder	193	32	16.5
Sweets	30	17	56.6
Turmeric	57	9	15.8
Tea	18	..	..
Honey	21	1	4.7
Dhalls and flours	246	68	27.6
Miscellaneous	21	7	33.3
Total	3,309	1,404	42.4

The percentage of adulterated sample during the half year under report was 42.4 per cent as against 41.3 per cent for the Madras State for the same half year. Though there is a slight improvement in the case of some foodstuffs, there is an increase of adulteration in respect of milk and gingelly oil.

Milk.—Milk adulteration was particularly high in the following local bodies :—

	Number of milk samples.	Number adulterated.
Anantapur	25	23
Guntakal	23	18
Gooty	21	16
Masulipatam	35	26
Nuzvid	19	15
Badvel	16	12
Rajampet	25	21
Kakinada	84	72
Rajahmundry	83	65
Tuni	16	16
Eluru	61	49
Bapatla	13	10
Anakapalle	46	36

No ghee samples were taken in an important ghee producing centre like Tadpatri. All the twenty-three samples taken in Guntur were found to be genuine. It is doubtful whether this is the real state of affairs in regard to the bazaar samples.

Butter adulteration was high in Chirala and Palacole.

No butter samples were taken from any local bodies in the districts of Anantapur, Kurnool, Cuddapah and Nellore, though the last two are important ghee producing centres.

Gingelly oil adulteration was high in Vijayawada, Masulipatam, Gudivada, Rajahmundry, Guntur and Sullurpet.

Adulteration of Coffee was high in Dharmavaram, Vijayawada, Kurnool, Guntur and Nellore.

In Table V the districts are ranked according to the extent of adulteration prevalent in them.

TABLE V.

Districts arranged according to the increasing order of adulterated samples.

Name of district.	Rank for the half-year.	Percentage of adulterated samples.
Chittoor	1	32.9
Nellore	2	35.0
Cuddapah	3	35.9
Guntur	4	36.3
Kurnool	5	37.3
Visakhapatnam	6	43.3
West Godavari	7	45.5
Krishna	8	46.6
East Godavari	9	49.2
Anantapur	10	53.9

The districts of East Godavari, West Godavari and Krishna have been the leading districts in adulteration for many years in Andhra Area.

IV. NOTES ON ADULTERATION.

Milk.—Out of 1,892 samples, 1,129 (59 per cent) were adulterated as compared to fifty-one per cent for the Madras State during the same period.

Butter.—Out of ninety-six samples thirty-five (36.4 per cent) were adulterated as against sixty-seven per cent in the Madras State. Adulteration of butter appears to be more widely prevalent in Madras State than in Andhra State as judged from the samples received under the Act. The adulteration consists in incorporating more than the permitted limit of twenty per cent of water and also foreign fat generally hydrogenated vegetable oil commonly known as Vanaspathi. Butter adulteration was chiefly noted in Chirala, Masulipatnam, Visakhapatnam and Adoni.

Ghee.—Out of 298 samples 64 (21.4 per cent) were adulterated as compared to 33.9 per cent in the Madras State.

No standard has been fixed under the Madras Prevention of Adulteration Act for free fatty acid in ghee. Data were however collected to ascertain the range of Free Fatty Acid in the sample as ordinarily received in this laboratory for one year from November 1952. The value obtained are given below :—

Range of free fatty acids.	Number of ghee samples examined.
0.0 — 0.5 per cent	64
0.6 — 1.0 per cent	143
1.1 — 1.5 per cent	106
1.6 — 2.0 per cent	76
2.1 — 2.5 per cent	53
2.6 — 4.0 per cent	57
Above 4.1 per cent	32
Total	531

Oils.—Out of 170 Gingelly oil samples 33 (19.4 per cent) were adulterated whereas only 12.7 per cent were adulterated in the Madras State. Oil adulteration was particularly high in Vijayawada, Guntur, Rajahmundry and Gudivada.

Only one sample of Coconut oil was found to be adulterated out of a total of 164 samples received.

Sweets.—According to the latest rules Coffee Hotels should exhibit notice boards stating which of the preparations are made in ghee and which are not made in ghee. Prosecution is launched only if the ghee extracted from the preparation is found to be adulterated. The question has been occasionally raised whether the ghee extracted from the preparations would have characteristics different from those for ghee used in the preparation. To answer this question, the Reichert Value of the extracted fat was determined for some sweets and savouries and the values are given below :—

Name of preparation.	Reichert Value.
Mysore Pak	31.9, 28.6, 29.5, 31.0.
Laddu	26.7, 26.9, 29.9, 26.3.
Athirasam	26.8.
Halva	30.7, 26.3, 25.1, 29.6, 29.1.
Karaboondi	30.4, 27.8, 30.2.
Kova Barfi	26.0.
Vadai	31.0.
Jangri	26.6.
Uppama	27.0.

The above values clearly show that ghee extracted from the sweets and savouries gives the usual Reichert Value of genuine ghee and the presence of the cereal or pulse flour in the sweets and savouries does not appreciably depress the Reichert Value of the ghee. This is also obvious from the fact that cereals and pulses such as rice, wheat, blackgram, bengalgram, etc., ordinarily used for such preparations contain only about one per cent fat, the effect of which is negligible. In computing the effect of foreign fat allowance is made for the presence of this fat also. It can therefore be concluded that if the extracted ghee gives a low Reichert Value, it should be due to the presence of foreign fat in the original ghee used for the preparation.

Coffee.—Wild date is being largely used to adulterate coffee powder; other adulterants being chicory, bengalgram flour, mahua flour and coffee husk. Of 193 samples of coffee powder 32 (16.5 per cent) were adulterated as against 20 per cent in the Madras State.

Three samples of 'Chicory' were found to consist of a preparation of wild date seeds only. Chicory which has been defined in the rules as the dried and roasted root of "*Cichorium Intybus* Linn," is the only adulterant permitted for admixture with coffee under a proper label.

Tea.—It is gratifying to note that all the eighteen samples of tea were found to be genuine.

Dhall and flour.—Kesari dhall and its flour are being freely imported into the Andhra State from North India although its sale has been prohibited by the rules. The practice of colouring dhall with artificial coal tar dyes is also common.

Turmeric.—Nine out of fifty-seven samples were adulterated. The use of foreign starch like tapioca starch as a diluent is becoming more common in recent times. Four samples contained more lead than the permitted limit of five parts per million.

V. FINES.

Appendix 'B' at the end of the report gives the number of convictions, number of pending cases, fines in analysis and non-analysis cases and the maximum, minimum and average fine in each local body.

The average fine for the half-year under report is Rs. 32 as compared with Rs. 36 for the Madras State.

There was a marked decrease in the average fine in the following local bodies when compared with that for the previous half year :—

Municipalities.	Average fine for the half-year.	Average fine for the previous half-year.
	RS.	LS.
Vijayavada	22	26
Masulipatnam	18	22
Amalapuram	29	41
Gudivada	30	35
Tenali	44	53
Chittoor	17	40

The highest fine imposed during the half-year was Rs. 200 at Anakapalle.

FINES IN NON-ANALYSIS CASES.

The total amount of fines realised for offences under Part III of the rules such as exposure of food to dust and flies, obstructing Sampling Inspectors, etc., amounted to Rs. 257. Mention should be made of Rajahmundry where Rs. 155 was realised.

The following local bodies were not able to recoup by way of fines the contribution paid by them to Government for analysis of samples. It has to be mentioned that there are still some prosecutions pending disposal in courts.

TABLE VI.

Municipalities—	Contribution for half-year.	Fines collected.
	RS.	RS.
Guntur	1,080	905
Gudivada	360	300
Peddapuram	270	200
Proddatur	270	70
Chittoor	180	35
Narasaraopet	180	60
Panchayats—		
Kalahasti	180	115
Vayalpad	180	40
Jammalamadugu	180	75
Pulivendla	180	35
Polavaram	180	75
Tanuku	180	160
Ponnur	180	112
Repalle	180	115
Kandukur	180	55
Kavali	180	150
Venkatagiri	180	150
Bobbili	180	147
Palakonda	180	81
Rayadrug	180	60

VI. WORK FOR OTHER GOVERNMENT DEPARTMENTS.

The number of diet samples received from Government Departments is given in Table VII below and in greater detail in Table VIII:—

TABLE VII.

	Total.	Number adulterated or otherwise unsatisfactory.
Government Hospitals	942	220
Assistant Entomologist	67	3
Magistrates and Police	5	5
Other Government Departments	7	2
Total ..	1,021	230

TABLE VIII.

Nature and number of samples received from various Government Departments during the half-year October 1953 to March 1954.

1. Government Hospitals.

	Total.	Number adulterated or otherwise unsatisfactory.
Bread	22	15
Milk	174	17
Dhall	116	21
Gingelly oil	145	103
Rice	42	..
Jaggery	35	4
Butter	47	16
Coffee powder	25	..
Ghee	115	39
Sugar	9	1
Pepper	1	..
Coconut oil	4	1
Milk powder	1	1
Red Cholam powder	1	..
Groundnut oil	2	..
Téa leaves	1	1
Curry powder	2	2
Total ..	942	220

2. Assistant Entomologist.

Rice	6	..
Rice boiled	4	..
Wheat (Red)	12	..
Wheat (Fumigated)	31	..
Jowar	8	..
Wheat flour	1	..
Milo	2	..
Brown wheat	1	..
Broken rice	2	..
Total ..	67	..

3. Magistrates.

	Total.
Flour	5

4. Other Government institutions.

Milk powder	1
Jonna	2
Maida	1
Sojji	2
Biscuits	1
Total ..	7

(1) GOVERNMENT HOSPITALS.

The number of diet articles received from the Government Hospitals during the half-year was 942 and some of them were adversely reported on for the reasons given below:—

Bread.—Out of 222 samples, fifteen were unsatisfactory, thirteen having acidity in excess of the prescribed limit and two being insufficiently baked.

Milk.—The number samples received was 174 of which sixteen were adulterated with water and one was deficient in fat.

Butter.—Five samples contained excess water over the permitted limit of twenty per cent and eleven contained foreign fat, the remaining thirty-one samples being genuine.

Ghee.—Of a total of 115 samples thirty-nine were unsatisfactory, nineteen being adulterated with foreign fat and the remaining twenty containing free fatty acid above the permitted limit of 2.5 per cent.

Gingelly oil.—Out of 145 samples, as many as one hundred and three were reported as unsatisfactory, nineteen for being adulterated with foreign oil (Groundnut oil and Safflower oil) and eighty-four for having acidity higher than the permitted limit of 3.0 per cent.

Dhall.—Out of 116 samples twenty-one were unsatisfactory, twenty for being treated with yellow coal tar colour, and one for being mouldy.

(2) ASSISTANT ENTOMOLOGIST.

Fumigated samples of wheat were analysed for the presence of residual fumigant (hydrocyanic acid) before they were released for human consumption.

(3) MAGISTRATES.

Of the five samples received four consisted of Kesari dhall flour and one was a mixture of Kesari dhall flour and bengal gram flour.

VII. NEW RULES AND CIRCULARS.

Government in G.O. No. 4023, Health, dated 27th January 1953 further amended rule 28-B making it obligatory on the part of hotel keepers to put up notice boards stating which of the sweets and savouries are made in ghee and which are not made in ghee.

The proviso to rule 37 (D) has been deleted (in G.O. No. 179, Health, dated 27th January 1954) so that it is now incumbent on the merchants who sell coffee-chicory mixtures to put up labels on the containers as required in the rules.

The Madras High Court issued a circular, dated 31st May 1954 to the Magistrates to the effect that

- (1) all food adulteration cases may be posted for hearing on a particular day in the week,
- (2) date of hearing should be intimated to the prosecuting officer,
- (3) copies of judgments in acquittal cases should be prepared by the Magistrate in duplicate and one copy should be given to the prosecuting inspectors as soon as the judgment is delivered after certifying to the correctness of the same.

VIII. IMPORTANT HIGH COURT JUDGMENTS.

(1) FINE ENHANCED FOR SALE OF IMITATION TEA.

C.R.C. No. 1267 of 1952.

The accused, a merchant in Tiruppur, who sold 100 per cent imitation tea and pleaded "guilty" to the charge was fined Rs. 10. On appeal to the High Court the fine was enhanced to Rs. 50. The following is an extract from the High Court Judgment :—

Petition under sections 435 and 439 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order, dated 29th August 1952 and made in C.C. No. 1383 of 1952 on the file of Court of the Sub-Magistrate of Palladam and to enhance the sentence passed on the accused.

This case coming on for hearing upon perusing the petition and the Memorandum of Grounds filed therewith and order of the lower Court and the record of evidence in the case and upon hearing the arguments of the Assistant Public Prosecutor on behalf of the State and the Accused not appearing in person or by Advocate, the Court made the following :—

Order.

This revision is by the State for enhancement of the sentence passed on the respondent.

The Municipal Health Officer, Tiruppur, filed a complaint against the respondent herein for an offence under section 5 (1) (b) of the Madras Prevention of Adulteration Act of 1918. The case against the respondent is that, on 26th April 1952, in his shop No. 74/16, Eswaran Koil Street, Tiruppur Town, he was keeping for sale tea which was not actual tea but foreign leaves which are said to possess the qualities of tea. The leaves were taken and sent to the Public Analyst and, according to the certificate issued by the Analyst, it is clear that the sample contained no percentage of tea at all but consists entirely of a preparation of foreign leaves. The accused has pleaded 'guilty' to the charge. The lower Court has sentenced him only to a fine of Rs. 10.

It is clear from the certificate that what was sold was not tea but some foreign leaves. It is a clear case of cheating the public. The lower Court ought to have given him a deterrent sentence in a case of this nature. The sentence appears to be very inadequate.

The sentence of fine is enhanced to Rs. 50. In default, the respondent will undergo simple imprisonment for two weeks. The petition is allowed.

(2) IMITATION ARROWROOT.

C.R.C. No. 482 of 1953.

A merchant who sold tapioca starch as "Arrowroot" was convicted by the Second Presidency Magistrate, Madras. He filed an appeal in the High Court and contended that what he sold was Arrowroot. After thoroughly going into the question of what is arrowroot the Hon'ble Judge of the High Court dismissed the appeal filed by the accused. The following is an extract from the Judgment :—

Petition under sections 435 and 439 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order of the Court of the Second Presidency Magistrate, Georgetown, Madras, dated 10th April 1953 and made in No. 131 of 1953.

The case coming on for hearing upon perusing the petition and the order of the Lower Court, and the material records in the case and upon hearing the arguments of Mr. V. Rajagopala Mudaliar, Advocate for the Petitioner, and of Messrs. B. Lakshappa Rai and A. S. Raman, Advocates for the respondent and of the Assistant Public Prosecutor for the State Prosecutor on behalf of the State of Madras, the Court made the following :—

Order.

This is a conviction under the Madras Prevention of Adulteration Act, 1918. The question in this case "What is it that the accused sold as arrowroot"?

The substance that he sold as arrowroot was submitted for analysis and the analyst has testified to the fact that this is made of tapioca starch and is not made from the Plant *Maranta Arundinacea* Linn. In fact, he has stated that it does not conform to the Government Order passed by the Government according to which arrowroot means the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea* Linn. Under the rules "No person shall sell or offer or expose for sale or deposit in any place for sale or despatch or deliver to any purchaser, broker or agent, any sample of arrowroot which does not comply with the standard specified in the sub-rule (1) unless a label is affixed with a description there on that the arrowroot is not suitable for invalid diet."

In this case, Exhibit P-1 is a bill which is issued to the purchaser and this contains on the back the following words :—

"Certified that the food described in this invoice is warranted to be pure and in accordance with this description and to comply with the provision of the Madras Prevention of Adulteration Act, 1918, and the rules if any made thereunder".

In short he assures the purchaser that this is an article which conforms to the description mentioned in the rules made under the Madras Prevention of Adulteration Act. The only rule which governs this is Rule 41, according to which as already stated is the definition of arrowroot, has been given. It is the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea* Linn. There can be no doubt, therefore, that from the evidence of the Public Analyst it is clear that what he sold is not what is in conformity with the rules framed under the Act. The accused, in my opinion, has falsely misrepresented to the purchaser that he is selling something which is not really what is in conformity with the rules. But the learned Advocate who is appearing for the petitioner, contends that arrowroot name is given to many articles made not only from *Maranta Arundinacea* Linn but also applies to preparations from tapioca and several other things. As pointed out in the British Pharmaceutical Code, 1934, Edition at page 631.

"Arrowroot is the starch prepared from the rhizomes of *Maranta Arundinacea* Linn a native of Central America, but cultivated in the West Indies, Natal and other tropical and sub-tropical countries".

The Book further states under the heading "substitutes" as follows :—

"Many starches have been described as arrowroots and are sometimes substituted for arrowroot the most important of these substitutes are the starches of potato".

They are as pointed out, substitutes and not arrowroot. Again the organ of the Society of Public Analysts and other Analytical Chemists, which is a monthly Journal devoted to the advancement of analytical chemistry in volume 59 of 1934 at page 493 this is what is stated "Arrowroot has been defined by the Government of St. Vincent as 'the separated and purified starch from the rhizomes of the plant known as *Maranta Arundinacea*' and this is the definition ordinarily accepted in the trade".

In adulteration and analysis of Foods and Drugs by Liversidge at page 152 this is what he says—

The question "What is arrowroot?" has given rise to much controversy: After consulting authorities one considers that the position is fairly put by squire ('Companion to B.P.')—The name arrowroot is properly applied only to the starch

derived from *Maranta Arundinacea* but it is often loosely applied to the starch derived from other plants when used as food for invalids."

"The description of potato and maize starches as 'British arrowroot' indicates a desire in some quarters to degrade the word till it merely becomes a synonym for starch. The underlying suggestion, that the substance is obtained from the same plant grown in another country, is quite incorrect. I have a list of the botanical names of eleven different plants from the many different natural orders, to each of which the name 'arrowroot' has been applied with a geographical prefix."

The definition given in the various books above mentioned clearly shows that 'arrowroot' means the starch prepared from *Maranta Arundinacea*. That is what exactly the State has defined on its rules under the rule making power under section 20 of the Act. One of the contentions of the learned advocate is that rule is *ultra vires* of its powers under the Act. Under section 20 "The Local Government may make rules to carry out all or any of the purposes of this act and not inconsistent therewith".

The preamble to the Act clearly shows that "whereas it is expedient in the interest of the public health, to prevent the adulteration of food it is hereby enacted as follows:—In the interest of public health the Local Government therefore made rules to carry out all or any of the purposes of this Act. Certainly this rule is within the rule making power of the Government under section 20 of the Act. But what is contended is that this rule is inconsistent with section 5 of the Act."

Section 5 (1) (a) and (b) of the Act are as follows:—"Section 5 (1) every person who (a) sells any food which is not of the nature substance or quality of the articles demanded by the purchaser or (b) manufacture stores or offers for sale or hawks about or sells any food which is not the nature, substance or quality which it purports, or is represented to be".

Under the above section he must not sell food which is not of the nature, substance or quality of the article demanded by the purchaser, or of the nature, substance or quality which it purports or is represented to be. From the definition given from the books which have been referred to, by arrowroot is meant only the starch, which was prepared from *Maranta Arundinacea*, and any other food, though under the same name sold certainly does not conform to the nature, substance or quality of the article demanded by the purchaser. Section 5 is clearly therefore offended by the sale of this article. In my opinion the rule framed under section 20 defining what arrowroot is, is not inconsistent with the provisions of section 5 of the Act. The offence is clearly made out and the conviction is confirmed. The sentence cannot be said to be excessive.

The petition is therefore dismissed.

(3) LIABILITY OF CO-OPERATIVE SOCIETIES.

C.A. No. 733 of 1953.

The two Joint Secretaries, the Salesman and Manager of Kasaragod Co-operative Milk Supply Union were convicted by the Sub-Magistrate but on appeal the Subdivisional Magistrate, Puttur, acquitted the two Joint Secretaries and the Manager confirming the sentence on the salesman alone. On appeal, the High Court clearly sets out that the Society as such, represented by its chief executive officer who is to sue or be sued on behalf of the society, is responsible for the offence and that the other persons are also as abettors.

The following is an extract from the High Court Judgment:—

Appeal under section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid Respondents (Accused Nos. 1, 2 and 4) by the Subdivisional Magistrate of Puttur, South Kanara in Criminal Appeal No. 31 of 1953 on his file (C.C. No. 349 of 1952) on the file of the Stationary Sub-Magistrate, Kasaragod.

This appeal coming on for hearing on Wednesday, the 21st day, 2nd Thursday and 22nd days of July 1954 and on Thursday, the 19th day of August 1954 upon perusing the petition of appeal and the record of the evidence and proceedings before the said lower Courts and upon hearing the public prosecutor the appellant herein on all the days and Mr. K. Vittal Rao, Advocate for the respondents (accused 1, 2 and 4) on all the days and the appeal having stood over for consideration till this day, the Court delivered the following judgment:—

This is an appeal by the State against the acquittal of the respondents by the Subdivisional Magistrate, Puttur. The respondents are accused 1, 2 and 4 in C.C. No. 349 of 1952 on the file of the Stationary Sub-Magistrate, Kasaragod. The respondents along with another accused, accused 3 in the trial court, were tried for an offence punishable under rule 29 read with rule 27 (1) of the rules framed under section 20 of the Madras Prevention of Adulteration Act.

Accused 1 and 2 were the Joint Secretaries, accused 4 the Manager and accused 3 the salesman of a Co-operative Milk Supply Society at Kasaragod. On 15th October 1952, P.W. 1 the Sanitary Inspector of Kasaragod, along with the Executive Officer of the Kasaragod Panchayat Board P.W. 2 went to the society's premises and purchased from the salesman, accused 3, 12 oz. of buffalo's milk and sent it to the Government Analyst for analysis. He observed the necessary formalities of dividing the milk purchased by him into three equal parts putting them in three bottles and sealing all of them then and there. He gave one of the bottles to the Manager, accused 4 enclosing the same in a sealed cover, kept one to himself and sent the other to the Analyst. A notice Exhibit P-1 was served on the accused 4 and his acknowledgment was obtained on the original. At the time of the sale accused 2 was not present, but accused alone came. The business of the society is to purchase and sell milk. The sample, which was sent to the Government Analyst, Exhibit P-3 to be not of the quality as presented by the rules. The sample of milk was found to contain 24 per cent of water and only 4.3 per cent of fat and 6.8 per cent solids-not-fat when it should contain the minimum 4.5 per cent fat and 9 per cent solids-not-fat. Thus there can be no doubt that the milk was not of the standard prescribed by the rules and it was an adulterated stuff.

The defence of the accused is that the society had employed an expert, who said that the three degrees lactometer reading would comply with the rules and that they were following his advice. There is no proof that the milk sold to P.W. 1 showed three degrees lactometer reading. It was P.W. 1 who advised the Society that three degrees lactometer reading would meet the requirements of law, but the milk that was sold was not submitted to him, nor as already stated there is any proof that it was of three degrees lactometer reading. In any event on the report of the Deputy Government Analyst there can be no doubt that the milk was an adulterated stuff and was not of the quality prescribed by the rules and that an offence has been committed. The trial court convicted all the four accused but in appeal the respondents were acquitted. The appellate court find that the accused 4 was only a Manager and his main duty was to write and check up day-to-day accounts and has nothing to do with sales. It further finds that accused 1, 2 and 4 were not present at the time of the commission of the offence and could not have knowledge of the offence. The contravention of the rules therefore having taken place without their knowledge, the lower appellate court finds that they could not be held guilty of the offence. Hence it set aside the conviction and sentences of the respondents, who are accused 1, 2 and 4 in the case.

At the outset, I must mention that the Subdivisional Magistrate is wrong in coming to the conclusion that the first and the fourth accused were not present at the time. The fourth accused, according to the evidence of P.W. 1 was present and it is on him a copy of Exhibit P-1 was served immediately on purchasing the milk and he has acknowledged it in Exhibit P-1 (b). Accused 1 though he was not actually present at the time of the purchase, came in before the purchase was over and he has also signed on Exhibit P-1 and his signature is Exhibit P-L (a). The Subdivisional Magistrate was therefore wrong in having come to the conclusion that the accused 1 and 4 were not present at the time. It is true that the accused 2 was

not present. The main ground of acquittal was that the contravention took place without their knowledge and therefore they could not be held guilty. This appeal has been preferred more for the purpose of laying down the law rather than actually securing a conviction.

It is necessary to look into the rules to ascertain as to who all can be convicted under circumstances similar to this. Rule 27 under section 20 of the Madras Prevention of Adulteration Act is as follows :—

“No person shall add any water, or any skimmed or separated milk to milk intended for sale and no person shall either by himself or by any servant or agent, sell or offer or expose for sale, and no person shall have in his possession for the purpose of sale any milk to which any such addition has been made”.

It is clear from the above rule that no person shall either by himself or by any servant or agent sell or offer or expose for sale any milk to which any such addition referred to has been made. The very rule clearly shows that although a servant may sell milk in contravention of the provisions of this rule, still the principal for whom the servant sells is liable in law. The principal in this case is the Co-operative Milk Society. Under the bye-laws framed by the society the executive management of the affairs of the society vests in a Board of Directors consisting of not more than seven members. There is another bye-law to the effect that the President shall have a general control over all the affairs of the society and shall ex-officio be the Treasurer and shall have the custody of all the properties of the society. Under another bye-law the Secretary is made responsible for the executive administration of the Society subject to the control of the President. According to the same bye-law the Secretary shall be the officer to sue or be sued on behalf of the Society. There is also a provision for the appointment of an Assistant Secretary to assist the Secretary. This shows therefore that the constitution of the society has provided for the management of the business of the society. * In such cases the question is, when the sale is effected by a servant in contravention of the provisions of law, who is really liable, whether it is only the actual salesman, the servant who sells the milk or whether the society which acts by its executive officers is also liable. With regard to the liability of the society in such circumstances the observations of Hallett J. in *Director of Public Prosecution v. Kent and Sussex Contractors, Ltd.* (1) are worth quoting Hallett J. observes at page 157 as follows :—

“With regard to the liability of a body corporate for torts or crimes, a perusal of the cases shows to my mind, that there has been a development in the attitude of the courts arising from the large part played in modern times by limited liability in tort was a matter of doubt, due partly to the theoretical difficulty of imputing wrongful acts or omissions to a fictitious person, and it required a long series of decisions to clear up the position. Similarly, the liability of a body corporate for crimes was at one time a matter of doubt, partly owing to the theoretical difficulty of imputing a criminal intention to a fictitious person and partly to technical difficulties of procedure.....the theoretical difficulty of imputing criminal intention is no longer felt to the same extent.”

In *Pharmaceutical Society v. London and Provincial Supply Association* (2) Lord Blackburn said : “If you could get over the first difficulty or saying that the word ‘person’ here may be construed to include an artificial person, a Corporation, I should not have the least difficulty upon these other grounds which have been suggested.” In *Reg. v. Tylar* (3) Rowen, L.J. said “I take it, therefore, to be clear that in the ordinary case of a duty imposed by statute, if the breach of the statute is a disobedience to the law, punishable in the case of a private person by indictment the offending Corporation cannot escape from the consequences which would follow in the case of an individual by showing that they are a Corporation.” Kay, L. J., said “Therefore that part of the arguments, that inasmuch as a criminal act involves a *mens rea* a Corporation which has no *mens rea* at all is not subject to criminal proceedings in any case, is untenable”.

* One of the objects of the Society is to arrange for the sale of milk, and milk is therefore sold by the Society.

Viscount Caldecote C.J. observes *Director of Public Prosecutions vs. Kent and Sussex Contractors, Ltd.*, (i) at page 151 as follows :—

“There is no reason why a warranty should not be given by a Corporation. It can give a warranty through its agents, and through its agents it can believe or not believe, as the case may be that the statements in the warranty are true. A similar point has been raised in cases concerning the liability of a Corporation in actions which, in the case of an individual, would involve an enquiry into a state of mind, such as fraud, libel or malicious prosecution. It is well settled that a Corporation may be liable in all those actions”.

These observations clearly show that in cases where the Legislature has prohibited an act or enforce a duty in such words as to make the prohibition or the duty absolute the principal is liable, if the act is in fact done by his servant. As observed by Atkin, J. in *Mousell Bros., Ltd., vs. London and North Western Railway Company* [1917 (2) K.B. 836] when once it is decided in one of these cases that the principal may be held liable originally for the act of his servant, there is no difficulty in holding that a Corporation may be principal. No *mens rea* is necessary to make the principal liable. A Corporation is exactly in the same position as a principal, who is not a Corporation. As already stated rule 27 under section 20 of the Madras Prevention of Adulteration Act clearly shows that no person shall either by himself or by any servant or agents, do any of the things prohibited under the rule. A corporate society is therefore undoubtedly liable for the offence committed. As pointed out in the *King vs. Patrick and Planner* (1 Leach 253—168 M.R. 229) it is the corporation that must prosecute in their corporate name, and if it is to be prosecuted it should be in the corporate name. According to the rules, it is the Secretary of this Co-operative Society, who shall sue or be sued on behalf of the society. The prosecution should, therefore, be against the Secretary of the Co-operative Society, if it is to make the co-operative society liable for the offence. This does not mean that the actual persons who sold are not liable. They are liable as abettors, primarily the sale being by the society. In this case the 1st and the 2nd accused are said to be Joint Secretaries. It is only the Secretary who will be responsible for the executive administration of the society subject to the control of the president and will sue or be sued upon on behalf of the Society. There is no evidence that of the 1st and 2nd accused as to who exactly was the Secretary and who was the Joint Secretary. In the absence of evidence I do not think that either of them can be convicted. As regards the 4th accused the findings of the Subdivisional Magistrates that his main duty was to write and check up day-to-day accounts and that he has nothing to do with sales is not justified by the evidence in this case. As already stated Exhibit P-1 was served on him and he has acknowledged it. A reading of Exhibit P-1 shows that he is a seller. He has made no attempt to contradict the fact that he is a seller, except by stating in court that it is the salesman that purchases and sells the milk and that he has not committed the offence. It is true that this conduct in not denying immediately when Exhibit P-1 was served on him and acknowledge by him that he is a seller will ordinarily be sufficient along with other circumstances to prove that he is a seller. Still in appeal against the acquittal I am not prepared to rely solely on this conduct alone and find accused 4 guilty of the offence. In my view in all such cases, where a co-operative society or a corporation is involved, it is necessary to find a complaint against the society as such by its Secretary, as in the present case, who under the bye-laws is to sue or be sued, or by such other officer, who represents the society. In this case, if accused 1 or accused 2 has been proved to be the Secretary, there would be no difficulty in convicting him of the offence. But as already stated there is no proof as to who exactly of the two was the Secretary. Neither of them therefore can be found guilty of the offence. In the result the acquittal was to be maintained, though not for the reasons given by the Subdivisional Magistrate. The appeal is dismissed.

In another case C.A. Nos. 454/1954 the Hon'ble High Court Judge convicted the Co-operative Stores and ordered the recovery of the fine from the President or Secretary who is in executive management of the Stores. The following is an extract from the judgment.

Appeal under section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid respondent (accused 1) by the Stationary Sub-Magistrate, Tuticorin in C.C. No. 257 of 1954 on his file.

These appeals coming on for hearing upon perusing the petitions of appeals and the record of the evidence and proceedings before the said lower Courts and upon hearing the Public Prosecutor, the appellant in both the appeals and Mr. C. K. Venkatanarasimhan, Advocate for the respondent in both the appeals the court delivered the following

Judgment.

The two appeals arise out of C.C. No. 257 of 1954 on the file of the Stationary Sub-Magistrate, Tuticorin. In that case, four accused were charged for an offence under the rule 28-D read with 29 framed under section 20 of the Prevention of Food Adulteration Act. The first accused was the Co-operative Stores, the second accused was the salesman, the third accused a bill clerk and the fourth accused, the Manager. The prosecution has been launched in connexion with the sale of toor dhal which was found to be adulterated. The trial Court convicted the Manager alone and acquitted the rest. In appeal the Manager was acquitted. Hence these two appeals have been preferred, one against the acquittal by the trial Court of the first accused and the other against the acquittal of the Manager by the appellate Court. I have held in C.A. No. 733 of 1953, that when a Co-operative Society which is selling foodstuffs which are found to be adulterated, it is the co-operative society that must be charged. In such case, the co-operative society is either represented by the President or the Secretary according as the rules vest the Management in either the President or the Secretary. In this case the first accused has been charged only because he was a Manager. In the absence of any specific rules, that the executive management vests in him, he cannot be convicted. Therefore C.A. No. 454 of 1954 which is filed against the acquittal is dismissed.

A regards C.A. No. 455 of 1954, the appeal is against the Co-operative Stores. It must be represented either by the President or the Secretary. Whoever it may be, the conviction against the Co-operative Stores must be registered. Therefore C.A. No. 456 of 1954 is allowed and the co-operative stores is convicted and is sentenced to fine of Rs. 25. The fine will be paid by the either the President or the Secretary who ever is the executive management of the stores.

In the result C.A. No. 454 of 1954 is dismissed and C.A. No. 455 of 1954 is allowed.

(5) C.A. No. 451 of 1954.

Sale of coffee adulterated with wild date preparation as coffee chicory mixture illegal. The plea of a merchant in Srirangam that he sold the mixture as received by him from his suppliers was rejected and the merchant and his servant were convicted. The following is an extract from the High Court Judgment:—

Appeal under section 417 of the Code of Criminal Procedure, 1898, against the acquittal of the aforesaid Respondents (accused Nos. 1 and 2) by the Stationary Sub-Magistrate of Tiruchirappalli in C.C. No. 2195 of 1953 on his file.

This appeal coming on for hearing, upon perusing the Petition of Appeal and the record of the evidence and proceedings before the said lower Court and upon hearing the arguments of the Public Prosecutor, the Appellant and Mr. M. Srinivasagopalan for Mr. M. R. Narayanaswami, Advocate for the first Respondent (first accused) and the second Respondent (second accused) not appearing in person or by Advocate the Court delivered the following

Judgment.

This is an appeal by the State of Madras against the acquittal of the two accused, Parthasarathy Ayyanger and Karuppan Konar in C.C. No. 2195 of the file of the Sub-Magistrate, Tiruchirappalli.

The facts are briefly these. These two accused were charge-sheeted under rule 37-(A) (a) of the Madras Prevention of Adulteration Act for having added a substance other than *chicory* to coffee intended for sale in their shop. The first accused was the proprietor of the shop and the second accused was a servant under him, aiding in sale of the jars containing coffee powder. On an analysis it was found that the jars contained 75 per cent coffee and 25 per cent foreign adulterant which was not *chicory* and which was identified as wild roasted date seeds. The correctness of the analysis was not disputed by the accused. What they said was that they were selling these jars of coffee powder obtained from Kumar Coffee Works, and that they believed and assurance of the company that the jars contained 75 per cent coffee and 25 per cent *chicory*, which is permissible under the rules, and that they had no reason to believe that the Kumar Coffee Works had mixed a foreign adulterant other than *chicory*, like powdered wild date seeds. They also relied on Exhibit D-2, dated 5th September 1953, a communication by them to the Health Officer stating these facts, and on a communication, Exhibit D-1, dated 5th June 1953 from one Padmakumar, the proprietor of the Kumar Coffee Works. The learned Public Prosecutor rightly pointed out that the Prevention of Adulteration Act and rules framed thereunder are intended to protect the purchasers of coffee powder and other food from adulteration, and that under section 6 (2) of the Prevention of Adulteration Act, certain conditions have to be fulfilled before an accused could rely on a defence that he had no reason to believe at the time, when he sold the food, that it was not of such nature substance or quality as described in the jars, and that in all such cases therefore it would be no defence to say merely that the vendor was ignorant of the thing, substance or quality. Here, the jars sold by the accused were clearly labelled as showing 75 per cent coffee and 25 per cent *chicory* and the accused failed to show that the jars supplied to them by Kumar & Company contained 75 per cent coffee and 25 per cent *foreign adulterant*, namely, powdered wild date seeds. We are not concerned here with the question whether powdered wild date seeds are inferior to *chicory*. The law has laid down that *chicory*, and no other substance shall be mixed with coffee, and so the admixture of any other substance like powdered wild date seeds, will be an offence. The lower court has overlooked the provisions of section 6 (2) and has therefore not applied rule 37 (A) (a) to this case. I set aside the acquittal of both the accused, and convict them of an offence under Rule 37 (A) (a). After taking all the circumstances into consideration, including the plea of Mr. Narayanaswami for light sentence, I direct each of the accused to pay of fine of Rs. 5 or, in default, to undergo S.I. for seven days. Fifteen days time is given for them to pay the fine, as prayed for.

(6) ANDHRA HIGH COURT JUDGMENT.

Cr. P.C. No. 581 of 1954.

One hundred and one bags of Lak Dhal flour (Kesari dhal flour) has been ordered to be confiscated by the Stationary Magistrate, Parvathipur, against which the merchant appealed to the High Court. The Hon'ble Judge dismissed the appeal but held that sample form each of the remaining bags should be examined before destruction.

Petition under sections 435 and 439 and 520 of the Code of Criminal Procedure, 1898, praying the High Court to revise the order of the Court of the District Magistrate of Visakhapatnam, dated 29th May 1954, and made in Criminal Appeal No. 55 of 1954 preferred against the order of the Court of the Sub-Magistrate of Parvathipuram in C.C. No. 2032 of 1953.

This case coming on for hearing upon perusing the petition and the judgments of the Lower Courts, and upon hearing the arguments of Mr. G. Balaparameswari

Rao, Advocate for the Petitioner and of the Public Prosecutor on behalf of the State, the Court passed the following

Order.

This is a petition in Revision against the Order of the District Magistrate confirming that of Sub-Magistrate, Parvathipur, under section 12 (2) of the Madras Prevention of Adulteration Act. The Petitioner was charged with an offence under section 29 of the Madras Prevention of Adulteration Act read with Rule 28-E of the rules framed under the Act.

The case against him was that on the 31st of October 1953 he had in his possession 101 bags of lak-dhall flour, a prohibited article, for purposes of sale. This lak-dhall, otherwise known as Kesari Dhall was prohibited from use under rule 28-E which recites—

“No person shall, either by himself or by any servant or agent, sell or offer or expose for sale, or have in his possession for the purpose of sale, under any description, or use an ingredient in the preparation of any article or food intended for sale.

- (a) Kesari gram (*Lathyrus Sativus*) and its products;
- (b) Kesari dhall (*Lathyrus Sativus*) and its products;
- (c) Kesari dhall flour (*Lathyrus Sativus*) and its products;
- (d) a mixture of Kesari gram (*Lathyrus Sativus*) and bengal gram (*Cicer Arietinum*) or any other gram;
- (e) a mixture of Kesari dhall (*Lathyrus Sativus*) and bengal gram dhall (*Cicer Arietinum*) or any other dhall;
- (f) a mixture of Kesari dhall flour (*Lathyrus Sativus*) and bengal gram flour (*Cicer Arietinum*) or any other flour.”

Any violation of this rule is punishable under rule 29.

The defence was that the lak-dhall did not belong to him, that the bags were sent by Mahakoshal Roller Flour Mills, Raipur, to one Ch. Visweswara Rao in Parvathipur and that, as the latter failed to take delivery of the goods on payment of money, the accused, who was a banker, was requested by the consignor to store the same in his godowns on condition of paying rent for the godown and that these goods were to be transported to Rayagada for sale there. This defence found favour with the trial magistrate who thought that the accused did not have this dhall for purposes of sale and that he was only acting as the agent of the proprietors of Mahakoshal Roller Flour Mills, Raipur. In this view, he acquitted the accused. But he ordered the destruction of the goods under section 12 (2) of the Madras Prevention of Adulteration Act.

This matter was taken in appeal to the District Magistrate under section 520, Cr.P.C., who confirmed the order of destruction. Hence this Revision.

In support of this Revision case, Mr. G. Balaparameswara Rao argued that section 12 (2) is attracted only to a case where an offence has been committed under the Act, and as the accused was acquitted, no order could be passed under that section. I do not think I can give effect to this contention.

Section 12 (2) is in these terms—

“Whether or not complaint is laid before the magistrate of any offence under the Indian Penal Code, or under this Act, if it appears to the Magistrate on taking such evidence as he thinks necessary that any such article is adulterated or other than what it purports or is represented to be, or any such utensil or vessel is of such kind or in such state as is described in section 9 he may order the same—

- (a) to be forfeited to the local authority, or
- (b) to be destroyed at the charge of the owner or person in whose possession it was at the time of seizure in such manner as to prevent the same being again exposed or hawked about for sale or used for human food or for the manufacture or preparation of or for containing any such article as aforesaid.”

On the language of this sub-section, it does not appear to be necessary that any one should be found guilty of any offence. All that is required is that the magistrate, on taking evidence, should think it necessary that the food concerned is of the nature described in section 9. The intendment of this section is that a deleterious stuff should not be exposed to sale, which would only be prevented by the destruction thereof. That apart, it cannot be said that no offence has been committed in this case. It may be that the person who is guilty of the offence cannot be punished in this case, surely, the principal of the petitioner was in possession of the stuff through the petitioner within the meaning of rule 28-E. It cannot be postulated that no offence has been committed, merely because the person is beyond the reach of the court and so cannot be punished.

Authority for this view is found in a Bench decision of the Madras High Court in *Md. Ismail Abdul Sait* (1). It follows that it was within the competence of the trial court to pass an order under section 12 (2) of the Madras Prevention of Adulteration Act.

It was next urged by Mr. Balaparameswara Rao that having found that the title to this property is vested in a third person living in outside territory which was banned the use of this article, the proper course was to direct the transport of this dhall to that place. If effect is to be given to this argument, the very purpose of clause (b) of section 12 (2) is defeated. The object of clause (b) is to prevent the same article again being exposed or hawked about for sale for use as human food. To give effect to the request of the counsel for the petitioner will be to violate the terms of this sub-section. Therefore, the only proper course to be adopted is to destroy such of the bags in the possession of the petitioner as contained this lak-dhall.

It appears only samples were taken from five bags. It looks that it is desirable that, before destruction is carried out, every one of the bags should be tested and if some of them do not contain this injurious stuff, they should be returned to the petitioner. I would also direct that the empty gunnies of such of the bags as containing lak-dhall will be returned to the petitioner. In other respects, the petition is dismissed.

IX. ANALYSIS OF DRUGS.

UNDER THE DRUGS ACT AND FROM GOVERNMENT INSTITUTIONS

Three samples of drugs received under the Drugs Act from Drug Inspectors were found to be of Standard quality.

The number of hospital mixtures received during the half-year was few, but the percentage of inaccurately dispensed ones was found to be high. The following table gives the list of mixtures in which inaccuracy in dispensing exceeded 25 per cent.

SAMPLES FROM GOVERNMENT HOSPITALS.

Government Headquarters Hospital, Machilipatnam.

	<i>Ingredient estimated.</i>		<i>Result of analysis.</i>
1 Mist. Soda Salicylas	..	Sod. Salicylate 15 gr.	.. 33.1 per cent deficient.
2 Mist. Diaphoretica	..	Liq. Amm. Acetate 60 M	.. 33.1 per cent excess.
Do.	..	Spt. Aetheris Nitrosi	.. 84 per cent excess.

District Medical Officer, Kakinada.

			<i>Ingredient estimated.</i>		<i>Result of analysis.</i>
3	Mist. Sod. Salicylas	..	Sod. Bicard	10 gr. ..	42 per cent deficient.
4	Mist. Quinine Sulph	..	Acid Sulph dil	10 M ..	92 per cent excess.
5	Mist. Sod. Salicylas	..	Spt. Amm. Aromat	20 M ..	53 per cent deficient.
6	Mist. Alkaline	..	Sod. Bicarb	10 gr. ..	32 per cent excess.
	Do.	..	Sod. Citrate	10 gr. ..	52 per cent deficient.

District Medical Officer, Anantapur.

7	Mist. Quinine Sulph	..	Quinine Sulp	10 gr. ..	44 per cent deficient.
8	Mist. Carminative	..	Sod. Bicarb	10 gr. ..	59 per cent excess.
	Do.	..	Spt. Amm. Arom.	10 M. ..	55 per cent excess.
9	Mist. Sed. Expect	..	Sod. Bicarb	15 gr. ..	55 per cent excess.

SPURIOUS SAMPLES FROM THE POLICE DEPARTMENT.

The Tenali Police submitted one sample for Woodward's Gripe Water and two samples of Cuticura Powder which were suspected to be spurious. These samples were analysed and found to be fraudulent imitations of the genuine products. The get-up and printing on the gripe water bottles so closely imitated the genuine ones that any purchaser would be easily misled. The spurious sample contained only 0.29 grain of Sodium Bicarbonate as against 4.5 grains in the genuine product.

KING INSTITUTE, GUINDY, MADRAS-15.
23rd May 55.

S. NARAYANA AYYAR,
Government Analyst.

APPENDIX A.

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Andhra State).

Adulteration Act during the period from 1st October 1900 to 31st March 1901																							
Serial number and name of district.	Total Samples.	Number Adulterated.		Percentage Adulterated.	Milk.		Ghee.		Butter.		Ghagghy oil.		Coconut oil.		Groundnut oil.								
		(3)	(4)		Total.	(5)	(6)	Total.	(7)	(8)	Total.	(9)	(10)	Total.	(11)	(12)	Total.	(13)	(14)	Total.	(15)	(16)	Total.
(1)		(2)																					
1 Anantapur ..	256	138	53.9	160	102	4	..	..	..	..	1	12	3	7	5	..	..	..	..	..	..	..	..
2 Chittoor ..	273	90	32.9	205	78	10	..	..	..	..	1	12	3	7	5	..	..	..	..	..	..	..	
3 Krishna ..	392	183	46.6	224	141	55	13	10	3	30	12	15	6	4	..	..	..	..	..	..	..	..	
4 Kurnool ..	163	61	37.3	72	40	16	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
5 Cuddapah ..	217	78	35.9	116	69	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
6 East Godavari ..	495	244	49.2	274	211	34	15	9	5	32	3	37	..	..	..	..	..	..	..	..	..	..	
7 West Godavari ..	292	133	45.5	149	106	42	12	9	5	13	2	18	..	..	..	..	..	..	..	..	..	..	
8 Guntur ..	473	172	36.3	193	115	53	5	17	23	8	8	36	..	..	..	..	..	..	..	..	..	..	
9 Nellore ..	234	82	35.0	133	67	26	3	..	26	4	10	10	4	..	..	..	..	..	..	..	..	..	
10 Visakhapatnam ..	514	223	43.3	368	200	25	7	16	4	28	..	10	..	..	..	..	..	..	..	..	..	..	
	3,309	1,404	42.4	1,892	1,129	298	64	96	35	170	33	169	1	100	6								

Serial number and name of district.	Coffee.		Tea.	Sweets.		Turmeric.		Dhall.	Flours.		Misc.	Honey.		Chlor.				
	Total.	Adulterated.		Total.	Adulterated.	Total.	Adulterated.		Total.	Adulterated.		Total.	Adulterated.					
(1)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)
1 Anantapur ..	21	6	3	..	..	..	3	..	26	16	15	9	1	1	1	..	..	..
2 Chittoor ..	8	1	4	..	2	1	4	..	..	..	13	4	2	2	..	..	..	..
3 Krishna ..	20	5	..	..	10	6	7	1	4	2	7	..	2	..	..	..	..	..
4 Kurnool ..	18	4	..	..	3	2	2	..	10	9	18	..	4	1	..	..	..	..
5 Cuddapah ..	27	..	4	..	1	1	5	1	..	..	25	5	..	..	..	..	..	..
6 East Godavari ..	27	2	..	..	1	1	6	1	16	..	28	3	3	2	..	..	..	..
7 West Godavari ..	13	..	..	..	3	2	9	3	1	..	19	2	1	..	..	..	..	..
8 Guntur ..	28	7	4	..	6	3	18	3	6	4	28	5	3	..	..	..	..	..
9 Nellore ..	14	6	2	..	3	1	3	..	..	..	10	1	1	..	..	..	..	..
10 Visakhapatnam ..	17	1	..	..	1	..	..	..	9	4	11	4	4	1	..	..	..	..
	193	32	18	..	30	17	57	9	72	35	174	33	21	7	21	1	3	2

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Andhra State)—cont.

Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Anantapur District) - Contd.															
Serial number and name of district.	Annual quota of samples.	Extra samples.	Percentage of adulterated.	Samples.		Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.	
				Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.	Total	Adulterated.
I. Anantapur district.															
1 Anantapur (M) ..	72	..	72.2	36	26	25	23	5	1	..	..	1	..	2	..
2 Hindupur (M) ..	72	..	50.0	34	17	18	9	..	..	..	..	..	..	1	..
3 Guntakal (M) ..	48	..	68.9	29	20	23	18	..	..	..	..	..	..	2	..
4 Tadipatri (M) ..	48	..	36.3	22	8	11	5	..	..	..	..	..	..	1	..
5 Dharmavaram (P) ..	48	..	48.3	31	15	19	10	2	1	..	..	..	..	1	..
6 Gooty (P) ..	48	..	66.6	24	16	21	16	1	1	..	..	..	..	..	..
7 Kadiri (P) ..	48	..	64.3	28	18	22	12	1	1	..	..	..	..	..	..
8 Penuskonda (P) ..	48	..	42.8	28	12	12	5	2	..	..	..	..	..	1	..
9 Uravakonda (P) ..	48	..	25.0	24	6	9	4	6	1	..	..	..	..	..	..
Total ..	..	..	53.9	256	138	160	102	17	4	..	..	1	..	8	..
II. Chittoor district.															
1 Chittoor (M) ..	48	..	40.9	22	9	14	9	3	..	..	..	1	..	..	..
2 Tirupati (M) ..	48	..	50.0	24	12	17	11	..	..	..	..	4	1	1	..
3 Kalahasti (P) ..	48	..	20.8	24	5	14	3	1	..	..	..	2	..	..	..
4 Kuppam (P) ..	48	..	33.3	24	8	21	8	1	..	..	..	..	..	1	..
5 Madanapalle (P) ..	48	..	25.0	24	6	14	4	1	..	..	..	2	..	..	..
6 Madanapalle Sana- torium (P) ..	48	..	44.0	25	11	24	11	1	..	..	..	..	..	..	..
7 Palmarur (P) ..	48	..	25.0	24	6	16	5	..	..	..	..	2	..	..	..
8 Punganur (P) ..	48	..	39.1	23	9	16	7	1	..	..	..	..	..	1	..
9 Puttur (P) ..	48	..	28.0	25	7	22	6	2	..	..	..	..	..	1	..
10 Tirumalai Hills (P) ..	48	..	27.2	11	3	7	2	2	..	1	1	..	..	..	..
11 Tiruttani (P) ..	48	..	40.0	20	8	15	8	..	..	..	..	..	..	3	..
12 Vayalpad (P) ..	48	..	22.2	27	6	25	4	..	..	..	..	..	..	..	..
Total ..	..	..	32.9	273	90	205	78	10	..	1	1	12	3	7	..

III. Krishna district.

1 Vijayavada (M) ..	360	..	45.8	181	83	111	67	26	26	8	5	..	9	4	8
2 Masulipatnam (M) ..	144	..	50.0	72	36	35	26	14	4	4	3	..	12	4	2
3 Guduvada (M) ..	96	..	36.0	46	17	13	6	..	..	..	2	1	9	4	3
4 Nellore ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Avanigadda (P) ..	48	..	33.3	12	4	12	4	..	..	..	..	..	..	..	..
6 Jaggayapet (P) ..	48	..	61.2	31	19	27	18	4	4	1	..	..	..	..	..
7 Nuzvid (P) ..	48	..	78.9	19	15	19	15	..	..	..	..	..	..	..	..
8 Tiruvur (P) ..	48	..	29.0	31	9	7	5	7	..	..	..	..	..	2	..
Total ..	..	..	46.6	392	183	224	141	55	..	13	10	3	30	12	15

IV. Kurnool district.

1 Kurnool (M) ..	96	..	54.0	50	27	39	21	4	4	3	..	..	..	1	..
2 Nandylal (M) ..	72	..	35.3	34	12	2	1	1	1	1	..	..	..	7	..
3 Dhona (P) ..	48	..	25.0	20	5	9	5	5	5	..	..	..	..	2	..
4 Giddalur (P) ..	48	..	28.0	25	7	13	5	4	4	1	..	..	..	3	..
5 Markapur (P) ..	48	..	29.4	34	10	9	8	2	2	..	..	..	..	2	..
Total ..	..	..	96.8	163	61	72	40	16	..	5	..	..	..	15	..

V. Cuddapah district.

1 Cuddapah (M) ..	96	..	41.6	48	20	43	19	2	2	..	..	1	..	..	..
2 Proddatur (M) ..	72	..	13.8	36	5	11	5	12	12	..	..	2	..	..	..
3 Badvel (P) ..	48	..	58.3	24	14	16	12	1	1	..	..	..	..	1	..
4 Jammalamadugu ..	48	..	3.5	28	1	..	..	2	2	..	..	..	..	2	..
5 Pulivendla (P) ..	48	..	4.1	24	1	..	21	2	2	..	..	1	..	4	..
6 Rajampet (P) ..	48	..	75.0	32	24	25	12	..	1	..	..	..	..	1	..
7 Rayachoti (P) ..	48	..	52.0	25	13	21	12	..	..	..	..	..	..	..	..
Total ..	..	..	35.9	217	78	116	69	20	..	..	..	5	..	8	1

VI. East Godavari district.

1 Kakinada (M) ..	288	..	55.8	145	81	84	72	15	15	6	4	2	13	3	9
2 Rajamahendravaram (M) ..	216	..	63.9	122	78	83	65	7	7	6	2	2	5	8	8
3 Peddapuram (M) ..	72	..	36.1	36	13	21	11	2	2	1	1	1	2	..	..
4 Anaparthi (M) ..	96	..	36.9	46	17	24	17	2	2	..	..	..	3	6	..
5 Mandapeta (P) ..	48	..	20.8	24	5	4	4	2	2	..	2	..	1	3	..
6 Pithapuram (P) ..	48	..	25.0	24	6	11	6	..	..	..	..	..	5	2	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Andhra State)—cont.

Serial number and name of district.	Groundnut oil.		Coffee.		Tea.		Sweets.		Turmeric.		Dhali.		Flour.		M. sc.		Honey.		Chloor.	
	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
I. Anantapur district.																				
1 Anantapur (M)	..	..	1	..	..	..	..	..	1	..	8	8	2	2	..	..	..	..	..	..
2 Hindupur (M)	..	..	6	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
3 Guntakal (M)	..	..	1	1	1	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..
4 Tadipatri (M)	..	..	1	..	..	..	..	..	..	..	6	1	3	2	..	..	..	..	..	..
5 Dharmavaram (P)	..	..	8	4	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
6 Gooty (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
7 Kadiri (P)	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
8 Penukonda (P)	..	..	1	..	..	..	..	..	..	..	12	7	5	5	..	..	..	..	..	..
9 Uravakonda (P)	..	..	3	1	1	..	..	..	1	..	..	..	2	..	..	1	..	..	..	..
Total	..	..	21	6	3	..	..	..	3	..	26	16	15	9	1	1	1	..	..	..
II. Chittoor district.																				
1 Chittoor (M)	..	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
2 Tirupati (M)	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Kalahasti (P)	1	..	..	..	..	..	..	..	2	..	..	..	4	..	..	..	..	..	..	..
4 Kuppam (P)	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
5 Madanapalle (P)	..	..	3	..	..	..	2	1	..	..	..	..	1	1	..	..	..	..	..	..
6 Madanapalle Sanatorium (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Palmanar (P)	..	..	2	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..
8 Punganur (P)	2	..	..	..	..	..	..	..	1	..	..	..	2	1	2	2	..	..	..	..
9 Puttur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Tirumalai Hills (P)	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..
11 Tiruttani (P)	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
12 Vayalpad (P)	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Total	5	..	8	1	4	..	2	1	4	..	..	13	4	2	2	..	..	..	..	..

III. Krishna district.

1 Vijayavada (M)	3	..	7	3	..	..	..	..	7	1	..	3	..	..	..	2	..	..	..	..
2 Masulipatinam (M)	1	..	4	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..
3 Gudivada (M)	..	..	4	..	..	..	9	6	..	..	..	..	..	..	..	..	..	..	..	..
4 Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Avanigadda (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Jaggayapet (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Nuzvid (P)	..	..	5	2	..	..	..	..	..	4	2	4	..	..	..	..	..	..	..	..
8 Tiruvur (P)	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	6	..	20	5	..	10	6	7	1	4	2	7	..	..	2	..	..	..	..	..

IV. Kurnool district.

1 Kurnool (M)	..	..	2	2	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..
2 Nandyal (M)	..	..	8	..	1	..	..	..	1	..	10	9	..	2	..	..	..	..	..	..
3 Dhoni (P)	2	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
4 Giddaloh (P)	1	..	2	1	..	..	1	1	1	..	..	..	2	..	..	..	..	..	..	..
5 Markapur (P)	..	..	5	1	..	..	..	..	..	..	..	13	..	..	..	..	..	..	..	..
Total	4	..	18	4	1	3	2	2	2	..	10	9	18	4	1	..	..	..	..	..

V. Cuddapah district.

1 Cuddapah (M)	..	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Proddattur (M)	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
3 Badvel (P)	..	..	1	..	1	..	..	..	1	..	..	4	2	..	..	..	..	..	..	..
4 Jammalamadugu	3	..	7	..	..	..	..	..	..	1	..	11	..	..	..	..	..	..	..	..
5 Pulivendla (P)	1	..	6	..	..	..	..	..	4	..	..	5	3	..	..	1	..	..	..	..
6 Rajampet (P)	..	..	1	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..
7 Rayachoti (P)	1	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Total	5	..	27	..	4	..	1	1	5	1	..	25	5	..	..	1	..	..	..	..

VI. East Godavari district.

1 Kakinada (M)	6	..	3	1	..	..	..	..	..	..	10	..	..	..	1	1	..	..	..	..
2 Rajahmundry (M)	..	..	10	..	..	..	..	..	..	..	..	4	..	1	..	2	..	..	..	..
3 Peddapuram (M)	5	..	..	..	..	..	..	..	2	..	6	..	..	..	..	1	..	..	..	..
4 Amalapuram (M)	1	..	3	..	..	..	..	..	1	..	..	6	1	..	..	4	..	..	..	..
5 Mandapeta (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Pittapuram (P)	3	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Andhra State)—cont.

Serial number and name of district.	Annual quota of samples. (2)	Percentage of adulterated samples. (3)	Samples.		Milk.		Ghee.		Butter.		Glacely oil.		Coconut oil.	
			Total. (5)	Adulterated. (6)	Total. (7)	Adulterated. (8)	Total. (9)	Adulterated. (10)	Total. (11)	Adulterated. (12)	Total. (13)	Adulterated. (14)	Total. (15)	Adulterated. (16)
VI East Godavari district—cont.														
7 Sundkoti (P) ..	48	13.0	23	3	2	2	1	1	1	1	1	1	6	1
8 Rameswaram (P) ..	48	52.1	23	12	15	9	1	1	1	1	1	1	1	1
9 Razala (P) ..	48	50.0	24	12	14	9	2	2	2	2	2	2	1	1
10 Turu (P) ..	48	60.7	28	17	16	16	2	2	2	2	2	2	1	1
Total ..		49.2	103	44	274	211	34	15	5	32	3	37	1	1
VII. West Godavari district.														
1 Eluru (M) ..	144	60.4	72	50	61	49	9	1	1	1	1	1	3	1
2 Bhimavaram (M) ..	48	26.0	23	6	6	5	6	1	1	1	1	1	1	1
3 Padmalu (M) ..	48	39.1	23	9	7	6	5	2	2	2	2	2	1	1
4 Akividu (P) ..	48	41.6	24	10	10	5	5	2	2	2	2	2	1	1
5 Kovvur (P) ..	48	37.5	24	9	12	7	1	1	1	1	1	1	3	1
6 Narasapur (P) ..	48	58.3	24	14	12	5	14	8	2	2	2	2	1	1
7 Nidadavolu (P) ..	48	54.1	24	13	12	11	1	1	1	1	1	1	6	1
8 Polavaram (P) ..	48	13.0	23	3	2	2	1	1	1	1	1	1	3	1
9 Tadipatri (P) ..	48	31.0	29	9	13	8	1	1	1	1	1	1	1	1
10 Tanuku (P) ..	48	38.4	26	10	21	8	1	1	1	1	1	1	1	1
Total ..		45.5	292	133	149	106	42	12	5	13	2	18	1	1

VIII. Guntur district.

1 Guntur (M) ..	288	41.9	143	60	80	48	23	4	1	6	3	8	1	1
2 Ongole (M) ..	96	39.1	47	18	16	10	13	1	1	2	1	1	1	1
3 Chirala (M) ..	96	50.0	48	24	18	12	2	1	11	1	1	1	1	1

IX. Nellore district.

1 Nellore (M) ..	144	34.0	50	17	15	9	1	1	1	1	1	1	1	1
2 Narasaraopet (M) ..	48	8.3	24	2	2	1	1	1	1	1	1	1	1	1
3 Bapatla (M) ..	48	46.1	26	12	13	10	8	2	2	2	2	2	1	1
4 Mangalagiri (P) ..	48	47.4	19	9	6	4	1	1	1	1	1	1	1	1
5 Ponnur (P) ..	48	26.0	23	6	9	4	1	1	1	1	1	1	1	1
6 Nidubrolu (P) ..	48	43.7	18	7	4	3	1	1	1	1	1	1	1	1
7 Repalle (P) ..	48	20.8	24	5	13	5	1	1	1	1	1	1	1	1
8 Sattenapalle (P) ..	48	26.9	26	7	12	6	1	1	1	1	1	1	1	1
9 Votapalem (P) ..	48	18.5	27	5	3	3	3	1	1	1	1	1	1	1
Total ..		34.9	493	172	191	115	53	5	17	23	8	36	1	1

X. Visakhapatnam district.

1 Visakhapatnam (M) ..	288	46.2	145	67	115	60	11	4	1	4	1	1	1	1
2 Anakapalle (M) ..	144	46.8	79	37	46	36	1	1	1	1	1	1	1	1
3 Vizianagaram (M) ..	96	44.6	47	21	46	21	1	1	1	1	1	1	1	1
4 Bheemunipatnam (M) ..	48	52.0	25	13	16	12	1	1	1	1	1	1	1	1
5 Srikakulam (M) ..	48	37.5	24	9	19	8	2	1	1	1	1	1	1	1
6 Salur (M) ..	48	56.0	25	14	22	14	1	1	1	1	1	1	1	1
7 Bobbili (P) ..	48	29.1	24	7	20	7	1	1	1	1	1	1	1	1
8 Chodavaram (P) ..	48	26.9	26	7	7	4	2	1	1	1	1	1	1	1
9 Narasapuram (P) ..	48	50.0	24	12	17	12	1	1	1	1	1	1	1	1
10 Palakonda (P) ..	48	16.0	25	4	18	3	1	1	1	1	1	1	1	1
11 Parvathipuram (P) ..	48	48.0	25	12	15	7	4	1	1	1	1	1	1	1
12 Somapeta (P) ..	48	59.0	22	13	14	10	1	1	1	1	1	1	1	1
13 Yellamanchili (P) ..	48	30.4	23	7	13	6	2	1	1	1	1	1	1	1
Total ..		42.9	514	213	368	200	25	7	16	28	4	10	1	1

Number of samples received and found adulterated from Municipalities and Panchayat Boards working the Prevention of Adulteration Act during the period from 1st October 1953 to 31st March 1954 (Andhra State)—cont.

REPORT OF THE

Serial number and name of district.	Groundnut oil.		Coffee.		Tea.		Sweets.		Turmeric.		Dhall.		Flour.		M. c.		Honey.		Chloory.	
	Adulterated.		Total.		Adulterated.		Total.		Adulterated.		Total.		Adulterated.		Total.		Adulterated.		Adulterated.	
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
VI East Godavari district—co. d.																				
7 Samalkot (P)	..	..	3	1	..	..	1	1	2	1	1	..	6	1	..	..	1	..	..	..
8 Ramachandrapuram (P)	..	..	2	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..
9 Razole (P)	1	..	2	..	..	..	..	..	..	..	..	..	2	6	1	1	..	..	..	..
10 Tuni (P)	..	..	2	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..
Total	19	1	27	2	..	..	1	1	6	1	16	..	28	3	3	2	9	..	..	..
VII. West Godavari district.																				
1 Eluru (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
2 Bhimavaram (M)	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
3 Palacole (M)	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Akividu (P)	..	..	2	..	..	..	..	..	4	3	..	..	..	..	..	..	..	..	..	..
5 Kovvur (P)	..	..	1	..	..	..	..	..	1	..	..	..	4	..	..	..	..	..	..	..
6 Narsapur (P)	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
7 Nidadavole (P)	..	..	2	..	..	..	..	..	1	..	..	..	4	2	1	..	..	..	..	..
8 Polavaram (P)	..	..	3	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..
9 Tadepalligudem (P)	8	..	1	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..
10 Tanuku (P)	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..
Total	11	..	13	..	..	..	3	2	9	3	1	..	19	2	1	..	4	1	..	..

VIII. Guntur district.

1 Guntur (M)	6	1	6	4	1	..	1	1	2	..	6	4	4	6	3	..	..	..	2	2
2 Ongole (M)	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
3 Chirala (M)	2	1	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..

4 Tenali (M)	..	4	1	5	1	..	..	..	3	1	..	..	2	..	1	..	..	..	..	1
5 Narasaraopet (M)	..	1	..	4	1	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..
6 Bapatla (M)	..	..	..	1	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..
7 Mangalagiri (P)	..	1	..	1	1	..	..	3	2	1	..	..	2	..	..	..	1	..	..	..
8 Ponnur (P)	..	..	..	3	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
9 Nidubrolu (P)	2	..	2	..	..	..	..	..	1	..	..	..	2	1	..	..	..	..	..	..
10 Repalle (P)	..	..	2	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..
11 Sattenapalle (P)	..	4	..	..	..	1	..	..	1	1	..	..	2	..	..	..	..	..	..	..
12 Vetapalem (P)	1	..	..	3	..	..	1	..	5	..	..	..	2	1	..	..	..	..	..	..
Total	22	3	28	7	4	..	6	3	18	3	6	4	28	5	3	..	1	..	3	2

IX. Nellore district.

1 Nellore (M)	..	..	7	4	..	..	3	1	..	..	..	..	3	..	..	..	1	..	..	..
2 Gudur (M)	..	1	2	..	..	..	..	..	3	..	..	..	6	..	..	..	1	..	..	..
3 Kandukur (P)	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Kovur (P)	..	1	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Kavali (P)	..	..	1	1	1	..	..	..	..	..	..	..	2	1	1	..	..	..	..	..
6 Naidupet (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Sulurpet (P)	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Venkaugiri (P)	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	4	..	14	6	2	..	3	1	3	..	..	..	10	1	1	..	2	..	..	..

X. Visakhapatnam district.

1 Visakhapatnam (M)	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
2 Anakapalle (M)	..	10	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Vizianagaram (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..
4 Bheemunipatnam (M)	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Srikakulam (M)	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Salur (M)	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Bobbili (P)	..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..	1	..	..	..
8 Chodavaram (P)	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..
9 Narasapatnam (P)	..	1	..	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
10 Palakonda (P)	..	2	1	..	..	..	..	..	..	..	..	..	4	2	..	..	..	..	..	..
11 Parvathipuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..
12 Sompeta (P)	..	1	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..
13 Yellamanchilli (P)	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	24	2	17	1	..	..	1	..	..	..	9	4	11	4	4	1	1	..	..	..

APPENDIX B.

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st October 1953 to 31st March 1954 (Andhra State).

Name of municipalities.	(1)	Number of pending cases.	(2)	Number of convictions.	(3)	Fines in analysis cases.	(4)	Fines in non-analysis cases.	(5)	Total fines.	(6)	Maximum fine.	(7)	Minimum fine.	(8)	Average fine.	(9)	Average fine, 1953-54.	(10)
MUNICIPALITIES.																			
Class A.																			
1 Vijayavada	..	15	68	1,598	..	1,598	..	1,598	..	1,598	..	75	5	23	31				
2 Kakinada	..	42	39	1,682	..	1,682	..	1,682	..	1,682	..	100	25	45	44				
3 Guntur	..	4	56	1,645	..	1,645	..	1,645	..	1,645	..	100	10	33	34				
4 Visakhapatnam	..	2	65	3,035	..	3,035	..	3,035	..	3,035	..	75	20	46	36				
5 Rajahmundry	..	6	72	4,425	155	4,580	155	4,580	155	4,580	155	100	20	61	79				
6 Anakapalli	..	1	36	1,585	15	1,600	15	1,600	15	1,600	15	200	10	44	36				
7 Eluru	..	1	49	1,687	..	1,687	..	1,687	..	1,687	..	70	10	34	..				
8 Masulipatnam	..	3	33	615	..	615	..	615	..	615	..	50	10	18	30				
9 Nellore	..	3	29	1,380	..	1,380	..	1,380	..	1,380	..	100	20	47	28				
Class B.																			
1 Adoni	..	7	21	530	..	530	..	530	..	530	..	40	20	25	18				
2 Amalapuram	..	..	17	495	..	495	..	495	..	495	..	80	20	29	45				
3 Chirala	..	1	23	815	..	815	..	815	..	815	..	80	20	35	43				
4 Cuddapah	..	6	14	420	..	420	..	420	..	420	..	65	20	30	29				
5 Gudivada	..	7	10	300	..	300	..	300	..	300	..	50	15	30	52				
6 Kurnool	..	15	12	445	..	445	..	445	..	445	..	50	25	37	42				
7 Ongole	..	1	17	680	..	680	..	680	..	680	..	100	10	40	42				
8 Tenali	..	2	15	665	..	665	..	665	..	665	..	100	25	44	63				
9 Vizianagaram	..	..	21	520	..	520	..	520	..	520	..	40	10	24	34				
Class C.																			
1 Anantapur	..	..	26	530	..	530	..	530	..	530	..	50	5	21	25				
2 Hindupur	..	..	17	360	..	360	..	360	..	360	..	35	10	21	31				
3 Peddapuram	..	..	13	280	..	280	..	280	..	280	..	30	5	21	37				
4 Nandyal	..	1	12	255	..	255	..	255	..	255	..	35	20	21	33				
5 Proddatur	..	1	4	70	..	70	..	70	..	70	..	25	10	17	24				
6 Bhimavaram	..	..	6	340	..	340	..	340	..	340	..	100	40	55	54				

GOVERNMENT ANALYST, MADRAS, FOR ANDHRA STATE

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7 Bapatla	..	..	13	476	..	476	75	20	39	51
8 Bhimipatnam	..	..	13	428	..	428	70	20	33	36
9 Chittoor	..	7	2	35	..	35	25	10	17	40
10 Gudur (Nellore)	..	2	4	175	..	175	60	25	43	22
11 Guntakal	..	1	19	480	..	480	75	15	24	25
12 Narasaraopet	..	..	2	60	..	60	30	30	30	40
13 Palacole	..	..	8	125	..	125	25	5	15	41
14 Salar	..	..	14	445	..	445	55	15	31	57
15 Srikakulam	..	..	9	510	..	510	80	40	56	53
16 Tadipatri	..	..	8	265	..	265	100	15	33	35
17 Tirupeti	..	..	12	305	..	305	60	15	25	32

PANCHAYATS.

I. Anantapur district.

1 Dharmavarad	..	..	15	295	..	295	30	5	17	21
2 Gooty	..	..	16	300	..	300	40	5	18	18
3 Kadiri	..	..	18	365	..	365	50	10	20	16
4 Penukonda	..	7	12	360	7	367	50	15	30	47
5 Uravakonda	..	..	6	215	..	215	50	25	35	38

II. Chittoor district.

6 Kalahasti	..	..	5	115	..	115	30	23	26	39
7 Kuppam	..	..	8	215	..	215	40	20	29	35
8 Madanapalle	..	2	4	140	..	140	50	30	35	24
9 Madanapalle Sanatorium	..	..	11	335	..	335	40	20	30	19
10 Palmanar	..	..	6	175	..	175	50	15	29	48
11 Punganur	..	..	9	235	..	235	50	15	26	20
12 Puthur	..	..	7	220	..	220	50	20	31	35
13 Tirumalai Hills	..	1	2	50	..	50	25	25	25	25
14 Tiruttani	..	..	8	210	..	210	40	15	26	25
15 Vayalpad	..	4	2	40	..	40	20	20	20	29

III. Krishna district.

16 Avanigadda	..	4	..	510	..	510	..	..	..	25
17 Jaggayapet	..	1	18	296	..	296	60	15	28	29
18 Nuzvid	..	1	14	155	..	155	40	10	21	59
19 Tiruvur	..	..	9	..	..	..	50	5	16	47

IV. Kurnool district.

20 Dhone	..	..	5	150	..	150	40	20	30	33
21 Giddalore	..	..	7	330	..	330	100	40	47	53
22 Marakapur	..	2	8	345	..	345	75	15	43	34



DEPARTMENT OF HEALTH, EDUCATION AND
LOCAL ADMINISTRATION

(Health)

G.O. No. 2431, 29th July 1955

Administration Report—King Institute, Guindy—1953-54—Reviewed.

READ—the following paper :—

From the Director of Medical Services, dated 4th July 1955.
Ref. No. P. 274-M/55.

Order—No. 2431, Health, dated 29th July 1955.

Recorded.

2. *Vaccine lymph section.*—During the year under report, 210,462 millions of 1 in 7 dilution glycerinated lymph was manufactured as against 219,838 millions manufactured in 1952-53. A total quantity of 212,072 millions of 1 in 10 dilution vaccine was issued during the year, as against 210,627 in 1952-53.

3. *Diagnostic section.*—Sixteen thousand eight hundred and forty-five specimens were received for microscopic and bacteriological diagnosis during the year as against 16,538 specimens during the previous year.

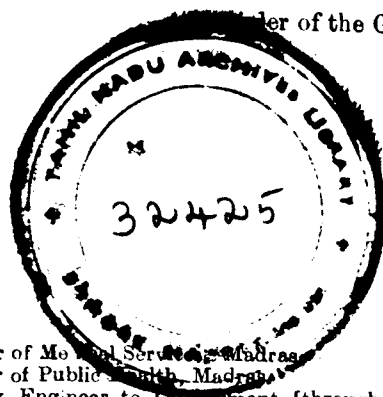
4. *Blood bank section.*—During the year a blood bank was opened in the Government Headquarters Hospital, Salem. The total number of blood banks in the Composite State was 20. After the partition of the State, there were 15 in the Madras State and 4 in the Andhra State and the blood bank in the Headquarters Hospital, Bellary, came within the territorial limits of the Mysore State. Training in the technique of blood transfusion of resuscitation at the King Institute was given to 17 medical officers.

5. *Water analysis section.*—At the beginning of the year under report, there were 172 protected water-supply installations listed for periodical examination in order to maintain a check over the hygienic quality of the water. The number rose to 177 during the year. After the formation of the Andhra State, 28 water-supply installations fell within the territorial limits of the Andhra State and the rest in the Madras State.

6. *Food analysis and drug analysis sections.*—The Madras Prevention of Adulteration Act was in force in the areas of 238 local bodies including the Corporation of Madras in the composite Madras State. During the first half-year, 8,915 samples from the Composite State were analysed and the percentage of adulteration was 44.9. During the second half-year, 5,763 samples from the Madras State were analysed and the percentage of adulteration was 41.4.

7. *Prophylactic vaccine section.*—Due to severe epidemic of cholera in the State, there was a very heavy demand for anti-cholera vaccine. 13.1 million doses were issued as against 10.9 million doses in 1952-53 and 5.8 million doses during 1951-52.

8. *General.*—The working of the Institute continued to be satisfactory.



Order of the Governor)

D. JAGANNATHAN.
Deputy Secretary to Government.

- To the Director of Medical Services, Madras.
 „ the Director of Public Health, Madras.
 „ the Sanitary Engineer to Government [through the Chief Engineer, P.W.D. (General)]
 „ the Director of King Institute, Guindy (through the Director of Medical Services)
 „ all Presidents of District Boards.
 „ all Commissioners of Municipalities (through the Chairmen).
 „ the Commissioner, Corporation of Madras (through the Mayor).
 „ the Accountant-General, Madras.
 „ the Inspector of Municipal Councils and Local Boards.
 „ the Inspector-General of Prisons (through the Home Department).
 „ the Principal, College of Engineering, Guindy.
 „ the General Manager, Southern Railway (with covering letter).
 „ the Librarian (Legislative Assembly Secretariat).
 „ the Librarian, Secretariat Library.
 „ the Home Department.
 „ the Public (General) Department.
 „ the Director, Pasteur Institute, Coonoor.
 „ the High Commissioner for India (with copies for India Office, Ministry of Health, British Museum).
 „ the Madras Medical Association.
 „ the Madras University.
 „ the Annamalai University.
 „ the Connemara Public Library, Madras.
 „ the Madras Chamber of Commerce, Madras.
 „ the Southern Indian Chamber of Commerce.
 „ the Government Analyst, Madras (Analyst's report only).
 „ the Secretary to the Government of Andhra, Health and Local Administration Department Kurnool (with covering letter).
 „ the Secretary to the Government of Mysore, Health Department, Bangalore (with covering letter).

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20.8.21, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31

Statement showing the total amount of fines levied, number of convictions, average fine, etc., from 1st October 1953 to 31st March 1954 (Andhra State)—cont.

Name of municipalities. (1).	Number of pending cases. (2)	Number of convictions. (3)	Fines in analysis cases. (4)	Fines in non-analysis cases. (5)	Total fines. (6)	Maximum fine. (7)	Minimum fine. (8)	Average fine. (9)	Average fine, 1953-54. (10)
<i>V. Cuddapah district.</i>									
23 Badvel ..	..	14	320	..	320	40	5	22	17
24 Jammalamadugu ..	..	1	75	..	75	75	75	75	56
25 Pulivendla ..	..	1	35	..	35	35	35	35	35
26 Rajampet ..	4	20	420	..	420	40	10	21	30
27 Rayachoti ..	1	12	335	..	335	50	15	28	41
<i>VI. East Godavari district.</i>									
28 Mandapeta ..	..	5	185	..	185	60	15	37	36
29 Pithapuram ..	..	6	185	..	185	50	15	30	20
30 Samalkot ..	..	7	320	..	320	80	25	45	48
31 Ramachandrapuram ..	..	12	305	..	305	40	10	25	37
32 Razole ..	..	12	292	..	292	50	16	24	43
33 Tuni ..	..	17	1,000	35	1,035	100	25	58	46
<i>VII. West Godavari district.</i>									
34 Akividu ..	..	10	155	..	155	40	10	15	42
35 Kovvur ..	1	8	185	..	185	30	20	23	37
36 Naresapur ..	5	9	230	..	230	70	10	25	32
37 Nidadavole ..	..	13	280	25	305	30	10	21	31
38 Polavaram ..	..	3	75	..	75	30	25	25	32
39 Tadepalligudem ..	1	8	250	..	250	50	10	31	41
40 Tanuku ..	1	9	160	..	160	30	10	18	26
<i>VIII. Guntur district.</i>									
41 Mangalagiri ..	3	6	190	..	190	50	20	31	54
42 Ponnur ..	..	6	112	..	112	25	12	18	31
43 Nidubrolu ..	..	7	195	..	195	55	20	28	37
44 Repalle ..	1	4	115	..	115	50	15	28	29
45 Sattenapalli ..	1	6	180	..	180	50	15	30	23
46 Vetapalem ..	..	5	320	..	320	150	30	64	51

IX. Nellore district.

47 Kandukur ..	..	5	55	..	55	20	5	11	36
48 Kavali ..	..	6	150	..	150	50	10	25	33
49 Naidupet ..	1	7	180	..	180	40	15	25	32
50 Venkatagiri ..	..	4	150	..	150	50	30	37	33
51 Suburpet ..	..	8	205	..	205	30	20	25	37
52 Koovur ..	..	13	167	..	167	35	2	12	25
<i>X. Visakhapatnam district.</i>									
53 Bobbili ..	..	7	147	..	147	30	18	21	40
54 Chodavaram ..	..	7	155	..	155	30	5	22	27
55 Narasapatnam ..	..	12	215	20	235	40	5	17	32
56 Palakonda ..	..	4	81	..	81	30	6	20	35
57 Parvathipuram ..	1	11	295	..	295	50	20	26	39
58 Somepeta ..	..	13	710	..	710	100	25	54	66
59 Yellamanchili ..	..	7	230	..	230	50	20	33	34
60 Rayachoti ..	..	3	60	..	60	20	20	20	25
61 Vennunganur ..	..	9	205	..	205	45	15	22	40