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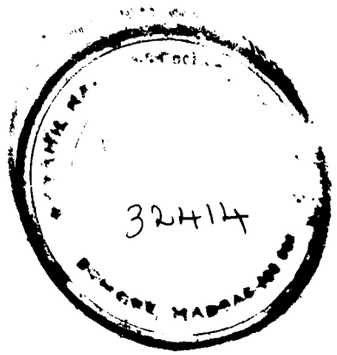

REPORT OF THE KING INSTITUTE OF PREVENTIVE MEDICINE, GUINDY, FOR THE PERIOD FROM 1st APRIL 1957 TO 31st MARCH 1958.

STAFF.

GAZETTED OFFICERS.

Director.

Dr. S. Govindarajan, M.D., D.B. (Manch.).

Assistant Directors.

1. Dr. M. K. Krishna Menon, M.B.B.S.
2. Dr. M. Narayana Pai, M.B.B.S.
3. Dr. N. Sundararajan, M.B.B.S.
4. Dr. C. Venkateswara Rao, M.B.B.S., L.O.

Assistant Surgeons.

1. Dr. Dinker Babu Rao, M.B.B.S.
2. Dr. P. K. Menon, M.B.B.S.
3. Dr. C. J. Anna, M.B.B.S.
4. Dr. K. K. Appaji, M.B.B.S., up to 14th September 1957.
5. Dr. R. Seshayyan, M.B.B.S.
6. Dr. N. Saraswathi, D.M.S.
7. Dr. P. Ramaswamy, L.M.P.
8. Dr. K. S. Ramaswamy, M.B.B.S., L.T.M.
9. Dr. Habibullah Baig, M.B.B.S., up to 13th March 1958.
10. Dr. K. S. Balasubramaniam, L.M.P.
11. Dr. R. F. Sargunar, M.B.B.S.
12. Dr. (Kumari) C. Chandra Bai, M.B.B.S.
13. Dr. K. V. Murthy, M.B.B.S., up to 30th June 1957.
14. Dr. S. Subramaniam, M.B.B.S., up to 23rd December 1957.
15. Dr. P. Damodaran, M.B.B.S., up to 30th June 1957.
16. Dr. V. Sivarajan, M.B.B.S., up to 30th June 1957.
17. Dr. K. Dattatreyalu, M.B.B.S.
18. Dr. Ambujamma Natarajan, M.B.B.S.
19. Dr. A. Rahiman Shakir, M.B.B.S.
20. Dr. G. N. V. Krishnan, L.M.P., L.P.H., D.L.Sc.
21. Dr. (Kumari) T. D. Leelavathi, M.B.B.S.
22. Dr. S. Gnanadesikan, M.B.B.S., from 20th May 1957.
23. Dr. A. K. Muthu, B.SC., M.B.B.S., from 11th July 1957.
24. Dr. (Kumari) Y. Sucharitha, M.B.B.S., from 1st July 19[illegible]

Sterile Solution Department.

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

Anti-Toxin Department.

Dr. P. Seshagiri Rao, M.S., D.SC., A.R.I.C.

Government Analyst Department.

1. Sri S. Narayana Iyer, M.A., A.I.I.SC., F.R.I.C., Government Analyst.
2. Sri Y. G. Doraiswamy, M.SC., F.R.I.C., Deputy Government Analyst.
3. Sri K. Ramachandran, M.A., Senior Assistant to Government Analyst.
4. Sri K. Narayanaswamy, M.A., A.R.I.C., Senior Assistant to Government Analyst.
5. Sri P. S. Nataraja Sarma, M.A., Senior Assistant to Government Analyst.
6. Sri M. Krishna Moorthy, M.SC., Senior Assistant to Government Analyst.
7. Sri K. Balasubramaniam, B.SC. (Hons.), Senior Assistant to Government Analyst.
8. Sri M. V. Narayanan, B.SC. (Hons.), Senior Assistant to Government Analyst.
9. Sri N. Srinivasan, M.A., Senior Assistant to Government Analyst.
10. Sri K. R. Srinivasan, M.A., F.R.I.C., Senior Assistant to Government Analyst.

Department of Water Analysis.

1. Sri K. G. Veeraraghavan, B.A., M.SC., Chief Water Analyst.
2. Sri K. R. Ramaswamy, B.SC., Assistant Water Analyst.
3. Kumari S. Chellam, B.SC., Assistant Water Analyst.
4. Sri G. Swaminathan, B.SC., up to 10th April 1957, Assistant Water Analyst.
5. Sri S. Venkataraman, M.A., from 18th April 1957, Assistant Water Analyst.
6. Sri S. Subramaniam, B.SC. (Hons.), from 22nd August 1957, Assistant Water Analyst.
7. Sri K. Venkatakrishnan, B.SC., up to 31st July 1957, Assistant Water Analyst.
8. Sri A. S. Hariharan, B.SC., Assistant Water Analyst.

Chemical Assistant (Drugs).

Sri C. S. Raghunathan, B.SC. (Hons.), up to 1st August 1957 and from 19th December 1957.

OFFICE ESTABLISHMENT.

Sri A. Ranganathan, Lay Secretary and Treasurer.

NON-GAZETTED OFFICERS.

Veterinary Assistant Surgeons.

1. Sri E. R. Nagarajan, B.V.SC.
2. Sri M. S. Jayaraman, B.V.SC.

DEPARTMENT OF WATER ANALYSIS.

Junior Water Analysts.

1. Sri A. V. Varadarajan, B.SC.
2. Kumari C. Jayakumari, B.SC. (Chem.), B.SC. (Chem. Engineering).
3. Sri Rm. Veerappan, B.SC.
4. Sri S. Rajagopal, B.SC.
5. Sri G. Chinnikrishnan, B.SC.
6. Sri K. Sankaran, B.SC.
7. Sri R. Srinivasan, B.SC.

GOVERNMENT ANALYST SECTION.

Junior Assistants to Government Analysts.

1. Sri V. Seshagiri Rao, B.SC. (Hons.).
2. Sri S. Kasturi, M.A.
3. Srimathi H. Packiyam, M.A.
4. Sri K. Sambandam, B.SC.
5. Sri P. Appavu, M.A.
6. Sri P. Chandrasekara Rao, B.SC. (Hons.).
7. Sri V. Kondala Rao, M.SC.
8. Sri S. V. Subramaniam, B.SC. (Hons.)
9. Sri M. Kandaswamy, B.SC.
10. Sri S. M. Sakalagunam, B.SC.
11. Kumari V. Ambujam, B.SC.
12. Sri V. V. Nityanandam, B.SC.
13. Kumari V. R. Vimala, B.SC.
14. Sri R. Gopalakrishnan, B.SC.

SOLUTION SECTION.

Junior Chemical Assistants.

1. Sri V. V. Krishna Rao, B.SC. (Hons).
2. Sri T. Sethuraman, B.SC.
3. Sri K. T. Gopalakrishnan, B.SC.

DEPARTMENT OF ANTI TOXIN.

Junior Chemical Assistants.

1. Sri S. Srinivasaraghavan, B.SC. (Chem.), B.SC. (Physics).
2. Sri T. R. Krishnaswamy, B.SC. (Hons.)

VACCINE LYMPH SECTION.

Junior Assistant

Sri P. Munuswamy Raju.

OFFICE.

Manager	Sri P. S. Umapathy, up to 30th September 1957. Sri K. Ramiah, from 30th September 1957, afternoon.
Librarian	Srimathi Sundaramma, B.Sc. Dip.-in-Library Science.
Permanent	Accountant 1, Cashier 1, Upper Division Clerks 3, Lower Division Clerks 17, Typists 6, Steno Typists 2, Attenders 5.
Temporary	Upper Division Clerks 2, Lower Division Clerks 4, Typists 2, Attenders 2.
Manual Section	S. A. S. Accountant 1, Upper Division Clerk 1, Typist 1.

LABORATORY STAFF.

Permanent	Sample Takers 5, Technicians 19, Technical Assistants 2, Laboratory Attendants, Grade I, 33, Laboratory Attendants, Grade II, 53, Algae Collector 1, Peons 74.
Temporary	Sample Taker 1, Technical Assistant 1, Technicians 2, Laboratory Attendants Grade I, 4, Laboratory Attendants, Grade II, 9, Laboratory Assistant 1, Peons 13.
Miscellaneous staff	Photo Artist 1, Overseer 1, Deputy Overseer 1, Assistant Overseers 5, Mechanic 1, Electrician 1, Refrigerator Mechanic 1.

VISITORS.

During the period under report, the Institute was honoured by the visits of the following :—

Sri E. S. Krishnamurthy	Member, C.B.R., New Delhi.
Sri K. U. Mathur	National Physical Laboratory, New Delhi.
Sri D. L. Shrivastav	Central Drug Research Institute.
Sri S. P. Sen	Bengal Chemicals, Calcutta.
Sri P. S. Krishnan	Chief Chemist, C.B.R., New Delhi.
Sri P. M. Nabar	Ministry of Health, New Delhi.
Sri B. Sen	Collector of Customs, Madras.
Sri H. R. Naji	Italal, Limited, Bombay.
Dr. H. Mirchamsy	Assistant Director, State Raji Institute, Tehran, Iran.
Sri V. K. B. Pillai	Secretary, Ministry of Health, New Delhi.
A. H. Ennor	Australian National University, Canberra, Australia.
Dr. Jaswant Singh	Deputy D.G.H.S., New Delhi.
Dr. Richmond K. Anderson	Rockfeller Institute, New York.
Dr. C G. Pandit	Director, I.C.M.R.
Dr. V. R. Thayumanaswami	Director of Medical Services, Madras.

Sri K. S. G. Iyengar	Assistant Chief Manager, Hindustan Aircraft Limited, Bangalore.
Sri V. N. Metha	Product Engineer, Mahindra & Mahindra Limited, Bombay.
Sri B. S. Cooper	Production Engineer, Mahindra and Mahindra Limited, Bombay.
Sri M. K. Thakur	Indian Coal Merchants Association.
Prof. Stefen Nicolav	Rumania.
Dr. P. V. Gharpure	Grant Medical College, Bombay-8.
Dr. G. Aung	Pathologist, General Hospital, Mandalay.
Sri M. R. Ramachandran	Under Secretary, C.B.S., New Delhi.
Dr. Pirom	Chulalongkorn Hospital, School of Medicines, Bangok, Thailand.
Dr. Pradit Tansurah	Sri Rai Hospital, Bangkok.
Dr. B. Soetrarso	Professor of Pathology, Indonesia.
Dr. Heming Sutrinso	Pathologist, Institute of Pathology, Indonesia.
Dr. Oli Herg Hali	University of Suvabaja, Indonesia.
Dr. Geoferry Edsall	Walter Reed Army Institute of Research, Washington.
Dr. Durschu	Walter Reed Army Institute of Research, Washington.
Dr. T. Woyko	Virus Research Centre, Poona.

GENERAL REVIEW.

FINANCE.

The total expenditure for the year amounted to Rs. 16,55,981 (see Table I—Statement 1) including the amount of Rs. 66,374 borne by other departments on the Institute accounts. The total cash receipts by way of sale proceeds of sera, vaccines and for various services rendered amounted to Rs. 2,29,571 (Statement 2). The difference, i. e., Rs. 14,26,410 represents the net cost of this Institute debitable to State Revenues. In this connection it is to be pointed out that most of the biological products manufactured in this Institute, such as vaccine lymph, bacterial vaccines, sera, sterile solutions, etc., and antitoxins 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 and Government departments. If the above supply and services rendered by this Institute were to be charged for according to the rates approved by the Government, the total anticipated receipts (shown in Statement 3 of the Table I) would amount to Rs. 38,45,735 The difference between the estimated receipts and the estimated expenditure, i.e., Rs. 21,89,754 represents the approximate net profit to the Government.

IMPROVEMENTS.

Buildings—(*a*) *New Store Room.*—Plans and estimate amounting to Rs. 90,000 for the construction of a new building for the Store Room have been forwarded to the Government for approval. The orders of the Government approving the construction is expected.

(*b*) *Construction of stables.*—Construction of stables for 100 horses at this Institute at an estimated cost of Rs. 4,00,000 has been included in the Second Five-Year Plan.

(*c*) *Transfer of old B.C.G. Vaccine Laboratory to King Institute, Guindy.*—The old B. C. G. Voccine Laboratory situated in this Institute compound is vacant since the beginning of February 1957, when the B.C.G Laboratory was shifted to the new buildings constructed by the Government of India. As this Institution has expanded considerably in all its activities and there is heavy congestion in several departments, it is found imperative to annex this building also to this Institute. The matter of transfer of this building to this Institute is under correspondence with the Government of India.

(*d*) *Improvements to Vaccine Lymph Section.*—Plans and estimates for the various improvements to the Vaccine Lymph section suggested by the Committee constituted by Government to go into the causes of occurrence of foot-and-mouth disease amongst the calves used for the manufacture of vaccine lymph and to suggest ways and means for its prevention, are awaited from the Public Works Department.

Manual Section.—The Government in their Order Ms. No. 141, Health, dated 17th January 1958, have accorded sanction for the continuance of the special staff consisting of a S.A.S Accountant up to 22nd April 1958 afternoon for the work relating to compilation of Departmental Manual for the Institute. The work of compilation of the Manual is being completed.

General Review.

Vaccine Lymph Section.—As a result of the conditions that prevailed in the previous year, towards its end, in respect of the manufacture and issue of vaccine Lymph the year under report also started with a very low stock position. Fortunately, in spite of the restricted facilities available, the production of vaccine lymph had been considerably stepped up during the year and a quantity of 165,925 ml. in 1 in 5 dilution and 72,325 ml. in 1 in 3 dilution of glycerinated vaccine lymph was manufactured. This is equivalent to 286,467 mls. of 1 in 5 which is approximately one and a half times the average annual production.

A total quantity of 78,46,325 doses as against 57,81,170 doses for the previous year, of glycerinated vaccine were issued to the field after the usual tests for purity, toxicity and potency.

The second and final meeting of Foot-and-mouth Diesease Prevention Committee was held on 22nd July 1957 and the conclusions arrived at were as follows :—

(1) The Committee was of the opinion that the foot-and-mouth disease is endemic in the whole Madras State and occurs year after year.

(2) The carrier state of the affected animals is quite long and lasts up to a year.

(3) It is not practicable to select out virus free animals for vaccination.

(4) With the facilities available at the Institute, every possible precaution has been taken to minimise the infection and its spread.

If the measures are to be really effective the additional suggestions made by the Committee at its first meeting represents the minimum requirements and should be effected immediately.

In addition to the above the Committee considers it to be of paramount importance that this section should be manned by officers with requisite qualifications and experience and not subjected to periodical transfers. Pending the construction of the building, etc., already suggested, the immediate appointment of a whole-time Senior Veterinary Assistant Surgeon on Rs. 200-25/2-400 with the field experience of at least 5 years is considered absolutely necessary. It was also suggested that older calves may be tried for vaccination purposes two and half years to three years.

The Committee was of the opinion that these controlled measures have become all the more important, as prophylactic vaccines against foot-and-mouth disease are not available in India. On further enquiry it is also not practicable to import vaccines from abroad as they are very costly and protection against local strains cannot be assured.

It was also strongly recommended that an alternative smallpox vaccine production centre should be built up in a different area so that the same could be put into use in an emergency.

Proposals for the implementation of the more important recommendations made by the Committee have been put up and the following is the position at which these proposals stand :—

(1) *Appointment of a Veterinary Assistant Surgeon.*—The post has been sanctioned on a temporary basis and an officer appointed to the post. But due to dearth of personnel to be spared from the Animal Husbandry Department, his services are being utilized to fill in the leave vacancy of the Veterinary Assistant Surgeons attached to the Department of Anti-toxin.

(2) Estimates received from the Executive Engineer, South Presidency Division, for the following items of work has been forwarded to the Government through the Director of Medical Services for necessary sanction for execution of the work :—

(*a*) For forming alternative routes for animal-drawn vehicles,

(*b*) For providing fencing around the vaccinated calves sheds and vaccine lymph section, etc., and

(*c*) For providing a compound wall for a portion of the Institute.

Media section.—The section manufactures Media for the use in this Institute and for the use in the other laboratories in the State. Supplies of Media were made to the Andhra, Mysore and Kerala States.

Clinical section.—During the period under review the section examined 13,978 specimens for bacteriological diagnosis.

Serology section.—A total number of 46,907 specimens were tested which shows a rise of 5,892 specimens more than that of last year. The supplies of reagents such as Kahn antigen, bullock heart extract, etc., were also continued.

Prophylactic Vaccine Section.—There was an epidemic of cholera in this State during this year and a total of 10·8 million doses of anti-cholera vaccine were supplied to the Andhra, Madras, Kerala and Mysore States. The section had also manufactured 1·8 lakh doses of T.A.B., vaccine and 1·44 lakh doses were issued.

Therapeutic Vaccine and Stock Culture Section.—This section manufactures therapeutic vaccine, auto-vaccines, diagnostic sera and bacillary emulsions and maintains a large stock of various types of cultures and these are supplied not only for use in this institute, but also to other institutions in India or abroad.

Blood Bank.—The blood bank section of this Institute receives blood specimens from the State hospitals, private bodies and medical practitioners for haemato-serological investigations concerning blood transfusion and Rhesus factor. The blood grouping sera and wet plasma are processed in this section. Wet plasma and blood grouping sera are distributed to the State blood banks in Madras, Andhra, Kerala and Mysore and private institutions.

Blood transfusion service has been extended to all headquarters hospitals in Madras State except Kanyakumari district. Government have also sanctioned the opening of blood Banks in the Taluk Headquarters Hospitals, Coonoor, Kumbakonam and Nagapattinam.

The Central Blood Bank of the Institute gives training facilities to the Medical officers in the blood transfusion and resuscitation work.

Department of Anti-toxins.—There were sixty horses at the end of the year for the production of therapeutic sera for the use of the various medical institutions of the State. The demand for tetanus anti-toxin continued to be high and therefore a large proportion of the horses have been assigned for the production of anti-tetanic serum. The department still suffers for want of adequate stable accommodation as the entire needs of the State for serum and other biological products could be satisfied only by increasing the number of horses.

It will be observed that the department processed nearly 3,000 litres of anti-toxic plasma. The production level of the anti-toxins has been maintained as in the previous year despite the stoppage of the bleeding of horses for two months for immunological reasons.

The report shows that 537 samples of tetanus anti-toxin and 13 samples of gas gangrene (Perfringens) anti-toxin were subjected to biological standardization during the year. These included samples of sera purchased from commercial companies outside as well as samples of serum sent by the Drug Inspectors under the Drug Rules.

It is gratifying to note that for the purpose of Biological Standardization suitable "Working Standard Anti-toxin" is being manufactured in the laboratory from time to time. This working standard was being checked up against "Standard Anti-toxin" issued periodically by the Medical Research Council, London.

Research work on different problems of applied immunology continued to be a feature of this department. Studies were conducted regarding toxin production of Cl tetani with different concentrations of nutrient material and different strains obtained from various parts of the world where similar work is being done. A systematic investigation on the ultrafiltration of anti toxic sera was conducted in a few batches of serum manufactured in the laboratory. Work on the standardization of suitable method for the production of Hæmostatic serum was continued.

Sterile Solution Section.—The department has continued the manufacture of sterile solutions and supplies have been made to State hospitals, municipal and local fund medical institutions. The demands for 25 per cent glucore ampoules and five per cent glucose normal saline bottles are on the increase. Sterile solutions in bottles of 540 cc. capacity have also been manufactured and supplied to various hospitals.

The manufacture of quinine dihydrochloride ampoules has been stopped temporarily from March onwards as the Director, Cinchona Department has intimated that he is having sufficient stocks of quinine ampoules and there will therefore be no need for further manufacture for sometime.

Biological Control Department.—The department undertakes the analysis of the biological products, manufactured in this Insititute, as well as those sent by Government hospitals in the city and the mufassal, and also private firms, private practitioners, etc. The department receives samples from Drug Inspectors under the provisions of the Drugs Act.

The total number of specimens received for examination under all heads were 7,860 from 1st April 1957 to 31st March 1958 and the number of tests done on these samples were 11,316.

Department of water Analysis.—This department maintained a check over the hygienic quality of the public drinking water supplies in the State through the analysis of samples of water taken periodically from each supply. As in previous years, the supplies were examined three times during the year under report. The necessity for increasing the frequency of the examination, especially in the case of water supplies taken from surface sources, and subjected to treatment has been pointed out in previous reports, and is under the consideration of Government.

A review of the results of the analytical examination of the quality of the public water supplies made during the year under report shows that the supplies are on the whole in a satisfactory condition from the hygienic point of view. Deficiency in quality, when noticed, was mainly due to inadequate chlorination, and/or contamination during transit in pipe lines or storage in service reservoirs.

The essential requirements for ensuring that the public water supplies are of the acceptable standard of hygienic purity, are careful conservation of the source from the sanitary point of view, adequate purification, and proper distribution. While a periodical check of the quality of the supply, and the functioning of the treatment plants by a principal State Laboratory is essential, it is nevertheless felt necessary that facilities should be provided in each major water works, for carrying out certain simple tests which are essential for day to day regulation and control of the treatment operations, and maintaining the supply in a good condition. Out of 47 municipal and panchayat water supplies now functioning in the State, 10 are purified by chlorination only. In these water works, daily tests should be carried out for estimating the dose of chlorine required for purifying the water and determining the residual chlorine in samples of the treated water for making sure that the treatment is being properly and adequately carried out. In the case of water works where more elaborate treatment measures are undertaken, it would be necessary to carry out at more or less frequent intervals tests for determining the dose of treatment chemicals used, and simple bacteriological analysis such as the presumptive coliform count. Such an analytical control and regulation of plant performance, should be supplemented by the more elaborate bacteriological and chemical tests carried out by a Central or a Regional Laboratory at regular intervals, as a routine, and also whenever special circumstances call for it. It is realised that this cannot be undertaken immediately owing to want of trained personnel. However, facilities for conducting the tests for chlorination can be provided at all water works even now and one or two persons in the works taught how to do the tests.

A large part of the increase in the volume of the routine work dealt with by this Department during the year under report was due to receipt of numerous samples of water from Rural Water Supply Schemes investigated under Local Development Works. Very valuable analytical data have been thus gathered about the chemical quality of the ground water in all parts of the State. A comprehensive study of these should be made, and published for the information of Engineers, Industrialists and Public Health Workers. The outstanding problems revealed by these examinations are those relating to the occurrence of excessive amounts of Fluorine, Iron and Manganese.

As regards Fluorine, the pilot plant experiments carried out by this Department at Guntakal have shown that it can be removed from water by using activated paddy husk carbon and that this method of treatment may be adopted generally. It has however to be stressed that before such measures are generally adopted it is important to carry out detailed clinical and radiological survey of the incidence and severity of fluorosis in the areas with high fluorine content in drinking water.

A perusal of the detailed report of the activities of this Department during the year under report, whould show that attention has been paid to research work. The main lines of research undertaken by this Department relate to the Bacteriology of Water, Removal of Fluorine, and Industrial Waste Treatment. Progress on the researches has however been restricted due to the increase in routine analytical work, and lack of adequate laboratory space.

The Chief Water Analyst continued to be in-charge of the teaching of General Microbiology, Bacteriology and Biology of Water, Sewage and Industrial Wastes, and their treatment processes, stream sanitation, and other related subjects to the Public Health Engineering Post-Graduate (M.Sc.) Students of the Madras Engineering College. The concerned Practical exercises were conducted in the

Water Analysis Department. The Department also provided all facilities for the students for carrying out laboratory work in connection with their research projects, under the guidance of the Chief Water Analyst.

The Department of Water Analysis with a staff of experts in each branch of the subject of Sanitary Bacteriology, Chemistry and Biology of Water, Sewage and Trade Waste and Chemistry of Industrial Waters, etc., and with an intimate knowledge of the water and sewage treatement works in the State, and the problems connected with these, offers the best advantage for training of Public Health Engineers in the theoretical and practical aspects of the work and to provide them with the opportunity to work alongside the specialists. The present arrangement should therefore be continued. It has however to be stressed that additional laboratory space should be provided for accommodating the students for their practical exercises and research. Provision should also be made for a lecture room with the required equipment and fittings.

The necessity to formulate standard procedures for bacterio'ogical and Chemical analysis of water, sewage and trade wastes has been long recognized by this Department. An elaborate study was carried out by Raghavachari and Seetharaman in 1930-33, comparing different media used in Bacteriological examination of Water, for evolving one which may be adopted as the standard. Their researches showed that the MacConkey Bile Salt Lactose Broth was satisfactory in all respects and may be used as the standard medium for the coliform test. The Indian council of Medical Research has constituted a Committee for preparing a manual of standard methods for the analysis of Water, Sewage and Trade Wastes, and a manual of the standards of Bacteriological, chemical and radiological quality for p blic drinking water supplies. The Director of King Institute and the Chief Water Analyst have been appointed members of the Committee. A meeting of the Committee was held in Lucknow in December 1957, at which drafts of the manual for bacteriological and chemical standards of quality were considered and approved. The Committee also recommended that laboratories in India may be requested to participate in a co-operative study of (1) a comparison of the Folpmer's Glutamic acid medium with MacConkey Broth for Coliform test on Water and (2) a rapid procedure for the detection of E. Coli I in water samples. It was also resolved that a scheme for investigating the applicability of present Biological measures of water quality and stream sanitation, to Indian conditions may be drawn up, and the investigations carried out by the King Institute, Guindy.

Government Analyst Section.—Twenty-one new local bodies which were permitted to send samples under the Prevention of Food Adulteration Act, 1954, consequent on the reorganization of States began to send samples from 1st April 1957.

Although the Prevention of Food Adulteration Act, 1954, came into force from 1st June 1955, the rules under the Act are in different stages of enforcement. Some of the rules came into force from 24th September 1955. Parts VI and VII of the rules relating to labelling and colouring of foods which were kept in abeyance to enable the merchants to dispose of their old stocks came into full force during the year from 1st June 1957.

The rather severe penalties involving heavy fine and imprisonment imposed for food adulteration offences have spurred merchant's associations to quick action in the form of memorials, deputations and representations to Government stating that the prescribed standards are severe and impossible to attain in practice but unfortunately they do not take active steps to remove the remediatble defects in the food manufacturing and processing centres. But on the suggestion of the Government of India, the Madras Government have constituted a Committee to discuss with Trade interests twice a year their difficulties in the working of the Act. The Director of Public Health is the convenor of the Committee of which the Government Analyst is also a member.

Under the Madras Prevention of Adulteration Act there was no standard for free fatty acid in ghee and oils, but under the Prevention of Food Adulteration Rules, 1955, a limit of 3·0 per cent has been prescribed. Oils and fats having excessive acidity are deleterious to health. The manufacturer of butter has to prepare it hygienically and without storing it for any considerable period has to melt it into ghee so that the ghee may not have excessive free fatty acid. Similary manufacturers of oils have to use only good quality oil seeds and reject the damaged ones to ensure that the oil is sweet and within the permitted limit of acidity.

The Government of India have sanctioned a scheme to undertake a study of the chemical characteristics of ghee by regions from 1st January 1958 and the areas covered under the States of Madras and Andhra Pradesh will be surveyed during the first year of the Scheme.

Report on the working of Mechanic Section.—This section forms one of the service sections for the various departments of the Institute. The main installations for (1) the supply of the water and gas to all the departments and (2) steam to the Media Section for sterilization of articles for the departments which were probably provided at the time of the begining of the Institute are giving rise to frequent breakdown. Further, since the activities of the Institute have considerably expanded during the last decade, the requirements of the departments with these old plants are being met with great difficultv and the following is the present position with reference to proposals already put up, and are in the offing for the improvement of these plants:—

I. *Gas Plants.*—Proposals were put up for the installation of a 5,000 c.ft. capacity high pressure gas tank and two more gas producers, and were sanctioned by the Government. Subsequently when the work was to be taken up, it was found, on a joint inspection at the site by the Executive Engineer, South Presidency Division, and General Superintendent, P.W.D. Workshop, that some alterations and additions to the original proposals are necessary. Accordingly proposals have been put up and revised estimate obtained from the Executive Engineer has been forwarded to the Government for the revised administrative approval. [Government sanction has since been accorded approving the estimate of Rs. 82,000 for this work in G.O. Ms. No. 2592, P.W.D., dated 25th September 1958.]

II. *Boilers and Steam Sterilizers.*—During the year a "Cochranette Boiler" vertical type and two steam sterilizers have been acquired from the P.W.D. Workshop, Madras. They will be installed on the completion of masonry work that is essential for the erection of them, and the necessary proposals have been put up for the same.

III. *Water.*—The water mains from the infiltration gallery to the overhead tanks in the Institute is clogged. Proposals are being put up for providing a 4 inches main separately, in addition to the cleaning of the existing 3 inches main lines. This is in consideration of the fact that if two such main lines are made available prompt and proper maintenance of the mains would be feasible without dislocation of the work at the Institute. It is contemplated to put up proposals for a big common reinforced concrete reservoir of 40,000 gallons capacity, in a central place when the Horse stables are completed.

IV. *Refrigeration, etc.*—Maintenance and repairs of Refrigerating equipments both commercial and domestic have been satisfactory. At the moment 5 commercial and 22 domestic plants are in commission. Ice is being manufactured for the various sections as well as for the Sample takers for the transport of water, etc., Due to unsteady voltage in the current supply, great difficulty is being experienced. A portion of the difficulty has been eliminated by the Electricity Department on the AC side but the DC supply generated at the Engineering College still continues to be very unsatisfactory especially during the rainy weather.

DC supply is being replaced by AC in stages, but the progress is very slow. In this connection it is pointed out that for want of AC supply many modern laboratory equipments can not be put to use nor new ones acquired as noted in the report for the year 1956–57.

V. *Workshop.*—In addition to the routine work of attending to repairs of some of the equipments in the laboratory, making of suitable containers for sterilisation of articles, mending of cages for laboratory animals, etc., manufacture of animal cages was also taken up by employing daily wage labourers and 252 guinea pig cages and 6 rabbit cages were made during the year.

Inoculation for International Travellers.

Statement showing the number of persons inoculated against cholera, small pox and yellow fever from 1st April 1957 to 31st March 1958 for whom International Certificates have been issued is furnished.

Nature of vaccine.	Number of persons inoculated.
Cholera vaccine	395
Small-pox	156
Yellow Fever vaccine	386
Typhus vaccine	5
Total ..	942

State Research Committee.

Report for the year 1957-58 under the scheme grants to State Research Committee included in the Second Five-Year Plan.

A budget provision of Rs, 40,000 for the year 1957–58 has been made and this has been increased to Rs. 71,000 as per the revised estimate approved by the Director of Medical Services. The total expenditure towards salaries and contingencies up to 31st March 1958 is Rs. 46,847·84. Last year's dues paid during this year is Rs. 10,485·93 bringing the total expenditure to Rs. 57,333·77. A sum of Rs. 11,000 was surrendered and the amount not spent is Rs. 2,667·23.

All the 20 schemes approved for the year 1957–58 started functioning on 1st April 1957 except one scheme which started functioning in July and the other in October 1958.

In accordance with the G.O. Ms. No, 2549, Health, dated 13th September 1954 clinical trials of Antibiotics and other preparations from the manufacturing concerns have been carried out by Dr. R. Subramanian and Dr. S. T. Achar with prior permission from the State Research Committee.

For the State Research Schemes for the year 1957–58 three Civil Assistant Surgeons have been deputed to work in three schemes and an amount of Rs. 250 per mensem for each officer is being reimbursed to the Government from the State Research Funds.

The following are the schemes that functioned during the year 1957–58 :—

Scheme number and subject.	Name of the investigator.	Date of starting of the investigation.
1 Studies on Kala Azaar.	Dr. K. S. Sanjivi, M.D., Professor of Medicine, Madras Medical College, Madras and Dr. N. R. Ramakrishnan, Research H.O., Office of the Director of Public Health, Madras.	1st April 1957.

Scheme number and subject.	Name of the investigator.	Date of starting of the investigation.
2 Treatment of Cirrhosis of Liver in Adults, with the extract of Eclypta Alba leaf.	Dr. R. Subramaniam, M.D., Professor of Therapeutics, Madras Medical College, Madras.	1st April 1957.
3 Infantile Cirrhosis and Infective Henatitis in Infancy and Childhood.	Dr. S. T. Achar, M.D., Professor of Pediatrics, Madras Medical College, Madras.	Do.
4 Determination of age by means of Radiological examination.	Dr. K. Manjunatha Raj. D.M.R. (Lond.), Barnard Institute of Radiology, Government Hospital, Madras.	Do.
5 Intradermal test for Syphilis using killed virulent T. Pallidum.	Dr. C. W. Chacko, D.T.M. PH.D., Institute of Venereology, Madras Medical College, Madras.	Do.
6 Study of Pulmonary function tests.	Dr. H. D. Singh, M.B.B.S., M.SC., Assistant Professor of Physiology, Madras Medical College, Madras.	Do.
7 Assessment of the source of infection of Diphtheria and the prevalence of Carriers of infection in the houses of infected children.	Dr. N. R. Ratnakannan, M.D., Professor of Bacteriology Madras Medical College, and Dr. S. T. Achar, M.D., Professor of Pediatrics, Madras Medical College.	Do.
8 The relation between Blood groups and diseases.	Dr. T. Raghavan, M.B.B.S., Medical Officer ir-charge, Blood Bank, Government General Hospital, Madras.	Do.
9 Treatment of Eale's disease.	Dr. T. T. Ramalingam, M.S.D.O., Superintendent, Government Ophthalmic Hospital, Madras.	Do.
10 Protein electrolyte and 17 Ketosteriod changes in Surgical subjects.	Dr. C. Raghavachari, M.S., Professor of Surgery, Sranley Medical College, Madras.	Do.
11 Administration of Insulin by Aerosol Inhalation.	Dr. A. R. Govinda Rao, M.S., (Yale) Professor of Pharmacology, Stanley Medical College, Madras.	Do.
12 Enquiry on Hypertension.	Dr. (Srimathi) Sarada Subramaniam, M.B.B.S., M.SC., Lecturer in Physiology, Stanley Medical College, Madras,	Do.
13 Studies on Cholera ..	Dr. N. Veeraraghavan, M.S., Director, Pasteur Institute, Coonoor.	Do.

Scheme number and subject.	Name of the investigation.	Date of starting of the investigation.
14 Studies on the Nichol's strain of Treponema pallidum.	Dr. N. Veeraraghavan, M.S., Director, Pasteur Institute, Coonoor	1st April 1957.
15 Diagnosis of Pregnancy.	Dr. M. K. Krishna Menon, M.D., Director, Institute of Gynaecology and Obstetrics Women and Children Hospital, Madras.	Do.
16 Studies to ascertain the basal level of immunity against typhoid.	Dr. N. B. Kuppurajan, M.D., Professor of Bacteriology, Stanley Medical College, Madras.	Do.
17 Study of demonstrating the situation of placenta by Radiography.	Dr. M. G. Varadarajan, D.M.B., Radiology, Government Women and Children Hospital, Madras.	Do.
18 Antibody response in Chloromphenicol treated cases of typhoid.	Dr. N. R. Ratnakannan, M.D., Professor of Bacteriology, Madras Medical College, Madras.	Do.
19 A collaborative clinical and therapeutie study of Ocular syphilis both acquired and pre-natal.	Dr. T. T. Ramalingam, M.S. D.O., Superintendent, Ophthalmic Hospital and Dr. P. N. Rangiah, M.D., Associated Professor of Veneral Diseases, Madras Medical College, Madras.	Do.
20 Ocular manifestations in Vt. B. group Deficiencies with special reference to Riboflavine.	Dr. G. Venkataswamy, M.S., D.O. Ophthalmic Surgeon, Madurai Medical College, Madurai.	1st October 1957.

Scheme numbers 5, 7, 8, 9, and 10 have been completed on 31st March 1958 while schemes numbers 11, 12, 13 and 20 have been terminated by the State Research Committee at its meeting held on 31st March 1958.

The total amount spent on the schemes for the year 1957–58 is Rs. 57,333·77. Out of this Rs. 56,601·08 has been paid for in the year 1957–58 and Rs. 732·69 has to be paid for in the year 1958–59.

Director's Laboratory.

A. (1) *Filariasis.*—During the year 24·5 ml. of conispiculum guindiensis antigen was prepared and 13·0 ml. issued for clinical trials.

Two thousand six hundred and sixteen calotes purchased at a cost of Rs. 327·00 were examined for evidence of Conispiculum guindiensis infection. Seventy-four calotes showed microfilaria in blood; the infection rate being 2·8 per cent.

Twenty-nine calotes showing microfilariæ in blood were sacrificed and 71 male and 90 female worms collected for the preparation of the antigen.

(2) *Parasitic infection of crows.*—A study of the blood smears of crows for the evidence of filarial and malarial infections was initiated. No parasites were found in four crows examined.

B. Teaching.—Lecture demonstrations on the study of viruses were given to M.D., B.S.Sc., and other post-graduate students.

C. Inter-Laboratory Service.—Forty-two calotes infected with Conispiculum guindiensis were sent to the Malaria Institute of India. 5 ml. of filarial antigen was also supplied to the Institute.

Educational.

1. *Library.*—The King Institute Library is one of the few specialised medical libraries in the country which offers to the scientific workers facilities for study and reference to literature on a veriety of subjects on Medical, Biological and allied sciences. There are now 13,003 volumes of books and bound volumes of journals in the library.

A special feature of the activities of this Library is the distribution of current scientific journals to the officers corresponding to speciality. During the year under report 1,899 issues of journal were thus distributed.

The facilities of the library of this Institute were extended to the staff and the students of the post-graduate course in Public Health Engineering.

2. *Training.*—The following were given training during the year 1957–58 :—

(1) Sri J. Verghese, Samkarathil Pandalam, Kerala State.	One month from 8th May to 7th June 1957 post-graduate training in Pathology and Bacteriology.
(2) Sri T. K. Panduranga Rao, B. Pharmacy student, Andhra University, Waltair.	One month from 11th May to 10th June 1957.

Note.—Students of Bachelor of Pharmacy degree course in the Madras Medical College Final year additional training at the King Institute, Guindy.

3. *M.Sc. (Public Health Engineering) Course.*—A cource of instruction in the theory and practical training in General Microbiology, Water and Sewage Bacteriology, Limnology, and Stream Sanitation was given to the post-graduate Public Health Engineering (M. Sc.) students of the Madras University during this year also. Thirteen students took the course. They were also afforded facilities for carrying out their research work as part requirement for the degree.

4. *Laboratory Attendants and Technicians Training Course.*—The certified Laboratory Attendants' and Technicians' Training Courses were continued during the year 1957–58. One more seat has been sanctioned this year in addition to the eighteen seats already in strength. During the year twenty-three candidates have appeared for examination for the Certified Laboratory Attendants' training course and all of them came out successful. The four candidates who failed in the previous year appeared for the examination and passed after undergoing the training in the respective subjects.

In addition to the eighteen selected candidates for Certified Laboratory Technicians course for 1957–58, seven more candidates who failed in the previous year also appeared for the examination during the year and all of them were declared to have passed in the examination.

Animal House.

Charge	Dr. M. K. K. Menon, MBBS., Assistant Director, (Department of Anti Toxin).
Medical Officer	Dr. P. Ramaswamy, L.M.P.

Considerable progress has been made in the breeding of the laboratory animals ɔ cially that of rabbits, guinea pigs and mice. From the attached statement will be seen that the animal house was able to cater to the needs of various ctions of the Institute with all types of animals or birds either by purchase from ıtside or from the inbred stock. It may also be pointed out that, compared the previous year the animal section successfully managed during the year ıder review to meet the increased demands for all the experimental animals. In ldition the needs of other sister institutions in the city and elsewhere such as ıe Department of Bio-chemistry University of Madras, the upgraded Venereo- ɔgy Department, Madras General Hospital, Veterinary College, Madras. Department of Pathology, S.M.S. College, Jaipur, etc., have also been met with.

As it was felt at a certain stage that the stock of mice were far in excess of ur requirements we have been reluctantly compelled to stop breeding of mice for short period of two months during this year.

With a view to achieve uniformity and to minimise the effect of biological ɔariation encountered in animal experimets, it was felt desirable to develop ıufficient stock of mice from a strain chosen from the healthy animals available ıt the Institute. Work in this direction has already been started with one male ınd female off-springs of the same mother. The pedigree of this strain of mice is being recorded and followed.

The breeding of pigeons has also been started during the year under review.

Proposals put forward to convert the verandahs in the ground floor and first floor into closed enclosures have been sanctioned and when these are completed the animal house will have more space available for breeding these animals.

With the present pace of breeding in respect of different experimental animals it should become possible to achieve self sufficiency in the course of two years.

Serial number and type of animal.	Stock.		Bred during		Issued to K.I.P.M.		Issued to outside.	
	1956-57.	1957-58.	1956-57.	1957-58.	1956-57.	1957-58.	1956-57.	1957-58.
	31st March 1957.							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Rabbits ..	274	323	156	301	1,200	1,513	Nil	29
2. Guinea pigs ..	553	685	903	928	3,054	5,053	70	52
3. Mice ..	7,653	5,631	11,869	9,318	5,503	7,527	110	127

PART I—ROUTINE WORK.

VACCINE LYMPH SECTION.

Charge .. .. .. Dr. S. Govindarajan, M.D., D.B. (Manch.)

Medical Officers— .. .. (1) Dr. K. S. Balasubramaniam, L.M.P.

.. .. (2) Dr. P. Damodaram, M.B.B.S., up to 23rd December 1957.

(3) Dr. G. N. V. Krishnan, L.M.P., L.P.H., D.L. S.C. From 23rd August 1957

(4) Dr. V. Sivarajan, M B.B.S., from 15th February 1957 to 30th June 1957.

(5) Dr. S. Gnanadesikan, M.B.B.S., from 4th July 1957 to 23rd August 1957.

(6) Dr. Rahm n Shakir, M.B.B S , from 16th November 1957 to 31st March 1958.

(7) Dr. A. K. Muthu, M.B.B.S., from 11th July 1957 to 15th November 1957.

Staff.—This Department, which has had a resident Assistant Director from its early days continues to be functioning without an Assistant Director. This has cast a heavy burden on the Director as in addition to his usual duties, he has to regularly supervise and direct the functioning of this Department. This position is unsatisfactory.

The Government in its G.O. Ms. No. 3589, Health, dated 9th December 1957, has directed that the position be reviewed in early March.

Proposals have been put up on 26th March 1958 for the revival of the post and orders are awaited.

1. *Manufacture and issue of vaccine Lymph.*—The year under report opened with a very poor stock of 50,275 ml. of glycerinated Vaccine Lymph, in a dilution of 1 in 5. This had been the outcome of the conditions that prevailed in the previous years due to foot and mouth disease amongst the calves and consequent interference with the manufacture and issue of vaccine lymph. And practically there was no production during the last two months of last year (February and March 1958) due to interruption, again, by the incidence of foot and mouth disease. Hence at the beginning of the year under report a quantity of 28,400 ml. of glycerinated vaccine lymph had to be obtained from Institute in other States (Vaccine Institute, Nainital—20,000 ml ; and Vaccine Institute, Bangalore—8,400 ml.) to meet the demand from the field.

During the year under review the production had been stepped up considerably. During the latter half of the year, with a view to conserve space for storage in the low temprature cabinets, that are available, some of the stock had to be held in 1 in 3 dilution as against the usual practice of 1 in 5 dilution. A total quantity of 165,925 ml. in 1 in 5 dilution and 72,325 ml. in 1 in 3 dilution of glycerinated vaccine lymph, which is approximately one and a half times the usual average annual production, was manufactured.

There had been incidence of foot and mouth disease among the cow-calves this year also, but fortunately without causing much dislocation in the routine production.

As pointed out in the previous report, buffalo calves were obtained from the same areas (Salem and Coimbatore Districts) as cow-calves, from July 1957. They were used as Vaccinifers, in addition to the cow-calves, and had proved satisfactory, with reference to the average yield of Crude Vaccinial pul[illegible]

Considerable progress has been made in the breeding of the laboratory animals esp cially that of rabbits, guinea pigs and mice. From the attached statement it will be seen that the animal house was able to cater to the needs of various sections of the Institute with all types of animals or birds either by purchase from outside or from the inbred stock. It may also be pointed out that, compared to the previous year the animal section successfully managed during the year under review to meet the increased demands for all the experimental animals. In addition the needs of other sister institutions in the city and elsewhere such as the Department of Bio-chemistry University of Madras, the upgraded Venereology Department, Madras General Hospital, Veterinary College, Madras. Department of Pathology, S.M.S. College, Jaipur, etc., have also been met with.

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With the present pace of breeding in respect of different experimental animals it should become possible to achieve self sufficiency in the course of two years.

Serial number and type of animal.	Stock. 1956-57.	Stock. 1957-58. 31st March 1957.	Bred during 1956-57.	Bred during 1957-58.	Issued to K.I.P.M. 1956-57.	Issued to K.I.P.M. 1957-58.	Issued to outside. 1956-57.	Issued to outside. 1957-58.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Rabbits ..	274	323	156	301	1,200	1,513	Nil	29
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3. Mice ..	7,653	5,631	11,869	9,318	5,503	7,527	110	127

—	Death: Under experiments. 1956 57.	Death: Under experiments. 1957 58.	Death: Normal conditions before issue to experiments 1956 57.	Death: Normal conditions before issue to experiments 1957 58.	Mortality rate. 1956 57. PER CENT.	Mortality rate. 1957 58. PER CENT.	Purchases. 1956 57.	Purchases. 1957 58
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1. Rabbits ..	616	1,431	55	139	5·5	6·6	576	1,347
2. Guinea pigs ..	661	1,412	187	63	13	3	109	732
3. Mice ..	..	..	..	..	..	..	..	—

N.B.—(1) Since there was a greater demand for rabbits there is an increase in the purchase of rabbits.

(2) Owing to increased production of Cholera vaccine there was a demand for a larger number of Guinea pigs. Hence an increase in the numbers purchased.

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There had been incidence of foot and mouth disease among the cow-calves this year also, but fortunately without causing much dislocation in the routine production.

As pointed out in the previous report, buffalo calves were obtained from the same areas (Salem and Coimbatore Districts) as cow-calves, from July 1957. They were used as Vaccinifers, in addition to the cow-calves, and had proved satisfactory, with reference to the average yield of Crude Vaccinial pulp per

animal, viz., buffalo-calf-41·6 gms. and cow-calf-32·3 gms. There had been no incidence of foot and mouth disease amongst the buffalo calves. The percentage of animals refractory to vaccinia in the case of buffalo-calves appears to be comparatively higher than among the cow-calves.

The usual off-season for routine vaccination in the field was not observed during the year due to the prevalence of the epidemic of small pox; and the demand from the field for vaccine lymph had been very heavy this year. A quantity of 172,655 ml in 1 in 5 dilution of glycerinated vaccine lymph had been expended during the period under report.

Thus after meeting the issues to the field, the balance stock at the end of the period under report was 43, 545 ml. in 1 in 5 ; and 72,325 ml. in 1 in 3 dilution of glycerinated vaccine (i.e.) nearly 5 million doses in 1 in 5 dilution, three times the opening stock and just less than one year's requirement.

The purification process to get the various batches within limits of the prescribed standards with regard to the viable bacterial content, freedom from pathogenic organisms, and toxicity tests, had been—

(*a*) treatment with ether ;

(*b*) some batches with streptomycin and penicillin; and

(*c*) some batches with ether, and streptomycin and penicillin.

The usual tests for conformity with the bacteriological standards, toxicity and potency were done on all batches of lymph issued to the field.

2. *Potency of the vaccine lymph.*—The potency of all batches of vaccine was satisfactory at the time of issue both by laboratory tests on calves and by primary vaccination in the observation Range.

Complaints of pronounced reaction but normal take were received from the field. This was probably due in some measure to the freshness of vaccine lymph that was being issued without much time given for storage. It has been the practice to test the potency of the product on calves in a dilution of 1/1500 in 50 per cent glycerin water. The various batches of vaccine were tested in higher dilutions, viz. 1 in 3,000 and 1 in 6,000 as well. The results showed a continuous vasiculation in almost all the batches up to 1 in 6,000 and in a few up to 1 in 3,000 only. Field results of a few batches in 1 in 15 and 1 in 20 dilution also proved satisfactory with a case and insertion success rate of 97 3 per cent and 90·7 per cent in the case of 1 in 15 dilution and 95·7 per cent and 89·1 per cent in 1 in 20 dilution respectively.

Hence it was decided to dilute further the vaccine for issue and the issue of vaccine had been made in a dilution of 1 in 10 in consultation with the Director of Public Health, Madras and Andhra Pradesh. As is evident from the results from the field shown below in the analysis of returns from the field [(Tables III (*a*) and III(*b*)] the potency of the vaccine lymph issued had been quite satisfactory as in previous years. With regard to the total results of primary vaccination of children in the observation range, the figures for case and insertion success rates are 86·5 per cent and 78·3 per cent respectively, out of 2,470 primary vaccinations verified.

3. *Analysis of results statements received from the districts for the calendar year* 1957.—This analysis, which is for the calendar year 1957 with reference to the total doses of vaccine issued to the field and the returns for vaccinations done are given below separately for Madras and Andhra States.

A total quantity of 7,846,325 doses of vaccine lymph were issued to the field as against 5,781,170 doses for the previous year. Out of this 4,703,995 doses were for Madras State; 2,904,200 doses for Andhra State; and 202,130 doses for Kerala State (areas transferred from the former Madras State to Kerala State).

Returns received from the areas of the present Kerala State, viz., Ranges and Municipalities of the Malabar and Kasargod areas have been included with the figures for Madras State—

(i) *Total Vaccinations and types*—[(*Tables II (a) and II (b)*)]—(*a*) *Madras State.*—In all, returns were received for 4,692,961 vaccinations, of which 16·9 per-cent were primary, 0 3 per cent secondary and 82·8 per cent re-vaccinations.

(*b*) *Andhra State* —Out of the returns received for 2,556,663 vaccinations, 17·4 per cent were primary ; 0·1 per cent secondary; and 82·5 per cent re-vaccinations.

(ii) *Primary Vaccinations.*—[*Tables II (a), II (b) and III (a), III (b).*]—(*a*) *Madras State.*—Results were received for 616,709 primary vaccinations with the following case and insertion success rates.—

Madras State (inclusive of transferred areas in Kerala State).	Case success rate. PER CENT.	Insertion success rate. PER CENT.
Corporation of Madras	99·9	91·6
Municipalities	99·1	93·7
Districts	94·4	86·2
Malabar district	98·4	91·9
Municipalities of transferred areas in the present Kerala State.	97·6	94·5
State as a whole	95·6	87·9

(*b*) *Andhra State.*—Returns for 379,404 primary vaccinations were received with the following results.

	Case success rate. PER CENT.	Insertion success rate. PER CENT.
Municipalities	94·9	90·8
Districts	92·2	82·8
State as a whole	92·9	82·4

(iii) *Re-vaccinations* [(*Tables II (a) II (b) and III (a) and III (b)*].—Returns for 2,504,461 and 1,428,440 re-vaccinations were received from Madras and Andhra States respectively with the following results.—

Madras State (inclusive of transferred areas in the present Kerala State).	Case success rate. Madras State. PER CENT.	Case success rate. Andhra State. PER CENT.
Corporation of Madras	7·1	..
Municipalities	18·9	16·3
Districts	22·2	20·9
Municipalities (Transferred areas in the present Kerala State)	24·7	..
Municipalities	24·7	..
Malabar District	22·0	—
State as a whole inclusive of transferred areas in the Kerala State.	19·9	18·9

Lymph unaccounted for.—Out of 7,846,325 doses of vaccine lymph issued during the year, a total quantity of 3,504,176 doses remain unaccounted for. Of this, 43·9 per cent relates to Madras State; and 48·9 per cent to Andhra State. These figures continue to be high, probably for the same reason as in the previous year, viz., the Field Health Staff being engaged in combating the epidemic of small pox. Anyhow, the figures for the following districts need mention as they exceed 50 per cent

State	Names of districts.	Percentage of vaccine lymph unaccounted.
Madras	Kanyakumari	100 per cent.
	Coimbatore	91·7 do.
	Nilgiris	62·0 do.
Andhra	Nellore	99·6 do
	Krishna	82·4 do.

This figure which usually used to be within a range of 5 per cent to 25 per cent for the Corporation of Madras, Municipalities of Madras State; and Municipalities of Andhra State have also become high, viz., 45·9 per cent; 60·5 per cent and 67·4 per cent respectively.

Diagnostic Department.

Charge— Dr. C. Venkateswara Rao, M.B.B.S., L.O., Assistant Director.

A. Clinical Section.

Assistant Surgeons—Dr. Dinker Babu Rao, M.B.B.S.

Dr. Mrs. F. Sargunar, M.B.B.S.

Dr. G. N. V. Krishnan, L.M.P., L.P.H., D.L.SC.

This section had examined and reported on 13,978 specimens received this year from this State for Bacteriological diagnosis. Fifty two specimens were received for Histopathological examination from the Mission Hospitals in this State and were reported. The details of the examinations done are shown in Tabular Statements.

B. Serology Section:

Assistant Surgeons—Dr. Mrs. A. Natarajan, M.B.B.S.

Dr. Mrs. C. J. Anna, M.B.B.S.

The details as to the number of serological tests done along with details as to the positive results are appended in the tabular statements. During this year a total of 6,907 specimens were tested which shows a rise of 5,892 specimens more than last year. The supply of reagents such as Kahn Antigen, Bullock heart extract, 1 per cent cholesterol, etc, was also continued. The details of the supplies made are also shown in tabular statements.

Research work.—During this year this section has undertaken the research work of comparative study of V.D.R.L. and Kahn tests. It has also undertaken the work of preparing high titre sera by a new method (Ref. American Journal of Syphilis 1952-P.57) which will minimise shock to the animals. The results so far are satisfactory.

C. Therapeutic Vaccine and Stock Culture Section.

Assistant Surgeon.—Dr. K. S. Ramaswamy, M.B.B.S.

This section maintains a large stock of various type cultures and manufactures Therapeutic Vaccines, Autovaccines, Diagnostic sera and Bacillary emulsions. The type cultures are supplied not only for use in this Institute but also to other Institutions in India or abroad. The Statements showing the nature of work carried out and vaccines, etc., supplied are detailed in appendix.

D. Media Room.

Assistant Surgeon—Dr. Mrs. N. Saraswathy, M.B.B.S.

This section manufactures media both for the use of this Institute and for other laboratories in this State. There was still demand for media from the Andhra, Mysore and Kerala States and supplies were effected. The details of supply are shown in tabular statements.

The Public Health Laboratories are being supplied with media temporarily till they are able to function on their own.

Prophylactic Vaccine Section.

Charge—Dr. C. Venkateswara Rao, M.B.B.S., L.O., Assistant Director.

Assistant Surgeons—Dr. Habibullah Baig, M.B.B.S.

Dr. (Kumari) T.D. Leelavathy, M.B.B.S.

There was an epidemic of cholera in this state during this year and a total of 10·8 million doses of Anti-Cholera vaccine were supplied to the Andhra, Madras, Kerala and Karnataka States.

This section had also manufactured 1·8 lakh doses of T.A.B. Vaccine and issued 1·44 lakh doses.

The plague vaccine was as usual obtained from the Haffkine Institute, Bombay and distributed to the Public Health staff of the Madras, Andhra and Kerala States.

Department of Anti-Toxin.

Officer in-charge—Dr. M. K. K. Menon, M.B.B.S.

This Department comprises of four sections.—

(*a*) Veterinary Section.
(*b*) Anaerobic Section.
(*c*) Serum concentration Section.
(*d*) Serum Filling Section.

(*a*) *Veterinary Section.*—The number of horses maintained in the beginning of the year was 63. Four horses died and two were destroyed as they were unfit for serum production. Three horses were received as gifts during the course of the year, thus making a total number of 60 at the end of the year.

The number of horses under immuization and bleeding and the quantity of blood drawn during this period are shown below.—

Table I.

Name of toxin	*Number of horses under immunization.*	*Number of horses under immunization but not bled.*	*Number under observation.*	*Total.*
Tetanus	48	Nil	3	51
Perfringens	4	2	Nil	6
Haemostatic Serum ..	..	..	3	3

Table II.

Name of Anti-toxins.	*Quantity of blood drawn in litres.*
Tetanus	3,406·5
Perfringens (welchii)	324
Total ..	3,730.5

The following persons donated one horse each for serum production during the year:

(1) Mr. Lahori, Trainer, Madras Race Course, Guindy.
(2) Mr. Askerali, Trainer, Madras Race Course, Guindy.
(3) Mr. Bakerali, Trainer, Madras Race Course, Guindy.

All these horses are stabled in the Veterinary College, S. P. C. A. and Fort St. George and this dispersal of horses in different places handicaps efficient production to some extent. However, plans and estimates have been prepared for the construction of stables in the Institute premises. When this is done and when the total number of horses are also increased to the desired extent it will be possible for us to be self-sufficient in the matter of requirements of serum and other biological products to the State hospitals.

Production of haemostatic serum was taken for experimental study.

(*b*) *Anaerobic Section.*—Toxic strains of Clostridium tetani and Cl. welchii (Cl. perfringens) are being maintained in the dry as well as wet semi solid state in the laboratory. Purity and toxicity tests are being conducted at frequent

intervals. Repeated experiments have led to the conclusion that the peptic hydrolysate prepared in this laboratory is a satisfactory medium for toxin production using the strain of Cl. tetani-FF.A. 471. Repeated experiments are being done, to ascertain the factors which are most conducive to the production of good toxin, that is by altering the PH, by varying the incubation period, and by altering the quantity of nutritional factors present in the medium. The following amounts of toxins were manufactured in the year under report

Tetanus toxin	544·6 litres.
Welchii toxin	29·25 litres

Biological Standarization.—537 samples of tetanus antitoxin and 13 samples of gas gangrene (perfringens) anti-toxin were assayed during the year under report. These include the samples of sera purchased from commercial companies outside as well as samples of serum sent by the Drug Inspectors under the Drug Rules. For the purpose of biological standarisation, suitable "Working Standard-Anti-toxin" is being manufactured in this laboratory from time to time. This is being checked up against the standard anti-toxin issued periodically to this Institute from the Medical Research Council, London.

Research Work.—As there is a tendency for certain strains of Cl. tetani, to drop down in toxicity, investigations were constantly made here to augment the toxic and antigenic features of this clostridium. When it is found that the strain has completely lost its toxicity, it is replaced by another strain obtained from other laboratories engaged in similar work. The following investigations were conducted :—

1. Study of toxin production in the peptic hydrolysate of beef by different strains available in the laboratory.

2. Study of toxin production by strains obtained from other laboratories as given below:—

CN 976–Central Research Institute, Kasauli.

FFA-471-II-Haffkine Institute, Bombay.

I. V. R. I. S. 24-Indian Veterinary Research Institute, Muktheswar.

3. Study of toxin production with increase in en-zyme concentration.

4. Study of toxin production by varying the quantity of inoculum.

5. Following a report in the journal of the South African Medical Research Institute, Johannesburg, from Dr. Schaafasma who has successfully prepared a very high titre tetanus toxin, in cellophane tubes, experiments were conducted in this laboratory to study toxin production by this method. These experiments were conducted with the material and the apparatus improvised in the laboratory, as we could not get the ingredients, referred to by Dr. Schaafasma. So far 8 experiments were conducted. Though no spectacular results were yet obtained, there are indications that a more careful study may help to produce a high titre of toxin. The advantage of using such high titre toxins in the immunization of horses consists chiefly in getting high anti-toxic titres in the circulating blood of the horses.

Work on these lines is being continued.

Manufacture of tetanus toxoid intended for human use was continued in this Section.

So far two lots have been manufactured and the various tests governing the issue of this product are being done. The tests so far performed indicate that the toxoid answers much more than the minimum requirements, laid down for this product under the Drug Rules.

Extra departmental activities.—The following samples from the undermentioned sources were investigated for contamination with Cl. tetani and Cl. welchii.

Source.	*Samples.*	*Result.*
1. Head quarters Hospital, Tiruchirapalli.	Cotton, Gauze, and cotton thread.	Cl. tetani not isolated.
2. Department of Bacteriology, Stanley Medical College.	One tube of culture grown from scrapings from the operation theatre.	No. cl. tetani isolated.
3. Central Leprosy and Teaching Institute, Tirumani.	Catgut.	Found sterile.
4. Department of Bacteriology, Stanley Medical College.	Culture tubes containing the growth from the scrapings of the operation theatre.	Cl. tetani not isolated.

(c) *Serum Concentration Section.*—For the year under review, the production level of anti-toxin was maintained as in the previous year, despite, the stoppage of the bleeding of the horses for about 2 months, during which period the horses were put on graded immunisation with a view to obtain a high titre of antibody. The above procedure was necessitated as a result of a comparative study of plasma values, in four successive bleeding sessions.

The total quantity of immune plasma, comprising the two types of anti-toxins-tetanus, and perfringens processed during the year under report is approximately 2,898 litres. Of this tetanus anti-toxin formed the major part.

The following are the quantities of antitoxic plasma processed under each head.

Type of Anti-toxic plasma.	*Number of litres*
Tetanus	2,785· 1
Perfringens	213· 2

Research Work.—A systematic investigation on the ultrafiltration of the antitoxic sera was done in a few batches. Efficiency of ultra filtration was studied by the determination of potency, total solids, non-protien-nitrogen protein nitrogen and electrophoretic patterns of the batches of sera before and after ultrafiltration. The results show practically negligible loss in potency of sera by ultrafiltration. Besides concentration of sera without appreciable loss in potency, ultrafiltration effected, a certain degree of purifiation in the filtered ant-itoxin, in as much as the potency per mg. protein-nitrogen increased in the ultrafiltered material.

Work on the standardisation of a suitable method for the production of haemostatic serum was continued. For this purpose, one horse was set apart for detailed investigation. The animal was subjected to a series of bleedings on alternate days. After a certain period, the serum was tested for haemostatic activity. The activity of the prepared serum showed a progressive increase and reached a maximum at the 6th and 7th bleeding, and thereafter remained stationary. Though the haemostatic activity was fairly good in the beginning, it deteriorated rapidly on storage. Work is under progress to find out the factors, responsible for such a deterioration in potency, as also to examine the possibility of stabilizing the potency, by fortifying the serum with substances known to aid, the coagulation process. From time to time, improvements in the method of concentration and purification of anti-sera are being incorporated along with the advances that are being continually made in this field of activity.

(d) *Serum Filling Section.*—This Section is concerned with the proper storing, ampouling, labelling and issue of various therapeutic sera and other biological products in accordance with provisions contained in the Drug Rules.

The statement of therapeutic sera issued during the period under report as well as the quantities supplied individually to Madras, Andhra and Mysore and Kerala States is appended. A statement showing the sera manufactured and bulbed in King Institute, Guindy is also appended.

Department of Biological Control.

Charge.—Dr. M. Narayana Pai, M.B.B.S., was in-charge of the Section throughout the year, except during the period of 2nd April 1957 to 30th June 1957, when Dr. K. Dattatreyalu was in-charge of the Department.

Pharmacologist.—Dr. K. Dattatreyalu was in-charge throughout the year, except, between 22nd April to 30th June 1957, when he acted as Assistant Director in place of Dr. M. Narayana Pai.

Bacteriologist.—Dr. S. Gnanadesikan, Dr. Mrs. F. R. Sargunar and Dr. Mrs. C. Chandra Bai worked in the department as Bacteriologists during the year.

Chemical Assistant.—Sri V. R. Srinivasan, M.A., Senior Assistant, Sterile Solution Section held additional charge of the post of Chemical Assistant (Drugs) from 1st April to 7th April 1957 and Sri S. Kasturi, M.A., was in-charge from 8th April to 18th December 1957. From 19th December 1957 to 31st March 1958 Sri C. S. Raghunathan, B.SC. (Hons.), was in-charge.

Report.

The department undertakes the analysis of the Biological Products, manufactured in this Institute as well as those sent by Government hospitals in the City, and the Mofussil, and also Private Firms, Private Practitioners, etc., The Department received samples from Drug Inspectors under the provisions of the Drugs Act.

The total number of specimens received for examination under all heads were 7,860 from 1st April 1957 to 31st March 1958 and the number of Tests done on these samples were 11,316.

Sterility test.—The total number of specimens received for sterility test were 2,201. Out of these 73 specimens were found to be contaminated, and hence reported *Not Sterile*. The total number of tests conducted were 2,585.

Pyrogen Test.—Four hundred and ninety-seven specimens were received for this test. Five hunderd and seventy-seven tests were conducted. Out of these three specimens were found to be *Pyrogenic*.

Toxicity Test.– Four thousand nine hundred and one tests were conducted under this head on 3,175 specimens and all of them were found to be non-toxic.

Chemical analysis.—Six hundred and ninety-six tests were conducted on 410 specimens for chemical Analysis, and among them three samples were found to be *Not of Standard Quality*.

Tincture Digitalis Bio-Assay.—Ninety-five tests were conducted on 11 samples of Tincture Digitalis assayed Biologically. Five samples were found to be *Not of Standard Quality*.

Anti-biotic Assay.—Two samples of Procaine Penicillin were received from Drugs Inspectors, under the Provisions of Drugs Act. The samples were assayed and found to be *Standard Quality*.

Anti-biotic Sensitivity Test.—Eleven specimens of culture were received for antibiotic sensitivity test:—One specimen from this Institute, 4 strains from Government hospitals and 6 from Private Practitioners. Under this head 44 tests were conducted and the anti-biotics used were Penicillin, Streptomycin, Terramycin, Achromycin and Chloramphenicol.

Anti-toxin Potency Test.—Nine samples of Tetanus Anti-toxin were tested under this head. One sample prepared by a private firm was found to be *Not of Standard Quality*.

Vaccine Lymph.—Eighty-five specimens of Vaccine Lymph were received for colony count and safety test 316 tests were performed. All of them passed the tests laid down in the State Drugs Rules.

Male Frog Test.—One thousand two hundred and fifty-seven specimens of urine were received for Male Frog Test for pregnancy from the Government Hospitals in the City and the Districts, Private Hospitals, private Practitioners, and other states;

out of these 265 specimens gave Positive results. Eight hundred and fifty-six specimens gave negative results. One hundred and thirty-four specimens were found to be toxic to frogs. (One thousand two hundred and fifty-five specimens were specimen of urine and 2 were sera from the patients. The results obtained from sera were inconclusive.)

Drugs Act.—Under the provisions of Drugs Act 81 tests were performed on 15 samples. The samples were sent by various Drugs Inspectors from Madras City and the Mofussil. Four samples were found to be *Not of Standard Quality*.

Finance.—A sum of Rs. 2,370 was realized as fees towards various tests, from private firms, private practitioners, etc.

For Kerala State.—This department continued to carry out the work for the Kerala State also during the year 1957-58. The following gives the number of samples received from Kerala State:—

Tincture Digitalis Bio Assay.—Three samples of Tincture Digitalis were Biologically assayed. One sample was found to be Not of Standard Quality according to B.P. The total tests conducted were 27.

Finance.—A sum of Rs. 72 was realized as fees towards the Biological assay of Tincture Digitalis from a private firm.

For Andhra State.—This department continued to carry out the work for the Andhra State also during the year 1957-58. The following gives the number of samples received from Andhra State:—

Male Frog Test.—Three samples of urine were received from a private practitioner for Male Frog Ttest. Two samples were positive and the other was negative.

Sterility and other allied test.—Thirty samples were received from Government Hospitals, Chittoor and Cuddapah, for Sterility test. Out of these, eighteen samples were found to be contaminated and hence reported *Not Sterile*. Seventy-three tests were conducted under this head.

A sum of Rs. 15 was realized as fees towards the Male Frog Test.

For Mysore State.—This department continued to carry out the work for the Mysore State also during the year 1957-58. The following gives the number of samples received from Mysore State:—

Sterility test.—Thirty-eight samples were received from a private firm for sterility test, and the samples were found to be sterile.

Male Frog Test.—Four urine specimens were received for Male Frog Test for pregnancy from a Mission Hospital. Out of these one gave a positive result and three gave negative results.

Finance.—A sum of Rs. 476 was realized as fees towards the tests done for private firms and a Mission Hospital.

Sterile Solutions Section.

Charge.—Dr. M. Narayana Pai, M.B.B.S. (from 1st to 21st April 1957 and 1st July 1957 to 31st March 1958).

Dr. K. Dattatreyalu—From 22nd April to 30th June 1957.

Staff.

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

Junior Assistants.

1. V. V. Krishna Rao, B.SC. (Hons.).
2. T. Sethuraman, B.SC.
3. K. T. Gopalakrishnan, B.SC.

The department has continued the manufacture and supplies of sterile solutions like 25 per cent glucose, 5 per cent calcium gluconate, normal saline, etc. Supplies have been made to State Hospitals, Local Fund and Municipal medical institutions. The demands for sterile solutions, particularly 25 per cent glucose and 5 per cent

glucose and 5 per cent glucose normal saline continue to be very heavy. Unless additional space, staff and facilities are provided, it will not be possible to cope with these demands in full.

Details regarding manufacture and supplies of sterile solutions are furnished herewith in a separate list.

I. Total quantity of solutions manufactured during 1957–58.

A. AMPOULES.

Serial number.	Name of the solution.	Quantity manufactured.	Value. Rs.	nP
(1)	25 per cent glucose 20 cc ampoules ..	252,069	94,525	87
(2)	25 per cent glucose 10 cc ampoules ..	8,001	2,500	31
(3)	Distilled water 10 cc ampoules ..	114,243	24,990	66
(4)	Normal saline 10 cc ampoules ..	23,471	5,134	28
(5)	5 per cent calcium gluconate 5 cc ampoules.	26,838	8,386	87
(6)	10 per cent calcium chloride 10 cc ampoules.	2,120	795	00
(7)	3 per cent sodium citrate in normal saline 20 cc ampoules.	8,757	3,283	87
(8)	Miscellaneous solutions in ampoules ..	1,987	248	37
	Total ..	437,486	1,39,865	23

B. BOTTLES.

Serial number.	Name of the solution.	Quantity manufactured.	Value. Rs.	nP.
(9)	5 per cent glucose normal saline 540 cc bottles.	24,144	1,08,648	00
(10)	5 per cent glucose solution 540 cc ..	6,156	27,702	00
(11)	20 per cent glucose solution 540 cc ..	832	4,160	00
(12)	Distilled water 540 cc	266	1,197	00
(13)	Normal saline 540 cc	228	1,026	00
(14)	Ringer lactate 540 cc	134	603	00
(15)	Darrow's solution 370 cc	159	715	50
(16)	3 per cent sodium citrate in normal saline 540 cc bottles.	60	270	00
(17)	Miscellaneous solutions in bottles ..	43	193	50
	Total ..	32,022	1,44,515	00

C. QUININE DIHYDROCHLORIDE AMPOULES.

Serial number.	Name of the solution.	Quantity manufactured.	Ampouling charges. Rs.	nP.
(18)	Quinine dihydrochloride ampoules ..	22,787 boxes (136,722 ampoules.)	8,545	12

II. Total quantity of solutions supplied to Medical Institutions during 1957–58.

(1) AMPOULES.

Serial number.	Name of the solution.	Quantity supplied.
(1)	25 per cent glucose 20 cc ampoules ..	225,116
(2)	25 per cent glucose 10 cc ampoules ..	6,074
(3)	Distilled water 10 cc ampoules	111,720

(1) AMPOULES—*cont.*

Serial number.	Name of the solution.	Quantity supplied.
(4)	Normal saline 10 cc ampoules	28,293
(5)	5 per cent calcium gluconate 5 cc ampoules	27,016
(6)	10 per cent calcium chloride 10 cc ampoules.	2,213
(7)	3 per cent sodium citrate in Normal saline ampoules.	6,587
(8)	Miscellaneous solutions in ampoules ..	1,369
	Total ..	408,388

(2) QUININE DIHYDROCHLORIDE AMPOULES.

Serial number.	Name of the solution.	Quantity supplied.
(9)	Quinine dihydrochloride ampoules in boxes.	19.500 boxes. (117,000 ampoules.)

(3) BOTTLES.

Serial number.	Name of the solution.	Quantity supplied. Bottles.
(10)	5 per cent glucose normal saline 540 cc ..	26,233
(11)	5 per cent glucose solution 540 cc ..	5,748
(12)	20 per cent glucose solution 540 cc ..	830
(13)	Distilled water 540 cc	337
(14)	Normal saline 540 cc	108
(15)	Ringer lactate—540 cc	99
(16)	Darrow's solution—370 cc	104
(17)	Miscellaneous solutions in bottle ..	77
	Total ..	33,536

III. Supplies to Andhra State during 1957–1958.

Serial number and name of the solutions.	Quantity supplied.
(1) 25 per cent glucose 20 cc ampoules	56,325
(2) 25 per cent glucose 10 cc ampoules	1,000
(3) Distilled water 10 cc do.	9,050
(4) Normal saline 10 cc do.	4,940
(5) 5 per cent calcium gluconate 5 cc ampoules	7,951
(6) 10 per cent calcium chloride 10 cc do.	400
	79,666

BLOOD BANK SECTION.

Assistant Director, Blood Transfusion.—Dr. N. Sundararajan, M.B.B.S., (Assisted by) Medical Officer Dr. R. Seshayyan, M.B.B.S., Dr. Mrs. R. F. Sargunar, M.B.B.S.,

The Blood Bank Section of the King Institute receives Blood specimens from the State hospitals, Private bodies and Medical Practitioners for haemoto-serological investigations concerning blood transfusions and Rhesus factor. Time-barred blood is collected from the Blood Banks of the city hospitals and utilised for processing wet plasma. The Mobile Blood Bank team is deputed to the jails in the moffussil stations to collect blood from the inmates of the jails for processing plasma. The Blood Bank team was sent out eight times for collection of blood during the period under review. The blood grouping sera and wet plasma are processed in this section. Wet plasma and blood grouping sera are distributed

Indian Journal of Pathology and Bacteriology.—Issued quarterly.

Annals of Library Science issued, quarterly.—

Collection of periodicals in the Library include mainly, Bacteriology, Pathology, Hygiene and public Health, Medicine, Chemistry of water, Sewage and Industrial Wastes and other allied subjects. A complete list of periodicals available at the King Institute, Guindy, Library is given in the Appendix No. 1.

Through the courtesy of World Health Organisation, Bulletins, Technical reports, WHO/VDT/Series and WHO/VDT/Sero series, were received during the year.

The lists of common wealth Index of translations were received through Indian National Scientific Documentation centre; copies of Technical report series in abstract form on the work of the various laboratories of D. S. I. R. in the U. K. were received from the Scientific Adviser to the High Commissioner and Scientific Liaison Officer in the United Kingdom through the kindness of Ministry of Education and Scientific Research.

References.—Totalling over 250 articles published in journals were collected on subjects like Poliomyelitus, Influenza, Vitamin D3-Antirabic vaccine and treatment, cholera, Diphtheria anti-toxin.

Cataloguing.—Preparation of card catalogue for bound volumes of journals was completed during the year under report and card catalogue for books is under preparation. In the absence of facilities for typing out these cards, they are at present written in hand on blank cards.

Accommodation.—The accommodation available for this library is totally inadequate with the result that 35 almirahs containing over 8,000 books have to be placed in the corridors in various parts of the Institute. It is absolutely essential in the interest of proper grouping and shelving of the books and periodicals according to subjects and for the care, preservation and security of the valuable stock of the library that all the almirahs should be housed in proper rooms. Another very unsatisfactory feature is the want of a reading room with at least minimum facilities for the users of the library to read books and journals and to record notes. At present, a few of the almirahs, the reading room table on which over 75 current journals are displayed, the office of the librarian and other staff of the library, reference table and few chairs for the readers are all cramped into one room with a total floor space of 25 by 28 feet. Proposals for the construction of a separate library block were submitted during the war period as part the post-war development plan and again, during the period under report, proposals were submitted as part of the development under the Second Five-Year Plan.

The Accommodation problem is growing more and more acute and it is no longer possible to find room for more almirahs even in the corridors. The construction of a library block is therefore an immediate necessity.

Staff Meetings and Symposia.—The members of the staff meet as usual once a week in the library-hall for review and discussed the articles of interest from the current issues of journals circulated to them earlier. Major General S. S. Sokey, retired Director of Haffkine Institute, Bombay addresed a meeting of the scientific staff of the Institute on the Scientific problems in the field of preventive medicine and manufacture of drugs, and pharmaceuticals in modern India.

The staff of the Institute met Prof. Stefen Nichlov of Roumania when Dr. T. S. Sadasivam, Director, University, Botany Laboratory, Madras, presented a paper by Nichlov on the epidemiology of Jaundice in Roumania.

During the year under report a welcome departure from the routine staff meeting was made. The various departments of the Institute held each a symposium on selected subjects and such symposia were well attended and many participated in the discussions.

The symposia on the following subjects were held by the Department noted against each :—

(1) Department of Water Analysis—
Subject.—Fluorine in drinking-water supplies.
Chemistry of fluorine and its compounds by Sri S. Venkata Raman.
Fluorosis by Sri A. S. Hariharan.
Fluoridation and defluoridation by Sri K. G. Veeraraghavan.

(2) Department of Anti-toxins.—
Subject.—Manufacture and standardisation of anti toxic sera. by Dr. M. K. K. Menon, Dr. P. Seshagiri Rao, Sri Krishnaswamy, and Sri S. S. Raghavan.

(3) Blood Bank.—
Subject.—Human Blood groups by Dr. (Mrs) Ambujam Natarajan.
Plasma and group sera preparation and observations on Haemolysed serum.
by Dr. Seshayyan, R.
Rh factor by Dr. N. Sundararajan.

(4) *Department of Biological Control.*—The Male Frog Test in the diagnosis of Pregnancy and other conditions by Dr. M. Narayana Pai, Chemical Tests for the detection of digitalis glycosides in samples of Tinct. Digitalis by Sri S. Kasturi. Testing of glass ampoules, etc., for neutality by B. P. Tests by Sri V. R. Srinivasan.

List of papers contributed dy the members—

(1) Production of antitetanus serum by Dr. M. K. K. Menon, and Sri M. S. Jayaraman, B.V.Sc., Indian Veterinary Journal, Vol. 35, No. 4, April 1958 pp. 149—154.

(2) Curative and prophylactic serum Therapy by Dr. M. K. K. Menon, Medical Bulletin.

(3) Turbidity temperature: A significiant figure for judging the purity of. Sesame oil-By Sri P. S. Nataraja Sarma current Science: Vol. 26, Aug. 1957, pp. 248, 249.

3. During the year under Report the facilities of the Library of this Institute were extended to the staff and the Students of the post Graduate Course in Public Health Engineering on the request from Prof. A. Amramy, W. H. O. visiting prof. in Public Health Engineering, College of Engineering, Guindy, Madras.

4. The value of the Male Frog Test in the diagnosis of pregnancy and other conditions - by Dr. N. Narayana Pai Paper read before the Indian Science Congress, Madras in January 1958.

Department of Water Analysis and Algae Control.

(Sri K. G. Veeraraghavan, B.A., M.Sc., Chief Water Analyst).

The department of Water Analysis maintained a check over the hygienic quality of the Public Protected Drinking-water supplies in Madras State and Andhra Pradesh. Samples were taken from each supply three times a year and tested for their Chemical, Bacteriological and Biological characteristics. There were 167 protected water supplies (57 municipalities 18 panchayats 56 railway stations 7 project camps, 14 Institutions such as Universities, hospitals and 15 jails) listed for periodical examination at the Institute in the beginning of the year. During the year under report the water supplies to Neyveli Lignite Project Camp, Moyar Hydroelectric Project Camp, and the Industrial Estate at Guindy, were added to this list as per G. O. Ms. No. 2838, Health, dated 18th September 1957, Ms No. 2458, Health, dated 17th August 1957 and Ms No. 494, Health, dated 12th February 1958, respectively, bringing the total number o water supplies to 170. Of these 139 are in Madras State and 31 in Andhra Pradesh.

The importance of increasing the frequency of checking the hygienic quality of Public Water Supplies has been already referred to in previous reports. It is also necessary that the number of samples taken from these supplies should be increased for there has been extensions to the distribution system in many municipalities. But owing to inadequacy of staff, and laboratory accommodation, it has not been possible to increase the frequency or to increase the number of samples tested from each supply.

Rural Water-Supply Schemes.—In G.O. Ms No. 2678, Health, dated 4th September 1957, Government have ordered that samples of water should be tested for potability at the King Institute in the case of all water supplies schemes in connection with Local Development Works, Community Project Schemes, National Extension Services, National Rural Water-Supply and Sanitation Schemes, Rural Water-Supply Comprehensive Programme, and other similar welfare schemes. The procedure for the selection of the sites for locating drinking water wells, and for the collection of the samples for analysis has also been prescribed. It has been further ordered that in each case an initial certificate of potability should be sent telegraphically within 72 hours of the receipt of the sample, and that a fuller report should be made within 10 days. In the case of all simple well works costing less than Rs. 2,500 the construction work should be proceeded with or abandoned as advised in the initial certificate of potability and all other costlier schemes should be taken up after receipt of the final report.

The number of samples received during the year under report from the above mentioned schemes was 2,038 as compared with 882 during the previous year and 350 in 1955-56. These samples have not only to be tested expeditiously, but have also to be subjected to an elaborate schedule of physical and chemical tests. This work also involves a heavy burden of correspondence, drafting of reports, and typing. The work connected with the analysis of this unprecedentally large number of samples with a totally inadequate staff has largely affected the work in all other branches of the department including routine and laboratory and field investigation as well as Research and the acceptance of samples for analysis from Industrial and private organisations on payment of fees.

The standards of quality for acceptability for drinking and domestic uses are relaxed to the largest extent possible consistent with safety to the health of the consumers and the tolerableness of the water to taste in the case of the samples from the Rural Water-Supply Schemes especially in drought stricken and arid areas of the State. The person collecting and sending the sample should report whether the water is palatable to taste and suitable for cooking rice and dhall, as ascertained by local test, and public opinion to assist the analyst in the interpretation of the results of analysis. It is, however, regrettable to note that in certain instances, the water is reported to be palatable to taste, etc., when in fact the sample is extremely brackish and saline, and totally undrinkable.

The results of the analysis of a large number of samples from the Rural Water Supply Schemes, reveal that excessive amounts of fluorine are present in ground waters taken from certain parts of Ramanathapuram, Tirunelveli, Madurai, Tiruchirappalli, Coimbatore and Salem Districts. The upper tolerable limit for fluorine in drinking water is 1·5 parts per million as per present accepted standards. Drinking water containing higher concentrations of Fluorine is likely to produce severe mottling of the teeth in the young and bone and joint affection in the elderly. It is also reported that the permissible limit should be even less than 1·5 parts per million in hot climates because people residing in such areas would consume a large quantity of drinking water. Some preliminary observations seem to show that even though a water containing fluorine much above 1·5 parts per million has been used for many years, severe types of fluorosis are not manifest among the consumers in some of these places. It has therefore been suggested that the permissible limit for fluorine content may be increased. But before any such alteration in existing standards is made it is necessary to carry out a critical scientific survey in these areas of the prevalence and degree of fluorosis which should include biochemical and X-ray examinations. If the results

of such a critical reappraisal of the problem, warrants the safe increase of the allowable limit for fluorine, there would be a two-fold gain. Water supplies may be safely drawn from some of the sources which have now to be rejected as unsuitable due to fluorine content above 1·5 parts per million and in those cases where treatment has to be adopted for removing fluorine the cost of such treatment would be reduced for it would not then be necessary to reduce the fluorine content to as low as 1·5 parts per million.

Another problem encountered in connection with the Rural Water Supply Schemes is the presence of excessive amount of Iron and Manganese chiefly in the samples taken from Tanjore and Chingleput districts. These are highly objectionable constituents in water used for domestic or industrial purposes. A water containing dissolved iron salt is clear when freshly drawn, but it becomes discolored and turbid when allowed to stand for some time due to the precipitation of the iron compounds. Iron and Manganese in water contaminate everything they touch, and produce rusty brown, yellow, grey or black stains and blotches. Such waters also encourage the growth of masses of iron bacteria which may choke pipe lines, and cause bad odour and taste when they decay. Iron also imparts an inky taste to the water, and produces tuberculation in pipes. The presence of iron even in small traces is objectionable in water used for most industries such as bleaching, dyeing, paper manufacture, photography, ceramics, etc., etc. Simple methods for removing iron and manganese from water require to be evolved.

Training and Research.—The department continued to participate in the teaching and research programme for the Post-Graduate Public Health Engineering (M.Sc.) students of the College of Engineering, Guindy. The subjects taught have been listed in the report for the year 1956-57. As stated in the report the Water Analysis Department has been approved by the University of Madras for purposes of training students for the Post-Graduate degree of M.Sc. by research.

Sri K. R. Ramaswamy, Sri A. S. Hariharan and Sri S. Subramaniam, Assistant Analysts have been registered by the University of Madras on their application for the M.Sc. degree by Research on the following subjects respectively :—

(1) Bacteriology of Milk and Milk products.

(2) Chemical and biological study of Tannery Wastes, their treatment and disposal.

(3) Complexometric methods in Water Analysis.

These subjects have been chosen for study in view of the facts that they are of importance in connection with the functions and activities of the Department of Water Analysis, and the results of these investigations would be applicable to the work of the Department. As the volume of routine work in the department has increased considerably, it has not been possible for the staff to pay adequate attention to developmental research. However, working under great strain, some progress has been made on the studies referred to, and the research workers have collected the relevant literature references on the subjects.

The other items of research work carried out by the Department in the year under report were the continuation of the Pilot Plant experiments on the Removal of Fluorine from water at Guntakkal, Tannery Waste treatment, Bacteriology of Ice cream, and the Fluorine content of Turmeric. A brief account of these is given later in this report.

The Chief Water Analyst was appointed a member of the Water Sectional Committee (CDC. 26) and the Microbiological Panel and as an Expert Member on the Panel for River Water and Trade Effluents (CDC. 25-p.4) of the Indian Standards Institution.

He attended the meeting of the Water Standards Advisory Committee of the Indian Council of Medical Research, held in December 1957 in Lucknow. A draft Manual of Bacteriological, Chemical and Radiological Standards of quality for potable water was discussed at the meeting and approved.

At the request of the Indian council of Medical Research, the estimation of the flourine content of samples of Turmeric grown in different parts of the country was carried out, on behalf of Dental Advisory Committee. The expenses for

this work and the salary of a technician employed for the purpose, were met by a grant from the Research Council. The Research Council has also sanctioned an "Enquiry on the Flourine content of foodstuffs" to be carried out in the Water Analysis Department.

Statistical data.—During the year, a total number of 20,547 samples of water were examined while the corresponding figure for the previous year was 15,091 and for 1955–56 was 10,390. The number of samples during this year has increased by one-third of that in the previous year and nearly two fold when compared with the number for 1955–56. Eighteen thousand and one hundred and twenty samples were from Madras State and 2,427 from Andhra Pradesh. Seven thousand and forty four samples were collected from the existing protected water supply systems. In connection with the provision of protected water supply under various Rural Development Schemes 2,038 samples were tested during this year while the number tested last year was 882. The number of samples from the Rural Water Supply Schemes has increased almost three times the number examined during the previous year and seven times that examined in 1955–56. Eighty samples were received for analysis from the Urban Water Supply Investigation sources. Three thousand two hundred and two samples of aquatic growths were tested microscopically.

Two thousand and four samples of water were analysed in connection with research experiments conducted at the Experimental Filter Station, Kilpauk, and in connection with the large scale experiments on break point chlorination on the Madras Corporation filters. In the course of these research experiments 2,453 tests were carried out for the determination of the Break point dose of chlorine and for determining the residual chlorine content of the treated and filtered water.

The number of samples of water tested for their suitability for use in various industeies was 380.

Twenty-nine samples of sewage and trade wastes were also analysed.

Forty-one samples of bleaching powder used in municipal Water Works were tested for determining the percentage of available chlorine.

Samples of milk, rinse water from sterilized cans and bottles, and samples of water were collected and tested bacteriologically twice a month from the Government Milk Factory, Teynampet. One hundred and forty-one samples of toned milk, 72 samples of rinse water and 36 samples of water were analysed.

The number of samples tested for determining the phenol coefficient by the Rideal Walker Method was 7. Forty cultures of S. typhosum were supplied to other laboratories for use in Rideal Walker test.

258.00 litres of pancreatic extract were prepared and supplied to the Cholera Section of the Institute during the year under report while in the previous year 127·35 litres were prepared. 27,420 cc. of wet stain were prepared and supplied for use in other sections of the Institute.

Three thousand sixty bottles were specially prepared and supplied for collecting samples of water for bacteriological examinations and 4,248 Winchester Quart Bottles were supplied for collecting samples of water for chemical analysis. Out of these 2,029 were supplied to Health Officers, Block Development Officers, Health Inspectors, Assistant Engineers and others for collecting and sending samples of water from Rural Water Supply Schemes. In these cases a 2 oz. bottle containing a standardised solution of 2–2′ dipyridyl was also supplied for collecting a sample for the detection and estimation of iron compounds in the water.

A sum of Rs. 6552·31 was received as fees for services rendered by the department in the examination of potable and non-domestic water samples from private parties.

Section of Water Bacteriolgy.

Four thousand nine hundred and fifty-five samples of water, milk and other samples were tested bacteriologically during the year. Of these 2,763 samples of water were taken from the protected Water Supply system in Madras State and Andhra Pradesh for examination under the schedule for periodical quality check.

Each sterilized bottle containing the samples for bacteriological examination is packed in a special tin container and then preserved in ice, until it is taken up for analysis. In all cases, the samples are tested within 48 hours of collection.

All samples were tested for their presumptive coliform content in MacConkey Bile salt neutral red lactose broth in 48 hours at 37°C. Samples of water which were not of the usual quality or which showed evidence of contamination in the distribution lines and in the service reservoirs were put through further detailed examinations for the differentiation of the coliform organisms, and the presence of anærobic spore formers for detecting the source and the nature of the pollution.

Of the 47 Municipal and Panchayat Water Supplies in Madras State 16 are drawn from surface water sources such as lakes, rivers, tanks, etc., and 31 from ground water sources such as wells, and infiltration galleries. The results of the bacteriological analysis of the samples of the raw water taken from these sources show that the surface waters are generally heavily contaminated. Forty-six out of 103 samples contained coliform bacteria in 1 c.c. or less of the samples tested. Most of the samples also contained organisms belonging to E-coli type-I which is regarded as a critical indicator for recent excretal pollution, potentially of a dangerous nature. One somewhat interesting finding is that some samples of water taken from the upland surface sources (relatively free from undesirable contamination) showed the presence of E-coli-I while the other members of the coliform groups were absent or scanty in these samples. The samples taken from surface sources in other localities showed a mixed coliform flora. This difference in bacteriological condition, would need to be further investigated to elucidate the special sanitary significance, of the coliform flora in the upland waters.

The samples of water taken from ground water sources particularly the infiltration wells and galleries were relatively free from undesirable contamination. The Coliform organisms, when present in these belonged mostly to the less sanitarily significant members of the group.

Some samples of chlorinated water taken from the protected water supply systems, showed the presence of coliform organisms inspite of the presence of 0.1 to 0.2 part per million of residual chlorine as tested in the laboratory (i. e., after a contact period of about 48 hours). These samples were subjected to critical examination for the presence of anærobic spore forming bacteria, especialy Cl. welchii. A few tests were also made to determine the probable chlorine resistance of the coliform organisms isolated from these samples. But further progress on this work could not be made on account of heavy routine work. For the same reason, work on the problem of the yellow colouration of the presumptive–positive coliform cultures in MacConkey Bile salt-neutral-red lactose-Broth, and on the methods for reducing the time required for the Coliform test by use of the newer media and analytical schedule, could not be pursued.

Water Chemistry Section.

This section of the Department now deals with (a) The Chemical analysis of samples of water taken periodically from the protected water supplies in Madras State and Andhra Pradesh (b) The testing of Chemicals such as Bleaching powder, Alum, Ferric Chloride, Lime, Copper sulphate. etc., used in water purification (c) Chemical analysis of samples of water for potability, use in Industries

and in Boilers and the determinations of suitable methods of softening, iron removal, and other required treatments, (d) The chemical analysis of sewage, Trade Wastes, and Effluents and the determination of suitable treatment procedures for satisfactory disposal.

The analytical units for the examination of water samples in connexion with the Rural Water-Supply Scheme, and the unit employed for carrying out the analytical examination connected with the experiments on water purification at the Government Experimental Filter Station, Kilpauk, are also attached to this laboratory for want of other accommodation. This has resulted in great congestion in the laboratory, which, it must be stated, has seriously handicapped the smooth flow of work.

The chemical quality of the samples taken from the protected water supplies.—One thousand four hundred and fifty-one samples of water taken from the Municipal and Panchayat water supplies were tested chemically during the year under report. The samples taken from the supplies to the following places were of good chemical quality. Bodinayakanur (hill stream), Coimbatore (upland reservoir), Coonoor (upland reservoir), Cuddalore (infiltration wells and gallery), Erode (river), Gudiyattam (infiltration gallery), Chingleput (infiltration gallery), Karaikudi (sub-artesian well), Karur (infiltration gallary), Kodaikanal (upland reservoir), Kumbakonam (infiltration gallery), Madras (impounded reservoir), Mettupalayam (river), Nagapattinam (infiltration gallery), Ootacamund (upland reservoir), Palani (hill stream), Palayamkottai (infiltration gallery), Periyakulam (stream), Pollachi (infiltration gallery), Pudukottai (tanks), Srirangam (infiltration wells), Tanjore (infiltration gallery), Tiruchirappalli (infiltration gallery), Trivellore (infiltration gallery), Tiruppur (infiltration gallery), Tuticorin (infiltration gallery), Vellore (infiltration gallery), Walajapet (infiltration well), Srivilliputtur (infiltration gallery), Tiruvannamalai (infiltration gallery), Dindigul (wells), Kancheepuram (infiltration gallery), Batlagundu (infiltration gallery), Gudalur (hill streams), Kotagiri (hill stream), Pannaikadu (hill stream), Mettur Dam (impounded reservoir), Rameswaram (infiltration well), Adoni (impounded reservoir), Cuddapah (infiltration gallery), Ellore (canal-fed storage tanks), Guntur (canal-fed storage tank), Kakinada (canal-fed storage tanks), Kurnool (canal-fed storage tank), Masulipatnam (canal-fed storage tank), Nellore (infiltration gallery), Palacole (canal fed-storage tank), Prodattur (infiltration well), Rajahmundry (Godavari river), Tadpatri (infiltration well), Tirupati Infiltration galleries), Vijayawada (Infiltration wells and tube wells), Vizagapatnam (infiltration gallery and bore well), Vijianagaram (infiltration gallery), Chodavaram (infiltration well), Kosgi (well), Ramachandrapuram (bore well), Tiruttani (tank), Tirumalai (tank and hill stream).

The samples taken from Saidapet, Sembiam (Madras), Darmavaram, Virudhunagar, Yemmiganur and Dindigul (bore wells), Chilakalabhavai (Cuddapah) supplies showed a rather high amount of dissolved mineral matter, and were somewhat hard.

The "Protected" water supply to Anantapur and Narasaraopet municipalities contain Fluorine in excess of the allowable limit of 1·5 parts per million.

Non-domestic and industrial water samples.—Eighty-seven samples of water were tested for their suitability for industrial purposes. A full mineral analysis comprising 22 tests was carried out on these samples, and wherever necessary, laboratory tests were also made for determining the corrosivity of the water and the dose of treatment chemicals for clarification, softening and for removing iron and managanese.

Sewage and trade wastes.—The only two sewage disposal plants which are under periodical test are those at Madurai and Ootacamund. The effluents in both places were found to be fairly satisfactory during the year under report.

The treatment and disposal of industrial effluents present a serious problem, which calls for intensified effort for control and prevention of pollution of surface and ground waters. However, before specific measures can be taken for trade waste treatment and disposal, it is essential to have the basic data on the chemical and biological characteristics of the wastes produced by the different industries, the relative merits of the various unit treatment processes to deal with these wastes satisfactorly, and the quality of the ground and surface waters in the area of final disposal. A start has been made for conducting waste surveys of different industries. The industries surveyed during the previous year were Cotton Textile Processing by Kier Boiling method, and Bleaching, Tanning of Hides and Skins, Sugar manufacture, and Distillery, and Vegetable Oil Hydrogenation. During the year under report cotton textile processing by the newly introduced Peroxide method was surveyed. An account of this is under preparation for publication. An account of the work carried out in this section in connexion with the Rural Water Supply Schemes, and the experiment on Water Purification at the Government Research Station, Kilpauk, is given separately.

Water Biology Section.

This section is concerned with the examination of the Microscopic organic growths and sediments in samples of water, and with determining the measures necessary for controlling objectionable biological growths in water supplies. Three thousand three hundred and four samples were assayed for the nature and concentration of the organisms and 330 tests were conducted for estimating the dose of algicides. Systematie algicidal treatment is carried out for 17 Municipal water supplies.

Municipal and Panchayat Board Water-Supplies.

Of the 47 municipalities and panchayats which have a protected water supply system, 16 take the supply from surface sources such as river, streams, and impounded reservoirs. Seventy per cent of the samples of water taken from these sources, showed evidence of heavy and objectionable bacterial contamination, as judged by the Coliform test (Coliform bacteria were present in 0.1 to 5.0 ml). Nine of the supplies taken from surface sources, are filtered and chlorinated. The rest are only chlorinated. The filters were working satisfactorily.

The water supply to Dindigul is taken from open wells. An infiltration well has also been sunk in Sittankottai in the bed of the river Kudanar, for augmenting the supply to Dindigul.

The supplies to all the other Municipalities and Panchayats are derived from infiltration galleries or infiltration wells.

Bacteriologically, the samples taken from the infiltration galeries and wells, at Chingleput Cuddalore, Gudiyattam, Kancheepuram, Karur, Kumbakonam, Mathurai, Tiruppur, Tiruvannamalai, Walajapet, Saidapet Srirangam, Batlagundu, Manaparai and Rameswaram were of satisfactory quality all through the year. The samples taken from Nagapattinam, Palayamkottai, Pollachi Tiruchi, Tuticorin, Vellore, Virudhunagar, Sembiam, Arantangi, and Arakonam showed on occasions evidence of bacterial contamination of an undesirable nature. The growth of fresh water sponge was observed in the collecting well and the suction wells in Pollachi.

Automatic chlorinating apparatuses using liquid chlorine were installed at Nagapattinam and Palayamkottai during the year under report, bringing the total number of automatic installations to 17. The supplies to Nagapattinam and Palayamkottai have shown an improvement in bacterial quality after the introduction of the chlorinators. Chlorination with bleaching powder solution is carried out at other places, but this has not given uniformly satisfactory results. It has also to be stated that the want of trained persons is also a contributing factor for

the inefficiency in chlorinating the supplies. The chlorinating plant in Bodinayakanur, Erode and Tanjore was out of use for some time due to repairs or want of chlorine cylinders. Such breaks in chlorination had occurred in these places during the previous year also and steps should be taken to avoid it.

In regard to the quality of the samples of purified water taken from the headworks of the water supply system in the State, it is seen from the results of the analysis carried out during the year under report that 82 percent of the samples were bacteriologically of satisfactory quality. The corresponding figure for the previous year was 74 per cent.

The following table shows the number of samples taken from the consumer taps in the municipalities and panchayats divided according to the type of treatment adopted. The number of samples which were found to be unsatisfactory in bacterial quality is also given in the table.

TABLE.

Madras State.

Municipal Water-supplies.

Serial number and type of supply.	*Number of sources.*	*Number of samples tested.**	*Number of samples unsatisfactory.*	*Percentage of unsatisfactory samples.*
1 Untreated	2	21	5	23·8
2 Chlorinated only	28	360	81	22·5
3 Filtered and chlorinated ..	8	105	24	22·85

* Distribution samples only.

Panchayat Boards.

Number and type of supply.	*Number of sources.*	*Number of samples tested.**	*Number of samples unsatisfactory.*	*Percentage of unsatisfactory sample.*
1 Untreated	..	..	..	..
2 Chlorinated only	8	77	20	25·9
3 Filtered and chlorinated ..	1	9	3	33·3

* Distribution samples only.

It will be seen from the table that out of 572 samples which were collected from the consumer taps and analysed bacteriologically 133 or 23 percent were not up to the standard of bacterial purity. The corresponding figure for the years 1953-54, 1954 55, 1955-56, 1956-57 were 32.5 per cent 26.1 per cent 25.6 per cent and 33 per cent. Some fall in bacterial quality is likely to occur while the water travels through the pipe lines and the service reservoirs. As previously stated the samples which show evidence of bacterial deterioration in transit were put through a detailed examination for assessing the hygienic significance of the contamination noticed and the local authorities were advised suitably.

Railway station water-supplies.—The drinking water supplies at 50 railway stations on the Southern Railway, which are of importance from the point of view of large passengers traffic, being pilgrim centres or centre of commerce are under periodical analytical examination. Seven of these take the supply from the local municipal system. The rest have their own separate sources. A filter has been installed at Dronachellam Railway Station.

All these water-supplies are chlorinated. Automatic apparatuses using liquid chlorine have been installed for 13 of these supplies and in the others bleaching powder solution is added to the water. The use of the "MACLEODBOX" for adding the solution to the water has given uniformly satisfactory results. Of the 150 samples of water taken from the taps on the platforms of the railway stations 89 per cent were of satisfactory bacteriological quality indicating that the water supplied to the passengers at these stations was hygienically safe.

Jails and Certified Schools—The water-supplies to 14 jails were tested three-times during the year under report. All were of satisfactory quality from the sanitary point of view.

Other institutions.—The inclusion of the water-supplies to Moyar Camp Project, Guindy Industrial Estate and the Neyveli Lignite Project for periodical analytical examination, brings the total number of Institutional water-supplies listed for analytical control to 25. Of these, the supply to Pykara Project Camp and Annamalai University were of poor quality during the year under report.

The supplies to the State Hospitals in the City of Madras were also not up to the required standard of bacteriological purity. Recommendations have been made for chlorinating these water supplies as a measure of abundant safety. Government has also been pleased to sanction the appointment of an additional sample taken in the Water Analysis Department for collecting water samples from the Hospital supplies for analysis once a month. The sample taker will be appointed and the scheme of monthly examination commenced after the installation of chlorinating equipment in the hospitals.

The Water and Sewage Purification Committee.—The Water and Sewage Purification Committee met twice during the year under report, and reviewed the researches carried out at the Government Water Purification Research Station, Kilpauk. Among other items discussed by the Committee were (i) The establishment of a pilot plant for carrying out experiments on the treatment of Tannery Wastes at Vaniyambadi, (ii) Continuation of the studies on the variations in the chemical quality of the Manaparai Water Supply. The Committee was of the view that the trials made with the method of chlorinating the Red Hills lake water by the break point method for preventing the production of H2S in slow sand filters has yielded satisfactory results and resolved to recommend that the same may be adopted by the Corporation to treat the feed water to the slow sand filters in order that the filtered water from the newly installed rapid sand filters may not be adversely affected by admixture with the slow sand filtered water. As regards the Manaparai Water Supply the Committee resolved that trials may be carried out to ascertain whether water of satisfactory chemical quality could be drawn from the infiltration well by restricting the abstraction to the surface layers of the water in the well.

Field Investigations.—The usefulness of the Water Analysis Department materially depends on a close integration of laboratory and field work. This department provides facilities and assistance to the Health and Engineering authorities in carrying out investigation on new water supply schemes. detection and correction of sanitary defect in installed supplies, sterilization of new and repaired water mains, checking of the performance of water purification plants, sewage and trade waste treatment, Algal control and all other related problems. The following are the main field investigations carried out during the year under report :—

(1) *Dindigul Water Supply.*—(Augmentation Scheme) For the cleanliness of the new water main by Sri K. R. Ramaswami (24th to 26th April 1957).

(2) *Coonoor Municipality Water Supply* —For the detection of the causes for the deterioration in bacteriological quality of the water during transit through certain section of the distribution system. (Sri K. S. Krishnamurti, 25th to 27th January 1958).

(3) *Neyveli Lignite Project Camp.*—Survey of the drinking water supply system and fixing of sampling points. (Sri K. G. Veeraraghavan, 14th to 16th March 1958).

Andhra Pradesh.

Three thousand eight hundred and sixty samples of water taken from 31 water supplies in Andhra Pradesh were tested during the year under report. Of these 19 are municipal supplies, seven panchayats, three jails and two institutions. The filtered and chlorinated water supplies to Adoni, Eluru, Guntur, Kurnool, Masulipatnam, Palacole and Rajahmundry were of satisfactory quality during the

year. A deterioration in bacteriological quality was noticed in the water-supply to Kakinada. The rest of the supplies which are taken from infiltration galleries and wells were uniformly of acceptable quality.

The samples of water collected from the Anantapur and Narasaraopet water supplies showed excessive amounts of fluorine.

Automatic chlorinating apparatuses using liquid chlorine have been installed at Tadpatri, Palacole and Tirupati municipalities.

A summary of the results of the analysis of the samples taken from the water supplies in Andhra Pradesh, which were tested during the year under report is given in the following table.

TABLE.

Municipal Water-supplies.

Serial number and type of supply.	*Number of sources.*	*Number of samples tested*.*	*Number of unsatisfactory samples.*	*Percentage of unsatisfactory samples.*
1 Untreated	1	6	1	16·66
2 Chlorinated only	10	71	11	15·5
3 Filtered and chlorinated ..	8	61	10	16·33

* Distribution samples only.

Panchayat Boards.

Serial number and type of supply.	*Number of sources.*	*Number of samples tested*.*	*Number of unsatisfactory samples.*	*Percentage of unsatisfactory samples.*
1 Untreated	..	..	..	..
2 Chlorinated only	7	36	5	14
3 Filtered and chlorinated ..	..	..	..	..

*Distribution samples only.

Out of 174 samples collected from the consumer taps, 16 per cent were not of the approved quality from the bacteriological view point. Stricter control over chlorination, proper cleaning of service reservoirs and adequate scouring and flushing of the distribution lines would help to improve the hygienic quality of the supplies and safeguard against contamination in transit.

Researches.—The main items of research work carried out during the year were the following :—

(1) *Removal of fluorine from drinking water. (K G. Veeraraghavan, S. Venkataraman, G. Swaminathan and K. Venkatakrishnan).*—The pilot plant experiments on removing fluorine from drinking water (a brief account of which has been furnished in the report for the year 1956–57) was continued. The results obtained previously were confirmed. Methods for increasing the exchange capacity of the carbon used in these trials are under study.

(2) *Tannery Waste treatment and disposal (A. S. Hariharan and K. G. Veeraraghavan).*—Studies on the treatment and disposal of wastes from Tanneries were undertaken with the assistance of a financial grant from the Government of India (*vide* G. O. Ms. No. 3365, Health, dated 24th November 1957).

In the first stage complete data were collected regarding the chemical and biological characteristics of the wastes produced during different stages of the tanning of hides and skins in a number of tanneries situated in Vaniyambadi and in Chromepet.

The concentrated waste from the tanneries has a pronounced disagreeable odour, is very highly coloured (1450 to 16,700 Hazen units) and has a high dissolved and suspended solids content. They show a very high Bio-chemical Oxygen Demand (1664 parts per million to 2,602·0 parts per million). Some are also highly alkaline (pH. 11·2).

Laboratory trials were made on plain settlement for varying periods, and after coagulation with chemicals, such as Alum, Ferric chloride, Lime, Ferrous Sulphate.

Mere settlement for 6-8 hours brought about a reduction of nearly 93·0 per cent in suspended solids content. Treatment with Ferric Chloride gave better results in the removal of suspended solids, as well as in the removal of colour (94·4 to 99·1 per cent). It also gave a 37·3 to 45·4 per cent reduction in B.O.D.

In view of the fact that one of the main problems relating to the disposal of Tannery Wastes in Vaniyambadi is the pollution of ground water and the water in the spring channels used for irrigation and drinking purposes with the highly saline effluent which percolates through the soil an extensive survey was made of the chemical quality of the ground water in the area. A total of 148 samples were collected and analysed. The results of the survey show that the salinity and hardness of the water in the spring channels and wells situated near the zone of discharges of the wastes are high, and that this may be due to contamination by the wastes. The enquiry is being continued for determining the effect of Biological treatment of the wastes. For this purpose arrangements have been made for constructing model biological treatment units, such as high rate and normal rate percolating filters with and without recirculation arrangements.

Bacteriology of Ice Cream (K. R. Ramaswamy and K. G. Veeraraghavan).—The Standing Expert Committee of the Hotel Sanitation Committee of the Government of Madras, (constituted in G. O. Ms. No 1000, Health, dated 19th March 1953) at its meeting held on 7th October 1953, recommended that a study should be made of the Bacteriological quality of Ice cream sold in Madras and of the measures required for improving its quality and ensuring safety for the consumers. It was also suggested that Informative Bacteriological Quality Standards for Ice cream may be prescribed. This investigation was carried out in the Water Analysis Department commencing from 1954 and was completed during the year under report.

Samples of Ice cream were taken from 54 establishments in Madras City where it is made and sold. It is made from fresh or condensed milk, and the prepared product is stored for periods ranging from a day to a week. These samples were tested for (*a*) the Total Count and (*b*) the Coliform Test. The Methylene Blue or the Resazurin test could not be done on these samples as they contained colouring matter. The Total Colony count varied from 54,000/ml. to 4,300,000/ml. with a mean average of 391500/ml, The organisms commonly found in these samples were Staphylococcil, Coliforms, and Aerobic spore-forming bacilli. The M.P.N. of Coliform organisms in the samples varied from 0.23/ml. to 11,000/ml. with a mean average of 3215/ml.

Experiments were conducted in the laboratory for determining the bacteriological quality of Ice cream prepared under sanitary conditions, for comparison with the quality of the samples taken from the market. In these experiments a hand operated Freezer was used and the Churner vessel was washed with soap, and water, in the cold, and finally rinsed with boiling water, for 1—5 minutes. The samples prepared under this "clean' condition showed a mean colony count of 19,000 per ml. with small variations. Coliform organisms were absent in 100 ml. of all the samples.

The results of the study show that Ice cream at present sold in the City in various establishment of different grades, is hygiencally unsatisfactory, and that marked improvement in bacteriological quality could be obtained if the vessel

in which Ice cream is made, and stored is efficiently washed and sterilized with boiling water. It is also essential that subsequent handling of the Ice cream should be done with due care to avoid contamination.

A detailed account of the investigation is under preparation for publication.

Fluorine content of Turmeric (*S. Venkataraman and K.G. Veeraraghavan, Indian Council of Medical Research*)—The analysis of samples of, Turmeric grown in different parts of India, for estimating their fluorine content was undertaken at the request of the Indian Council of Medical Research and with the assistance of a financial grant from the council Twenty varieties of Turmeric were received for analysis from the Turmeric Research Officer G. Udayagiri, and about 20 samples were received through the Department of Agriculture, Madras.

The distillation apparatuses required for the analysis were specially made locally. The fluorine content of the samples was determined by the method of distillation and the Scott sanchis test using Alizarin Red and Zirconium Oxychloride. The results of the analysis show that the samples contain fluorine varying from 18 to 96 parts per million on the dry basis. Ninety-three per cent of the samples showed a fluorine content ranging between 30 to 60 parts per million.

Arising from this investigation it was proposed that as facilities have been established in the Department for the estimation of the fluorine in organic materials, the investigation of other food materials for their fluorine content may be undertaken, especial y since data regarding this was scanty. The Indian Council of Medical Research, has been pleased to sanction the employment of one Research Assistant and one Laboratory Assistant for carrying out these investigations and have sanctioned a grant of Rs. 5,540 towards the expenditure of staff, etc. for this purpose.

TABLE I.

Statement I.

Expenditure—Actuals, 1957–58.

	Rs.
1 Pay of Officers	1,50,707
2 Pay of establishment	2,39,536
3 Other compensatory allowances and travelling allowance	93,964
4 Dearness allowance	2,10,754
5 Special allowance to menials	4,073
6 Pay of menials	10,776
7 Dearness allowances to menials	16,784
8 Madras Allowance to menials	1,390
9 Telephone charges	3,351
10 Service postage	54,593
11 Cleaning charges and office expenses	6,937
12 Rates and taxes	11,085
13 Purchase of serum	1,63,199
14 Instruments and chemicals	2,65,966
15 Purchase and feed of calves	1,45,157
16 Motor car maintenance	15,759
17 Electric current charges	18,402
18 Customs duty	1,432
19 Other contingencies	49,281
20 Books and Periodicals	4,915
21 Block grant	57,659
	15,30,220

Administration of Drug Act.

1 Pay of Officers	32,598
2 Pay of establishment	5,591
3 Other compensatory allowance	8,985
4 Dearness allowance	6,257
5 Other charges	5,956
Total	15,89,607

Amount borne by other departments on Institute account.

	Rs.
Proportionate cost of management and supervision by Director of Medical Services and his staff.	3,160
Maintenance charges of buildings and electric installations—	
(*a*) Buildings	10,385
(*b*) Electric installations	5,604
Depreciation and interest charged on—	
(*a*) Buildings	29,488
(*b*) Electric installations	4,926
Cost of stationery and printing	12,791
Total	66,374
Grand total	16,55,981

Statement II.

	Rs.
1 Sale proceeds of sera and vaccine, etc.	83,952
2 Contribution from local bodies for food analysis	1,44,000
3 Miscellaneous receipts	1,619
Total	2,29,571

Statement III.

Estimated cost of supplies and services made.

	Rs.
1 Bacterial and chemical examinations	3,37,961
2 Bacterial Vaccine supplies	10,58,670
3 Value of cultures and antigens, etc.	1,09,488
4 Vaccine lymph	4,90,394
5 Sera	11,60,137
6 Value of Plasma and Group Sera issued	34,360
7 Solutions	2,82,925
8 Water analysis done	1,36,885
Total	36,10,820

Government Analyst Section.

	Rs.
1 Contribution from local bodies working the Madras Prevention of Adulteration Act.	1,34,350
2 Value for analysis done for Government Institutions	88,420
3 Fees received from un-official sources for analysis of food samples	2,370
4 Value for drug samples analysed for hospitals and samples under Madras Drug Rules.	9,335
5 Fees received from un-official sources of analysis of drug samples	440
Total	2,34,915
Grand total	38,45,735
Deduct—Expenditure	16,55,981
Value of net profits	21,89,754

TABLE II (*a*).

Madras State—Types of Vaccination, 1957.

Serial number and type.	Total number of cases verified.	Total number of cases not verified.	Total.	Percentage of each type to the total cases done.
1 Primary Vaccination ..	616,709	176,587	793,296	16·9
2 Secondary Vaccination ..	14,421		14,421	0·3
3 Re-Vaccination	2,504,461	1,380,783	3,885,244	82·8
Total ..	3,135,591	1,557.370	4,692,961	

	Cases.	Percentage of each type to the total quantity issued.
1 Total quantity of vaccine lymph issued at four insertion per case.	4,906,125	..
2 Total quantity of vaccine lymph used for vaccinating cases in 1, 2 and 3 above, calculated at four insertions per case.	2,750,343	56·1
3 Total vaccine lymph unaccounted for	2,155,782	43·9

TABLE II (*b*)

Andhra State—Types of Vaccination, 1957.

Serial number and type.	Total number of cases verified.	Total number of cases not verified.	Total.	Percentage of each type to the total cases done.
1 Primary Vaccinations ..	379,404	65,046	444,450	17·4
2 Secondary Vaccinations ..	2,495	..	2,495	0·1
3 Re-vaccinations	1,428,440	681,278	2,1 9,718	82 5
Total ..	1,810,339	746,324	2,556,663	

	Cases.	Percentage of each type to the total quantity issued
1 Total quantity of vaccine lymph issued at four insertions per case.	2,940,200	..
2 Total quantity of vaccine lymph used for vaccinating cases in 1, 2 and 3 above calculated at four insertions per case.	1,501,806	51·1
3 Total vaccine lymph unaccounted for	1,438,394	48·9

TABLE III.

(*a*) *Madras State—Primary, Secondary and Re-vaccination results*, 1957.

(The districts are in order of case success rate in Primary Vaccination.)

Serial number and district.	Primary vaccinations. Cases success. Total number of cases verified.	Cases success. Percentage of case success.	Insertion success. Total number of insertions verified.	Insertion success. Percentage of insertion success.	Re-Vaccinations. Total number of cases verified.	Re-Vaccinations. Percentage of case success.	Total number of cases not verified.	Total number of vaccination.	Percentage of vaccine lymph unaccounted for.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Nilgiris ..	3,559	99.9	13,029	97·6	12,637	23.7	3,541	19,737	62·0
2 Coimbatore ..	4,213	97·5	16,200	88·6	17,812	31.2	12,231	34,256	91·7
3 Ramanathapuram ..	50,991	96.1	188,545	87·9	124,002	17.3	154,211	329,204	4·8
4 North Arcot ..	57,854	95.9	221,9 6	91·4	15 ,645	23.1	126,921	335,1·4	29.1
5 Chingleput ..	24,157	95.8	93,979	88·8	127,645	25.4	79,520	281,322	31.4
6 Salem ..	46,827	95 8	169,865	85·8	157,426	26.6	160,508	364,851	47 6
7 Madurai ..	49,418	94.8	188,859	91·8	161,299	1.4	128,311	339,928	7.2
8 Tiruchirapalli ..	39,755	93.7	152,104	83 0	150,414	20 5	126,766	3,16,585	25.7
9 Tanjore ..	76,215	93 5	256,974	80·4	218,193	20.9	167,923	4,62,341	10.8
10 South Arcot ..	50,633	92.6	192,114	82·3	199,2 8	21 6	1 8,652	4 28,573	19.9
11 Tirunelveli ..	55,932	91.9	201,406	84·9	166,473	17.9	180,218	4,02,623	1.9
12 Kanyakumari ..	..	..	..	..	..	..	..	..	100.0
Districts—Tot l ..	459,558	94 4	1,695,101	86 2	1,485,834	22.2	1,318,502	3,263,894	32.3
13 Municipalities ..	93,875	99 1	349,826	93·7	730,564	18.9	128,771	953,210	60.5
14 Madras Corporation ..	27,686	99.9	142,022	91.6	291,650	7·1	66 863	326,199	45·9
15 North and South-Malabar. ..	24,682	98·4	62,611	91.9	63,576	22.0	56,773	145,031	49·5
16 Municipalities—transferred area Kerala State	908	97·6	1,797	94.5	2,837	24·7	882	4,627	89·2
17 Other bodies ..	..	..	..	..	..	..	..	..	100·0
Grand total ..	6,167,09	95·6	2,251 357	87.9	2,504,461	19.9	1,571,791	4,692,961	43·9

(*b*) *Andhra State—Primary, Secondary and Re-vaccination results*, 1957.

(The districts are in order of case success rate in Primary Vaccination.)

Serial number and districts.	Primary vaccination. Cases success. Total number of cases verified.	Cases success. Percentage of case success.	Insertion success. Total number of insertions verified.	Insertion success. Percentage of insertion success.	Re-vaccation. Total number of cases verified.	Re-vaccation. Percentage of case success.	Total number of cases not verified.	Total number of vaccination.	Percentage of vaccine lymph unaccounted for
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Visakhapatnam ..	1,341	93.2	5,336	85.0	9,282	20.0	4,792	15,415	45·8
2 Krishna ..	4,125	97.1	16,258	88.4	40,923	50.5	24,226	69,274	32·4
3 Chittoor ..	44,643	96.6	157 487	91.2	111,338	29.3	75,274	231,255	32·2
4 East Godavari ..	32,686	95.1	126,517	86.3	97 555	16.9	83,596	213.837	40·5
5 West Godavari ..	43,792	94·7	138,732	84.3	120,054	24·2	9,319	173,165	28·2
6 Guntur ..	30,725	92·8	116,797	79·2	135,271	14·3	99,607	265,603	42·2
7 Anantapur ..	36 843	92·3	136,731	79·6	69,052	9·4	46,119	151,514	15·2
8 Kurnool ..	40,050	90·8	153,499	78·5	178,392	16·5	109,432	327,874	7·2
9 Srikakulam ..	45,178	90.4	173,760	76.7	173,891	24·9	125,487	344,556	27·4
10 Cuddappah ..	30,331	85·0	108,933	79.3	80,469	17·3	60,017	170,787	23·2
11 Nellore ..	..	..	..	..	..	..	..	..	99·6*
Districts—Total ..	309,184	92.3	1,134,050	82·8	1,016,227	20·9	637,869	1,963,280	38·9
12 Municipalities ..	70,220	94·9	247,436	90·8	412,213	16·3	110,950	593,383	67·4
Grand total ..	379 404	92·9	140,1486	82·4	142,8440	18.9	748,819	255,6663	48·9

* Returns were received only for 564 vaccinations done, such meagre figure that the details are omitted in this statement.

TABLE IV.

Clinical Section.

Serial number, part and description.	Number Examined.	Number positive.	Details regarding positive.	
Part I A.—Microscopical and Bacteriological Examinations.				
1 Blood films ..	30	2	Malaria	Nil
			Microfilaria	2
			Spirochetes	Nil.
2 Blood smears for differential count.	451			
3 Blood for total count.	195	..	R.B.C.	57
			W.B.C.	138
4 Blood for haemoglobin.	61			
5 Blood for Erythrocyte Sedimentation rate.	44			
6A Blood for agglutination tests Widal.	2,601	1,237	Enteric group—	
			Sal. typhi	525
			Sal. para typhi A	29
			Do. B	138
			Do. C	70
			More than one Weil Felix.	475
6B Weil Felix ..	17	..	o x 2, o x 19, o x k	Nil.
			More than one	Nil.
6C Malta Fever. ..	13	..	Malta fever.	
			Brucella abortus	Nil.
			Brucella melitensis	Nil.
			More than one	Nil.
7A Blood for Aldehyde test.	38	9		
7B Blood for Antimony test.	38	10		
			Enteric Group—	
8 Blood for culture ..	1,376	215	Sal. typhi	118
			Sal. para typhi A	12
			Do. B	60
			Do. C	4
			Other organisms	21
Part I (*A*)—Total..	4,864			
Part I-B.				
9 Urine for qualitative test.	43	..		
Urine for Microscopic Examinations.	43	..		
Urine for cultural Examinations.	568	321	B. Coli	211
			Enteric Group	1
			Other organisms	109
Part I (*B*)—Total ..	654			
Part I-C.				
10 Motion for Microscopical examinations.	161	62	E. Histolytica (Vetetative forms and cysts).	Nil.
			Ova	17
			Cellular exudate	24
			Others	21
Motion for cultural examinations.	2,031	892	V. Cholera	875
			Dysenteric group	7
			Enteric group	1
			Others	9
Part I (*C*)—Total ..	2,192			

Serial number, part and description.	Number Examined.	Number positive.	Details regarding positive.	
Part I-D.				
11 Cerebro-spinal fluid for cell count.	16	..		
Cerebro-spinal fluid for cultural examination.	91	31	M. tuberculosis	Nil.
			N. meningitidis	Nil.
			Pneumococcous	1
			H. influenza	2
			Enteric Group	3
			Other organisms	25
Part I (*D*)—Total ..	107			
Part I-E.				
12 Eye Culture ..	254	247	Diphtheroids	50
			Staphylococcous	74
			Other organisms	123
Part I (*E*)—Total ..	254			
Part I-F.				
13 Throat swab for microscopical Examination.	216	23	C. diphtheria	17
			Other organisms	6
Throat swab for cultural examination.	216	53	C. diphtheria	30
			Other organisms	23
Part I (*F*)—Total ..	432	76		
Part I-G.				
14 Sputum for microscopical examination.	2,669	346		
Sputum for cultural examinations.	2,525	263		
Part I (*G*)—Total ..	5,194	609		
Part I-H.				
15 Pathological fluid for Microscopical examination.	52	13	M. Leprae	Nil.
			N. Gonorrhea	Nil.
			P. Pestis	Nil.
			Others	13
Pathological fluid for cultural examination.	123	71	M. Leprae.	Nil.
			N. Gonorrhea	Nil.
			P. Pestis	Nil.
			Others organisms..	71
Part I (*H*)—Total ..	175			
Part I-I.				
16 Test on animals with pathological fluids.	106	1	M. tuberculosis	1
			C. diphtheria	Nil.
Part I (*I*)—Total ..	106	..		
Grand total ..	13,978	3,796		

Details of number of Histopathological specimens examined in the Institute and reported during the period of 1st April 1957 to 31st March 1958.

Total number of specimens examined	52
Malignant	Nil.
Others	52

TABLE IV—*cont.*

PART II—*Statement showing the number of Serological tests done during the period from 1st April 1957 to 31st March 1958.*

Serial number and name of the test.	Number examined.	Positives.
1 Number of bloods for Kahn test	1,7233	2,505
2 Do. V. D. R. L. test	18,521	2,720
3 Do. W. R. test	7,763	1,517
4 Do. C. S. Fs. for W. R. Test	1,671	120
5 Do. Langes Gold Sol test	1,712	96
6 Do. bloods for Paul-Bunnel test	7	..
Total ..	46,907	6,958
1 Number of specimens received broken or lysed	820	
2 Number of specimens found lysed or broken while testing ..	538	

TABLE IV-A.

Serology Section.

Serial number and name of institution	Blood for Kahn.			Blood for VDRL.			Blood for W.R.		
	Negative.	Positive.	Total.	Negative.	Positive.	Total.	Negative.	Positive.	Total.
1 Blood Bank section	4,630	769	5,399	4,682	871	5,553	4,474	690	5,164
2 Government General Hospital, Madras	6	..	6	5	1	6	..	1	1
3 Government Stanley Hospital, Madras	4	1	5	4	1	5	1	1	2
4 Kasturbai Gandhi Hospital, Madras	3,797	496	4,293	3,866	437	4,303	439	326	765
5 Ophthalmic Hospital, Madras	221	33	254	215	39	254	13	27	40
6 Integrated Medicine, Madras	328	70	398	328	74	402	24	41	65
7 Mental Hospital, Madras	158	33	191	208	40	248	82	20	102
8 Women and Children Hospital, Madras	19	2	21	25	5	30	10	3	13
9 Royapettah Hospital, Madras	495	88	583	517	80	597	20	22	42
10 Other Hospitals, Madras city	861	97	958	866	93	959	4	12	16
11 Mission Hospitals	590	59	649	928	113	1,041	343	60	403
12 Moffosil Hospitals	3,088	793	3,881	3,207	871	4,078	313	240	553
13 Local Fund Hospitals	125	17	142	185	18	163	17	6	23
14 Primary Health Centres	56	13	69	60	11	71	2	1	3
15 Private Practitioners	350	34	384	755	66	821	504	67	571
Total ..	14,723	2,505	17,233	15,801	2,720	18,521	6,246	1,517	7,763

TABLE IV-A—*cont.*

Serology Section—cont.

Serial number and name of institution.	Cerebro-spinal fluid for W.R. Negative.	Positive.	Total.	Cerebro-spinal fluid for langs. Negative.	Positive.	Total.	Paul Bunnel.	Kahn negative W.R. Positive.	Kahn positive W.P. Negative.
							..	128	167
1 Blood Bank section	..	..	..	..	..	..	4	..	..
2 Government General Hospital, Madras	132	17	149	148	15	163	3	..	..
3 Government Stanley Hospital, Madras	1	1	2	1	2	3	..	9	109
4 Kasturbai Gandhi Hospital, Madras	1	..	1	1	..	1	..	..	..
5 Ophthalmic Hospital, Madras	..	..	..	..	..	..	..	1	5
6 Integrated medicine, Madras	6	..	6	5	..	5	..	..	4
7 Mental Hospital, Madras	1,340	89	1,429	1,417	72	1,489	..	..	..
8 Women and Children Hospital, Madras	..	..	..	..	..	1	..	..	1
9 Royapettah Hospital, Madras	4	..	4	1	..	..	..	..	1
10 Other Hospitals, Madras city	..	..	..	..	..	..	..	1	..
11 Mission Hospitals	8	1	9	4	3	7	..	2	25
12 Moffosil Hospitals	34	7	41	38	4	37	..	..	3
13 Local Fund Hospitals	..	1	1	1	..	1	..	..	..
14 Primary Health Centres	..	..	..	..	..	..	..	..	—
15 Private Practitioners	25	4	29	5	..	5	..		
Total	1,551	120	1,671	1,616	96	1,712	7	140	315

TABLE V-A.

Statement of annual receipts, supplies and balance of prophylactic vaccines of cholera, T.A.B. and plague for the year 1957 to 1958.

Name of Vaccine.	Opening balance in c.c.	Receipt from mufassal in c.c.	Manufactured in c.c.	Issues. Madras State.	Andhra State.	Kerala State.	Mysore State.	Kanyakumari district.	Total issues in c.c.	Closing balance in c.c.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 Cholera	2,382,809	1,381,750	7,270,760	6,912,894	3,832,323	30,173	405	25,050	10,860,845	172,034
2 T. A. B.	30,418	Nil.	153,317	124,529	17,973	921	1,045	500	144,968	38,767
3 Plague	7,440	Nil.	30,000	15,340	8,000	Nil.	100	Nil.	23,440	14,000

TABLE V-B.

Statement showing the supply of Reagents to various institutions from 1st April 1957 *to* 31*st March* 1958.

Serial number and name of reagent supplied.	Number of c.c. manufactured.	Number of c.c. supplied.
(1)	(2)	(3)
1 Kahn antigen for kahn test	7,520	5,263
2 Bullock heart extract for WR test	450	194
3 One per cent cholestrol for WR test	200	20
4 Anti-sheep amboceptor	100	24

TABLE V-C.

Miscellaneous supply of media made to Government Hospitals, Local Fund Dispensaries, Public Health Departments and Private Bodies in Madras, Andhra, Kerala and Mysore States during the official year commencing from 1*st April* 1957 *to* 31*st March* 1958.

Serial number and name of articles.	Manufactured during April 1957 to March 1958.	Total issues from April 1957 to March 1958.	Issues to Madras State.	Issues to Andhra State.	Issues to Kerala State.	Issues to Mysore State.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 Various media in test Tubes	349,458	347,073	343,800	3,273	..	..
2 Various media in bulk in c.c.	1,941,684	1,756,379	1,756,379	..	..	..
3 Various Media in 1 oz. bottles	12,795	12,333	12,078	255	..	..
4 Sterile wasserman ampoules	..	94,100	84,318	4,910	2,572	2,300
5 Sterile urine bottles	2,325	2,230	2,230	..	..	..
6 Sterile test tubes	9,286	9,146	9,146	..	..	..
7 Sterile petri dish	138	138	138	..	..	..
8 Sterile bottles	6	6	6	..	..	..
9 Winchester quarter bottle	Nil	Nil	..	..	..	..
10 Spreaders	..	26	26	..	..	..

TABLE VI-A.

Statement showing supplies of stock vaccines (Polyvalent) autogenous vaccines, bacterial suspensions, high titre sera, etc., for the period commencing from 1st April 1957 to 31st March 1958.

Serial number and name of organisms. (1)	Stock vaccine doses. (2)	Autogenous doses. (3)
Pyogenic Group.		
1 Staphylococcus vaccine	7,326	138
2 Streptococcus vaccine	1,257	12
3 Streptococcus vaccine (Pyorrhoea)	792	..
4 Streptococcus vaccine (Filarial)	15,916	..
5 Streptococcus + Staphylococcus vaccine	6,783	54
6 B. acne vaccine	150	6
7 B. acne + Staphylococcus vaccine	18	..
8 Staphylo + B diphtheroids	..	24
9 Staphylo + B. diphtheroids + B.F.A.	..	6
10 B. Pyocyaneus	..	6
11 Staphylo + Strepto + C. Diphtheroids + St. Viridens	..	6
12 Strepto (Pyorrhoea) + N. Catarrhalis	..	6
Intestinal Group.		
13 T.A.B. vaccine for protein shock theraphy	1,788	..
14 T.A.B. (curative) vaccine	5,487	..
15 Typhoid vaccine (curative)	596	..
16 Enterococcus + B. Coli + Paracolan	..	6
17 Enterococcus + B. Coli	..	18
18 Strepto + Enterococcus + B.F.A.	..	12
Genito-Urinary Group.		
19 Genococcus vaccine	1,548	..
20 Gonococcus compound vaccine	462	..
21 B. coli vaccine	425	..
22 B. coli + Strepto (puerperal vaccine)	423	..
23 Streptococcus (puerperal vaccine)	300	..
24 B. proteus + B. coli	..	6
25 B. pyocyaneus	..	6
26 Staphylo + Staphylococcus vaccine	..	6
27 B. coli + Entero	..	6
Respiratory Group.		
28 Compound catarrhal vaccine	2,129	30
29 Compound catarrhal influenza vaccine	..	24
30 H. Pertussis (curative) vaccine	9,444	..
31 H. Pertussis (Prophylactic) vaccine	1,794	..
32 Strepto + Pneumo + Staphyio + B. Friedlanderi + N. Cat.	..	6
33 Strepto + N. Cat + B. friedlanderi	..	18
34 Strepto + N. Catarrhalis	..	30
35 Strepto + Pneumococcus	..	24
36 Strepto + Preumo + Staphylo + diphtheroids	..	12
37 N. catarrhalis + H Influenza	..	18
38 Pneumococcus + N. Catarrhalis	..	12
39 Strepto + N. Cat + H. influenza	..	24
40 Staphylo + Pneumo + H. Influenza + disphtheroids + B. friedlanderi.	..	6
41 H. Influenza + Diphtheroids	..	6
42 Streptococcus	..	12
43 Strepto + Staphylococcus	..	12
44 Strepto + H. influenza	..	6
45 Staphylo + N. Catarrhalis	..	12
46 Strepto + Staphylo + N. Catarrhalis	..	12
47 Strepto + Staphylo + N. Cat. + B. Coli. + B. proteus + B. Paracolan.	..	6
48 Strepto + B. friedlander	..	6
49 Strepto + Pneumo + Staphylo + N. Cat. + Diphtheroids	..	12

Serial number and name of organisms. (1)	Stock vaccine doses. (2)	Autogenous doses. (3)
Miscellaneous.		
50 Old Tuberculin (Human) for V.P. Tests	3,625	..
51 Old Tuberculin (Human) for Mantoux test	1,391	..
52 Live cultures of all organisms	401	..
53 Bacterial suspensions	62,920 c.c.	..
54 High titre sera	1,320 × 1 c.c.	..
55 Bacteriophage	377 × 3 c.c.	..

TABLE VI-B.

Therapeutic—Sera—K.I.P.M. Product bulbed from 1st April 1957 to 31st March 1958.

Number and name of sera.	Quantities.	Value. Rs. nP.
1 Tetanus Anti Toxin 1,500/1950. I.U. Prophylactic	16,543	37,221·75
2 Tetanus Anti Toxin Prophylactic 10 doses vials	5,737	86,055·00
3 Tetanus Anti Toxin Prophylactic 11 doses vials	3,033	50,044·50
4 Tetanus Anti Toxin 20,000/1950 units	2,039	32,624·00
5 Tetanus Anti Toxin 25,000/1950 units	4,265	85,300·00
6 Anti Gas Gangrene 4,000 units	4,595	13,785·00
Total	..	305,030·25

TABLE VI-C.

Therapeutic—Sera—issued from 1st April 1957 to 31st March 1958.

Number and name of sera. (1)	Total quantities issued. (2)	Issued to Andhra State. (3)	Issued to Kerala State. (4)	Issued to Mysore State. (5)	Issued to Madras State. (6)
1 Anti Gas Gangrene 4,000 units.	4,407	2,284	..	73	2,050
2 Anti Gas Gangrene 10,000 units.	1,796	789	9	70	928
3 Anti Scorpion 1 c.c.	5,398	3,495	22	12	1,869
4 Anti Venene 10 cc	1,948	554	54	67	1,274
5 Diphtheria Anti Toxin 10,000 units.	19,417	2,479	130	1,217	15,591
6 Diphtheria Anti Toxin 10,000 units.	4	..	..	..	4
7 Diphtheria Prophlactic TAF 1 c.c.	349	61	5	21	262
8 Diphtheria Prophylactic PTAP 0.5 c.c.	801	45	..	4	752
9 Haemostatic 2 c.c.	3,083	792	..	150	2,141
10 Tetanus Anti Toxin 1,500/1950 I.U.	398,674	108,083	1,928	10,521	278,142
11 Tetanus Anti Toxin 10,000 units.	697	10	..	..	687
12 Tetanus Anti Toxin 20,000 units.	5,366	1,437	..	..	3,929
13 Tetanus Anti Toxin 25,000 units.	35,515	9,848	222	803	24,642
14 Tetanus Toxoid 1 c.c.	200	..	..	..	200
Total	477,655	129,876	2,370	12,938	332,471

TABLE VII.

PART I.

(a) WATER SAMPLE.

Domestic purposes.

(Madras State).

Number and description.	Number of samples tested.
1 Bacteriological examination of samples of water from Protected Water Supplies.	1,375
2 Chemical examination of samples of water from Protected Water Supplies ..	987
3 Samples of water for Bacteriological examinations from field investigations ..	26
4 Samples of water for chemical examination from field investigations and investigation sources.	54
5 Samples of water for bacteriological examination from Government Institutions, private bodies and local bodies.	201
6 Samples of water for chemical examination from Government Institutions, private bodies and local bodies.	263
7 Samples of water for bacteriological examination from Rural Water Supply Scheme.	..
8 Samples of water for chemical examination from Rural Water Supply Scheme.	2,029
9 Samples of water for fluoride estimation alone	4
10 Samples of water for physical examination for colour, turbidity and odour ..	3,834
11 Vibrio test	1,613
12 Samples of water for ferrous iron test from Rural Water Supply Scheme and other sources.	2,110

Domestic purposes.

(Andhra State.)

1 Bacteriological examination of samples of water from Protected Water Supplies.	693
2 Chemical examination of samples of water from Protected Water Supplies	465
3 Samples of water for bacteriological examination from field investigation ..	20
4 Samples of water for chemical examination from field investigation and investigation sources.	20
5 Samples of water for bacteriological examination from private bodies, Government Institutions and local bodies.	14
6 Samples of water for chemical examination from private bodies, Government Institutions and local bodies.	31
7 Samples for bacteriological examination from Rural Water Suppply Schemes.	0
8 Samples for chemical examination from Rural Water Supply Schemes ..	0
9 Samples of water for physical examination, colour for odour, and turbidity ..	510
10 Vibrio test	707

(b) GOVERNMENT EXPERIMENTAL FILTER STATION, KILPAUK.

1 Samples of water for bacteriological analysis from the experimental Filter Station.	420
2 Samples of water for bactriological analysis from experiments on Corporation Filters.	320
3 Samples of water for chemical analysis from the experimental Filter Station.	312
4 Samples of water for chemical analysis from the experiments on Corporation Filters.	320
5 Samples of water for colour, turbidity and odour from experimental Filter Station.	312
6 Samples of water for physical tests like colour, turbidity, odour from Corporation Filters.	320
7 Field tests for dissolved oxygen, H_2S determination, etc.	1,200
8 Test for determining dose of chlorine	96
9 Test for determining residual chlorine	1,155
10 Samples of Biological growth for microscopic examination	79
11 Samples of plankton for microscopic examination	320
12 Samples of filter sand for microscopic examination	56
13 Number of tests for the detection of sulphate reducing bacteria in water ..	304

PART II.

(a) WATER SAMPLES.

(a) *Non-domestic uses.*

Number and description.	Number of samples tested.
1 Water samples for suitability for boiler feed	6
2 Water samples for suitability for general industrial use	8
3 Water samples for mineral analysis	12
4 Water samples for suitability for use in automobile workshop	1
5 Water samples for suitability for cooling purposes	2
6 Water samples for suitability for gelatine industry	1
7 Water samples for suitability for manufacture of pharmaceuticals	2
8 Water samples for suitability for the preparation of boiled rice	1
9 Water samples for suitability for air conditioning	1
10 Water samples for suitability for manufacture of photographic films	2
11 Water samples for suitability for building purposes	1
12 Water samples for catadyn sterilisation	1
13 Water samples for corrosivity tests	4
14 Detection of corrosive sulphur compounds in water	6
15 Water samples for D.D.T. estimation	2
16 Water samples for fertiliser value	1
17 Water samples from Goverament Milk Factory, Teynampet	36

(b) *Research studies by the Public Health Engineering Students.*

1 Water samples for chemical and biological analysis in connection with the Research studies of the Post Graduate Students in Public Health Engineering.	164
2 Water samples for bacteriological examination in connection with the research studies of the Post Graduate Student in Public Health Engineering.	25
3 Estimation of B.O.D. tests	140
4 Samples of water for Kjeldahl Nitrogen test	26
5 Samples of water for relative stability test	200

(c) *Non-Domestic Use*

(Andhra Pradesh.)

1 Water samples for suitablility of Boiler feed	6
2 Water samples for mineral analysis	1

(d) *Algological Studies.*

(Madras State.)

1 Microscopical examination of Samples of water	682
2 Microscopical examination of Organic growth in filters, pipes, sedimentation basin, etc.	81
3 Tests for determination of dose of algicide	24
4 Tests for residual copper	86
5 Tests for residual chlorine	82
6 Estimation of dissolved gases in water samples	32
7 Field tests for pH estimation	83
8 Field tests for Turbidity, Odour, colour, etc.	93
9 Field tests for Organic matter in water	79
10 Samples of higher aquatic vegetation for indentification	16
11 Samples of bottom ooze from tank	8
12 Microscopical examination of samples of water from Rural Water-supply Schemes.	2,010

(*d*) *Algological Studies*—cont.

(Andhra Pradesh.)

Serial number and description.	Number of samples tested.
(1)	(2)
1 Microscopical examination of samples of water, filter growth, etc.	110
2 Tests for determining dose of algicides	8
3 Tests for residual copper sulphate	32
4 Tests for dissolved gas	24
5 Field tests for colour, odour, turbidity, etc.	42

Miscellaneous Examination.

(Madras State.)

1 Analysis of Alum for suitability in water treatment	10
2 Analysis of sediment in pipe lines	1
3 Boiler scale analysis	1
4 Bottles for neutrality tests	2
5 Samples of bleaching powder for determination of available chlorine	49
6 Milk samples for bacteriological examination	41
7 Rinses from utensils in Government Milk Factory in Teynampet for bacteriological examination.	72
8 Rideal-walker tests on disinfectants	62
9 Milk powder for bacteriological examination	24
10 Ice cream samples for bacteriological examination	60
11 Strains of B. Typhosus supplied to other laboratories for Rideal-walker test.	40
12 Number of bottles specially prepared for collecting water for bacteriological examination.	3,060
13 Sewage and Trade waste samples	29

PART III.

SOLUTION SUPPLIED TO

	ML.
(*a*) Other Departments—	
1 Normal Sodium Hydroxide	15,870
2 N/50 Sodium Hydroxide	2,450
3 N/10 Hydrochloric Acid	120
4 Acid Nitro-Hydrochloric Acid	1,000
5 N/5. Sodium chloride	1,000
6 Saturated Sodium Persulphate	120
7 Benedicts Qualitative Solution	3,600
8 25 Per cent Copper Sulphate	120
9 Bromo-thymol Blue 0·4 per cent	480
10 Phenol Red—0·4 per cent	120
11 Phenol Red—0·1 per cent	320
12 0.5 Per cent Phenolphthalein	100
13 Silver Nitrate 1. Percent	100
14 Glass Distilled water	2,500
15 Distilled water	120,000
16 Pancreatic Extract	258,000
(*b*) Fluorine Removal Research—Laboratory at Guntakal—	
1 Sanchis Reagent	6,000
2 Standard Sodium Fluoride Solution	1,000
3 Standard Silver Nitrate	1,000
4 Normal Sodium Hydroxide	1,000
5 Potassium Chromate	200
6 N/80 Potassium Permanganate	1,000
7 Eriochrome Black	200
8 N. Sulphuric Acid	1,000
9 Aluminon	1,000
10 Mandles Solution	100

SOLUTION SUPPLIED TO—*cont.*

Serial number and description.	Number of samples tested. ML.
(*c*) The Public Health Engineering Students for their research work—	2,000
1 Scott Sanchis Reagent	250
2 Manganous Chloride	200
3 Manganous Sulphate	100
4 Alkaline Potassium Iodide	300
5 Alkaline Potassium Iodide with Sodium Azide	1,000
6 Concentrated Sulphuric Acid	250
7 N/40 Sodium Thiosulphate	500
8 Starch Solution	100
9 Phenol Sulphuric Acid	250
10 Sodium Hydroxide	300
11 Alpha-Naphthylamine	300
12 Sulphanilic Acid	300
13 Sodium Acetate Buffer	25,000
14 Distilled water	

TABLE VIII.

Protected water-supplies with details regarding source, method of filtration, chlorination, etc.

(Madras State.)

Name of Place.	Total number of	Sources.						
		Places.	Sources.	Impounded reservoir.	River or stream.	Tank.	Well.	Infiltration gallery. Bed of river.	Infiltration gallery. Bank of river.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Municipalities	38	58	14	7	3	6	18	10
Panchayat Boards	10	15	1	8	..	1	4	1
Jails, certified Schools and Vigilance Homes.	14	18	2	1	1	7	5	2
Railway Stations	50	55	1	4	..	45	3	2
Other Institutions	25	36	8	10	..	13	3	2
Swimming Pool	1	1	1	..	..	..	..	..
Total	138	183	27	30	4	72	33	17

Name of Place.	Filtration. Slow sand filter.	Filtration. Mechanical filter. Pressure.	Filtration. Mechanical filter. Gravity.	Filtration. Infiltration gallery or well.	Filtration. Not filtered.	Chlorination. Automatic liquid chlorine.	Chlorination. Bleaching Powder. Mechanical.	Chlorination. Bleaching Powder. Hand Controlled.	Chlorination. Unchlorinated.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Municipalities	3	3	6	28	18	22	1	34	1
Panchayat Boards	..	..	1	5	9	2	2	11	..
Jails, Certified Schools and Vigilance Homes.	2	1	..	7	8	5	..	12	1
Railway Stations	..	3	4	5	43	18	27	10	..
Other Institutions	5	4	2	5	20	10	4	12	10
Swimming Pool	..	1	..	..	..	1	..	..	..
Total	10	12	13	50	98	58	34	70	12

TABLE VIII—*cont.*

Protected Water-supplies with details regarding source, method of filtration, chlorination, etc.—cont.

(Andhra Pradesh.)

Name of place.	Total number of		Sources.					
							Infiltration gallery.	
	Places.	Sources.	Impounded reservoir.	River or stream.	Tank.	Well.	Bed.	Bank.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Municipalities	19	29	..	7	2	8	10	5
Panchayat Boards	7	9	..	1	2	5	..	1
Jails	3	4	..	..	..	1	2	1
Other Institutions	2	3	..	2	..	1	..	..
Total ..	31	45	..	10	4	12	12	7

	Filtration.					Chlorination.			
		Mechanical.					Bleaching powder.		
	Slow sand filter.	Pressure.	Gravity.	Infiltration gallery or well.	Not filtered.	Automatic.	Machine.	Hand control.	Unchlorinated.
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Municipalities	5	2	1	15	6	17	..	11	1
Panchayat Boards	..	..	..	1	8	3	..	6	..
Jails	..	..	..	3	1	3	..	1	..
Other Institutions	..	..	..	..	3	..	1	2	..
Total ..	5	2	1	19	18	23	1	20	1

TABLE IX.

Department of Biological Control King Institute, Guindy, Madras-15—Tabular statement of tests conducted during 1957–58.

TABLE IX.

Department of Biological Control, King Institute, Guindy, Madras-15—Tabular statement of tests conducted during 1957–58.

Serial number and nature of tests.	Total number of specimens received during the year 1957-58.	Total number of tests done during the year 1957-58.	Tests done for various departments of the Institute.	Tests done for Government hospitals.	Tests done for Private firms and individuals etc.	Tests done for Government Institutions.	Tests done for Inspectors of Manufacturing concerns.	Tests done for state other than Madras.	Total number of specimens found not of standard quality.	Value of tests if charged at scheduled rates.	Amount realised 1957-58.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1 Sterility test	2,201	2,585	2,411	61	1	..	13	99	73	26,028	480
2 Pyrogen test	497	577	459	4	..	..	19	..	3	24,100	..
3 Toxicity test	3,173	4,901	4,873	20	6	..	2	..		50,624	16
4 Chemical Assay	410	696	612	39	..	..	45	..	3	12,300	..
5 Tincture Digitalis Bio-assay ..	11	95	..	..	8	..	..	3	5	264	264
6 Antibiotic assay	2	8	..	..	..	..	2	..	..	50	..
7 Antibiotic Sensitivity test ..	11	44	1	4	6	..	..	..	..	110	60
8 Prophylactic Vaccine-Opacity, Identity and Serological Tests wirh H.T.S.	190	760	760	..	..	..	..	..	..	4,750	..
9 Vaccine Lymph Colony Count Bacteriological content and safety test.	85	316	316	..	..	..	..	..	..	2,125	..
10 Tetanus Antitoxin Potency Test and Bio-assay.	9	9	..	1	1	..	..	..	1	675	..
11 Male frog test for pregnancy.	1,257	1,268	..	953	285	12	..	7	..	6,285	1,500
12 Strains of Salm 'typhi' Mouse virulence test, etc.	2	12	12	..	..	..	..	..	..	100	..
13 Anticholera vaccine and strains of V. Cholera for Mouse virulence test.	11	33	33	..	..	..	..	..	..	550	..
14 Anticholera vaccine and strains of V. Cholera for Mouse virulence test Cholera vaccine from Bihar State.	1	12	..	..	..	..	..	12	..	50	50
* Miscellaneous—											
(a) Dibucaine	1	..	..	1	..	..	..	..	..	..	..
(b) Neoarsphenamine	1	..	..	1	..	..	..	..	..	..	..
(c) Catguts	13	..	..	13	..	..	..	..	..	..	..
(d) Adrenaline	1	..	..	1	..	..	..	..	..	..	..
(e) Liver Extract	2	..	..	2	..	..	..	..	..	..	..
(f) Pethidine Hydrochloride ..	1	..	..	..	1	..	..	..	..	..	..
* Specimens included in sterility, etc., tests.											
Total ...	7,860	11,316	..	..	..	..	..	..	..	1,28,011	2,370

CONTENTS

REPORT OF THE GOVERNMENT ANALYST, MADRAS, FOR THE PERIOD 1st APRIL 1957 TO 31st MARCH 1958.

I. STAFF.

Government Analyst	Sri S. Narayana Iyer, M.A., A.I.I.SC., F.R.I.C.
Deputy Government Analyst ..	Sri Y. G. Doraisami, M.SC., F.R.I.C.
Senior Assistants to Government Analyst.	Sri K. R. Srinivasan, M.A., F.R.I.C.
	,, K. Narayanaswamy, M.A., A.R.I.C. (Earned leave from 3rd June to 2nd August 1957 forenoon).
	,, M. Krishnamurthi, M.SC.
	,, P. S. Nataraja Sarma, M.A.
	,, K. Balasubramaniam, B.SC. (Hons.).
	,, K. Ramachandran, M.A.
	,, N. Srinivasan, M.A. (Earned leave from 10th February 1958 afternoon for 87 days)
	,, M. V. Narayanan, B.SC. (Hons.).
	,, C. S. Raghunathan, B.SC. (Hons.) (Acting from 3rd June 1957 to 2nd August 1957).
	,, G. Balasubramanyam, B.SC. (Hons.) Tech. (Acting from 11th February 1958 forenoon).
Junior Assistants to Government Analyst.	Sri C. S. Raghunathan, B.SC. (Hons.) Transferred as Chemical Assistant (Drug) to the Department of Assistant Director (Drugs Special), King Institute, Guindy, from 19th December 1957 forenoon.
	,, G. Balasubramanyam, B.SC. (Hons.).
	,, V. Seshagiri Rao, B.SC. (Hons.).
	,, P. Chandrasekhara Rao, B.SC. (Hons.).
	Srimathi H. Packiyam, M.A.
	Sri S. Kasturi, M.A., from 1st February 1958 forenoon.
	,, K. Sambandam, B.SC.
	,, P. Appavoo, M.A.
	Kumari V. Ambujam, B. Pharm.
	Sri V. Kondal Rao, M.SC.
	,, M, Kandaswamy, B.SC.
	,, S. M. Sakalagunam, B.SC
	,, S. V. Subramaniam, B.SC. (Hons.).
	,, V. V. Nityanandam, B.SC.
	Kumari V. R. Vimala, B.SC., from 31st December 1957 to 31st March 1958.
	Sri R. Gopalakrishnan, B.SC., from 18th January to 31st March 1958.
	Kumari R. Radha, B.SC. ,from 12th to 31st March 1958.

The following Junior Assistants availed themselves of earned leave for the period noted against each :—

Sri P. Chandrasekara Rao, from 12th to 23rd August 1957.

Srimathi H. Packiam, from 23rd August to 20th September 1957.

Sri K. Sambandam, from 2nd to 12th August 1957 and from 16th November to 19th December 1957.

Sri P. Appavoo, from 30th March to 9th April 1957.

Sri G. Balasubramaniam from 27th May to 21st June 1957.

Sri V. Seshagiri Rao, from 15th April to 15th May 1957, from 20th November to 4th December 1957 and from 26th to 28th December 1957.

Sri S. Kasturi, from 19th December 1957 to 31st January 1958.

Sri S. V. Subramaniam, from 10th September to 6th October 1957 and from 7th to 17th October 1957.

Sri V. Kondal Rao, from 16th October to 2nd November 1957.

II. SALIENT FEATURES FOR THE YEAR 1957-58.

Twenty-one new local bodies which were permitted to send samples under the Prevention of Food Adulteration Act, 1954, consequent on the reorganization of States began to send samples from 1st April 1957.

Although the Prevention of Food Adulteration Act, 1954, came into force from 1st June 1955, the rules under the Act are in different stages of enforcement. Some of the rules came into force from 24th September 1955. Parts VI and VII of the rules relating to labelling and colouring of foods which were kept in abeyance to enable the merchants to dispose of their old stocks came into full force during the year from 1st June 1957.

The rather severe penalties involving heavy fine and imprisonment imposed for food adulteration offences have spurred merchants' associations to quick action in the form of memorials, deputations and representations to Government stating that the prescribed standards are severe and impossible to attain in practice, but unfortunately they do not take any active steps to remove the remediable defects in the food manufacturing and processing centres. But on the suggestion of the Government of India, the Madras Government have constituted a committee to discuss with trade interests twice a year their difficulties in the working of the Act. The Director of Public Health is the convenor of the committee of which the Government Analyst is also a member.

Under the Madras Prevention of Adulteration Act, there was no standard for free fatty acid in ghee and oils, but under the Prevention of Food Adulteration Rules, 1955, a limit of 3·0 per cent has been prescribed. Oils and fats having excessive acidity are deleterious to health. The manufacturer of butter has to prepare it hygienically and without storing it for any considerable period, has to melt it into ghee so that the ghee may not have excessive free fatty acid. Similarly manufacturers of oils have to use only good quality oil seeds and reject the damaged ones to ensure that the oil is sweet and within the permitted limit of acidity.

The Government of India have sanctioned a scheme to undertake a study of the chemical characteristics of ghee by regions from 1st January 1958 and the areas covered under the States of Madras and Andhra Pradesh will be surveyed during the first year of the scheme.

The total number of food and drug samples received from the Madras State and analysed in the Government Analyst Laboratory under the various categories is given below :—

Food samples under the Prevention of Food Adulteration Act, 1954.	11,618
Food samples from Government hospitals	6,499
Food samples from other Government Departments	91
Food samples from unofficial sources	32
Total (Food) ..	18,240
Drugs received under the Durge Act from the Drug Inspectors.	121
Drugs received from Government hospitals	168
Spurious drugs from the Police and Magistrates	3
Drug samples from unofficial sources	22
Total (Drugs) ..	314

The total number of food samples and drugs analysed in the Government Analyst Laboratory during the year under report is 18,240 and 314 respectively, as shown in Table I below as against 20,217 and 348 respectively, for the previous year ending 31st March 1957.

TABLE I.

Number and categories of samples analysed in the Government Analyst Laboratory.

Source.	For the year 1957-58.		For the year 1956-57.	
	Number of samples.	Number adulterated or otherwise unsatisfactory.	Number of samples.	Number adulterated or otherwise unsatisfactory.
Food samples under the Prevention of Food Adulteration Act, 1954.	11,618	3,972	11,287	3,516
Food samples from Government hospitals.	6,499	718	8,732	1,015
Food samples from other Government Departments.	91	24	152	19
Food samples from unofficial sources.	32	10	46	16
Total (Food) ..	18,240	4,724	20,217	4,566
Drugs received under the Drugs Rules.	121	15	152	61
Drugs received from Government hospitals.	168	114	162	48
Drugs received from Police and Magistrates.	3	3	25	18
Drug samples from unofficial sources.	22	13	9	3
Total (Drugs) ..	314	145	348	130

III. FINANCE.

TABLE II.

Financial statement of Government Analyst Department for the year 1957-58 (1st April 1957 to 31st March 1958), Madras State.

Food.

	RS.
1. Contribution to Government from local bodies working the Prevention of Food Adulteration Act at Rs.7.50 per sample.	87,683
2. Estimated charges for analysis done for Government Medical Institutions.	64,990
3. Food samples from other Government Departments	910
4. Fees from unofficial sources for analysis of food samples	1,400
Drugs.	
5. Estimated charges for analysis of drug samples from hospitals and under the Drugs Rules, 1945.	8,760
6. Fees received from unofficial sources for analysis of drug samples.	440
Total receipts ..	1,64,183

ESTIMATED EXPENDITURE.

	RS.
1. Salaries and allowances of the staff of the Government Analyst.	79,881
2. Superannuation allowance and pension on above	800
3. Proportionate cost of certain common staff of the King Institute, Guindy.	1,534
4. Proportionate cost of management and supervision by the Director of Medical Services and Director, King Institute, Guindy.	350
5. Stores, instruments and chemicals, including gas and water charges.	27,670
6. Customs duty	..
7. Contingencies	8,930
8. Electric current	2,870
9. Cost of stationery, clothing and printing	850
10. Proportionate charges on cost of audit, maintenance interest and depreciation on buildings, electric installation and other plants.	8,167
Total expenditure ..	1,31,052
Share of the fines accruing to Government by the working of the Prevention of Food Adulteration Act (10 per cent of total fines plus half the excess over the contribution of the local body to Government towards the fees for analysis.)	2,17,982

IV. WORKING OF THE PREVENTION OF FOOD ADULTERATION ACT.

During the year 1956–57 owing to the States reorganization the local bodies of the Malabar and South Kanara districts which were merged with the newly formed Kerala and Mysore States, respectively, stopped sending samples to this laboratory and the following 21 new local bodies including a few located in the Kanyakumari district which merged in Madras State were permitted to send food samples under the Act from 1st April 1957:—

1 Nagercoil Municipality	Kanyakumari district.
2 Shencottah	Chingleput district.
3 Thirukalikundram Panchayat	
4 Kunrathur Panchayat	
5 Pernambut Panchayat	North Arcot district.
6 Dharpadavedu Panchayat	
7 Tiruvattipuram Panchayat	South Arcot district.
8 Kattumannarkoil Panchayat	Tanjore district.
9 Tranquebar Panchayat	
10 Vedaranyam Panchayat	
11 Adiramapatnam Panchayat	Tiruchirapalli district.
12 Pallapatti Panchayat	
13 Perambalur Panchayat	Coimbatore district.
14 Singanallur Panchayat	Salem district.
15 Mettur Township Panchayat	
16 Hosur Panchayat	Madurai district.
17 Keeranur Panchayat	Ramanathapuram district.
18 Kamuthi Panchayat	Tirunelveli district.
19 Udangudi Panchayat	
20 Alwarthirunagari Panchayat	
21 Kayalpatnam Panchayat	

As a result, the number of local bodies sending samples under the Prevention of Food Adulteration Act to this laboratory has increased from 145 to 158.

Among the suggestions of Food Inspectors for more efficient working of the Act are the following:—

(1) Public co-operation is lacking and it is difficult to get two witnesses to attest sampling as required by section 10 (7) of the Act. The persons available on the spot are afraid of deposing against their neighbours and even if they affix their signatures in the relevant records, they give hostile evidence in Court. Section 10 (7) should be deleted.

(2) Municipal councillors and members of panchayats interfere with the work of the Food Inspectors and therefore a special category of Food Inspectors should be appointed to be outside local influence.

(3) Encouragement should be given to Food Inspectors whose work is outstanding. Otherwise they may deliberately take genuine samples. A part of the fines collected may be set apart as their reward.

(4) The monthly quota of samples should be increased and a mobile laboratory established for each district for quick analysis of food samples.

(5) Offences under the Act are to be tried by first-class Magistrates only. In some cases, the Courts are located several miles away from the panchayats and it is difficult for the Food Inspectors to leave the seized stocks in the custody of the Magistrates. It is suggested that Sub-Magistrates may be empowered to receive seized stocks.

(6) A camera may be supplied to the Food Inspector to take photos during sampling which may be used as evidence in Court.

(7) Food Inspectors should be empowered to call for necessary records proving the ownership of shops.

The total number of samples taken under the Act during the year in the Madras State was 18,355, of which 5,961, i.e., 32·6 per cent was adulterated. This includes 6 737 samples taken in Madras City and analysed by the Public Analyst for the Madras Corporation. The usual quota of samples has been sent by all local bodies in the Madras State.

Table III gives particulars of samples received from the various categories of local bodies during the year. Figures for the previous year have also been included for comparison.

TABLE III.

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

Local bodies.	1957–58. Number of samples taken.	1957–58. Number adulterated.	1957–58. Percentage adulterated.	Local bodies.	1956–57. Number of samples taken.	1956–57. Number adulterated.	1956–57. Percentage adulterated.
Municipalities.—							
16 Class 'A'	4,320	1,380	31·7	18 Class A	4,659	1,368	29·4
13 Class 'B'	1,270	447	35·7	14 Class B	1,331	434	32·6
27 Class 'C'	1,440	514	35·2	29 Class C	1,516	530	34·9
Panchayats.—							
102 Class 'C'	4,588	1,631	35 4	84 Class C	3,781	1,184	31·3
Total for 158 local bodies analysed in Government Analyst Laboratory.	11,618	3,972	34·2	Total for 145 local bodies analysed in Government Analyst Laboratory.	11,287	3,516	31·2
Corporation.—							
Madras City.	6,737	2,009	29·8	Madras City.	5,366	1,734	32·3
Total for 159 local bodies in Madras State.	18,355	5,981	32·6	Total for 146 local bodies in Madras State.	16,653	5,250	31·7

TABLE IV.

Extra samples sent by local bodies during 1957–58.

Name of municipality.	Number of extra samples.	Name of panchayat.	Number of extra samples.
(1)	(2)	(1)	(2)
Salem	98	Arantangi	1
Rasipuram	5	Sirkali	1
Tiruvannamalai	1	Ariyalur	1
Ambur	2	Perambalur	7
Gudiyattam	2	Mettur	1
Tirupattur	1	Singanallur	1
Walajapet	1	Kurichi	12
Kumbakonam	22	Cumbum	3
Tiruchirappalli	1	Usilampatti	1
Pudukottai	12	Kotagiri	1
Kancheepuram	48	Srivaikuntam	3
Coimbatore	2	Vickramasingapuram ..	3
Gobichettipalayam	1	Viravanallur	1
Palni	9	Kandanoor	1
Kodaikanal	12	Kilakarai	1
Ootacamund	6	Sivaganga	7
Tirunelveli	46	Kallakuruchi	1
Tuticorin	44	Nellikuppam	2
Devakottai	1	Tirukoilur	3
Villupuram	3		
Shencottah	2	Total ..	370

Table V gives particulars about the samples taken in Madras City in the year 1957-58.

TABLE V.

Nature of samples from Madras City analysed by the Corporation Public Analys during the year.

Serial number and nature of samples. (1)	Number of samples. (2)	Number adulterated. (3)	Percentage adulterated. (4)
1 Milk	3,789	1,563	41·3
2 Ghee	805	36	4·5
3 Butter	514	78	15·2
4 Gingelly oil	920	247	26·8
5 Coconut oil	105	2	1·9
6 Groundnut oil	103	16	15·5
7 Coffee powder	252	29	11·5
8 Tea	99	7	7·1
9 Turmeric	39	5	12·8
10 Dhall	21	12	57·1
11 Sweets	..	..	..
12 Honey	26	10	38·5
13 Vegetable oil products	10	..	..
14 Chicory	..	..	..
15 Miscellaneous—			
Maida	22	..	..
Arrowroot	32	4	12·5
Total ..	6,737	2,009	29·8

Table VI gives particulars about the samples taken in 159 local bodies (including Madras City) working the Act in the Madras State.

TABLE VI.

Nature of samples received from 159 local bodies (including Madras City) working the Act in the Madras State.

	For the year 1957–58. Total samples.	Number adulterated.	Percentage adulterated.	For the year 1956–57. Total samples.	Number adulterated.	Percentage adulterated.
Milk	10,220	4,600	45·1	10,059	4,067	40·4
Ghee	1,139	166	14·6	892	158	18·08
Butter	674	184	27·3	558	223	37·9
Gingelly oil	2,824	654	23·2	2,126	413	19·8
Coconut oil	727	17	2·3	702	1	0·1
Groundnut oil	305	57	18·9	200	21	15·9
Coffee powder	1,083	93	8·6	1,054	96	9·1
Tea	315	51	16·2	428	60	14·0
Turmeric	340	34	10·0	358	52	14·5
Dhall and flours	388	46	11·8	455	71	16·6
Sweets	14	7	50·0	10	4	40·0
Honey	101	14	13·9	79	19	24·1
Vegetable oil products ..	26	1	3·8	26	12	46·15
Chicory	4	1	25·0	3	1	33·3
Aerated water sweet drinks).	53	44	83·0	26	24	92·3
Asafoetida	12	2	16·7	8	3	37·5
Miscellaneous	130	10	7·7	129	25	19·3
Total ..	18,355	5,981	33·1	16,653	5,250	31·6

The extent of adulteration of foodstuffs prevalent in the several districts as compared with the previous year is given in Table VII below.—

TABLE VII.

Districts arranged according to the increasing percentage of adulterated samples.

Name of the district.	Rank for the year under report 1957–58.	Percentage of adulterated samples.	Rank for the previous year.	Percentage of adulterated samples in previous year.
(1)	(2)	(3)	(4)	(5)
Madurai	1	17·0	12	20·7
Ramanathapuram	2	21·0	1	18·3
Nilgiris	3	33·3	7	33·6
Tiruchirappalli	4	36·0	6	32·3
South Arcot	5	37·3	3	24·6
Chingleput	6	37·6	4	31·1
Tirunelveli	7	38·3	8	33·9
Salem	8	39·3	9	37·3
Tanjore	9	40·8	10	37·4
North Arcot	10	43·2	5	32·3
Coimbatore	11	48·7	11	45·0
Kanyakumari	12	50 7	..	..

V. NOTES ON ADULTERATION.

A survey of the following Table VIII will show that there has been a slight increase during the year under report as compared with the previous year in the adulteration of the important articles of food such as milk (47·2 ; 42·9) ghee (38·9; 28·1) gingelly oil (21·1; 13·7) coconut oil (2·1; 0·2). When considered as a whole the percentage of adulterated samples is 34.2 per cent as against 31·2 per cent for the previous year. Though the penalty imposed by the Court has increased, its effect on adulteration will be felt only in due course especially in view of the fact that the local bodies are permitted to send only a fixed quota of samples every month and therefore it is not possible to take samples on a sufficiently large scale.

The type of adulteration is being maintained in the traditional way and there are no new types of adulterants which require special mention. However, the following are of sufficient interest :—

Two samples of dalda (Reichert 1.2 and 0.7) received from a municipality did not give the Baudouin test, thereby showing absence of gingelly oil, contrary to the provisions of Vegetable Oil Product Control Order. The samples contained a coal tar dye.

The use of lead chromate in turmeric continues to an alarming extent. The amount of lead varied from 10 to 500 ppm but one sample contained the unusually high amount of 1,200 ppm. The Health authorities should take some immediate action to stop this evil practice which is deleterious to health. One suggestion would be to refuse licences to the mills which use such colouring agents in polishing turmeric.

The widespread and indiscriminate use of coal tar colours has become a menace. Coal tar dye has been detected in butter, ghee, flour, honey, toor dhall, sweets and confectionery. The use of the permitted coal tar dyes as restricted by the Prevention of Food Adulteration Rules can be effectively controlled only after the licencing system is enforced according to the rules to be issued by the Madras Government under section 24 of the Prevention of Food Adulteration Act. These rules are expected to be issued shortly.

TABLE VIII.

Nature of samples received from 158 local bodies in the Madras State and analysed in the Government Analyst Laboratory.

Nature of samples.	1957—1958. Total number of samples.	1957—1958. Number adulterated.	1957—1958. Percentage adulterated.	1956—1957. Total number of samples.	1956—1957. Number adulterated.	1956—1957. Percentage adulterated.
	6,431	3,037	47·3	6,275	2,690	42·9
Milk	334	130	38·9	327	92	28·1
Ghee	160	106	66·3	172	120	69·8
Butter	1,904	407	21·23	1,651	308	13·7
Gingelly oil	622	15	2·4	571	1	0·2
Cocoanut oil	202	41	20·1	145	20	13·8
Groundnut oil	831	64	7·7	844	58	6·9
Coffee powder	216	44	21·3	337	47	13·9
Tea	301	29	9·6	317	46	14·5
Turmeric	367	34	9·3	392	56	14·3
Dhall and flours ..	14	7	50·0	10	4	40·0
Sweets	75	4	5·3	63	11	17·5
Honey	16	1	6·3	20	11	65·0
Vegetable oil products	53	44	83·0	26	34	92·3
Aerated water-sweet drink) ..	12	2	16·7	8	3	37·5
Asafœtida	80	7	8·8	129	25	19·3
Miscellaneous	11,618	3,972	34·2	11,287	3,516	31·2

VI. PENALTIES.

Appendix B at the end of the Report gives the number of convictions, the fines in analysis cases, and non-analysis cases, maximum, minimum and average fines in each local body. The average fine has notably increased after the enforcement of the Central Prevention of Food Adulteration Act 1954 as shown below :—

Year.	*Average fine.* Rs.
1954-55	36
1955–56	86
1956–57	103
1957–58	122

In the report for the previous year 1956–57 it was specially mentioned that the working of the Act was comparatively more satisfactory in the local bodies of the Coimbatore district as judged from the fines imposed. The same level was maintaining during the year under report also as shown below :—

Fines imposed in Coimbatore district.

Name of municipality.	*Contribution paid to Government.* Rs.	*Amount of fine collected.* Rs.
Coimbatore	2,160	25,625
Pollachi	1,080	14,445
Erode	720	6,510
Tiruppur	720	3,120
Udamalpet	720	3,715
Dharapuram	360	1,610
Gobichettipalayam	360	4,490
Mettupalayam	360	9,280

Name of panchayat.	*Contribution paid to Government.*	*Amount of fine collected.*
	RS.	RS.
Avanashi	360	2,795
Bhavani	360	1,440
Kurichi	360	2,265
Satyamangalam	360	2,230
Singanallur	360	4,055

Although Madurai Municipality sends the largest quota, viz. 100 samples per month as against 24 samples by Coimbatore, the fine collected during the year in Madurai Municipality was only Rs. 10,299 as against Rs. 25,625 in Coimbatore Municipality.

Total fines of Rs. 2,000 and over have been levied for offences under the Act, during the year in the following municipalities and panchayats :—

Municipalities.

Dindigul.
Madurai.
Mettupalayam.
Ootacamund.
Palani.
Shencottah.
Villupuram.

Panchayats.

Alandur (Chingleput district).
Tambaram (Chingleput district).
Kunrathur (Chingleput district).
Thirukalikundram (Chingleput district).
Kurichi (Coimbatore district).
Satyamangalam (Coimbatore district).
Singanallur (Coimbatore district).
Keeranur (Madurai district).
Dharpadavedu (North Arcot district).
Namakkal (Salem district).
Mettur Township (Salem district).
Vridhachalam (South Arcot district).
Ayyampet (Tanjore district).
Adiramapatnam (Tanjore district).
Vedaranyam (Tanjore district).
Perambalur (Tiruchirappalli district).
Kovilpatti (Tirunelveli district).
Vickramasingapuram (Tirunelveli district).

Though the fines collected were high in many local bodies, it is surprising to note that the local bodies mentioned in Table IX below have not been able to recoup by way of fines even the contributions paid to Government as fees for analysis. Some of these could not recoup the fines in the year 1956-57 also.

TABLE IX.

Name of local body.	*Annual contribution to Government.*	*Fines.* 1957–58.	1956–57.
	RS.	RS.	RS.
Srivilliputhur Municipality ..	540	310	840
Virudhunagar Municipality ..	720	680	400
Bodinayakanur Municipality ..	540	350	390
Ayyakudi Panchayat	360	270	100
Batlagundu Panchayat	360	185	25
Bhuvanagiri Panchayat	360	165	225
Cumbum Panchayat	360	175	60
Kattumannarkoil Panchayat ..	360	230	..
Musiri Panchayat	360	350	1,940
Tirumangalam Panchayat ..	360	85	385
Usilampatti Panchayat	360	235	165

Though the average fine for the year for the whole State is Rs. 122 as against Rs. 103 for 1956–57, there has been a substantial drop in the average fine in a few local bodies as shown in the table below :—

TABLE IX-A.

Name of local body.	*Average fine for* 1957–58.	1956–1957.
	RS.	RS.
Tiruvallur	85	237
Coimbatore	156	311
Dharapuram	146	245
Erode	155	204
Gobichettipalayam ..	155	277
Satyamangalam ..	131	191
Karaikudi	68	122
Chidambaram ..	68	109
Cuddalore	70	128
Srirangam	175	242
Avanashi	127	200
Kurichi	133	243
Walajapet	45	100
Arcot	43	119
Kandanoor	118	300
Rameswaram ..	138	250
Idapadi	67	161
Namakkal	96	183
Bhuvanagiri	55	75
Courtallam	64	103
Tiruvadamarudur ..	50	300
Lalgudi	97	204
Musiri	38	127

VII. WORK FOR OTHER GOVERNMENT INSTITUTIONS.

Many Government Institutions sent samples of diet articles for analysis as shown in Table X below and in greater detail in Table XI.—

TABLE X.

Samples received from other Government sources.

Source. (1)	*Number of samples received.* (2)
1 Government hospitals	6,499
2 Jails	15
3 Director of Industries and Commerce	11
4 Magistrates and Police	2
5 Other Government departments	35
6 Southern Railway	28
Total ..	6,590

Number and nature of samples received from the various Government departments during the year 1957-58.

The nature of the adulterants under each kind of food is also dealt with at the end of the table.

TABLE XI.

(1)	*Total number of diet articles.* (2)	*Number adulterated or otherwise unsatisfactory.* (3)
(1) Government hospitals—		
Bread	941	14
Milk	924	114
Toned milk	146	113
Reconstituted milk	1	1
Milk powder	1	1
Pasteurised milk	3	..
Coffee powder	873	28
Dhall	661	67
Brown sugar	528	9
Sugar	2	..
Butter	519	202
Gingelly oil	496	97
Rice	369	4
Ghee	312	50
Jaggery	226	2
Biscuits	233	1
Barley	93	9
Coconut oil	89	1
Arrowroot	36	2
Wheat flour	19	..
Tamarind	11	..
Ragi flour	6	1
Pepper	5	1
Sago	4	..
Soapnut	1	1
Total	6,499	718
(2) Schools and Jails—		
Gingelly oil	9	3
Milk	2	..
Ragi	1	..
Cholam	1	..
Dhall	1	..
Ghee	1	..
Total	15	3
(3) Magistrates and Police—		
Coffee powder	1	1
Tea powder	1	1
Total	2	2
(4) Railways—		
Ghee	8	..
Gingelly oil	7	..
Refined groundnut oil	13	..
Total	23	..
(6) Port Health Officer, Madras—		
Glucose	1	..
Total	1	..

	Total number of diet articles.	*Number adulterated or otherwise unsatisfactory.*
(6) Industries and Commerce—		
Vanaspathi	11	..
Total	11	..
(7) Other Government departments—		
Rice	4	2
Varagu	14	3
Milk powder	16	14
Total	34	19

1. GOVERNMENT HOSPITALS.

Diet articles numbering 6,499 were received from the Government Hospitals in the State to see whether they conformed to the prescribed specifications and 718 were reported as adulterated or otherwise unsatisfactory.

Bread.—Out of 941 samples, 14 had excessive acidity, the permitted limit corresponding to 4.5.c.c. Normal alkali for 100 g. bread.

Milk.—Of 924 samples, 94 contained added water, 17 were deficient in fat, and 3 samples were deficient in fat and also contained added water.

Toned milk.—Out of 146 samples, 8 samples contained added water, 73 were deficient in fat and 32 were deficient in fat and also contained added water.

Reconstituted milk.—One sample was deficient in fat.

Milk powder.—One sample was unfit for human consumption.

Coffee powder.—Out of 873 samples, 28 were reported unsatisfactory, the adulterants detected being wild date seeds in 6, coffee husk 1, exhausted coffee 8, and chicory 12.

Dhall.—Out of 661 samples, artificial yellow colour derived from coal tar was present in 66 samples and one sample was mouldy.

Sugar.—Nine samples out of a total of 530 contained less than 85 per cent sucrose.

Butter.—Out of 519 samples, 202 were reported as unsatisfactory. Of these 101 contained excess water, 76 contained foreign fat and 25 were adulterated with both excess water and foreign fat.

Gingelly oil.—Out of 496 samples, 36 were adulterated with groundnut oil and 61 were reported as unfit for human consumption for having acidity above the permitted limit of 3·0 per cent free fatty acid.

Rice hand-pounded.—Out of 369 samples, four were not hand-pounded rice.

Ghee.—Out of 312 samples, 50 were reported as adulterated, 40 for containing foreign fat and 10 for excessive acidity.

Jaggery.—Out of 226 samples, two were unsatisfactory as the sugar content was less than 85 per cent.

Biscuits.—One sample out of 233 was reported unsatisfactory as the fat extracted from it had excessive acidity.

Barley.—Nine out of 93 samples were unsatisfactory. Of these eight were faced with talc and one contained ragi flour as adulterant.

Coconut oil.—Of 89 samples only one was adulterated with groundnut oil.

Arrowroot.—Two samples out of 36 were reported as unsatisfactory as they consisted of Tapioca Starch.

2. Jails.

Three out of nine samples of gingelly oil were unfit for human consumption for having acidity above the permitted limit of 3 per cent.

3. Magistrates and Police.

One sample of coffee powder was reported as unsatisfactory as it was adulterated with exhausted coffee and chicory.

One sample of tea powder was reported unsatisfactory as it was a preparation of foreign leaf.

4. Southern Railway and Government of India.

Southern Railway:—Eight samples of ghee, seven samples of gingelly oil and 13 samples of refined groundnut oil received from the Southern Railway were reported as genuine.

Government of India:—One sample of glucose received from the Port Health Officer, Madras, was reported as fit for human consumption.

5. Department of Industries and Commerce.

Eleven samples of Vanaspathi received from the Director of Industries and Commerce, Madras, conformed to the specification of the Vegetable Oil Product Control Order.

6. Other Government Departments.

Two samples of rice received from Health Inspector, Pudukkottai, were unfit for human consumption being heavily infested with weevils and tunnelled.

Three samples of varagu received from Health Inspector, Perambalur, Tiruchirappalli district, were reported as unfit for human consumption as they were mildly toxic when the cooked samples were fed to crows.

Fourteen out of 16 samples of skimmed milk powder were reported as unfit for human consumption.

VIII. SAMPLES FROM UNOFFICIAL SOURCES.

The number and nature of samples received from unofficial sources during the year 1957–58 are given in Table XII below:—

Table XII.

	Total number of samples.	Number adulterated or otherwise unsatisfactory.
Asafoetida	1	1
Chicory	5	1
Coffee and chicory	2	1
Tea	2	..
Honey	2	1
Curry powder	3	..
Milk	4	2
Ghee	2	..
Gingelly oil	6	3
Coffee powder	1	1
Semolina	1	..
Hot lime pickles	1	..
Hot Mango pickles	1	..
Cashew nuts	1	..
Total ..	32	10

IX. NEW RULES AND CIRCULARS.

As per Government memorandum No. 3223 Courts-II/57-1, dated 11th April 1957, the Criminal Rules of Practice and orders have been amended so that when appeals are filed against conviction in food adulteration cases notice should be given to Municipal Commissioners.

In G.O. R. No. 849, Food and Agriculture, dated 14th August 1957, Government have ordered that the Director of Agriculture should circulate a quarterly list of stockists of all Agmark products to enable the Government Departments and the public to purchase such products.

To enforce the provisions of the Central Drugs and Magic Remedies (Objectionable) Advertisements) Act, 1954, the Madras Government have in G.O. Ms. No. 3287, (Health), dated 15th November 1957, appointed the following officers to seize and detain any document or thing which contravened the Act:—

(i) The Drugs Controller, Madras.

(ii) The Assistant State Drugs Controller, Madras.

(iii) All Drugs Inspectors, and

(iv) All Sub-Inspectors of Police.

Government have also appointed the Drugs Controller, Madras, to be the licensing authority relating to advertisements of drugs.

X. HIGH COURT JUDGMENTS.

(1) *Criminal Revision Case No. 44 of 1957—Conviction of a merchant who sold tea dust containing 60 per cent exhausted tea—Confirmed.*—A tea merchant of Mettupalayam appealed to the High Court against his conviction by the District Magistrate, Coimbatore, which was confirmed by the Sessions Judge. His arguments that he was not at all a tea merchant and that the article was not sold as tea dust were not accepted by the High Court. 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 of the Court of Session, Coimbatore division, dated 18th September 1956, and made in Criminal Appeal No. 478 of 1956 preferred against the order of the Court of the District Magistrate (Judicial), Coimbatore, dated 17th May 1956 and made in C. C. No. 85 of 1956."

This case coming on for hearing on Friday, 29th March 1957, upon perusing the petition and the orders of the lower Courts, the record in the case, and upon hearing the arguments of Messrs. B. Punyakoti Chetty and T. S. Chandrasekharan, advocates for the petitioner, and of Miss T. A. Bhyme for the Public Prosecutor on behalf of the State and the case having stood over for consideration till this day, the Court made the following

Order.

This revision is preferred against the conviction and sentence by the learned District Magistrate, Coimbatore, in C.C. No. 85 of 1956 which were confirmed by the learned Sessions Judge of Coimbatore in Criminal Appeal No. 478 of 1956.

P.W. 1, Dr. V. Natarajan, the Municipal Health Officer attached to the Mettupalayam Municipality, visited the godown of the accused in Mettupalayam on 3rd January 1956. He was accompanied by the Sanitary Inspectors, P. Ws. 2 and 3. In the godown they found 80 to 90 dealwood cases bearing the superscription "Golden tip tea dust". Each case contained 650 lb. of tea.

A sample of a quarter pound was taken from one of the cases and as the accused stated that the price of one lb. of tea dust would be four annas the sample was purchased for one anna. There is no dispute about it. The tea dust thus taken was divided into three parts, packed and sealed in three bottles. One bottle was handed over to the accused and Exhibit P-3 the acknowledgment was taken. The second bottle was sent to the Analyst and the third, M. O. 1, was retained in the office. The Public Analyst found that the tea dust sent to him contained 60 per cent exhausted tea and 3·1 per cent sand. In other words, it was found to be adulterated tea within the meaning of rule 5 and Appendix B to those rules (S. R. O. No. 2106, dated 12th September 1955, issued by the Central Government after consultation with the Central Committee for Food Standards). Item A-14 defines tea as derived exclusively from the leaves and buds of plants of the Camellia genus and the species and conforming to the following specifications :—

(*a*) Total ash determined on tea dried to constant weight at 100 ° C.	5·0 to 8·0 per cent.
(*b*) Total ash soluble in boiling distilled water.	Not less than 40·0 per cent of total ash.
(*c*) Ash insoluble in HCl.	Not more than 1·0 per cent.
(*d*) Extract obtained by boiling dry tea (dried to constant weight at 100°C) with 100 parts of distilled water for one hour under reflux.	Not less than 35 per cent.
(*e*) Alkalinity of soluble ash.	Not less than 1·3 per cent and not more than 2 per cent expressed as K_2O.
(*f*) Crude fibre.	Not more than 15 per cent.

There is no dispute that the tea in the present case of which sample had been taken is adulterated.

The case for the accused is that he is not a dealer in tea and that he had stored this waste tea, i.e , tea unfit for consumption, for dyeing purposes and that he told P. W. 1 when the sample was taken that the tea was not for sale.

The short point for determination is whether the accused has committed the offence under section 7 read with section 16 (i) of the Prevention of Food Adulteration Act.

There are five clinching circumstances showing that this tea was stored as adulterated food or misbranded food and not as waste tea unfit for consumption, for dyeing purposes. First of all, we have the evidence that 80 or 90 dealwood cases in which this tea was stored bearing the inscription "Golden Tip Tea Dust" were found in the godown of the accused. If they were kept there only for the purpose of dyeing and as waste, such misbranding and misleading superscription would not have been put on them. The test usually applied in English Courts under the Food and Drugs Act, is twofold. The purchaser to whose prejudice the article was sold on his asking for tea dust, has always been construed to mean an ordinary, not a skilled, purchaser and the knowledge of the purchaser cannot be taken into account except in so far as it has been derived from information given by the seller, either by notice, by the article itself, or by what passed at the time of sale: Pearks, Gunston and Tea, Ltd., *v.* Ward (1902) 2 K. B. 1. In a considered judgment the Divisional Court in England has reviewed all the authorities and have decided that it rests on the seller to prove that such notice was given as that the sale was not to the prejudice of the purchaser. For the guidance of justices they stated that in deciding this question two questions arise for the consideration of the Court : (i) what was the substance of the information that must be given to the purchaser? (ii) were the steps sufficient in all the circumstances to convey this information to an average customer : The first question is one of law and the purchaser must be told in substance that the thing which he is getting is not the thing he asked for. The second question is one of fact for the justice

in each case, who would properly remember that the average customer knows nothing of the Food and Drugs Acts, though if the notice, properly construed, could not convey the necessary information they would be wrong in law to acquit: *Rodbourn* v. *Judson* (1925) 1 K. B. 225; *Dawns* v. *Vilkinson*, (1907) 1. K. B. 278; *Taylor* v. *Elder* (1923) Br. Tr. Rev. 36. In the present case, the adulterated food was held out for sale under a misleading description, (2) Secondly, it is clear in this case as pointed out by the learned Magistrate that when the sample was taken, the description was article of food. The accused in his statement stated that he told P. W. 1 that the article was not intended for sale. But such a question was not put to P.W. 1 when he was in the box. On the other hand P.W. 1 stated that he asked the accused the price per lb., that the accused gave out the price as annas four and that he then paid anna one, because as per the rules he should purchase. Exhibit P-6 is the receipt which evidences the payment of one anna. The accused has signed in it. In this receipt we find the words "Tea dust." P.W. 2 the Sanitary Inspector under P.W. 1 testifies that the cases contained the words "Golden Tip Tea Dust". It is clear that the tea taken as sample was sold under the caption of article of food. Exhibit P-6 also contains the words "Tea Dust". Thirdly, if really this large quantity of waste tea had been stored for no other purpose than for experimentation in dyeing we would expect some arrangements for such experimentation. Otherwise no one is going to store tea worth Rs. 4,000 or Rs. 5,000 for anything except for sale. In this case both the lower Courts have exhaustively examined this aspect of the case and found that this version is a mere pretence and that at no time has any experimentation been made or the waste tea was utilized for dyeing purposes. Fourthly, the accused in the earlier stages flatly contended that he was a dealer only in potatoes and not tea. But a most painstaking investigation has baen made and accounts and railway receipts, etc., have been unearthed and witnesses have been examined and admissions have been elicited showing that the accused was trading in tea under the name and style of "Ever Shine Tea Trading Company" O.S.A. Ahamed and Company. In other words, under cover of these aliases the accused has been trading in tea and has been strenuously denying the same only to make out that he was experimenting in dyeing and not palming off on the public adulterated tea through various channels. Fifthly, it has been brought out in evidence that in waste tea there will be only 5 per cent good tea and not more. In the market three kinds of tea-dust and three kinds of tea are sold. In this case the percentage of exhausted tea is 60 and the sand is 3·1 per cent. It follows that the sample contained 37 per cent of good tea and not normally what waste tea would contain, viz., 5 per cent. This shows that what was being stored by the accused was adulterated tea in order to be sold as genuine tea dust and not waste tea fit for dyeing purposes.

In the result, both the Courts below rightly held that the prosecution has brought home the offence to the accused beyond reasonable doubt by proving that the article sold and sold as Golden Tip Tea Dust was not of the nature, substance and quality that it pretended to be and was sold to the prejudice of the purchaser.

The conviction is correct and the fine is appropriate. Both are confirmed and this revision is dismissed.

(2) *Criminal Appeal No.* 624 *of* 1956.—A milk vendor's appeal against the sentence of two weeks imprisonment and fine of Rs. 250 by the Third Presidency Magistrate, Madras, was dismissed by the High Court and the sentence was confirmed. The following is an extract from the High Court judgment :—

Appeal against the Order of the Third Presidency Magistrate of the Court of the Presidency Magistrate, Saidapet, Madras, in M.F. Case No. 238 of the calendar for 1956.

This appeal coming on for hearing upon perusing the petition of appeal the record of the evidence and proceedings before the Court of Session and upon

hearing the arguments of Mr. G. Jagadisa Ayyar and Mr. S. N. Rajan, advocates for appellant (accused) and of the Public Prosecutor on behalf of the State, the Court delivered the following.

JUDGMENT.

The appellant has been convicted under section 16 (*g*) (ii) of the Prevention of Food Adulteration Act, 1954, for being in possession of adulterated cow's milk for sale and sentenced to imprisonment for two weeks and to pay a fine of Rs. 250 in default to undergo rigorous imprisonment for a further period of two weeks. P.W. 1 was the Food Inspector. His evidence shows that on the morning of 21st March 1956 at about 6-45 a.m. he purchased two ollocks of cow's milk for four annas from the accused at Mowbray's road. He divided the same into three equal parts and labelled and sealed them in the presence of the accused. He gave one to him and obtained the receipt, Exhibit P-2. The milk was sent to the Analyst and according to the opinion of the Analyst the milk sold contained 39 per cent of added water, milk fat 3·8 per cent and milk solids other than milk fat 5·2 per cent. His further opinion was that cow's milk should contain at least 8·5 per cent of milk solids other than milk fat. The opinion of the Analyst clearly shows that the milk was undoubtedly adulterated.

The criticism that is made of the evidence of P.W. 1 is that as required by section 10 (7) of the Act, he did not call two persons to be present at the time when he took action against the accused. P. W. 1 had been questioned about it and he stated that no one was available at the time. In any event the failure to call two witnesses is at best only an irregularity. There is no reason whatsoever to disbelieve the evidence of P.W. 1. It is suggested that the receipt, Exhibit P-2 was not the real receipt but that the signature of the accused was taken on a blank paper and that the Food Inspector filled up the other things. It is not likely that if the Food Inspector was dividing the milk into three parts and was sealing the three bottles and had given one to the accused and for which he wanted a receipt, the accused would simply sign a blank paper and pass it on to the witness. It is suggested that there was enmity between the accused and the witness. All the more so, if the P.W. 1 was inimically disposed towards the accused, the accused would not pass the receipt. There is no reason, as already stated, to reject the evidence of P.W. 1. On the evidence of P.W. 1 it is clearly made out that the accused sold cow's milk and that the milk sold was adulterated milk. The Food Inspector himself also gave evidence that the accused was convicted and sentenced in M. F. No. 179 of 1936 on 9th April 1956 and he was then sentenced to pay a fine of Rs. 65. The magistrate finds that the accused accepted the previous conviction. It is now contended before me by the learned counsel who appeared in the trial court that no question was put to the accused about his previous conviction. One thing is clear from the evidence of P.W. 1, i.e., his evidence regarding the previous conviction has not been challenged at all in the cross-examination. When the magistrate says that the accused accepted the previous conviction it cannot be challanged here by a mere statment made at the Bar. The accused accepted the previous conviction and on the previous conviction it is clear that the accused should have an enhanced punishment. What is required under section 16 (*g*) (ii) of the Act is that in the absence of special reasons the imprisonment should be not less than one year and the fine shall not be less than two thousand rupees. The Magistrate gives it as his reasons that the quantity of adulteration of the milk is not specified and therefore he thought it unnecessary to inflict a severe sentence. I do not think that the reasons given are really sound but nevertheless in the absence of notice of enhancement being issued to the accused, there is no reason to interfere with the sentence.

The conviction and sentence are confirmed and the appeal is dismissed.

(3) *Criminal Appeal No.* 84 *of* 1957.—The High Court has held that the servant is also equally liable, like the owner for offence under the Prevention of Food Adulteration Act. 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 respondent (second accused) by the Subdivisional Magistrate of Tanjore, in Criminal Case No. 354 of 1956 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 the respondent (second accused) not appearing in person or by advocate, the Court delivered the following

JUDGMENT.

This is an appeal filed by the State against the acquittal passed by the Subdivisional Magistrate, Tanjore. Two persons, i.e., the master and his servant, were prosecuted for selling adulterated buffalo's milk. The master pleaded guilty and was convicted and sentenced to pay a fine of Rs. 50. The servant, accused 2, was let off on the ground that Section 7 of the Prevention of Food Adulteration Act, 1954 does not contemplate both the master and the servant to be prosecuted. Section 7 is as follows :—

"No person shall himself or by any person on his behalf manufacture for sale or store, sell or distribute. (1) any adulterated food . . . . ".

According to the interpretation put by the Magistrate, if a person sells himself he can be prosecuted, or if he sells by any person, he can be prosecuted, but not the person through whom he sells. It is not a correct interpretation of the section. This section means that even though he may sell by another person, still the master is liable. But the fact of selling by the person still remains. Since the seller in the case actually is the servant, he cannot escape prosecution. It is proved that the second accused was selling only on behalf of the master, accused 1 then the master will also be liable. Therefore both the seller, the servant, as well as the person on whose behalf the milk was sold, viz., the master, are liable. The acquittal of the second accused, is therefore set aside. The second accused is convicted. In view of the fact that the master admits the adulteration and as the second accused was only a servant under the master, the 1st accused, I think a fine of Rs 5 will meet the ends of justice. The second accused is therefore convicted under sections 7 and 16 of the Prevention of Food Adulteration Act and sentenced to pay a fine of Rs. 5; in default to undergo three days rigorous imprisonment. The appeal is allowed.

(4) *Criminal Appeal No.* 138 *of* 1957.—Appeal under section 117 of the Code of Criminal Procedure 1898, against the acquittal of the aforesaid respondent (accused 2) by the Subdivisional Magistrate of Tanjore in Criminal Case No. 368 of 1956 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 Public Prosecutor, the appellant and counsel not appearing on behalf of the accused the Court delivered the following

JUDGMENT

This is an appeal by the State against the acquittal of the second accused for an offence under the Prevention of Food Adulteration Act. The second accused is the servant of the first accused who has been convicted by the Magistrate on his own plea of guilty. That adulterated buffalo milk was sold is not disputed. The reasoning of the Magistrate is that under section 7 only the master or the servant can be found guilty but not both of them. It has been pointed out by this Court in Criminal Appeal No. 84 of 1957 that such an interpretation of section 7 is clearly wrong. The words are clear and both the master as well as the servant are liable. Therefore the acquittal of the second

accused is wrong. The appeal is allowed, the acquittal is set aside and she is hereby convicted for an offence under sections 7 and 16 of the Prevention of Food Adulteration Act. The master has been sentenced to Rs. 50. The servant is therefore sentenced to a fine of Rs. 10, in default to three days' rigorous imprisonment.

(5) *Criminal Revision case No* 100 *of* 1957.—Appeal against conviction of a ghee merchant dismissed; in dismissing the petition of the accused His Lordship observed "The Conviction is correct and the sentence appropriate, though as a matter of fact, it errs on the side of leniency". 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 Session of the Chingleput Division in Criminal Appeal No. 17 of 1956 (Criminal case No. 405 of 1955 on the file of the Court of the Subdivisional Magistrate, Poonamallee).

This case coming on for hearing upon perusing the petition and the judgments of the lower Courts, and the Record in the case and upon hearing the arguments of Mr. V. V. Radhakrishnan for the Public Prosecutor on behalf of the State and the petitioner not appearing in person or by Advocate, the Court made the following

ORDER.

This revision is sought to be preferred against the conviction and sentence by the Subdivisional Magistrate, Poonamallee, in Criminal case No. 405 of 1955 which were confirmed by the learned Sessions Judge, Chingleput Division, in Criminal Appeal No. 17 of 1956.

The petitioner Sohanraj Motilal has been running a maligai stores in No. 8, Velacheri road, East Tambaram. On 11th November 1955, PW. 1 the Sanitary Inspector, East Tambaram, went to the shop at 8 a.m. and found an open tin containing five visses of ghee for sale in the shop of the petitioner. The Sanitary Inspector asked for its price. The petitioner said it was Rs. 6 per viss. Then P.W. 1 offered eight annas for five palams of ghee. The accused by this time tumbled to the fact that this Sanitary Inspector was after him to find out adulterated foodstuffs in his articles and refused to sell P.W. 1 as he is entitled to do, seized the tin and took a sample, and observed the formalities prescribed by the Act. One portion of the sample was taken to the Government Analyst. It was found adulterated to the extent of 83 per cent of fat not derived from milk or cream. Thereafter this shop-keeper was prosecuted for an offence under section 16 (1) of the Madras Prevention of Food Adulteration Act, read with rule 25 (*a*) Madras Prevention of Adulteration Rules, and section 2 (1) (*a*) and (i) of the Prevention of Adulteration Act, 1954, for having in his shop for sale ghee adulterated to the extent of 83 per cent of fat not derived from milk or cream.

The case for this accused, with an ingenuity worthy of a better cause, was that the ghee of which a sample was taken had been purchased by him and placed by him for his own domestic consumption and was not exhibited in the shop for sale.

Both the Courts below refused to accept this explanation and convicted the accused, fining Rs. 300.

There can be no doubt that this conviction is correct because the explanation given by this accused is an unmitigated falsehood. It is extremely unlikely that if he had purchased ghee for his own domestic consumption, he would have kept it in an open tin in his shop, holding out invitations for all and sundry to purchase that ghee. Secondly, it is extremely unlikely also that he would have purchased five visses of bad ghee at a time for his own domestic consumption. Merchants always take care to supply others with bad foodstuffs and do not reserve it for themselves. Thirdly, this shop-keeper has inadvertently mentioned the price of that ghee as Rs. 6 per viss. In fact, it was only after tumbling to the fact that the Sanitary Inspector was after him and wanted to take a sample

and prosecute him for selling adulterated ghee that this accused refused to sell a portion of the ghee by way of sample. Then the Sanitary Inspector as he was entitled to do seized the ghee, took a sample as provided for by the rules and had it analysed by the Chemical Analyser who found, as already mentioned, 83 per cent of adulteration.

The conviction is correct and the sentence appropriate, though, as a matter of fact, it errs on the side of leniency. The petition is dismissed.

(6) *Criminal Appeal No.* 217 *of* 1957—*Even municipal employees may attest sampling for purposes of section* 10 (7) *of the Act.*—In this case His Lordship has held that the Magistrates interpretation of section 10 (7) that two independent witnesses (neighbours) should alone be called as witnesses is wrong. 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 respondent (accused) by the Sessions Judge of Coimbatore Division in Criminal Appeal No. 809 of 1956 on his file (Criminal Case No. 4 of 1956, Special First-Class Magistrate, Coimbatore).

This appeal coming on for hearing upon perusing the petition of appeal and the record of the evidence and proceedings before the Lower Courts and upon hearing the Public Prosecutor, the appellant and Mr. S. Mohankumaramangalam and Mr. S. Palaniswamy, Advocates for the respondent (accused) the Court delivered the following

JUDGMENT.

This is an appeal by the State against the acquittal of the respondent by the Additional Sessions Judge, Coimbatore in a case under the Prevention of Food Adulteration Act. P. W. 1, the Food Inspector, went to the grocery shop of the accused and after observing all the necessary formalities took a sample of turmeric. On analysis it was found to contain 19 parts of lead per million parts, whereas, according to Appendix B of the Rules framed under the Act, it should not contain more than 2·5 parts of lead per million parts. Therefore, the turmeric sold by the accused contained lead more than the prescribed percentage. It is, therefore, adulterated food within the meaning of the Act. The accused was convicted by the trial Court, but was acquitted in appeal on the ground that the spirit of section 10(7) of the Act has not been complied with. What happened was the Food Inspector took two witnesses, two municipal employees, with him and it is they who were present and attested the sample. Section 10 (7) clearly says that when Food Inspector takes any action under Clause (*a*) of sub-section 1, 2, 4, or 6, he shall, as far as possible, call not less than two persons to be present at the time when such action is taken and take their signatures. The learned Judge interprets this clause as meaning two independent persons, that means, two neighbours. The section does not warrant such an interpretation. In a similar provision in the Criminal Procedure Code, viz., section 103, the words employed are that the officer searching shall call upon two or more respectable inhabitants of the locality in which the place to be searched is situate. In Section 10 (7) there are no such words. It does not mean that two disrespectable persons can be called. What the section merely insists is that two respectable persons must be called to be present and their signatures obtained. Two persons have been called to be present and their signature obtained, the two municipal employees cannot be said to be not respectable persons. There has been compliance with the provisions of section 10 (7). Therefore, the ground for acquittal is not justified and there are no other grounds on which the acquittal can be sustained. The acquittal is, therefore, set aside and the appeal is allowed, Taking into consideration that the accused has been acquitted in the lower Court I sentence him to a fine of Rs. 25/ in default one week rigorous imprisonment.

(7) *Criminal Appeal No.* 267/1957 A licensed milk vendor slipped away while sampling. The Additional First Class Magistrate who tried the case convicted the accused but the Sessions Judge set aside the conviction on the ground that there was no proof that the milk was for sale. The High Court set aside the

acquittal and restored the conviction with the remarks " If this milk was not intended for sale to the hotel why should the respondent run away". 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) by the Sessions Judge of Madurai in Criminal Appeal No. 2 of 1957 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 abovesaid Lower Court and upon hearing the Public prosecutor the appellant and Messrs. R. Desikachari, T. S. Arunachalam and Fyzee Mahmood, Advocates for the Respondent (Accused) the Court delivered the following

JUDGMENT.

This appeal is against the acquittal of the respondent by the learned Sessions Judge of Madurai. The respondent was prosecuted before the additional First Class Magistrate, Madurai, for an offence under section 16 (1) (a) (i) of the Food Adulteration Act. 1954.

The circumstances under which the respondent was prosecuted are these : The respondent is a licensed vendor of milk. He has been permitted to have four buffaloes in his shed. On the date of occurrence the respondent was going with two Chembus of milk. He was stopped on the way by P.W.1, Municipal Food Inspector, and the milk that was being taken was sought to be tested. P.W. 1 asked the respondent as to where he was going with the milk. The answer was that the milk was being taken to a hotel. The milk was tested. The milk in one of the chembus was found to be alright and the milk in other chembus was found to contain 12 per cent of water. At the time of the testing the respondent slipped out and ran away leaving the milk chembus with the Food Inspector. On those facts a prosecution was launched against the respondent for being in possession of adulterated milk for sale. The Trial Magistrate convicted him for the offence charged. But on appeal the learned Sessions Judge acquitted him on the ground that from the circumstances mentioned above an inference that the milk in question was intended for sale cannot be drawn. According to the learned Sessions Judge, the prosecution must also further examine the proprietor of the hotel to whom the respondent was taking the milk. It is true that the Food Inspector did not ascertain the name of the hotel to which the respondent was taking the milk. But still the question is, whether it is necessary to examine the hotel proprietor to prove that the milk which the respondent was taking in the two chembus was intended for sale. As already pointed out, the respondent is a licence to keep four buffaloes and also to vend milk. He is in possession of two Chembus of milk and when questioned by the Food Inspector answers that he is taking the milk to a hotel and when the milk is sought to be tested the respondent slips out and runs away. If this milk was not intended for sale to the hotel why should the respondent run away is not quite clear. Even this conduct of the respondent does not seem to have come to the notice of the Sessions Judge. Even without this conduct, what other inference can be drawn from the circumstances, I am unable to understand. I put a plain question to the learned counsel for the respondent and he has not been able to tell me what other inference can be drawn from the circumstances mentioned above. The learned Sessions Judge seems to have not drawn the only inference that could be drawn from the above circumstances, viz., that the respondent was in possession of milk intended for sale. The acquittal is wrong. It is therefore set aside and the respondent is convicted as charged. The judgment of the trial Magistrate is restored, i.e., he is convicted, and sentenced to a fine of Rs. 100 in default three months Rigoros Imprisonment.

(8) *Criminal Revision Case No.* 194 *of* 1957.—In a Turmeric case where the sample was sold as " Kitchen Turmeric " the vendor's appeal against his conviction was dismissed. 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 of the Court of the 2nd Presidency

Magistrate, Georgetown, Madras, dated 19th November 1956 and made in M.F. No. 576 of 1956.

This case coming on for hearing yesterday and this day 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. A. Nagarajan, advocate for the petitioner, and of the Public Prosecutor on behalf of the State, and the respondent not appearing in person or by Advocate, the Court made the following

ORDER.

This revision is against the conviction and sentence of the petitioners by the learned Second Presidency Magistrate under sections 7 and 16 of the Prevention of Food Adulteration Act of 1954. On 4th May 1956 the Food Inspector of the Corporation purchased five palams of kitchen turmeric in the shop of accused 2 from accused 1 who was then selling the articles. It was sent to the Public Analyst and his report Exhibit P.3 disclosed that the sample contained 55 parts of lead per million parts of the sample while the Rules provide that there should be only two to five parts per million parts. It is clear therefore that the sample concerned is adulterated food.

In this statement the second accused, the owner of the shop, stated that he had employed diligent workers to purchase goods and that he does not attend to the business and that the samples taken earlier were found to be all right. The first accused, the person who sold the article, stated that he did not know it was adulterated and said that the previous samples were found to be altogether all right. There is therefore no dispute about the turmeric taken by the Food Inspector and its being adulterated food article as shown by the report of the Public Analyst.

Several contentions were raised by the learned counsel for the accused, of which two can be noticed here. The first was that Form VI prescribed by rule 12 has not been complied with. Rule 12 clearly states that where the Food Inspector takes a sample of an article of food for the purpose of analysis he shall intimate such purpose in writing in Form VI to the person from whom he takes the sample. The new Form VI is slightly different from the form which was used formerly. The previous form has been filed as Exhibit D-1. Though the essential details are there it is not exactly in the form in which Form VI is. Rule 18 requires that a copy of the memorandum and a specimen impression of the seal used to seal the packet should be sent to the Public Analyst separately by post. It is contended that this has not been followed in this case. Form VII relates to rule 17 which clearly shows that a copy of the memorandum should be sent along with Form VII. It is contended that this has not been done in this case. These questions, however, interesting and important they may be, have no bearing on this case for the simple reason that the accused admit that the sample was taken from their shop and that they did not know that it was adulterated. The accused having admitted that it was the sample taken from their shop and the Public Analyst having found that it was adulterated, the guilt of the accused has been established beyond all reasonable doubt. There is no reason to interfere with the convictions of the accused. The sentences cannot be said to be excessive. The convictions and sentences of both the accused are confirmed and the revision is dismissed.

(9) *Criminal Revision Case No.* 264 *of* 1957.—In another turmeric case the sample was sold as " Kari manjal ". The vendor appealed to the High Court against his conviction stating that he had put up a board " For external use." It was pointed out by the prosecution that " Kari manjal ", the smaller tuber variety used as food was sold and not the bulbuous one which is used for external purposes. The vendor's petition was dismissed. 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 of the Court of the Subdivisional Magistrate, Nagapattinam, dated 26th February 1957, and made in C.C. No. 13 of 1957.

ORDER.

This case coming on for hearing upon perusing the petition and the order of the lower Court, the record in the case, and upon hearing the arguments of Messrs. S. Ramachandra Ayyar and P. S. Srisailam, advocates for the petitioner, and of the Public Prosecutor, on behalf of the State, the Court made the following

ORDER.

The evidence clearly shows that it was "Kari manjal" which was used as food was sold to the Food Inspector. The bill clearly shows that it was "Kari manjal" that was sold. The Analyst's report shows that it contains twenty parts of lead per million when the limit is 2·5 parts per million. So it is clearly adulterated food. The conviction is well justified and the sentence is not excessive. The petition is dismissed.

(10) *Criminal Revision Case No.* 16 *of* 1958.—The appeal of a vendor against a sentence of imprisonment for a second offence was dismissed by the High Court with the remark "That the sentence would err on the side of leniency". 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 of the Court of the Chief Presidency Magistrate, Egmore, Madras, dated 4th January 1958, and made in M. F. No. 617 of 1957.

This case coming on for orders as to admission, upon perusing the petition and the order of the lower Court and upon hearing the arguments of Mr. R. J, Manickam, advocate for the petitioner (accused), the Court made the following

ORDER.

The accused pleaded guilty. The point is taken that the previous conviction which the learned Magistrate took into account was not formally proved. The sentence imposed is only one month and even if the previous conviction is ignored the sentence would err on the side of leniency. The petition is dismissed.

(11) *Criminal Revision Case No.* 811 *of* 1957.—In a milk case the co-operative society appealed to the High Court against its conviction, which was confirmed by the Sessions Judge. In dismissing the revision petition, His Lordship observed "The company is, in any event, primarily liable as it is the company which sells the milk and its conduct will fall within the scope of section 16 (1) of the Act" and that the saving clauses in section 17 are not applicable to the company but only for those who are in charge of, or are responsible for the conduct of the business of the company. The following is an extract from the High Court judgment:—

Petition under sections 435 and 439 of Code of Criminal Procedure, 1898, praying the High Court to revise the order of the Court of Sessions of Tirunelveli Division, dated 26th August 1957 and made in Criminal Appeal No. 79 of 1957 (Criminal Case No. 59 of 1957 Subdivisional Magistrate Tuticorin).

This case coming on for hearing upon perusing the petition and the orders of the lower Courts and the records in the case and upon hearing the arguments of Mr. A. K. Pavithran, advocate for the petitioner and of Mr. V. V. Radhakrishnan for the Public Prosecutor on behalf of the State, the Court made the following

ORDER.

This is a revision against the conviction of the petitioner the first accused in Criminal Case No. 59 of 1957 on the file of the Subdivisional Magistrate, Tuticorin, under section 16 (1) (*a*) read with section 7 (1) of the Prevention of Food Adulteration Act.

The petitioner is a co-operative society called the Tuticorin Co-operative Milk Supply Union. On 24th October 1956, at about 7 a.m., P. W. 1, the Sanitary Inspector of the Tuticorin Municipality, saw accused 4 in the case, carrying milk

for sale. He was carrying the milk in brass cans and was supplying milk by drawing it from taps fitted at the bottom of the brass cans. The tops of the brass cans were sealed to prevent the vendor from adulterating the milk with water while carrying it for sale. The Sanitary Inspector observed all the formalities necessary by dividing the milk into three parts and placing each part in three separate bottles and giving one such bottle to accused 4, the other two taken by him, one to be sent to the Public Analyst for analysis and the other to be retained by him in his office. The certificate given by the Public Analyst is Exhibit P-5. This certificate says that the sample taken is adulterated with 12 per cent of water. There is no dispute of the fact that it was adulterated with water.

Prosecution was launched against the Society as the first accused, its president as the second accused, its secretary as the third accused and the actual vendor as the fourth accused. The second and third accused, i.e., the president and the secretary of the society, were acquited on the ground that they could have had no knowledge of the adulteration of the milk on 24th October 1956. The first and fourth accused were convicted. The first accused was fined Rs. 75 and the fourth accused was fined Rs. 25. Both of them appealed. But at the time of the arguments, the fourth accused did not press his appeal and it was dismissed. The conviction and sentence of the first accused the petitioner herein were confirmed. The present revision is against the said order of the appellate Court confirming the conviction and sentence of the petitioner.

Two points of law are raised before me by Mr. Pavitran appearing for the petitioner. The first contention is that the liability of the petitioner the co-operative society is co-extensive with that of the president and secretary and if the president and the secretary could be acquitted then this petitioner also should be acquitted. In support of his contention, he relied on section 17 of the Prevention of Food Adulteration Act. The offence in this case is under section 16 (1). Section 16 (1) says:

"If any person whether by himself or by any person on his behalf..... sells or distributes any article of food in contravention of any of the provisions of this Act or of any rule made thereunder.....shall in addition to the penalty to which he may be liable under the provisions of section. 6 be punishable for the first offence . . . ".

The expression "any person" in this includes the company as well and this co-operative society undoubtedly falls within the definition of "company" in the explanation to Section 17. The co-operative society will, therefore, be liable when it sells, whether by itself or by any person on its behalf. All co-operative societies can only sell milk through some person on their behalf. Accused 4 was selling milk on behalf of the Society, and therefore, not only the seller, accused 4, but also the person on whose behalf he was selling will be liable.

Now under section 17 when an offence is committed by a company. then every person who at the time of the effence was committed was in charge of and was responsible to the company for the conduct of the business of, the company, as well as the company shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. Therefore under the provisions of section 17 (1) not only the company but also the persons mentioned therein, that is, those who were in charge of or were responsible to the company for the conduct of its business will also be liable. But there is a proviso to this section which gives protection to the persons who are liable to be punished if they prove that the offence was committed without their knowledge or that they exercised all due diligence to prevent the commission of such offence. The second clause of the section clearly shows that if the company had committed this offence and if it was proved that the offence was committed with the consent or connivance of or is attributable to any neglect on the part of any director, manager, secretary, or other officer, then such director, manager, secretary or other officer shall also be deemed to be guilty of the offence. A reading of this section will show that any protection that is offered is only to the persons mentioned

under section 17. There is no protection offered in respect of the company. The company, is therefore in any event primarily liable as it is the company which sells the milk and its conduct will fall within the scope of section 16 (1) of the Act. Though the liability may be co-extensive there is no saving clause in respect of the company, whereas such saving clause exists in respect of persons who are in charge of or are responsible for the conduct of the business of the company. The provisions of section 17 cannot therefore help the petitioner in any way. The argument based on the provisions of section 17 fails.

The second contention is that this society is protected by a warranty in that under the provisions of section 19 (Clause 2) if it is established that the article of food purchased by the co-operative society is the same in nature substance and quality as that demanded by the purchaser with a written warranty in the prescribed form if any, to the effect that it was of such nature substance and quality then certainly the society cannot be held to be liable. The case of the defence is that the milk that was sold was the one that was bought from a feeder society, Dalavaipuram Society, Exhibit D-1 is said to be the warranty given by the Dalavaipuram Society. The evidence let in by the defence, viz., that of the person who supplied the milk and the officer who tested it at the petitioner's co-operative society is to the effect that what was given by the feeder society was tested with the lactometer before supply to the petitioner society and that after it was received by the petitioner society also it was tested by the lactometer and according to them it satisfied the requirements of pure milk and there was no water in it. I have already referred to the fact that when P.W. 1 purchased the milk from accused 4, he drew it from the can which was already sealed by the petitioner society. Now according to the defence evidence the Dalavaipuram Society did not supply adulterated milk the petitioner society did not buy adulterated milk and accused 4 was given milk in a sealed can the seal being that of the petitioner society. But the milk that was drawn out from the can happens to be adulterated milk. But how can this be if Dalavaipuram Society gave unadulterated milk and it was purchased by the petitioner society and given to accused 4 for sale? It looks a paradox. The real fact is that these defence witnesses have been called in to speak to a story which is not true so as to exonerate the society. According to their evidence no one is liable. The feeder society says that it gave pure milk after testing it with the lactometer. The employee of the petitioner society says that he bought that milk tested it and found it to be pure and gave it in a sealed can to accused 4 and the seals were not tampered with but nevertheless the milk was found to be adulterated. It is obvious therefore that this story that the feeder society gave pure milk and that the petitioner society accepted it and found it to be pure is an absolute myth. The defence witnesses who have come forward to speak to this story have not hesitated to tell lies for the purpose of saving the co-operative society. The trial Court should not have accepted such a story and found that the President and Secretary are free from blame. They are as much liable in this case as the first and fourth accused. However, they are lucky in that the State has not filed any appeal against their acquittal. On my finding that the evidence given by the defence witnesses, viz., that the milk supplied by the Dalavaipuram Society to the Tuticorin Society was pure milk is false the conclusion naturally follows that the warranty was a subsequently got up one and that it cannot be relied on.

In the circumstances the conviction of the petitioner is well justified. The fine cannot be said to be excessive. Both are confirmed. The petition is dismissed.

(12) ***Criminal Revision Case No.*** **755 of 1957.—A big ghee supplying company, which has its own laboratory and chemist and supplies "Agmark" ghee sent its sample for referee analysis by the Director, Central Food Laboratory, Calcutta, who also certified the sample as adulterated and when it was convicted by the lower Court, it appealed to the High Court on the following grounds :—**

(1) that he was selling Swadeshi butter,

(2) the analytical calculation and standards of purity prescribed for butter are based on the analysis made on scientific and mechanical processes done in Government Laboratories by experts and are not practicable for Swadeshi butter,

(3) Climatic conditions, atmospheric changes and feeding conditions of cattle have to be taken into consideration for deciding the purity of butter which will influence the chemical and natural conditions of butter, and

(4) The sample was analysed about three months after its collection and on account of the lapse of time the butter was likely to decay and the result of analysis might be due to that.

So long as Government has fixed 16 per cent as the maximum percentage of moisture that may be present in butter and anything more than that percentage is objectionable whether it is practicable to get that percentage of moisture in butter of all kinds either got by the mechanical process or by the rural hand process it is the bounden duty of the first accused to conform to the standards prescribed by the rules. Any sale of butter which does not conform to the standard prescribed in the rules is undoubtedly an offence. Times are far advancing and improved methods of getting butter are available and if that is not taken advantage of and adopted for manufacture of butter (in the villages) for the purpose of selling pure stuff then the less the attempt to make butter the better. What is aimed at by the Act and the rules framed under it is a certain standard of purity and that must be maintained at all costs. If the quality of butter that is sold does not conform to the standard prescribed, however much impracticable it may be for villagers from whom the accused is said to have purchased, to manufacture butter of the prescribed quality, it does not cease to be an offence.

XI. ANALYSIS OF DRUGS.

The number of drug samples received from different sources during the year and the number analysed are given in Table XIII below :—

TABLE XIII.

Source.	Number of drug samples brought forward from last year.	Number of samples received during the year.	Total number of samples.	Number analysed.	Number of tests done.	Number of samples reported unsatisfactory.	Number of samples awaiting analysis.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
From Drug Inpectors under the Drugs Act.	30	121	151	77	419	23	74
From Government Hospitals.	15	168	183	120	361	99	63
From Police and Magistrates.	6	3	9	9	28	5	..
From other sources ..	3	22	25	25	122	11	..
Total ..	54	314	368	224	930	138	137

Two samples of the proprietary "Iodisal" received from different sources showed marked deficiency in the same ingredient aromatic spirit of ammonia. It is obvious that the manufacturers have not checked up the quality of the product and taken into account its volatile nature. It is the duty of the manufacturers to see that the potency is maintained on storage. This can be achieved if they analyse their products at every stage firstly, the raw materials; secondly the prepared product; and lastly the final product at intervals to check the stability of the ingredient.

Two bactericidal preparations for topical use, an alcoholic solution and an ointment, were found to be sub-standard. One of them contained excessive quantities of salicylic acid and resorcinol.

Two multi-vitamin preparations, one in liquid form imported from Holland and the other an Indian product in tablet form, were found to be highly deficient in Vitamin-A. This stresses the need for insisting on an expiry date being marked for all Vitamin preparations though of late this practice is being voluntarily adopted by many progressive manufacturers.

Drug samples from hospitals.

Of the 120 samples received from the various hospitals in Madras State, 80 per cent were mixtures prepared in the hospital dispensaries. The remainder was composed of sulpha drugs, vitamin tablets, vitamin injections, barbiturates, spinal anaesthetics, ergot, olive oil, yeast tablets, absorbent cotton wool, etc. The following Table XVII gives the number of samples received from each hospital.

Table XVII.

Drug samples received from the Government hospitals.

	Name of hospital.	Number of drug samples analysed.	Number of samples reported unsatisfactory.
	(1)	(2)	(3)
1	General Hospital, Madras ..	1	Nil
2	Stanley Hospital, Madras ..	18	16
3	Women and Children Hospital, Egmore.	9	7
4	Kasturba Gandhi Hospital, Madras.	8	7
5	Raja Sir Ramaswamy Mudaliar Lying-in-Hospital, Madras.	4	3
6	Employee's State Insurance Hospital, Madras.	8	Nil
7	King Institute, Guindy ..	1	Nil
8	Erskine Hospital, Madurai ..	4	4
9	Raja Mirasdar Hospital, Tanjore..	1	1
10	Headquarters Hospital, Chingleput	8	6
11	Headquarters Hospital, Salem ..	4	4
12	Women and Children Hospital, Vannarpet.	6	5
13	Government Hospital, Chidambaram.	2	2
14	Government Hospital, Mayuram.	5	5

Table XVII—cont.

Drug samples received from the Government hospitals—cont.

	Name of hospital.	Number of drug samples analysed.	Number of samples reported unsatisfactory.
	(1)	(2)	(3)
15	Government Hospital, Tindivanam.	4	4
16	Government Hospital, Gobichettipalayam,	4	4
17	Government Hospital, Krishnagiri	1	1
18	Government Hospital, Mettur Dam.	3	3
19	Government Hospital, Coonoor ..	7	5
20	Government Hospital, Palni ..	12	12
21	Government Hospital, Dindigul ..	1	-
22	Government Hospital, Aruppukottai.	1	1
23	Insurance Dispensary, Vikramasingapuram.	2	1
24	Government Hospital, Rasipuram.	5	5
25	Director of Medical Services, Madras.	1	1
		120	99

Drugs purchased for hospitals were found to be generally satisfactory These included vitamin preparations. But it is difficult to account for th continued sub-standard quality of mixtures compounded in hospital dispensaries A reasonable margin of tolerance is also allowed for manipulative errors i dispensing. In fact errors in dispensing should be low when prescribed mixture are prepared in bulk, as they are in hospitals. Carelessness alone can be a explanation for such inaccurate dispensing and the work of the pharmacis requires watching.

Samples from the Police and Magistrates.

Four samples of talcum powder, suspected to be spurious were received fro the Police along with authentic samples for purposes of comparison. Analysi revealed the absence of Boric Acid in the spurious product.

Miscellaneous Drug Samples.

A sample of Adamin liquid and a sample of Adamin capsules sent by th Government Oil Chemist, Kozhikode, were analysed. These consist of shark live oil diluted with groundnut oil. It was found during analysis that th official spectrophotometric method of assay could not be directly applied t shark-liver oil on account of irrelevant absorption. The impurities responsib for this have to be eliminated by a lengthy and laborious process of purificatio It is desirable that investigatory work is done to arrive at a simple an satisfactory technique to remove the impurities. This is a matter to be taken u by the Indian Pharmacopoeia Commission as shark-liver oil is official in th Indian Pharmacopoeia.

XII. MISCELLANEOUS.

The Government Analyst attended the Second Drug Analysts' Conference convened by the Drug Controller, India at Bombay from the 16th to 18th April 1957.

Government in G.O. No. 2098, Health, dated 16th July 1957 permitted the Director of Public Health to hold conference with the trade interests twice a year to consider the difficulties met with by the working of the Prevention of Food Adulteration Act, 1954. The Government Analyst was permitted to be one of the members authorised to attend the Conference.

Government accorded sanction for the opening of three laboratories at Coimbatore, Karur and Dharapuram in the Madras State for analysis of ghee to encourage grading of ghee under the Agmark.

KING INSTITUTE, GUINDY, MADRAS-15,
10th *January* 1959.

S. NARAYANA AYYAR,
Government Analyst.

APPENDICES.

APPENDIX A.

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957-58.

Serial number and name of local body.	Samples				Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.	
	Annual quota of samples.	Total received.	Number adulterated.	Percentage adulterated.	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)
I. Chingleput district.														
1 Chingleput (M)	48	48	12	25·0	12	6	4	2	3	3	13	1	9	..
2 Kancheepuram (M)	144	152	66	43·4	90	37	5	1	2	2	59	19	8	1
3 Tiruvallur (M)	48	48	17	35·0	17	11	1	..	..	..	10	2	2	..
4 Alandur (P)	48	48	21	43·8	14	7	1	1	1	1	10	5	2	..
5 Kunnathur (P)	48	48	21	43·8	13	6	1	..	..	..	10	7	4	..
6 Maduranthakam (P)	48	47	19	42·2	27	9	..	..	..	..	13	7	..	..
7 Poonamallee (P)	48	48	16	33·3	21	7	2	1	1	1	6	4	2	..
8 Sriperumbudur (P)	..	8	3	37·5	6	2	..	..	..	..	1	1	..	..
9 Tambaram (P)	48	48	25	52·1	12	8	6	1	..	..	20	13	1	..
10 Tirukalikundram (P)	48	47	18	38·3	11	10	4	2	..	..	12	3	4	..
11 Tiruvottiyur (P)	48	48	23	48·0	18	8	..	..	..	..	9	8	5	1
Total ..	..	628	241	38·4	241	111	24	8	7	7	163	70	37	2
II. Coimbatore District.														
1 Coimbatore (M)	288	290	182	62·8	182	154	6	6	11	6	46	9	..	..
2 Dharapuram (M)	48	48	12	25·0	16	9	2	2	2	1	13	..	5	..
3 Erode (M)	96	96	42	43·8	50	26	14	12	..	..	18	4	2	..
4 Gobichettipalayam (M)	48	49	33	67.3	43	30	3	2	..	..	..	..	..	..
5 Mettupalayam (M)	48	48	38	79·1	39	35	1	1	..	..	1	..	2	..
6 Pollachi (M)	144	142	89	62·7	95	81	1	1	1	1	9	2	3	..
7 Tiruppur (M)	96	97	20	20·6	31	13	1	..	1	..	19	4	12	..
8 Udamalpet (M)	96	94	27	28·7	45	21	3	2	..	..	21	1	5	1
9 Avanashi (F)	48	48	22	45·8	41	21	..	..	1	1	..	..	1	..
10 Bhavani (P)	48	48	13	25·0	36	10	1	..	..	..	3	..	3	..
11 Kurichi (P)	48	60	18	30·0	31	7	..	..	3	4	4	..	..	..
12 Satyamangalam (P)	48	48	20	41·7	45	20	..	..	..	..	1	..	..	..
13 Singanallur (P)	48	49	28	57·2	39	25	..	..	1	1	4	2	4	..
Total ..	..	1,117	544	48·7	693	452	42	26	25	14	139	23	37	1
III. Kanyakumari district.														
1 Nagercoil (M)	144	144	73	50·7	78	46	..	..	..	..	37	12	6	..
IV. Madurai district.														
1 Bodinayakanur (M)	72	71	14	19·7	40	10	1	..	2	1	11	3	6	..
2 Dindigul (M)	96	96	25	26·0	23	17	12	5	1	1	15	..	14	..
3 Kodaikanal (M)	48	60	7	11·7	54	7	..	..	..	..	1	..	..	..
4 Madurai (M)	1,200	1,200	92	7·7	213	72	15	1	4	2	346	12	161	..
5 Palni (M)	96	105	37	35·2	87	35	2	..	6	2	4	..	1	..
6 Periakulam (M)	48	48	22	45·8	26	16	..	..	2	2	12	1	..	..
7 Alagarkoil (P)	..	8	4	50·0	2	2	..	..	..	..	2	..	..	..
8 Allinagaram (P)	48	48	13	27·1	25	10	..	..	1	1	6	1	..	..
9 Ayyakudi (P)	48	48	8	16·7	36	8	..	..	..	..	2	..	5	..
10 Batlagundu (P)	48	48	4	8·3	25	3	2	..	..	..	4	..	5	..
11 Cumbum (P)	48	51	13	25·5	32	12	1	..	..	..	6	..	3	..
12 Chinnamanur (P)	48	47	24	51·1	38	23	..	..	1	..	3	..	..	..
13 Gudalur (P)	48	48	12	25·0	31	9	..	..	..	..	2	..	1	..
14 Kamuthi (P)	48	48	8	16·7	2	..	2	1	..	..	26	4	8	..
15 Keeranur (P)	48	48	13	27·1	24	10	5	2	..	..	5	1	5	..
16 Melur (P)	48	48	23	47·9	39	17	5	5	..	..	2	..	1	..
17 Nilakottai (P)	48	48	5	10·4	12	2	5	1	..	..	11	2	6	..
18 Sholavandan (P)	48	48	21	43·8	29	20	1	..	..	..	6	..	4	..
19 Tirumangalam (P)	48	48	13	27·1	15	9	..	..	..	..	4	2	3	..
20 Usilampatti (P)	48	49	9	18·4	15	6	3	1	..	..	8	1	8	..
21 Veerapandy (P)	..	10	7	70·0	8	5	..	..	..	..	..	..	..	..
22 Salaipudur (P)	..	8	5	62·5	5	5	..	..	..	..	2	..	..	..
Total ..	..	2,233	379	17·0	781	298	54	16	17	9	478	27	231	..
V. Nilgiris district.														
1 Coonoor (M)	144	144	51	35·4	128	42	1	1	2	1	1	1	..	..
2 Ootacamund (M)	216	222	73	32·9	187	66	2	..	1	..	1	..	..	..
3 Kotagiri (P)	48	49	14	28·6	42	14	1	..	..	..	1	..	..	..
Total ..	..	415	138	33·3	357	122	4	1	3	1	3	1	..	..

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of local body.	Groundnut oil		Coffee.		Tea.		Tur meric.		Dhall and flours.		Honey.		Aerated water	
	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
I. Chingleput district.														
1 Chingleput (M)	3	..	4	..	..	..	..	..	..	..	2	1	..	..
2 Kanchoopuram (M)	17	4	8	1	1	..	..	..	..	..	..	..	..	..
3 Tiruvallur (M)	5	1	3	..	2	1	..	..	3	2	..	..	..	..
4 Alandur (P)	2	2	7	1	5	1	1	..	..	..	1	..	3	3
5 Kunnathur (P)	2	1	3	..	5	3	3	..	3	2	1	..	2	2
6 Madura thakam (P)	2	2	1	..	..	..	..	..	2	1	..	..	..	..
7 Poonamallee (P)	5	..	2	..	2	..	4	1	..	..	..	..	3	3
8 Sriperumbudur (P)	1	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Tambaram ( )	1	1	5	..	..	..	2	1	..	..	..	..	..	..
10 Tirukalikundram (P)	4	1	2	..	..	..	1	..	5	..	..	..	3	2
11 Tiruvottiyur (P)	3	1	3	2	2	..	3	1	2	1	..	..	..	..
Total ..	45	13	38	4	17	5	14	3	15	6	4	1	11	9
II. Coimbatore district.														
1 Coimbatore (M)	2	2	30	4	1	..	2	1	..	..	..	..	..	..
2 Dharapuram (M)	..	..	5	..	..	..	1	..	3	..	..	..	..	..
3 Erode (M)	..	..	5	..	2	..	1	..	3	..	..	..	..	..
4 Gobichettipalayam (M)	..	..	..	..	..	..	..	..	1	..	1	..	1	1
5 Mettupalayam (M)	..	..	1	1	..	..	1	..	2	..	1	1	..	..
6 Pollachi (M)	1	1	4	..	12	1	5	..	7	..	2	..	2	2
7 Tiruppur (M)	7	1	13	..	4	..	3	..	2	1	1	..	..	..
8 Udamalpet (M)	2	..	5	1	1	..	4	..	7	1	..	..	..	..
9 Avanashi (P)	..	..	2	..	..	..	..	..	3	..	..	..	..	..
10 Bhavani (P)	..	..	2	1	..	..	1	..	2	2	..	..	..	..
11 Kurichi (P)	..	..	1	..	..	..	11	4	3	1	..	..	1	1
12 Satyamangalam (P)	..	..	..	..	..	..	..	..	2	..	..	..	..	..
13 Singanallur (P)	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Total ..	12	4	68	7	20	1	30	5	35	5	5	1	4	4
III. Kanyakumari district.														
1 Nagercoil (M)	..	..	8	5	10	6	6	4	1	..	..	..	..	..
IV. Madurai district.														
1 Bodinayakanur (M)	3	..	3	..	3	..	1	..	..	..	1	..	..	..
2 Dindigul (M)	2	..	12	1	1	..	14	1	..	..	1	..	..	..
3 Kodaikanal (M)	..	..	4	..	1	..	..	..	..	..	..	..	..	..
4 Madurai (M)	..	..	334	5	12	..	74	..	37	..	1	..	..	..
5 Palni (M)	..	..	1	..	2	..	1	..	..	..	..	..	..	..
6 Periakulam (M)	1	..	3	1	1	1	1	..	1	..	..	..	1	1
7 Alagarcoil (P)	..	..	1	..	1	..	..	..	..	..	..	..	1	1
8 Allinagaram (P)	..	..	7	1	3	..	1	..	4	..	..	..	..	..
9 Ayyakudi (P)	1	..	3	..	..	..	..	..	..	..	1	..	..	..
10 Batlagunda (P)	..	..	2	1	..	..	3	..	7	..	..	..	..	..
11 Cumbum (P)	..	..	3	..	..	..	2	..	2	..	..	..	2	1
12 Chinnamanur (P)	..	..	..	..	1	..	1	..	2	..	..	..	1	1
13 Gudalur (P)	..	..	6	..	..	..	..	..	1	..	..	..	3	3
14 Kambuthi (P)	..	..	7	3	1	..	1	..	..	..	..	..	..	..
15 Keeranur (P)	..	..	2	..	..	..	..	..	..	..	1	..	..	..
16 Melur (P)	..	..	1	1	..	..	..	..	..	..	..	..	..	..
17 Nilakottai (P)	..	..	3	..	1	..	8	..	1	..	..	..	..	..
18 Sholavandan (P)	..	..	4	1	..	..	2	..	1	..	..	..	..	..
19 Tirumangalam (P)	..	..	3	..	..	..	9	2	9	..	..	..	..	..
20 Usilampatti (P)	..	..	4	1	3	..	5	..	2	..	..	..	1	1
21 Veerapandy (P)	..	..	1	1	..	..	..	..	..	..	..	..	..	..
22 Salaipudur (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Total ..	2	..	405	16	32	1	123	3	67	..	5	..	9	3
V. Nilgiris district.														
1 Coonoor (M)	2	..	2	..	..	..	1	1	7	5	..	..	..	..
2 Ootacamund (M)	..	..	3	..	7	..	8	3	6	4	4	..	..	..
3 Kotagiri (P)	1	..	4	..	..	..	..	..	..	..	..	..	..	..
Total ..	3	..	9	..	7	..	9	4	13	9	4	..	..	..

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of local body.	Asafoetida.		Chillies.		Niger seed oil.		Cummin seed.		Atta.		Chicory.		Miscellaneous.	
	Total. (30)	Adulterated. (31)	Total. (32)	Adulterated. (33)	Total. (34)	Adulterated. (35)	Total. (36)	Adulterated. (37)	Total. (38)	Adulterated. (39)	Total. (40)	Adulterated. (41)	Total. (42)	Adulterated. (43)
I. Chinglepat district.														
1 Chinglepat (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Kancheepuram (M)	..	..	..	..	..	..	..	..	..	..	..	..	2	..
3 Tiruvallur (M)	..	..	3	..	..	..	..	..	..	..	..	..	..	..
4 Alandur (P)	1	..	..	..	..	..	..	..	..	..	..	..	1	..
5 Kunnathur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Maduranthakam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Poonamallee (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Sriperumbudur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Tambaram (P)	1	1	..	..	..	..	..	..	..	..	..	..	..	..
10 Tirukalikundram (P)	..	..	1	..	..	..	..	..	..	..	..	..	3	1
11 Tiruvottiyur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	2	1	4	..	..	..	..	..	..	..	..	..	6	1
II. Coimbatore district.														
1 Coimbatore (M)	..	..	..	..	..	..	1	..	..	..	..	..	..	..
2 Dharapuram (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
3 Erod (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Gobichettipalayam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Mettupalayam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Pollachi (M)	..	..	..	..	2	1	..	..	..	..	..	..	1	..
7 Tiruppur	..	..	..	..	..	..	..	..	..	..	..	..	1	..
8 Udamalpet (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Avanashi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Bhavani (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Kurichi (P)	1	1	..	..	..	..	..	..	..	..	..	..	..	..
12 Satyamangalam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Singanallur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1	1	..	..	2	1	1	..	..	..	..	..	3	..
III. Kanyakumari district.														
1 Nagercoil (M)	1	..	..	..	..	..	..	..	..	..	..	..	..	..
IV. Madurai district.														
1 Bodinayakanur (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Dindigul (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
3 Kodaikanal (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Madurai (M)	..	..	..	..	..	..	..	..	..	..	..	..	2	..
5 Palani (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
6 Periakulam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Alagarcoil (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	1
8 Allinagaram (P)	..	..	..	..	1	..	..	..	..	..	..	..	..	..
9 Ayyakudi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Batlagundu (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Cumbum (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Chinnamanur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Gudalur (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
14 Kamuthi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Keeranur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Melur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 Nilakottai (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Sholavandan (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19 Tirumangalam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20 Usilampatti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21 Veerapandy (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22 Salaipudur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	..	..	1	..	..	..	..	..	..	..	7	1
V. Nilgiris district.														
1 Coonoor (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Ootacamund (M)	..	..	..	..	..	..	..	..	..	..	..	..	3	..
3 Kotagiri (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	..	..	..	..	..	..	..	..	..	..	3	..

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of Local Body.	Samples.				Milk.		Ghee.		Butter.		Gingelly oil.		Coconut	
	Annual quota of samples.	Total received.	Number adulterated.	Percentage adulterated.	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)
VI. North Arcot district.														
1 Ambur (M)	48	50	18	36·0	28	14	..	..	..	..	4	2	5	..
2 Arni (M)	48	48	18	37·9	14	4	4	1	1	..	15	7	6	1
3 Gudiyattam (M)	48	50	23	46·0	41	23	..	..	..	..	4	..	2	..
4 Tiruppattur (M)	48	49	20	40·8	31	18	1	..	..	..	5	2	7	..
5 Tiruvannamalai (M)	72	73	38	52·1	53	35	5	1	1	1	6	1	4	..
6 Vaniyambadi (M)	48	48	35	72·9	34	28	6	5	..	..	2	1	2	..
7 Vellore (M)	144	144	60	41·7	93	47	10	6	4	3	10	2	10	1
8 Walajapet (M)	48	49	8	16·3	22	3	1	..	..	..	17	5	7	..
9 Arcot (P)	48	47	19	40·4	35	16	3	1	..	..	1	..	1	..
10 Arkonam (P)	48	48	30	62·5	35	24	1	..	1	1	5	4	1	..
11 Dharpadavadu (P)	48	47	25	53·1	37	22	1	..	..	..	3	..	..	..
12 Pernambut (P)	48	47	15	31·9	38	13	2	..	..	..	4	2	6	..
13 Polur (P)	48	48	13	27·1	23	10	2	1	..	..	10	..	1	..
14 Ranipet (P)	48	48	20	41·6	34	20	2	..	..	..	5	..	4	..
15 Tiruvathipuram (P)	48	47	22	46·8	28	17	1	1	..	..	4	2	..	..
Total ..	..	843	364	43·2	546	294	39	16	7	5	95	28	56	1
VII. Ramanathapuram district.														
1 Aruppukottai (M)	48	47	9	19·1	14	5	1	1	..	..	8	2	13	1
2 Devakottai (M)	72	73	19	26·0	37	16	8	2	..	..	11	1	8	..
3 Karaikudi (M)	96	96	22	22·9	48	20	1	1	..	..	21	..	8	..
4 Rajapalayam (M)	72	72	16	22·2	32	12	1	..	1	..	13	1	7	..
5 Sivakasi (M)	48	48	7	14·6	36	6	..	..	..	..	7	..	..	..
6 Srivilliputtur (M)	72	72	9	12·5	31	6	..	..	..	..	5	1	1	..
7 Virudhunagar (M)	96	96	10	10·4	18	4	..	..	..	..	37	2	13	1
8 Kandanoor (P)	48	51	13	25·5	39	11	..	..	..	..	1	1	3	..
9 Kannaseri Cattle Fair (P)	..	8	2	25·0	5	1	..	..	..	..	..	..	1	..
10 Kilakarai (P)	48	49	9	18·4	24	6	1	..	..	..	9	1	1	..
11 Mudukalathur (P)	..	5	1	20·0	1	..	..	..	..	..	1	..	..	..
12 Pallathur (P)	48	48	7	14·6	36	5	..	..	..	..	5	..	..	..
13 Paramakudi (P)	48	48	5	10·4	14	5	..	..	..	..	16	..	3	..
14 Rameswaram (P)	48	48	11	22·9	35	10	2	..	..	..	2	..	3	..
15 Ramanathapuram (P)	48	48	12	25·0	25	9	1	..	..	..	6	..	1	..
16 Sattur (P)	48	48	12	25·0	18	8	3	..	2	..	3	..	..	..
17 Sivaganga (P)	48	49	16	32·65	33	13	..	..	..	..	2	..	2	..
18 Tiruppattur (P)	48	48	20	41·7	40	18	..	..	..	..	6	..	..	..
19 Venkateswarapuram (P)	..	6	2	33·3	1	1	..	..	..	..	2	..	..	..
Total ..	..	960	202	21·04	487	156	18	4	4	2	165	15	67	3
VIII. Salem district.														
1 Rasipuram (M)	48	53	25	45·3	38	23	3	1	1	..	1	7	2	..
2 Salem (M)	288	386	148	38·3	290	126	25	11	6	2	39	7	7	..
3 Attur (P)	48	48	12	25·0	48	12	..	..	..	..	7	..	1	..
4 Dharmapuri (P)	48	40	8	20·0	10	6	3	2	..	..	2	..	6	..
5 Harur (P)	..	38	14	36·8	19	13	..	..	..	..	3	..	2	..
6 Hosur (P)	48	44	21	47·7	24	15	1	..	..	..	..	..	2	..
7 Idappadi (P)	48	48	22	45·8	45	22	..	..	..	..	6	1	1	..
8 Mettur Township (P)	48	49	15	30·6	23	10	1	..	..	..	3	2	2	..
9 Namakkal (P)	48	48	30	62·5	30	26	..	..	1	..	5	3	7	..
10 Shevaroys (P)	48	48	12	25·0	33	10	1	..	1	..	4	..	1	..
11 Tiruchengode (P)	48	48	27	56·3	36	24	1	1	2	1	..	..	..	..
Total ..	..	850	334	39·3	596	287	35	15	11	3	70	13	24	..
IX. South Arcot district.														
1 Chidambaram (M)	96	96	41	42·7	36	25	9	..	6	6	16	5	2	..
2 Cuddalore (M)	144	143	49	34·3	74	24	2	..	..	..	54	25	5	..
3 Tindivanam (M)	48	48	13	27·1	25	12	3	..	..	..	13	1	1	..
4 Villupuram (M)	96	99	37	37·3	50	17	7	3	3	2	21	11	4	1
5 Bhuvanagiri (P)	48	46	7	15·2	14	4	..	..	..	..	8	2	1	..
6 Kallakurichi (P)	48	55	31	56·4	27	13	2	2	17	13	4	3	1	..
7 Kattumannarkoil (P)	45	45	15	33·3	18	6	2	2	..	..	18	6	3	..
8 Nellikuppam (P)	48	49	15	36·6	21	8	..	..	1	1	19	6	4	1

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of local body.	Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and flours.		Honey.		Aerated water.	
	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
VI. North Arcot district.														
1 Ambur (M)	1	..	1	..	..	..	..	..	..	..	..	..	..	..
2 Arni (M)	4	3	1	..	5	2	2	..	2	..	1	..	..	..
3 Gudiyattam(M)	..	..	2	..	..	..	..	..	..	..	..	..	2	2
4 Tiruppattur (M)	1	..	2	..	1	..	2	..	1	..	..	..	..	..
5 Tiruvannamalai (M)	1	..	..	..	..	..	..	..	..	..	1	..	..	..
6 Vaniyambadi (M)	1	..	..	..	..	..	..	..	3	..	..	..	..	..
7 Vellore (M)	..	..	4	..	9	2	..	..	2	1	..	..	..	..
8 Walajapet (M)	..	..	1	..	..	..	1	..	1	..	..	..	..	..
9 Arcot (P)	1	..	1	..	..	..	3	..	..	..	..	..	2	2
10 Arkonam (P)	1	..	1	..	2	1	1	..	..	..	..	..	2	2
11 Dharpadavadu (P)	1	..	1	..	1	1	1	..	..	..	..	..	..	..
12 Pernambut (P)	1	..	..	..	..	..	..	..	..	..	..	..	2	2
13 Palur (P)	..	..	..	..	..	..	4	1	..	..	2	..	1	1
14 Ranipet (P)	2	..	..	..	..	..	1	..	..	..	..	..	..	..
15 Tiruvathipuram (P)	3	..	2	1	1	..	3	..	2	..	..	..	2	1
Total ..	17	3	15	1	19	6	18	1	11	1	4	..	9	8
VII. Ramanathapuram district.														
1 Aruppukkottai (M)	..	..	5	..	2	..	..	..	..	..	..	..	..	..
2 Devakottai (M)	..	..	4	..	..	..	1	..	2	..	2	..	..	..
3 Karaikudi (M)	9	1	7	..	..	..	1	..	1	..	..	..	..	..
4 Rajapalayam (M)	3	1	3	..	2	..	..	..	6	1	1	..	1	1
5 Sivakasi (M)	2	..	..	..	3	1	..	..	..	..	..	..	..	..
6 Srivilliputtur (M)	4	..	2	..	1	..	1	..	6	..	2	..	..	..
7 Virudhunagar (M)	8	1	10	..	5	1	1	..	..	..	2	..	..	..
8 Kandanoor (P)	2	1	2	..	..	..	4	..	..	..	..	..	..	..
9 Kannaseri Cattle Fair (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	1
10 Kilakarai (P)	..	..	2	..	4	..	3	1	4	..	1	1	..	..
11 Mudukalathur (P)	..	..	2	1	1	..	..	..	..	..	..	..	..	..
12 Pallathur (P)	2	1	4	1	..	..	..	..	1	..	..	..	..	..
13 Paramakudi (P)	2	..	8	..	..	..	3	..	..	..	..	..	..	..
14 Rameswaram (P)	..	..	4	1	..	..	..	..	1	..	..	..	..	..
15 Ramanathapuram (P)	2	..	2	..	3	1	2	..	1	..	..	..	..	..
16 Sattur (P)	1	..	1	..	2	..	4	1	5	..	1	..	6	2
17 Sivaganga (P)	..	..	4	1	..	..	3	1	3	..	1	..	..	..
18 Tiruppattur (P)	..	..	..	..	..	..	..	..	2	..	..	..	..	..
19 Venkateswarapuram (P)	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Total	35	5	60	4	23	3	23	3	38	1	10	1	8	4
VIII. Salem district.														
1 Rasipuram (M)	1	..	..	..	..	..	2	..	1	..	..	..	..	..
2 Salem (M)	1	1	9	..	2	..	..	..	3	1	3	..	..	..
3 Attur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Dharmapuri (P)	..	..	..	..	..	..	8	..	10	..	..	..	..	..
5 Harur (P)	3	1	..	..	..	..	2	..	5	..	..	..	..	..
6 Hosur (P)	1	..	7	1	..	..	..	..	6	3	..	..	..	..
7 Idappadi (P)	..	..	..	..	..	..	..	..	1	..	..	..	..	..
8 Mettur Township (P)	..	..	10	1	..	..	1	..	7	2	..	..	..	..
9 Namakkal (P)	..	..	3	..	..	..	2	..	2	..	2	..	2	2
10 Shevaroys (P)	..	..	5	2	2	..	..	..	1	..	..	..	..	..
11 Tiruchengode (P)	..	..	1	..	2	..	..	..	1	..	..	..	..	..
Total	6	2	35	4	6	..	15	..	37	6	5	..	2	2
IX. South Arcot district.														
1 Chidambaram (M)	4	1	7	..	6	3	3	1	5	..	..	..	..	..
2 Cuddalore (M)	..	..	2	..	2	..	1	..	2	..	..	..	..	..
3 Tindivanam (M)	2	..	3	..	..	..	..	..	..	..	1	..	..	..
4 Villupuram (M)	1	1	2	..	..	..	5	1	4	1	..	..	..	..
5 Bhuvanagiri (P)	6	1	1	..	14	..	..	..	1	..	..	..	..	..
6 Kallakurichi (P)	1	..	1	..	..	..	1	..	..	..	..	..	..	..
7 Kattumannarkoil (P)	..	..	4	..	..	..	..	..	..	..	..	..	..	..
Nellikuppam (P)	..	..	2	..	..	..	..	..	2	..	..	..	1	..

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of local body.	Asafoetida.		Chillies.		Niger seed oil.		Cumin seed.		Atta.		Chicory.		Miscellaneous.	
	Total. (30)	Adulterated. (31)	Total. (32)	Adulterated. (33)	Total. (34)	Adulterated. (35)	Total. (36)	Adulterated. (37)	Total. (38)	Adulterated. (39)	Total. (40)	Adulterated. (41)	Total. (42)	Adulterated. (43)
VI. North Arcot district.														
1 Ambur (M)	1	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Arni (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Gudiyattam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Tiruppattur (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Tiruvannamalai (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6 Vaniyambadi (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Vellore (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
8 Walajapet (M)	..	..	2	..	..	..	..	..	..	..	..	..	1	..
9 Arcot (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Arkonam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Dharpadavadu (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Pernambut (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Polur (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
14 Ranipet (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Tiruvathipuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Total ..	1	..	2	..	..	..	..	..	..	..	..	..	4	..
VII. Ramanathapuram district.														
1 Aruppukkottai (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Devakottai (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Karaikudi (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Rajapalayam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Sivakasi (M)	..	..	..	..	..	..	..	..	..	..	1	..	..	..
6 Srivilliputtur (M)	..	..	..	..	..	..	3	..	..	..	..	..	4	..
7 Virudhunagar (M)	..	..	..	..	..	..	..	..	..	..	1	..	..	..
8 Kandanoor (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Kannas ri Cattle Fair (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Kilakarai (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Mudukalathur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Pall thur (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
13 Paramakudi (P)	1	..	..	..	..	..	..	..	..	..	..	..	1	..
14 Rameswaram (P)	..	..	..	..	..	..	..	..	..	..	..	..	2	2
15 Ramanathapuram (P)	..	..	..	..	..	..	1	..	..	..	..	..	..	..
16 Sattur (P)	..	..	..	..	..	..	..	..	..	..	2	1	..	..
17 Sivaganga (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Tiruppattur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19 Venkatesvarapuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1	..	..	..	..	..	4	..	..	..	4	1	10	..
VIII. Salem district.														
1 Rasipuram (M)	..	..	1	..	..	..	..	..	..	..	..	..	3	1
2 Salem (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
3 Attur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Dharmapuri (P)	..	..	..	..	..	..	..	..	..	1	..	..	..	..
5 Harur (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
6 Hosur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7 Idappadi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Mettur Township (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	1
9 Namakkal (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Shevaroys (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Tiruchengode (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	1	..	..	..	..	..	..	1	..	..	6	2
IX. South Arcot district.														
1 Chidambaram (M)	..	..	..	..	..	..	..	..	..	..	..	..	2	..
2 Cuddalore (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
3 Tindivanam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Villupuram (M)	..	..	..	..	..	..	..	..	..	..	..	..	2	1
5 Bhuvanagiri (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
6 Kallakurichi (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	1
7 Kattumannarkoil (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Nellikuppam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957-58.—cont.

Serial number and name of local body.	Samples.				Milk.		Ghee.		Butter.		Gingelly oil.		Coconut oil.	
	Annual quota of samples.	Total received.	Number adulterated.	Percentage adulterated.	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)
IX. South Arcot district—cont.														
9 Panruti (P)	48	48	17	35·4	33	10	2	1	..	..	10	4	..	..
10 Tirukoilur (P)	48	50	17	34·0	31	12	1	1	..	..	12	3	4	..
11 Vridhachalam (P)	48	44	28	59·1	27	22	1	..	..	..	11	5	..	..
Total	723	270	37·3	356	153	29	9	27	22	186	71	25	1
X. Tanjore district.														
1 Kumbakonam (M)	144	166	88	53·0	125	73	..	..	5	3	30	11	3	..
2 Mannargudi (M)	48	48	17	35·4	11	7	3	1	..	..	22	8	4	..
3 Mayuram (M)	96	95	54	56·8	42	30	..	..	..	..	40	23	6	..
4 Nagapattinam (M)	144	144	33	22·9	85	24	6	3	4	2	38	3	6	..
5 Tanjore (M)	216	216	92	42·1	107	61	8	3	12	11	66	15	7	1
6 Tiruvarur (M)	48	47	17	36·2	19	9	1	..	3	2	9	5	2	..
7 Adirampatnam (P)	48	48	26	54·1	34	19	..	..	..	..	11	6	1	..
8 Arantangi (P)	48	49	4	81·6	31	3	..	..	..	..	9	1	..	..
9 Ayyampet (P)	48	48	22	45·8	16	14	2	..	1	1	18	6	4	..
10 Nannilam (P)	48	48	19	39·6	43	17	1	1	1	1	2	..	..	..
11 Papanasam (P)	48	48	16	33·3	41	14	..	..	..	..	4	2	2	..
12 Pattukottai (P)	48	36	15	41·7	22	15	1	..	..	..	5	..	2	..
13 Sirkali (P)	48	49	18	36·8	17	13	5	2	1	1	6	2	4	..
14 Tranquebar (P)	48	48	23	47·9	19	10	..	..	..	..	20	9	2	..
15 Tirutturaipundi (P)	48	47	17	36·2	28	12	..	..	..	..	12	4	3	..
16 Tiruvaiyaru (P)	48	46	17	37·0	29	15	..	..	..	..	6	..	..	..
17 Vedaranyam (P)	48	46	27	58·3	30	20	1	..	..	..	12	7	3	..
18 Tiruvidaimarudur (P)	48	35	10	28·6	8	1	1	..	..	..	15	7	6	..
Total	1264	515	40·8	707	357	29	10	27	21	325	109	54	1
XI. Tiruchirappalli district.														
1 Karur (M)	96	96	42	43·8	78	40	4	1	..	..	2	..	5	..
2 Pudukkottai (M)	96	108	52	48·1	84	43	1	..	..	..	8	1	3	..
3 Srirangam (M)	48	48	14	25·0	21	11	6	2	1	1	8	..	1	..
4 Tiruchirappalli (M)	336	337	110	3·3	232	87	14	3	6	2	49	15	7	1
5 Ariyalur (P)	48	48	10	20·4	10	4	..	..	1	1	5	2	1	..
6 Jayankondam (P)	48	48	13	27·1	24	9	..	..	..	..	4	..	2	..
7 Kulitalai (P)	48	48	20	41·7	26	14	2	1	5	3	6	..	1	..
8 Lalgudi (P)	48	48	15	31·3	30	12	2	1	1	1	6	..	3	1
9 Manapparai (P)	48	48	17	35·4	37	14	..	..	..	..	7	2	1	..
10 Musiri (P)	48	46	7	15·2	25	6	..	..	..	..	7	1	2	..
11 Pallapatti (P)	48	48	35	72·9	48	35	..	..	..	..	..	..	..	..
12 Perambalur (P)	48	55	23	41·8	31	22	..	..	..	..	11	1	8	..
13 Turaiyur (P)	48	48	11	22·9	11	4	1	1	..	..	14	4	7	..
14 Gunaseelam (P)	5	3	60·0	5	3	..	..	..	..	..	..	..	..	..
Total	1032	372	36·0	662	304	30	9	14	8	127	26	41	2
XII. Tirunelveli district.														
1 Melapalayam (M)	48	47	11	40·4	15	6	1	..	..	..	8	3	4	..
2 Palayamcottai (M)	96	96	38	39·6	83	37	1	1	..	..	8	..	1	..
3 Tirunelveli (M)	216	262	123	46·9	226	110	2	..	6	6	13	2	..	..
4 Tuticorin (M)	144	188	51	27·1	93	38	6	3	5	4	19	..	7	..
5 Ambasamudram (P)	48	48	22	45·8	42	20	..	..	..	..	..	..	..	..
6 Courtallam (P)	48	44	14	31·8	27	10	1	1	..	..	8	1	2	..
7 Ettayapuram (P)	48	48	10	20·8	12	4	..	..	..	..	7	1	9	4
8 Kadayanallur (P)	48	48	19	39·6	27	18	..	..	1	1	2	..	2	..
9 Kollidaikurichi (P)	48	48	20	41·5	34	17	5	2	1	1	3	..	..	..
10 Kovilpatti (P)	48	48	28	58·3	37	28	1	..	..	..	2	..	..	..
11 Kayalpatnam (P)	48	47	26	55·3	23	21	1	1	3	2	8	2	2	..
12 Puliyangudi (P)	48	47	17	36·1	23	10	..	..	..	..	..	..	1	..
13 Sankarankoil (P)	48	48	10	20·8	24	10	..	..	..	..	8	..	4	..
14 Srivaikuntam (P)	48	51	9	17·6	12	7	3	1	2	..	4	..	3	..
15 Tenkasi (P)	48	47	18	36·1	40	15	2	1	..	..	1	1	..	..
16 Tiruchendur (P)	48	47	9	19·1	32	7	..	..	..	..	4	..	..	..
17 Udangudi (P)	48	48	17	35·4	35	15	1	1	..	..	8	1	4	..
18 Vickramasingapuram (P)	48	51	24	47·6	47	24	1	..	..	..	1	..	..	..
19 Viravanallur (P)	48	49	17	34·7	45	14	..	..	..	..	1	..	..	..
20 Alwar Thirunagari (P)	48	47	15	31·9	13	6	5	5	..	..	9	1	4	..
21 Shencottah (M)	48	50	42	84·0	42	40	..	..	..	..	2	1	..	..
Total	1,469	540	38·3	932	457	30	16	18	14	116	13	43	4

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras State working the Prevention of Food Adulteration Act during 1957—58.—cont.

Serial number and name of local body.	Groundnut oil.		Coffee.		Tea.		Turmeric.		Dhall and flours.		Honey.		Aerated water.	
	Total.	Adulterated.	Total	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.	Total.	Adulterated.
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
IX. South Arcot district—cont.														
9 Panruti (P)	..	..	3	2	..	..	..	..	..	..	..	..	..	..
10 Tirukoilur (P)	..	..	2	1	..	..	..	..	..	..	..	..	..	..
11 Vridhachalam (P)	..	..	4	1	..	..	..	..	..	..	..	..	..	..
Total	14	3	31	4	22	3	10	2	14	1	1	..	..	..
X. Tanjore district.														
1 Kumbakonam (M)	..	..	2	..	1	1	..	..	..	..	..	..	..	..
2 Mannargudi (M)	..	..	4	..	..	..	3	1	..	..	..	..	..	..
3 Mayuram (M)	..	..	3	..	..	..	..	..	2	..	1	..	1	1
4 Nagapattinam (M)	..	..	3	..	2	1	1	..	..	..	..	..	..	..
5 Tanjore (M)	2	..	5	..	..	..	2	..	2	..	2	..	..	..
6 Tiruvarur (M)	2	..	1	1	1	..	..	..	1	..	5	..	1	1
7 Adirampatnam (P)	..	..	..	..	..	..	..	..	..	..	1	..	1	1
8 Arantangi (P)	..	..	5	..	..	..	2	..	2	..	..	..	..	..
9 Ayyampet (P)	..	..	2	..	..	..	1	..	1	..	..	..	..	..
10 Nannilam (P)	..	..	1	..	..	..	..	..	..	..	..	..	..	..
11 Papanasam (P)	..	..	..	..	..	..	..	..	1	..	..	..	..	..
12 Pattukottai (P)	..	..	3	..	..	..	1	..	1	..	..	..	..	..
13 Sirkali (P)	..	..	9	..	..	..	1	..	5	..	..	..	3	..
14 Tranquebar (P)	4	1	..	..	..	..	..	..	..	..	3	1	..	3
15 Tiruturaipundi (P)	..	..	..	..	..	..	..	..	1	..	..	..	..	..
16 Tiruvaiyaru (P)	..	..	4	..	..	..	3	2	3	..	..	..	..	..
17 Vedaranyam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Tiruvidamarudur (P)	3	2	2	..	..	..	..	..	..	..	..	..	..	..
Total	12	3	44	1	4	2	14	3	19	..	12	1	6	5
XI. Tiruchirappalli district.														
1 Karur (M)	..	..	6	1	..	..	..	..	1	..	..	..	..	..
2 Pudukottai (M)	..	..	9	5	3	3	..	..	..	..	..	..	..	..
3 Srirangam (M)	..	..	5	..	..	..	..	..	2	..	1	..	..	..
4 Tiruchirappalli (M)	3	..	17	1	3	..	2	..	..	..	2	..	..	..
5 Ariyalur (P)	9	2	1	..	..	..	..	..	17	1	..	..	..	..
6 Jayankondam (P)	2	1	3	1	..	..	3	1	6	1	1	..	1	1
7 Kulitalai(P)	..	..	3	1	1	..	2	..	1	..	..	..	..	..
8 Lalgudi (P)	..	..	1	..	1	..	2	..	2	..	..	..	..	..
9 Manaparai (P)	..	..	1	..	..	..	..	..	1	..	..	..	..	..
10 Musiri (P)	..	..	5	..	..	..	1	..	3	..	..	..	..	..
11 Pallapatti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Perambalur (P)	1	..	2	..	..	..	..	..	2	..	..	..	..	..
13 Turaiyur (P)	1	..	3	2	1	..	3	..	6	..	1	..	..	..
14 Gunaseelam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	16	3	56	11	9	3	13	1	41	2	5	..	1	1
XII. Tirunelveli district.														
1 Melapalayam (M)	1	..	1	..	7	1	3	..	4	..	1	..	..	..
2 Palayamkottai (M)	..	..	2	..	..	..	..	..	..	..	1	..	..	..
3 Tirunelveli (M)	..	..	3	..	8	5	3	..	..	..	3	..	..	..
4 Tuticorin (M)	2	..	17	1	7	1	4	..	24	3	..	..	..	..
5 Ambasamudram (P)	..	..	3	..	2	2	..	..	..	..	1	..	..	..
6 Courtallam (P)	..	..	1	1	..	..	1	..	2	..	1	..	..	..
7 Ettayapuram (P)	2	1	2	..	..	..	5	..	5	..	..	..	..	..
8 Kadayanallur (P)	1	..	1	..	2	..	1	..	11	..	1	..	..	..
9 Kallidaikurichi (P)	1	..	3	..	..	..	..	..	..	..	1	..	..	..
10 Kovilpatti (P)	..	..	3	..	..	..	..	..	4	..	2	..	..	..
11 Kayalpatnam (P)	..	..	..	..	1	..	1	..	6	..	..	..	2	..
12 Puliyangudi (P)	10	3	3	..	7	2	..	..	1	..	1	..	..	..
13 Sankarankoil (P)	..	..	3	..	3	..	2	..	3	..	2	..	..	..
14 Srivaikuntam (P)	..	..	6	..	5	1	2	..	7	..	..	..	..	..
15 Tenkasi (P)	..	..	..	..	3	1	..	..	1	..	..	..	..	..
16 Tiruchendur (P)	2	1	5	1	1	..	2	..	1	..	..	..	..	..
17 Udangadi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Vickramasingapuram (P)	..	..	1	..	..	..	1	..	..	..	..	..	..	..
19 Viravanallur (P)	..	..	2	2	..	..	..	..	5	1	3	..	..	..
20 Alwar Thirunagari (P)	..	..	5	2	..	..	1	..	2	..	1	..	..	..
21 Shencottah (M)	..	..	1	..	1	1	..	..	..	..	..	..	..	..
Total	20	5	62	7	47	14	26	..	76	4	13	..	2	2

APPENDIX A—*cont.*

Number of samples received and number found adulterated from municipalities and panchayats in the Madras state working the Prevention of Food Adulteration Act during 1957–58—cont.

Serial number and name of local body	Asafoetida		Chillies		Nizer seed oil		Cumin seed		Atta		Chicory		Miscellaneous	
	Total	Adulterated	Total	Adulterated	Total	Adulterated	Total	Adulterated	Total	Adulterated	Total	Adulterated	Total	Adulterated
IX. South Arcot district.—cont.	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)
9 Panruti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Tirukoilur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Vridhachalam (P)	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Total	..	..	..	..	..	..	..	..	..	..	1	..	7	1
X. Tanjore district.														
1 Kumbakonam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Mannargudi (M)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
3 Mayuram (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Nagapattinam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Tanjore (M)	..	..	..	..	..	..	..	..	..	..	..	..	8	1
6 Tiruvarur (M)	..	..	..	..	..	..	..	..	..	..	..	..	2	..
7 Adiramapattinam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Arantangi (P)	..	..	..	..	..	..	..	..	..	..	..	..	2	..
9 Ayyampet (P)	..	..	..	..	..	..	..	..	..	..	..	..	3	..
10 Nannilam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Papanasam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Pattukottai (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Sirkali (P)	1	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Tranquebar (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Tiruturaipundi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Tiruvaiyaru (P)	..	..	..	..	..	..	..	..	..	..	..	..	1	..
17 Vedaranyam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Tiruvidamarudur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	1	..	..	..	..	..	..	..	..	..	..	12	1
XI. Tiruchirappalli district.														
1 Karur M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 Pudukottai (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Srirangam (M)	..	..	..	..	..	..	..	..	..	..	..	..	3	..
4 Tiruchirappalli (M)	..	..	1	..	..	..	..	..	..	..	..	..	1	1
5 Ariyalur (P)	1	..	1	..	..	..	..	..	..	..	..	..	3	..
6 Jayankondam (P)	..	..	..	..	..	..	..	..	..	..	..	..	3	1
7 Kulitalai (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8 Lalgudi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Manapparai (P)	..	..	..	..	1	1	..	..	..	..	..	..	..	..
10 Musiri (P)	1	..	..	..	..	..	..	..	..	..	..	..	2	..
11 Pallapatti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Perambalur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Turaiyur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14 Gunnasolam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	2	..	2	..	1	1	..	..	..	..	..	..	..	12	2
XII. Tirunelveli district.														
1 Melanalayam (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
2 Palayamkottai (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Tirunelveli (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4 Tuticorin (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
5 Ambasamudram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
6 Courtallam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
7 Ettayapuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
8 Kadavanallur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9 Kalladaikurichi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Kovilpatti (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11 Kayalpatnam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 Puliyangudi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13 Sankarankoil (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..
14 Srivaikuntam (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 Tenkasi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Tirunelveli (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 Udangudi (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18 Vickramasingapuram (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
19 Viravanallur (P)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20 Alwar Thirunagari (P)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..
21 Shencottah (M)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	2	..	..	..	..	..	..	..	..	..	..	..	..	12	3

"Miscellaneous" includes samples such as Refined oil, Sugar, Sago, Curry powder, Sweets, Rawal, Olive oil, Poppy seed, Mixed oil, Pepper, Mustard, Coriander and Sooji.

M = Municipality. P = Panchayat. Total = Total number of samples. Adulterated = Number of adulterated samples.

APPENDIX B.

Statement showing the total amount of fines levied, number of convictions, average fines, etc., from 1st April 1957 to 31st March 1958.

MADRAS STATE.

Name of municipality or panchayat.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine 1956-57.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I *Chingleput district*—								
1 Chingleput (M)	12	1,410	..	1,410	200	50	118	62
2 Kancheepuram (M)	62	8,200	..	8,200	1,110	25	132	65
3 Tiruvallur (M)	17	1,440	..	1,440	300	50	85	237
4 Alandur (P)	17	3,680	..	3,680	1,000	25	216	83
5 Kunrathur (P)	17	2,715	..	2,715	500	5	160	..
6 Madurantakam (P)	13	1,055	..	1,055	200	25	81	79
7 Poonamallee (P)	14	1,330	..	1,330	250	25	95	60
8 Sriperumbudur (P)	3	975	..	975	800	50	325	75
9 Tambaram (P)	20	2,525	..	2,525	750	25	126	58
10 Tirukalikundram (P) ..	15	2,005	..	2,005	500	75	134	..
11 Tiruvottiyur (P)	19	1,535	..	1,535	200	25	81	58
II. *Coimbatore district*—								
1 Coimbatore (M)	164	25,625	1,100	26,725	360	50	156	311
2 Dharapuram (M)	11	1,610	..	1,610	300	60	146	245
3 Erode (M)	42	6,510	450	6,960	400	75	155	204
4 Gobichettipalayam (M) ..	29	4,490	100	4,590	285	100	155	277
5 Mettupalayam (M)	32	9,280	..	9,280	2,000	50	290	269
6 Pollachi (M)	81	14,445	..	14,445	500	50	178	124
7 Tiruppur (M)	20	3,120	..	3,120	300	50	156	166
8 Udamalpet (M)	25	3,715	230	3,945	450	50	149	125
9 Avanashi (P)	22	2,795	..	2,795	250	50	127	200
10 Bhavani (P)	12	1,440	..	1,440	275	50	120	166
11 Kurichi (P)	17	2,265	10	2,275	280	25	133	243
12 Satyamangalam (P)	17	2,230	..	2,230	260	75	131	191
13 Singanallur (P)	22	4,055	..	4,055	490	75	184	..
III. *Kanyakumari district*—								
1 Nagercoil (M)	56	2,413	..	2,413	100	20	43	—
IV. *Madurai district*—								
1 Bodinayakanur (M) ..	10	350	..	350	100	15	35	30
2 Dindigul (M)	20	4,520	30	4,550	2,050	30	226	100
3 Kodaikanal (M)	7	540	..	540	150	40	77	81
4 Madurai (M)	89	10,299	..	10,299	2,000	25	116	91
5 Palni (M)	23	5,989	..	5,985	2,000	35	260	118
6 Periakulam (M)	20	840	..	840	100	15	42	30
7 Alagarcoil (P)	1	10	..	10	10	10	10	..
8 Allinagaram (P)	13	595	..	595	200	20	45	23
9 Ayakudi (P)	5	270	100	370	100	20	54	50
10 Batlagundu (P)	4	185	..	185	75	25	46	25
11 Cumbum .. (P)	6	175	220	395	40	25	29	30
12 Chinnamannur (P) ..	23	733	..	733	100	20	32	28
13 Gudalur (P)	9	370	..	370	70	25	41	26
14 Kamuthi (P)	7	1,550	..	1,550	300	100	221	..
15 Keeranur (P)	10	2,150	..	2,150	400	50	215	..
16 Melur (P)	19	1,185	..	1,185	300	25	62	40
17 Nilakottai (P)	5	555	..	555	200	40	111	165
18 Sholavandan (P)	15	1,615	..	1,615	200	50	108	123
19 Tirumangalam (P) ..	3	85	..	85	35	25	28	43
20 Usilampatti (P)	8	235	..	235	60	20	29	23
21 Veerapandi (P)	7	260	..	260	50	20	37	..
22 Salaipudur (P)	..	..	..	..	..	..	..	..

APPENDIX B—*cont.*

Statement showing the total amount of fines levied, number of convictions, average fines, etc., from 1st April 1957 to 31st March 1958—cont.

MADRAS STATE—*cont.*

Name of municipality or panchayat.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine 1956-57.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
V. *Nilgiris district*—								
1 Coonoor (M)	48	5,347	60	5,407	400	35	111	128
2 Ootacamund (M)	39	6,430	..	6,430	2,100	20	165	150
3 Kotagiri (P)	10	1,085	..	1,085	210	50	109	109
VI. *North Arcot district*—								
1 Ambur (M)	11	790	..	790	100	30	72	47
2 Arni (M)	17	995	..	995	200	20	59	32
3 Gudiyattam (M)	21	1,750	..	1,750	150	30	83	42
4 Tirupattur (M)	15	1,325	..	1,325	300	25	88	60
5 Tiruvannamalai (M) ..	26	2,670	..	2,670	250	30	103	65
6 Vaniyambadi (M) ..	33	3,240	..	3,240	300	30	98	70
7 Vellore (M)	58	6,380	215	6,595	250	30	110	102
8 Walajapet (M)	3	362	..	362	75	25	45	100
9 Arcot (P)	17	725	20	745	100	20	43	119
10 Arkonam (P)	22	1,640	50	1,690	120	40	75	50
11 Dharapadavedu (P) ..	24	2,620	10	2,630	250	20	105	..
12 Pernambut (P)	13	1,135	..	1,135	150	50	87	..
13 Polur (P)	12	1,010	..	1,010	200	20	84	63
14 Ranipet (P)	20	935	250	1,185	120	25	47	43
15 Tiruvathipuram (P) ..	22	1,175	..	1,175	125	25	53	..
VII. *Ramanathapuram district*—								
1 Aruppukottai (M) ..	8	875	..	875	200	50	109	111
2 Devakottai (M)	15	1,135	..	1,135	200	10	76	79
3 Karaikudi (M)	21	1,430	..	1,430	200	25	68	122
4 Rajapalayam (M) ..	15	1,425	..	1,425	400	10	95	117
5 Sivakasi (M)	6	800	..	800	500	40	133	124
6 Srivilliputhur (M) ..	5	310	..	310	100	20	62	75
7 Virudhunagar (M) ..	9	680	..	680	125	50	76	100
8 Kandanoor (P)	10	1,180	100	1,280	400	40	118	300
9 Kannaseri (P)	..	..	..	..	..	..	..	..
10 Kilakarai (P)	8	1,650	..	1,650	300	100	206	152
11 Pallathur (P)	6	380	..	380	100	35	63	83
12 Mudukalathur (P)	..	..	..	..	..	..	..	..
13 Paramakudi (P) ..	3	450	..	450	200	100	150	140
14 Rameswaram (P) ..	4	550	..	550	250	100	138	250
15 Ramanathapuram (P) ..	8	1,575	..	1,575	350	100	197	134
16 Sattur (P)	12	1,570	120	1,690	1,015	30	131	174
17 Sivaganga (P)	3	625	..	625	300	125	208	139
18 Tirupattur (P)	13	1,055	..	1,055	175	40	81	82
19 Venkateswarapuram (P) ..	2	85	..	85	60	25	43	..
VIII. *Salem district*—								
1 Rasipuram (M)	25	2,670	200	2,870	250	25	107	132
2 Salem (M)	109	21,135	..	21,135	600	50	194	155
3 Attur (P)	9	750	..	750	100	50	83	48
4 Dharmapuri (P)	8	490	..	490	100	40	61	78
5 Harur (P)	12	1,426	..	1,426	200	50	119	95
6 Hosur (P)	14	1,120	..	1,120	100	30	80	..
7 Idappadi (P)	20	1,340	..	1,340	200	25	67	161
8 Mettur Township (P) ..	14	2,075	100	2,175	500	40	155	..
9 Namakkal (P)	24	2,310	..	2,310	250	5	96	188
10 Shevaroys (P)	9	880	..	880	200	50	98	58
11 Tiruchengode (P) ..	23	1,640	..	1,640	150	20	72	61

APPENDIX B—*cont.*

Statement showing the total amount of fines levied, number of convictions, average fines, etc., from 1st April 1957 to 31st March 1958—cont.

MADRAS STATE—*cont.*

Name of municipality or panchayat.	Number of convictions.	Fines in analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine 1956-57.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
IX. *South Arcot district*—								
1 Chidambaram (M).	40	2,715	..	2,715	150	40	68	109
2 Cuddalore (M) ..	36	2,510	..	2,510	250	40	70	128
3 Tindivanam (M) ..	11	1,040	..	1,040	200	50	95	108
4 Villuppuram (M) ..	28	5,380	..	5,390	2,000	10	192	116
5 Bhuvanagiri (P) ..	3	165	..	165	75	40	55	75
6 Kallakurichi (P) ..	14	1,650	..	1,650	150	100	118	39
7 Kattumannar Koil (P).	12	230	..	230	150	80	19	..
8 Nellikuppam (P) ..	13	690	..	690	100	25	54	74
9 Panruti (P) ..	14	665	..	665	100	35	48	86
10 Tirukollur (P) ..	13	1,385	..	1,335	200	50	103	104
11 Vriddhachalam (P).	22	2,315	..	2,315	150	35	105	144
X. *Tirunelveli district*—								
1 Melapalayam (M).	11	995	25	1,020	150	10	90	76
2 Palayamkottai (M).	35	4,165	100	4,265	250	40	122	54
3 Shencottah (M) ..	41	3,890	60	3,950	2,000	20	95	..
4 Tirunelveli (M) ..	99	11,935	300	12,285	250	5	121	59
5 Tuticorin (M) ..	47	5,035	385	5,420	300	30	107	112
6. Alwarthirunagari (P).	13	1,110	..	1,110	200	25	85	..
7 Ambasamudram (P).	17	1,985	..	1,985	800	50	117	75
8 Courtallam (P) ..	13	830	..	830	150	30	64	103
9 Ettayapuram (P).	10	885	..	885	200	25	89	75
10 Kadayanallur (P).	17	1,549	265	1,814	250	18	91	48
11 Kallidaikurichi (P)	13	1,575	..	1,575	250	25	121	78
12 Kayalpatnam (P).	19	2,440	..	2,440	250	40	128	..
13 Kovilpatti (P) ..	28	2,278	75	2,353	300	18	81	54
14 Puliyangudi (P) ..	14	915	..	915	150	25	65	60
15 Sankarankoil (P) ..	10	1,055	..	1,055	300	40	106	99
16 Srivaikuntam (P).	8	910	20	930	150	60	114	68
17 Tenkasi (P) ..	13	850	..	850	100	25	57	66
18 Tiruchendur (P) ..	8	815	..	815	175	40	102	74
19 Udangudi (P) ..	11	1,345	..	1,345	200	60	122	..
20 Vikramasingapuram (P).	17	2,400	..	2,400	300	50	141	90
21 Viravanallur (P) ..	15	1,585	250	1,835	250	50	106	64
XI. *Tanjore district*—								
1 Kumbakonam (M).	80	5,265	..	5,265	200	50	66	95
2 Mannargudi (M) ..	14	1,975	..	1,975	250	75	141	109
3 Mayuram (M) ..	52	4,330	..	4,330	275	40	83	50
4 Nagapattinam (M).	28	2,660	..	2,660	210	50	95	57
5 Tanjore (M) ..	83	13,380	525	13,905	400	45	161	105
6 Tiruvarur (M) ..	15	1,850	..	1,850	500	50	123	62
7 Adirampattnam (P)	24	5,875	..	5,875	525	35	245	..
8 Arantangi (P) ..	4	615	..	615	270	25	154	90
9 Ayyampet (P) ..	19	5,200	..	5,200	2,500	50	274	104
10 Nannilam (P) ..	16	1,650	..	1,650	200	50	103	45
11 Papanasam (P) ..	12	1,490	300	1,790	300	45	124	124
12 Pattukottai (P) ..	5	1,300	..	1,300	350	100	260	353
13 Sirkali (P) ..	17	1,090	..	1,090	100	50	64	65
14 Tranquebar (P) ..	7	935	..	935	300	15	134	..

APPENDIX B—*cont.*

Statement showing the total amount of fines levied, number of convictions, average fines, etc., from 1st April 1957 to 31st March 1958—cont.

Name of municipality or panchayat.	Number of convictions.	Fines in Analysis cases.	Fines in non-analysis cases.	Total fines.	Maximum fine.	Minimum fine.	Average fine.	Average fine 1956-57.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
XI. *Tanjore district*—cont.								
15 Tiruturaipundi (P)	16	1,830	..	1,830	200	50	114	76
16 Tiruvaiyaru (P) ..	5	700	..	700	200	100	140	90
17 Vedaranyam (P) ..	25	2,700	..	2,700	200	50	108	..
18 Tiruvidamarudur (P)	10	500	..	500	50	50	50	300
XII. *Tiruchirappalli district*—								
1 Karur (M) ..	39	3,861	110	3,971	250	25	99	94
2 Pudukottai (M) ..	51	4,290	55	4,345	250	25	84	73
3 Srirangam (M) ..	14	2,380	..	2,380	400	30	175	242
4 Tiruchirappalli (P)	61	7,450	..	7,450	360	5	122	97
5 Ariyalur (P) ..	6	860	..	860	300	80	143	170
6 Jayakondam (P) ..	6	675	..	675	200	50	113	164
7 Kulitalai (P) ..	7	700	..	700	150	100	100	86
8 Lalgudi (P) ..	12	1,165	..	1,165	150	50	97	214
9 Manaparai (P) ..	15	1,910	..	1,910	250	50	127	90
10 Musiri (P) ..	4	350	..	350	100	50	88	129
11 Palapatti (P) ..	12	1,700	..	1,700	240	60	142	..
12 Perambalur (P) ..	21	3,650	100	3,750	400	50	174	..
13 Turaiyur (P) ..	9	1,200	..	1,200	300	50	133	100
14 Gunaseelam (P) ..	3	450	..	450	200	100	150	..