

C O N T E N T S.

Kenya Reports: 1934-1936.

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1. Report on the Tana River Expedition, 1934. By D.G.Harris and H.C. Sampson. 1934. pp. 1-39.
X9(26). 687 RT E4
2. Report of the Economic Development Committees, 1934. (Chairman: G.R. Sandford.) 1935. pp. 40-196.
X. 687. N34L G5
3. Report of the Select Committee on Economy, 1935. (Chairman: H.G.Pilling.) pp.197-253.
X. 687. N34L G5
4. Report of the Dairy Industry Enquiry Committee, 1935. (Chairman: H.B.Hamilton.) pp.254-281.
X9(7311:71). 687. N35L
5. Inspection Note on the Kenya Cotton Crop in November and December, 1935. By S.Milligan. 1936. pp.282-295.
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REPORT OF THE TANA RIVER
EXPEDITION 1934

X9(D26). 687RT
E 4

Table of Contents

| | PAGE |
|--|------|
| INTRODUCTORY | 1 |
| CHAPTER | |
| I. The scope of the enquiry | 5 |
| II. Descriptive— | |
| (a) The Tana River and its basin | 7 |
| (b) The rainfall of the Tana basin | 10 |
| (c) The vegetation of the Tana basin | 12 |
| (d) The people of Tanaland | 14 |
| III. Agriculture in the Tana basin | 17 |
| IV. Possibilities of irrigation in the Tana basin— | |
| (a) The lower Tana | 22 |
| (b) The flood valley | 25 |
| (c) The middle Tana | 27 |
| (d) The upper Tana | 28 |
| V. Outline of an upper Tana irrigation scheme | 29 |
| VI. Soils on the upper Tana | 33 |
| VII. Justification for an upper Tana irrigation scheme | 37 |
| VIII. Considerations affecting the scheme— | |
| (a) Financial | 42 |
| (b) Agricultural | 49 |
| (c) Hydraulic data | 53 |
| (d) Points affecting design | 57 |
| (e) Communications | 62 |
| IX. Recommendations | 65 |
| APPENDIX—Diary of tour | 67 |

MAPS

Sketch map of the Tana River, showing the places mentioned in the Report.

Sketch map of the upper Tana area, showing approximate contours and possible alignment of a canal.

APPENDIX I
SCHEDULE SHOWING THE FINANCIAL EFFECT OF THE COMMITTEE'S
DEFINITE RECOMMENDATIONS

| | Reduction |
|--|-----------|
| HEAD I.—HIS EXCELLENCY THE GOVERNOR : | £ |
| Total reduction recommended (paragraph 37) | 2,300 (1) |
| HEAD II.—ADMINISTRATION : | |
| Reduction of one District Officer at Kitale (para. 40) | 350 |
| Reduction of one District Officer at Kajiado (para. 41) | 350 |
| Minor savings from closing Kajiado Station (para- graph 41), say | 200 |
| Minor savings from closing Kipini Station (para- graph 42), say | 200 |
| Total reduction recommended | 1,100 |
| HEAD III.—AGRICULTURE : | |
| Total reduction recommended under Reorganization Scheme (paragraph 49) | 15,871 |
| HEAD IV.—AUDIT : | |
| Total reduction recommended (paragraph 54) | 1,000 |
| HEAD V.—COAST AGENCY : | |
| Total reduction recommended (paragraph 56) | 510 |
| HEAD VII.—CUSTOMS : | |
| Total reduction recommended (paragraph 61) | 1,000 (2) |
| HEAD VIII.—EDUCATION : | |
| Abolition of post of Supervisor of Technical Education (paragraph 67) | 960 |
| Abolition of two posts of Inspectors of Schools (para- graph 68) | 1,430 |
| Replacement of four European Clerks by Africans (paragraph 69) | 1,290 |
| Abolition of issue of free books (paragraph 70) | 400 (3) |
| Saving effected by closing of Department's Store (paragraph 71) | 500 |
| Saving effected by closing European Primary School at Kilimani (paragraph 73) | 610 |
| Saving effected by transfer, or closing the Government African School at Waa (paragraph 74) | 2,026 |
| Adjustment of salary scale of Headmaster of Arab School at Shimo-la-Tewa (paragraph 75) | 200 |
| Abolition of one post of Education Officer in Arab Education (paragraph 75) | 475 |
| Reorganization and re-grading of Technical Staff under African Education (paragraph 76) | 3,000 |
| Abolition of payment of Hut and Poll Tax in respect of pupils in African Schools (paragraph 77) | 400 |
| Total reduction recommended | 11,291 |
| Less Proposed New Services (paragraph 65) | 1,600 |
| Net reduction recommended (paragraph 78) | 9,691 |
| <i>Carried forward</i> | £ 31,472 |

(1) If Mr. Pandya's and Mr. Hemsted's recommendations are accepted, the reduction would be £1,000 only, and would only take effect on the appointment of a new Governor.

(2) This figure would be modified, to an indeterminate extent, by adoption of Mr. Pandya's suggestions.

(3) Mr' Pandya dissents from this recommendation. If his views are endorsed, the total reduction must be decreased accordingly.

APPENDIX I—Contd.

SCHEDULE SHOWING THE FINANCIAL EFFECT OF THE COMMITTEE'S DEFINITE RECOMMENDATIONS

| | | Reduction |
|--|--|---------------------|
| | | £ |
| | <i>Brought forward</i> | 31,472 |
| HEAD X.—FOREST DEPARTMENT : | | |
| | Reduction recommended under Revised Estimates in Appendix 2 (<i>see</i> paragraph 83) | 4,158 |
| HEAD X.—GAME DEPARTMENT : | | |
| | Abolition of one post of Assistant Game Warden (paragraph 85) | 600 |
| | Abolition of post of Temporary Game and Vermin Control Officer (paragraph 85) | 500 |
| | Reduction in Local Transport and Travelling Vote (paragraph 85) | 150 |
| | Total reduction recommended | 1,250 |
| | <i>Less</i> increase under "Expenses of Game and Vermin Control (paragraph 85) | 250 |
| | Net reduction recommended | 1,000 |
| HEAD XV.—LOCAL GOVERNMENT, LANDS AND SETTLEMENT : | | |
| | Abolition of post of Local Government Inspector (paragraph 86) | 840 |
| | Abolition of one post of District Surveyor (para. 87) | 920 |
| | Putting into abeyance one further post of District Surveyor (paragraph 87) | 840 (1) |
| | Abolition of two posts of Forest Surveyor (para. 91) | 987 |
| | Abolition of post of Survey Records Officer (para. 87) | 600 |
| | Total reduction recommended | 4,187 |
| | <i>Less</i> increases recommended (paragraphs 88 and 89) | 270 |
| | Net reduction recommended (paragraph 92) | 3,917 |
| HEAD XVI.—LOCAL GOVERNMENT CONTRIBUTIONS : | | |
| | Reduction in consolidated grants to Nakuru and Eldoret Municipalities (paragraph 94) | 800 |
| | Abolition of District Councils in their present form (paragraph 251) | 31,920 (2) |
| | 32,720 | |
| | <i>Less</i> increased expenditure on Public Works Department and Public Works Recurrent (paragraph 251).. .. . | 16,920 (2) |
| | 15,800 | |
| | <i>Less</i> one-half the cost of Child Welfare Work in Nairobi (paragraph 102) | 1,300 |
| | Net reduction recommended | 14,500 ¹ |
| | <i>Carried forward</i> | 55,047 |

(1) This recommendation would not take effect until the post becomes vacant—*vide* paragraph 92.

(2) Major Cavendish-Bentinck and Sir Robert Shaw dissent from the recommendation. Under their alternative proposal (*see* paragraph 283) they express themselves satisfied that, by the adoption of their recommendations, a total genuine saving in excess of £15,000 could be made on the combined heads.

APPENDIX I—Contd.

SCHEDULE SHOWING THE FINANCIAL EFFECT OF THE COMMITTEE'S
DEFINITE RECOMMENDATIONS

| | | Reduction |
|--|--|------------|
| | | £ |
| <i>Brought forward</i> .. £ | | 55,047 |
| HEAD XVII.—MEDICAL DEPARTMENT : | | |
| General reduction recommended (paragraph 98) | | 5,817 |
| HEAD XVIII.—MILITARY : | | |
| General reduction recommended (paragraph 112) | | 20,000 (1) |
| Abolition of Kenya Defence Force (paragraph 114) | | 4,112 (2) |
| | | 24,112 |
| <i>Less</i> increased cost of Police (paragraph 108) | | 4,000 |
| Net reduction recommended | | 20,112 |
| HEAD XX.—MISCELLANEOUS SERVICES : | | |
| Abolition of guarantees in respect of losses on Railway Branch Lines (paragraph 240) | | 21,353 |
| Cessation of contribution to Inter-territorial Lan- guages Committee (paragraph 119) | | 603 |
| Total reduction recommended | | 21,956 |
| HEAD XXI.—PENSIONS AND GRATUITIES : | | |
| Cessation of payment of proportion of Pensions payable to Railway Servants (paragraph 240), say | | 14,162 (3) |
| HEAD XXIV.—PRINTING AND STATIONERY : | | |
| Abolition of post of Assistant Government Printer (paragraph 142) | | 720 |
| Reduction in emoluments of Government Printer (paragraph 142) | | 280 |
| Total reduction recommended | | 1,000 (4) |
| HEAD XXV.—PRISONS : | | |
| Transfer of salaries of Detention Camp Overseers to Administration Votes (paragraphs 145 and 146) | | 630 |
| Deletion of Item "Expenses of Administration of Juvenile Offenders Ordinance" (paragraph 147) | | 150 |
| Savings on Approved Shools (paragraph 150) | | 630 |
| Reduction of appropriation for Prisoners' and De- tainees' Food (paragraph 151) | | 1,000 |
| Total reduction recommended | | 2,410 |
| <i>Carried forward</i> .. £ | | 120,504 |

(1) The net reduction might be modified by an alteration in the method of computation of the inter-territorial reimbursement (paragraph 113).

(2) Major Cavendish-Bentinck and Sir Robert Shaw dissent from this recommendation. Mr. Pandya and Mr. Hemsted might be prepared to agree to expenditure on a Volunteer Force (paragraph 114).

(3) Expenditure under this Head of Estimates would be increased by acceptance of our other recommendations (paragraph 345).

(4) In paragraph 137 a reduction of £5,000 is recommended on the understanding that quantity of work is put out to contract. As it is presumed that a substantial proportion of this sum would be utilized for payment to contractors, no further reduction is shown in this Appendix.

APPENDIX I—Contd.

SCHEDULE SHOWING THE FINANCIAL EFFECT OF THE COMMITTEE'S DEFINITE RECOMMENDATIONS

| | | Reduction |
|---|-------|----------------|
| | | £ |
| <i>Brought forward</i> .. £ | | 120,504 |
| HEAD XXVII.—PUBLIC WORKS DEPARTMENT. | | |
| HEAD XXVIII.—PUBLIC WORKS RECURRENT: | | |
| Automatic savings (paragraph 157) | 1,904 | |
| Increase in Reimbursement from Loan (paragraph 158) | 2,000 | |
| Reimbursement from Colonial Development Fund (paragraph 160) | 2,500 | |
| Economies in the Central Workshops and Timber Seasoning Branch (paragraph 161) | 511 | |
| Abolition of one post of Inspector of Water Supplies (paragraph 162) | 500 | |
| Reduction in Stores Expenditure to be effected at the discretion of the Director (paragraph 163) .. | 600 | |
| Cessation of payment of rent for Education Department Store (paragraph 71).. .. . | 100 | |
| Total reduction recommended | | 8,115 |
| HEAD XXIX.—REGISTRAR-GENERAL'S DEPARTMENT: | | |
| Abolition of post of Assistant Registrar-General (paragraph 196) | 720 | |
| Reduction of emoluments of Registrar-General (paragraph 197) | 330 | |
| Abolition of one post of Non-European Clerk (paragraph 198) | 100 | |
| Adjustment of salary paid to European Learner (paragraph 198) | 63 | |
| Amalgamation of Registration of Births, Marriages and Deaths in the Statistical Dept. (paragraph 209) | 534 | |
| Total reduction recommended (paragraph 199) | | 1,747 |
| HEAD XXXI.—SECRETARIAT AND LEGISLATIVE COUNCIL: | | |
| Abolition of one post of European Clerk (para. 201) | 318 | |
| Reduction in rate of allowances to Unofficial Members of Councils (paragraph 202), say | 750 | |
| Total reduction recommended | | 1,068 |
| HEAD XXXII.—STATISTICAL DEPARTMENTS: | | |
| Total reduction recommended (paragraph 209) | | 1,636 |
| HEAD XXXIII.—TRADE AND INFORMATION OFFICE: | | |
| Colony's approximate share of reduction recommended (paragraph 214) | | 353 (1) |
| GRAND TOTAL .. £ | | 133,423 |

(1) If Mr. Pandya's recommendations (paragraph 216) were accepted, the reduction in this Head would be substantially more. The figure of £353 is the Colony's proportion of the reduction of £600 recommended in the combined Colony's and Railway's contributions.

APPENDIX 2
FOREST DEPARTMENT—ESTIMATE OF EXPENDITURE FOR 1936

| PERSONAL EMOLUMENTS | | £ | £ |
|--|----------------|---------------|---------------|
| 1 Conservator of Forests (£1,200) .. .. . | .. .. . | 1,200 | |
| 1 Senior Assistant Conservator (£720-30-840) .. .. . | .. .. . | 840 | |
| 7 Assistant Conservators (£480-20-600-30-720) .. .. . | .. .. . | 4,651 | |
| 11 Foresters (£300-18-390-18-480-20-500) .. .. . | .. .. . | 5,468 | |
| 1 Learner (Forester (£84-18-120) .. .. . | .. .. . | 93 | |
| 1 Accountant (£426-18-480-20-600) .. .. . | .. .. . | 600 | |
| Total European Personal Emoluments .. .. . | .. .. . | 12,852 | |
| 8 Assistant Foresters, 1st Grade (£120-12-240) .. .. . | .. .. . | 1,689 | |
| 2 Assistant Foresters, 2nd Grade .. .. . | .. .. . | 133 | |
| 6 Clerks .. .. . | .. .. . | 1,338 | |
| Forest Guards, Spearmen, etc. .. .. . | .. .. . | 2,960 | |
| Total Non-European Personal Emoluments .. .. . | .. .. . | 6,120 | |
| TOTAL PERSONAL EMOLUMENTS .. .. . | .. .. . | .. | 18,972 |
| OTHER CHARGES | | | |
| Reafforestation .. .. . | .. .. . | 1,370 | |
| Nurseries .. .. . | .. .. . | 850 | |
| Protection and Upkeep of Boundaries .. .. . | .. .. . | 750 | |
| Working Plans, Surveys and Demarcation .. .. . | .. .. . | 230 | |
| Exploitation .. .. . | .. .. . | 500 | |
| Upkeep of Forest Stations and Roads .. .. . | .. .. . | 510 | |
| Upkeep of Nairobi Arboretum .. .. . | .. .. . | 150 | |
| Purchase and Upkeep of Uniforms .. .. . | .. .. . | 130 | |
| Purchase and Collection of Seeds .. .. . | .. .. . | 180 | |
| Contingencies .. .. . | .. .. . | 100 | |
| Purchase of Live Stock .. .. . | .. .. . | 70 | |
| Passages .. .. . | .. .. . | 760 | |
| Local Travelling and Transport .. .. . | .. .. . | 1,826 | |
| Travelling Allowance .. .. . | .. .. . | 230 | |
| Contribution to Imperial Forestry Institute.. .. . | .. .. . | 310 | |
| Telephones .. .. . | .. .. . | 52 | |
| Purchase of Foodstuffs for Labourers .. .. . | .. .. . | 300 | |
| TOTAL OTHER CHARGES .. .. . | .. .. . | .. | 8,318 |
| GRAND TOTAL | | £ | 27,290 |

APPENDIX 3
REVENUE AND EXPENDITURE ON ROADS
(See PARAGRAPH 271)

| EXPENDITURE | 1929 | 1930 | 1931 | 1932 | 1933 |
|-----------------------------|----------------|----------------|-----------------|----------------|----------------|
| | £ | £ | £ | £ | £ |
| Public Works Recurrent .. | 69,747 | 84,991 | 75,978 | 63,770 | 46,620 |
| Native Services | — | — | — | — | 16,155 |
| Tools and Plant | 10,447 | 9,933 | 3,208 | 4,497 | 4,445 |
| Public Works Extraordinary | 68,256 | 24,922 | 1,272 | 77 | 4,647 |
| Grants, Nairobi | 398 | 3,616 | 2,980 | 1,814 | 1,091 |
| | 10,409 | 10,834 | 8,426 | 8,426 | 8,300 |
| Mombasa | 286 | 2,121 | 556 | 304 | 580 |
| | 2,750 | 3,503 | 3,520 | 2,626 | 2,450 |
| District Councils | 35,481 | 36,001 | 36,412 | 34,598 | 32,186 |
| Vehicles | 494 | 763 | 1,230 | 588 | 832 |
| Township Roads | — | 533 | 543 | 510 | 396 |
| Flood Damage | — | 31,285 | — | — | — |
| Special, Eldoret | 3,331 | 750 | 250 | — | — |
| Special, Nairobi | 4,272 | 9,200 | 984 | — | — |
| Road Plant, D.C.'s | 7,108 | 1,365 | — | — | — |
| Additional Grants | — | 14,613 | 7,006 | — | — |
| Special, Mombasa | — | 397 | — | — | — |
| Nakuru Township | 484 | — | — | — | — |
| | 213,463 | 234,827 | 142,365 | 117,210 | 117,702 |
| | | | £825,567 | | |
| REVENUE | | | | | |
| Customs | 105,276 | 94,917 | 81,572 | 69,557 | 77,798 |
| Motor Licences | 47,070 | 51,264 | 52,105 | 50,164 | 49,343 |
| Drivers' Licences | — | — | — | 2,305 | 2,398 |
| Vehicle Licences | — | — | — | — | — |
| Petrol Tax | 23,555 | 31,693 | 27,260 | 32,205 | 53,052 |
| Carriage of Goods Ordinance | — | — | 1,290 | 1,450 | — |
| | 175,901 | 177,874 | 162,227 | 155,681 | 182,591 |
| | | | £854,274 | | |

APPENDIX 4
TENTATIVE SUGGESTED GROUPING OF DEPARTMENTS
(See CHAPTER IX)

| HEAD OF ESTIMATES | 1935 Estimated Expenditure | | | Rough Estimate of Overhead Administration Cost of Individual Department |
|---|----------------------------|----------------|---------------|---|
| | Gross | Net | Non-Recurrent | |
| | £ | £ | £ | £ |
| I. HIS EXCELLENCY THE GOVERNOR | 14,869 | 14,869 | — | — |
| I.—COLONIAL SECRETARY | | | | |
| II. Administration | 222,898 | 222,423 | 850 | 4,108 |
| VI. Conference of E.A. Governors | 955 | 955 | — | — |
| XXXI. Legislative Council | 4,820 | 4,820 | — | — |
| Native Affairs | 1,450 | 1,450 | — | — |
| Native Development | — | — | — | — |
| Foreign Affairs | — | — | — | — |
| XXXI. Secretariat | 17,177 | 17,177 | — | — |
| | — | — | — | Impossible to estimate |
| II.—PORTFOLIO OF JUSTICE AND INTERNAL AFFAIRS | | | | |
| VIII. Education | 177,855 | 176,905 | 100 | 14,109 |
| XIII. Judicial | 30,960 | 30,960 | — | — |
| XIV. Legal | 8,278 | 8,278 | — | — |
| XVII. Medical | 199,817 | 193,355 | 750 | 9,495 |
| XI. Government Analyst | 1,659 | 1,659 | — | — |
| XVIII. Military | 129,522 | 81,758 | — | 8,463 |
| XXII. Police | 134,773 | 127,732 | 78 | 5,765 |
| XXIV. Printing and Stationery | 28,311 | 28,311 | — | 3,273 |
| XXV. Prisons | 54,524 | 54,524 | 1,704 | 2,463 |
| XXXII. Native Registration (part of) Registration of Domestic Servants | 8,288 1,427 | 8,288 1,427 | — — | 900 |
| Probably not less than | — | — | — | 44,468 |
| III.—PORTFOLIO OF FINANCE | | | | |
| IV. Audit | 19,978 | 14,608 | — | — |
| VII. Customs and Excise | 48,603 | 29,039 | — | — |
| XII. Interest and Unfunded Debt | 4,224 | 4,224 | — | — |
| XX. Miscellaneous Services (part of) | 25,592 | 23,826 | 1,092 | — |
| XXI. Pensions and Gratuities | 209,150 | 208,409 | — | — |
| XXVI. Public Debt Funded | 1,043,252 | 183,275 | — | — |
| XXX. Rent and Interest, Zanzibar | 16,000 | 16,000 | — | — |
| XXXIV. Treasury | 27,968 | 26,176 | — | — |
| XXV. Colonial Development Fund | 5,384 | 906 | — | — |
| Central Revenue Office | — | — | — | — |
| | — | — | — | Impossible to estimate |

APPENDIX 4—Contd.
TENTATIVE SUGGESTED GROUPING OF DEPARTMENTS

| HEAD OF ESTIMATES | 1935 Estimated Expenditure | | | Rough Estimate of Overhead Administration Cost of Individual Department |
|--|----------------------------|---------|---------------|---|
| | Gross | Net | Non-Recurrent | |
| | £ | £ | £ | £ |
| IV.—PORTFOLIO OF AGRICULTURE AND LANDS | | | | |
| III. Agriculture | 125,871 | 125,871 | 628 | 18,131 |
| IX. Forests | 31,448 | 31,448 | — | 1,800 |
| X. Game | 8,596 | 8,596 | — | 1,300 |
| XV. Survey and Registration .. | 28,532 | — | — | — |
| XX. Rebate on Paraffin for Agricultural purposes (part of) | 2,200 | — | — | — |
| Probably not less than.. | — | — | — | 21,231 |
| V.—UNOFFICIAL PORTFOLIO OF COMMERCE, TRANSPORT, P.W.D., AND MINES | | | | |
| V. Coast Agency | 5,231 | 3,161 | — | 700 |
| XV. Local Government (part of) | 5,756 | 5,376 | — | 5,858 |
| XVI. Local Government Contribution | 83,171 | 72,291 | — | — |
| XIX. Mining and Geological .. | 11,600 | 11,600 | — | 3,508 |
| XX. Civil Aviation (part of) .. | 17,300 | 17,300 | — | — |
| XX. Railway Branch Line Guarantees (part of) .. | 21,353 | 21,353 | — | — |
| XXIII. Post Office and Telegraphs | 226,693 | 120,994 | 4,250 | 13,278 |
| XXVII. Public Works | 82,671 | 80,571 | 11,640 | 14,857 |
| XXVIII. Public Works Recurrent .. | 114,752 | 114,752 | — | — |
| XXXII. Statistical Dept. (part of).. | 279 | 279 | — | 500 |
| XXIX. Registrar-General | 6,155 | 6,155 | — | 500 |
| XXXIII. Trade and Information Office | 4,536 | 4,536 | — | — |
| Probably not less than.. | — | — | — | 39,201 |

Report of the Dairy Industry
Enquiry Committee

X9(7311:71).687.N35

G6

REPORT OF THE DAIRY INDUSTRY ENQUIRY
COMMITTEE.

The expenses incurred in connection with the Committee were approximately £131, and the cost of printing and publishing this report is estimated by the Government Printer at £30. These figures take no account of the time spent by officers of Government not specially seconded for service with the Committee.

GOVERNMENT NOTICE No. 287.

APPOINTMENT.

It is notified for public information that His Excellency the Acting Governor has been pleased to appoint the following Committee—

Mr. H. B. Hamilton,
Capt. E. Caswell Long,
Capt. F. O'B. Wilson, and
The Director of Agriculture,

with the following terms of reference—

- (a) to enquire into the dairy industry of the Colony and to formulate a scheme for the complete control of the production and distribution of milk products, due regard being given to the interests of the consumer, to vested interests, and to the best methods of ensuring an adequate return to the producer;
- (b) to report on the potential expansion of the export industry;
- (c) to enquire into the desirability and/or feasibility of the institution of central milk depots in municipalities; and
- (d) for the purpose of this enquiry to take evidence from interested parties.

Members of the public are invited to give verbal evidence or submit memoranda to the Committee.

Memoranda and requests to give verbal evidence should be submitted to the Secretary, Board of Agriculture, Nairobi.

Nairobi,

This 12th day of April, 1935.

JUXON BARTON,
for Acting Colonial Secretary.

Report of the Dairy Industry Enquiry Committee

YOUR EXCELLENCY,

We have the honour to submit the following report on our inquiry into the dairy industry.

EVENTS LEADING UP TO APPOINTMENT.

2. In the first place, it seems desirable to recall the progress of the somewhat protracted discussions which led up to our appointment. At a meeting of the Animal Industry Standing Committee of the Board of Agriculture, held on the 1st March, 1934, a memorandum prepared by the Directors of the Kenya Co-operative Creamery Ltd. was read. This memorandum represented that the Butter Levy Ordinance no longer fulfilled its purpose in equalizing the positions of the non-co-operator and the co-operator. It was submitted that when the Ordinance was passed, the Creameries were selling about one-third of their butter production locally at Sh. 1/50 per pound wholesale, and exporting the remainder at about 80 cents per pound. As only the Creameries could export, owing to the necessity for standardization of the product and for cold storage facilities, the Creameries were bearing the whole burden of export and an equalizing factor was necessary, which was provided by the cess of 25 cents per lb. levied under the Ordinance. At the date of the memorandum, however, not only did the non-co-operators sell their butter locally at prices varying from equality to considerably below those of the Creameries, but the position as between co-operators and non-co-operators had been completely changed by a reduction in the prices ruling for butter on overseas markets. It was stated in the memorandum that the Creameries were now selling about one-fourth of their production locally at Sh. 1/25 per lb. wholesale and exporting the balance at less than 40 cents per lb., the position of the non-co-operators remaining practically as before. The Creameries requested that legislation be introduced to increase the butter levy to 50 cents per lb., or, if this proposal were not acceptable, to provide for the selling of butter on the same lines as that of wheat under the Sale of Wheat Ordinance. They also urged that the Butter Levy Ordinance, 1931, be amended, so as not to exempt from the levy butter exported to Tanganyika Territory and Uganda.

3. Arising out of this memorandum, the following resolutions were passed by the Standing Committee :—

“That Government be requested to amend section 11 of the Butter Levy Ordinance by deletion of the words ‘butter manufactured in the Colony and exported to Uganda and Tanganyika Territory’.”

“That Government be requested to introduce legislation to increase the cess under the Butter Levy Ordinance from cents 25 to cents 50;”

or alternatively,

“That Government be requested to introduce legislation on the lines of the Sale of Wheat Ordinance to bring about the compulsory co-operative marketing of all butter manufactured in the Colony, through a Butter Control Board, working on the lines of the Wheat Board.”

4. These resolutions were referred to the Butter Levy Advisory Board, and it was subsequently decided that, before any decision was taken, the possibility of substituting for the cess a compulsory co-operative marketing scheme to cover *all milk products* should be fully explored.

5. This proposal was considered by a sub-committee of the Board of Agriculture, which pointed out that the organized marketing of all dairy products would present many difficulties. The sub-committee supported the scheme of co-operative marketing and proposed that a Dairy Products Control Board be set up and it be made compulsory for all dairy produce to be sold through a single selling agency. Immediate application was proposed in the case of butter and subsequent application on the recommendation of the Board to other forms of dairy produce. The proposals were embodied in a draft Bill.

6. The draft Bill was considered at a meeting of Executive Council on the 18th January, 1935, and a sub-committee appointed to examine its provisions. After taking evidence from certain persons interested in the dairy industry, the sub-committee observed that the future position of export of butter was not clear; that although an agency would have no difficulty in accepting all butterfat, no agency could undertake to accept all supplies of butter offered to it; that in consequence complicated issues were involved in districts remote from creameries; that control could not be effective until all dairy produce was provided for; and that various vested interests were involved. It was, therefore, recommended that the Bill

in question should receive detailed investigation by a sub-committee of the Board of Agriculture, with co-opted members representing all sections of the industry.

7. A Dairy Industry Control Sub-Committee of the Board of Agriculture was thereupon appointed and met on the 19th March, 1935. A list of persons representative of all sections of the dairy industry was drawn up and these persons were invited to attend at the next meeting of the sub-committee. This meeting was held on the 1st April, 1935, and was attended by the following, in addition to the sub-committee :—

The Hon. Director of Agriculture.

Capt. F. O.'B. Wilson, representing Milk Producers.

Mr. E. B. Hutton, representing Milk Distributors.

Mr. W. B. Thompson, representing Cheese Producers.

Mr. Mervyn Ray, representing Milk and Farm Butter Producers.

Mr. H. J. Sankey, representing Butter and Milk Producers outside the Kenya Co-operative Creamery Ltd.

Mr. G. S. Hunter, representing Kenya Co-operative Creamery Ltd.

Capt. E. Caswell Long, representing Kenya Co-operative Creamery Ltd.

8. Among other resolutions the following was passed :—

“(c) That this meeting agrees that an inquiry be conducted as suggested and that it be undertaken by a Committee of four persons, namely :—

The Hon. Director of Agriculture,

Mr. H. B. Hamilton,

Capt. E. Caswell Long,

Capt. F. O.'B. Wilson, C.M.G.”

9. We, the above-named, were thereupon appointed by Government Notice No. 287 of 12th April, 1935, as a Committee, with the terms of reference as given on page ii of this report.

10. The Committee decided to publish a notice in the local press, inviting those interested in the dairy industry to submit their considered views in writing and to indicate if they desired to give evidence before the Committee. This notice was sent also to Farmers' Associations, Chambers of Commerce and other bodies.

11. In response to the notice thirty-four memoranda were received, and authors of some of these memoranda gave verbal

evidence before us. In order to obtain evidence from representatives of all interests, certain other persons were asked to attend. We desire to extend our thanks for the help thus afforded us by authors of memoranda and witnesses who gave evidence before us.

12. The Committee sat on seven days during April, two days during May, two days during June, four days during September, two days during October and one day during November.

GENERAL REVIEW OF THE DAIRY INDUSTRY.

13. Although the facts relating to the dairy industry are well known and the position in which it finds itself to-day is well understood by those interested in the industry, it seems desirable to preface our recommendations with a brief review in order to clear up any misconceptions that may exist and to serve as a background for our proposals. Milk and milk products are produced for sale mainly by European farmers, but also to some extent by non-European cattle owners. According to an analysis of the Agricultural Census of 1932, out of a total of just over 2,000 separate holdings in occupation by Europeans, some 250 were classified as dairy farms, and a further 250 farms were concerned in more or less degree with the sale of dairy products. Since that time we believe that the number has increased considerably. Many native owners of cattle sell milk and prepare ghee in the Native Reserves, and together with a few Somali and Indian dairymen, supply liquid milk to municipalities.

EXPANSION OF THE DAIRY INDUSTRY.

14. The rise of the dairy industry is shown in the statistics given in detail in Appendix III of this report. According to the Agricultural Census the annual sale of liquid milk for consumption from European farms increased from 250,000 gallons in 1921 to 1,027,375 gallons in 1929-30. From returns received from municipalities we have estimated the supply of milk from all sources in 1934 at 1,650,000 gallons (*See Appendix III, Table IX.*) The export (including transfers to Uganda) of butter surplus to Kenya's requirements has risen from 24 cwt. in 1921 to 12,099 cwt. in 1934. The increase of recent years is all the more remarkable in view of the depredations of locusts and the severe droughts which have occurred. On the evidence placed before us, we cannot escape the conclusion that a rapid increase of production will follow on the resumption of normal conditions, and in fact, to a large extent, it has already done so. We wish to emphasize the urgency of the problem, so that early action may be taken.

ANNUAL SALES AND MARKETS.

15. There are three main markets for milk products: Kenya, near and neighbouring territories, and the United Kingdom market. The following figures for the year 1934 indicate the relative importance of these markets. The consumption of liquid milk was in the neighbourhood of 1,650,000 gallons. The production of butter for sale by creameries and by European farm butter-makers was 2,018,001 lb., of which 749,041 lb. was consumed entirely in Kenya and Uganda, 411,040 lb. exported to nearby territories, and 857,920 lb. exported to the United Kingdom. (These figures are derived from Customs returns and butter levy statistics, and we believe that the latter result in an appreciable understatement by reason of evasion of the Ordinance.) Cheese production for sale was 280,003 lb., of which 67,424 lb. were exported, the balance of 212,579 lb. being consumed in Kenya and Uganda. Net imports of ghee into Kenya and Uganda, all from nearby territories, amounted to 7,930 cwt., to which must be added a large quantity of ghee produced by native cattle owners and sold in Kenya.

UTILIZATION IN TERMS OF LIQUID MILK.

16. A better appreciation of the relative importance of these products is obtained by assessing the quantities of each in terms of milk. Omitting ghee the utilization of dairy products in 1934 was as follows:—

| | Equivalent Gallons of Milk | Per cent |
|---|----------------------------------|--------------|
| MILK— | | |
| Consumed in Kenya—1,650,000 gallons. . . | 1,650,000 | 26.7 |
| BUTTER— | | |
| Consumed in Kenya and Uganda, 749,041 lb. | 1,588,749 | 25.3 |
| Exported to nearby territories, 411,040 lb. | 871,405 | 13.9 |
| Exported to the United Kingdom, 857,920 lb. | 1,818,790 | 29.6 |
| CHEESE— | | |
| Consumed in Kenya and Uganda, 212,579 lb. | 212,579 | 3.4 |
| Exported to nearby territories, 62,944 lb. | 62,944 | 1.0 |
| Exported to the United Kingdom, 4,480 lb. | 4,480 | 0.1 |
| | 6,208,947 | 100.0 |

Although the consumption of Kenya dairy products in Kenya and Uganda and neighbouring territories has been increasing steadily, production has been increasing at a greater rate than local consumption, with the result that there has been a considerable annual increase in the balance of production which is marketed in the United Kingdom.

BUTTER PRICES IN THE UNITED KINGDOM.

17. The price of butter on the London market fell considerably after the date when the Butter Levy Ordinance was introduced, though there has been a gradual rise since the beginning of the present year and a more spectacular one in the last three months. This is shown in the following figures, which should not be taken as indicating the actual receipts for Kenya butter, but only as illustrating the general movement of prices over the period shown :—

NEW ZEALAND FINEST (MID-MONTH QUOTATIONS)

| | SHILLINGS PER CWT. | | | | |
|----------------|--------------------|------|------|------|------|
| | 1931 | 1932 | 1933 | 1934 | 1935 |
| March | — | 110 | 70 | 71 | 74 |
| June | 110 | 95 | 80 | 78 | 80 |
| September .. . | 111 | 111 | 98 | 73 | 112 |
| December .. . | 105 | 80 | 68 | 68 | — |

FARM VALUES.

18. When transport and manufacturing costs are deducted from sale values, a comparison of the return to the farmer from milk sold in different ways appears as follows :—

| | RETURN TO FARMER |
|---|---------------------------------|
| | <i>Cents per gallon of milk</i> |
| MILK— | |
| In Kenya 100 cents per gallon | 72 |
| „ 85 cents per gallon | 57 |
| „ 70 cents per gallon | 42 |
| BUTTER— | |
| In Kenya, wholesale, Sh. 1/25 per lb. | 46 |
| „ „ Sh. 1 per lb. | 34 |
| To nearby territories | 39 |
| To United Kingdom, Sh. 70 per cwt. | 9 |
| „ „ Sh. 80 per cwt. | 13 |
| „ „ Sh. 100 per cwt. | 22 |
| „ „ Sh. 110 per cwt. | 26 |
| CHEESE— | |
| In Kenya, wholesale, 80 cents per lb. | 43 |
| To United Kingdom, Sh. 43 per cwt. | (Loss —15) |
| GHEE— | |
| In Kenya, 50 cents per lb. | 13 |

(See Appendix III, Table X)

During the last two years the return from export butter has been down as low as 9 cents per gallon of milk (neglecting butter levy payments), and even the recent spectacular increase has only brought it slightly above 26 cents. On the other hand, that for milk, butter and cheese sold locally has varied between 43 cents and 57 cents. The actual differences have been even greater in that the returns for milk have been worked out for distant suppliers, and those near the market may receive almost the full wholesale price. These differences are at the root of the problem with which the present inquiry is concerned. The disparity between prices for the different classes of dairy produce is having repercussions on the local market. The price of milk, for instance, has fallen from Sh. 1 per gallon two years ago to 70 cents and even lower at the present time. The process has been one of levelling down, whereas equilibrium would be more appropriately reached by a process of levelling up.

19. In actual fact the returns from butter exported to the United Kingdom have been augmented from the levy fund. The additions have been as follows :—

| | | | | | |
|------|-----|-----|-----|------|---------------|
| 1932 | ... | ... | ... | 17.0 | cents per lb. |
| 1933 | ... | ... | ... | 20.6 | ,, ,, |
| 1934 | ... | ... | ... | 15.3 | ,, ,, |

These payments, of course, are derived in part from the cess paid by the creameries on their local sales, which has reduced the net benefit to the creameries by about half the above. The returns from local sales of butter have been reduced by 25 cents per lb. of butter. As the proportion of butter for export increases the help afforded by the levy fund payments naturally diminishes. Whereas with half the total production exported, which was approximately the case in 1932, the effect of the cess would be to add 25 cents per lb. of butter exported, with three-quarters exported the corresponding amount would be only 8.3 cents.

COSTS OF PRODUCTION.

20. The answer to the question whether increased quantities of butterfat can be produced at probable export values is fundamental to our inquiry. Without some prospect that the industry will become self-supporting on the basis of export values there seems no justification for legislative interference with the operation of the laws of supply and demand.

21. Although it is difficult to make an unequivocal computation of the production costs in Kenya, we believe that with the increasing skill that is being acquired by the dairy farmer,

coupled with the steady improvement of the class of stock in the Colony, the cost of butterfat production will compare more than favourably with that of other butter-exporting countries. In New Zealand, one of the most efficient butter-exporting countries of importance, a recent Commission states : "The collective evidence of farmers' returns of income and expenditure submitted to the Commission indicates that the minimum cost for maintenance, working cost and labour on highly productive farms, managed with at least average efficiency, is 8d. per lb. of butterfat." Actual figures cited by the Commission range closely around 11d. per lb. These figures should be interpreted in the light of an export price for butterfat of 9.25d. per lb., which could only have been possible as a result of currency inflation against sterling.

22. The Agricultural Economist produced figures for forty-eight dairy farms in Kenya for the year 1932-33, showing that the average cost per lb. of butterfat (excluding management and interest and making no allowance for sales of subsidiary products) was 87 cents, that on the twelve most profitable farms being 68 cents. We believe that the costs have been brought down to a considerable extent since that time. The fact that the average production of butterfat per cow and per acre in 1932 was 32 lb. and 1 lb. respectively in Kenya, as compared with about 200 lb. and 80 lb. in New Zealand, shows what enormous strides are possible in the dairy industry in Kenya. Exporters in most other dairy exporting countries are assisted at the present time by measures of various kinds, such as currency inflation, subsidies etc., and we believe that, given equal terms, Kenya can more than hold its own in the world market.

23. Some reduction in costs of manufacture should follow an increase in total supplies of butterfat and greater seasonal regularity. Supplementary feeding of dairy cows is only just coming into general use, and it is believed that total yields should increase and creamery supplies become more regular with an extension of this practice. The Kenya Co-operative Creamery Ltd. in their evidence before the Economic Development Committee stated that "the cost of manufacture depends mainly on the volume of supplies. As an illustration, in July, 1932, with the production of 112,896 lb. of butterfat, the cost of manufacture was 28.85 cents per lb. of butterfat, whereas in May, 1933, with the production of 40,922 lb. of butterfat, in spite of salary cuts, reduction in interest charges and other economies, it rose to 46.16 cents per lb. of butter-

fat." They stated that if all the factories were working at full capacity, the cost might fall to about 18 cents per lb. (of butterfat), but is unlikely to fall below that figure.

24: The cost of ocean freight at 1d. per lb. is somewhat high. A reduction to the New Zealand rate of 3d., which applies to complete ship loads, represents a reduction of 3.7 cents per lb. of butterfat, and such a saving would be of material assistance.

25. We do not wish to fall into the common error of speaking of the cost of production as a uniform figure. Actual costs must vary widely not only from district to district and from farm to farm, but also for different quantities on the same farm. It is quite possible that additional quantities might be produced on existing dairy farms at a cost per lb. which is much less than the average cost of production of the total output on the same farms. It is quite possible for export to be profitable at a net realization below average cost of production. This is the basis of the principle of marginal cost. It is a principle which is well known and widely adopted in manufacturing industries, as for example the motor industry, but it depends for success upon freedom from reaction upon local prices. For instance, it is found profitable to sell American motor cars on a f.o.b. basis for export for less than the price in the United States, though it would not be so if there were any possibility of internal prices becoming regulated by the export parity thus created.

26. There is the position of the native producer to take into account. It cannot be doubted that the potential output of dairy produce from Native Reserves is large, though experience to date indicates that the advance will not be rapid. Out-of-pocket costs are not incurred in Native Reserves in the same way as on European holdings, and the price received by the native is almost all clear profit. The Kenya Co-operative Creamery Ltd. have approached Government on several occasions, offering to put native producers on the same basis as European suppliers.

27. A return of 25 cents per lb. of butterfat corresponds to only 10 cents per gallon of milk and we are informed that in Native Reserves 2 cents per pint or 16 cents per gallon is being received for milk used for ghee making. We doubt whether it would be possible to stimulate much interest in sale of cream to creameries at or near the values of butterfat for export which have ruled during the last two years, at all events without some such means of equalizing internal and export returns as is afforded by the cess in the case of butter.

28. There can be no question of a loss of wealth to the community as a whole arising from the export of butter. The value even at Sh. 70 per cwt. in London is still Sh. 53 f.o.b. Mombasa, and this amount is distributed between the farmer, the railway and port authorities and various other interests in the Colony. Elimination of export would deprive the Colony of this return.

29. The future of export cannot be clearly foreseen until the conclusion of the Ottawa Agreements in 1936. It is generally understood that the United Kingdom Government intends to take measures to support the home industry, as competition of imported butter and cheese is causing the Milk Board considerable difficulty in the disposal of surplus milk. We cannot believe that Kenya, as a Crown Colony, will be placed in a disadvantageous position on the British market, and any measures enacted in support of prices on that market should react favourably on the value of Kenya butter. We strongly urge that adequate steps be taken to ensure that Kenya is allotted an adequate share in any preferences which may be accorded to British possessions.

30. The capitalization of the Kenya Co-operative Creamery Ltd. has recently been increased by the erection of two additional creameries. Importations of pedigree stock have continued and technical advances are being made in other directions. The industry cannot stand still. It must either increase production and swell the export surplus, or a part of the capital which has been built up must be destroyed.

31. There are, therefore, in our opinion, sufficient grounds for regarding increase of exports as desirable. In the words of the Economic Development Committee (para. 282) :—

“The only possible course seems to be to take due advantage of the economies which greater volume of production brings in its train. It has been pointed out that the costs of manufacture of butter at present are somewhat swollen by the shortage in relation to the capacity of the factories of supplies of butterfat during the dry seasons. In volume and regularity of export lies also the most likely means of securing reductions in ocean freight rates and marketing costs. The chief part of the cost of production on farms consists of items which may be expected to fall as the output increases. In the meantime the process of adjustment can be facilitated by measures such as the butter levy, or other means to the same end.”

THE OBJECTS OF REORGANIZATION.

32. The demand for reorganization of the dairy industry has generally originated with the members of the Kenya Co-operative Creamery Ltd. and has generally taken the form of a request for equalization of their position *vis-à-vis* that of the farm buttermaker. It has been held that since export values are lower than those on the local market, it is inequitable that the Kenya Co-operative Creamery Ltd., which is the sole organization in a position to carry on an export trade, should be required to bear the whole burden of the "loss on export". Considerable capital expenditure has been incurred in providing the necessary equipment for export, and non-members, who reap the benefit of export, should bear an equitable part of the burden. If no export trade had been built up, local prices would have been driven down by internal competition to a level at which few dairy farmers could have survived. It is unfair that non-co-operators should be able to secure a disproportionate amount of the local market, leaving the relatively unremunerative export markets for creameries.

PRICE CONTROL.

33. It is obvious that the creameries could secure a larger proportion of the local market by entering into open competition with other suppliers, which would cause prices to gravitate to export parity. Reduction of prices would be detrimental to all producers, whether members of the creameries or not, and whether producers of butterfat, butter or any other form of dairy produce.

CO-OPERATION.

34. An undercurrent of antagonism between creamery members and non-co-operators is present and proposals for reorganization of the industry are regarded by some as an attempt to force non-co-operators into the creameries. Creamery members look upon the attitude of the non-co-operators as one of short-sighted self-interest, or willingness to take advantage of the improvement in market conditions brought about by the creameries without making an adequate contribution to the cost. The position is in their view all the more exasperating when reduction of creamery costs could plainly be effected if the membership and output were increased. It is, in fact, the old story of the co-operative society and recalcitrant producers.

35. The non-co-operator, on his side, fails to make due allowance for the firmer market created by the creameries. His professional pride is aroused by the suggestion that the creameries could oust him from his market if they cared to enter into a price-cutting campaign. He may assert that he has created a special demand for his own make and could retain his connection in the face of any action by the creameries. He generally looks upon good farm butter as a superior article to the mass-produced creamery article. An impression that the Kenya Co-operative Creamery Ltd. is over-capitalized and extravagantly operated is widely current, and it is sometimes looked upon as existing chiefly for the benefit of the big man at a remote distance from the consuming centres.

36. We are aware of the practical difficulties in reconciling these conflicting points of view. The question of abstract justice is one which does not concern us so much as the economic effects to be anticipated. We are of opinion that the allegations made against the creameries are unfounded. We feel bound to say that it is in the economic interest of the Colony as a whole, no less than of producers as a whole, that the dairy industry should expand on co-operative lines. The advantages of co-operation have been insisted on so often as to need no further advocacy in this report, but there is a special need for the system where, as in the case under consideration, the exportation of a dead-weight surplus can be carried on through no other means.

37. Co-operative marketing is seldom in the interest of all producers alike. Those in the most favourable position are generally required to make some apparent sacrifice as compared with others. Producers remaining outside the co-operative organization are in a position to share in the benefits secured, but their uncontrolled existence often ties the hands of the co-operative and may imperil the industry. It is now a commonly accepted principle that where the interests of a majority of producers within a co-operative organization are being prejudiced by a minority of non-co-operators, the latter should be compelled to join in a general marketing scheme.

MEASURES OF ASSISTANCE POSSIBLE.

38. The following measures have been suggested as offering amelioration of the present position :—

- (a) An increase in the rate of the butter cess.
- (b) Extension of the cess to all dairy produce.
- (c) Fixation of minimum prices for dairy produce.
- (d) Compulsory pooling of all sales of dairy produce.

INCREASE IN THE RATE OF THE BUTTER CESS.

39. An increase in the rate of the butter cess need not be accompanied by any rise in the price of butter. In fact, since the cess was introduced in Kenya prices have declined some 16 per cent. In other words the demand for butter has proved so elastic that with falling consumers' incomes, it has been necessary for producers to bear the whole burden of the cess in order to maintain sales. The only effect has been a redistribution of returns as between creamery suppliers and farm butter makers.

40. Nevertheless we do not consider that an increase in the rate of the butter cess offers the best solution of the problem. Among other objections which we refer to in a later paragraph, there is the question of evasion. It is commonly stated by persons who are in a position to know, that even now there is widespread evasion of the butter cess. We are informed that no powers exist to inspect butter on arrival at the railway station. There must be avenues of evasion which are extremely difficult to trace. An increase in the rate of the cess would naturally increase the temptation to evade the law. In country districts evasion would be particularly easy. We accordingly conclude that it is necessary to broaden the basis upon which any scheme should rest.

EXTENSION OF THE CESS TO ALL DAIRY PRODUCE.

41. From the figures given in paragraph 16, it will be seen that the butter cess is applied to only about one-quarter of the total dairy produce expressed in terms of milk. Its extension to all forms of dairy produce would make a material difference in the position. With a view to estimating the possibility of such extension we have inquired into the circumstances of the production and distribution of dairy products other than butter.

MILK PRODUCTION AND MARKETING.

40. The consumption of liquid milk in municipalities in Kenya is in the region of 1,650,000 gallons per annum, the supply to Nairobi accounting for slightly under 1,000,000 gallons. Of the Nairobi supply, aggregating 2,590 gallons per day, some 250 gallons are supplied by natives, the quantity varying from less than 200 gallons in the dry season to over 600 gallons in the rainy seasons. The milk from European farms is supplied by producer-retailers and by farmers at various distances. Details are set out in Appendix II.

43. Milk is distributed in Nairobi by milk shops and dairies, both European and Indian, and by native hawkers. The two medical officers who gave evidence before us expressed

the opinion that the distribution of native milk under the present system constitutes a menace from a health point of view. One officer qualified his statement with the remark that bad milk was better than no milk, but as there is an ample supply of good milk the reservation is not material.

44. We have had samples taken representative of all milk sold in Nairobi and details of the results are given in Appendix II. Fifty per cent of the samples gave bacterial counts within the standard laid down for Grade A milk in England (200,000 bacteria per c.c.), while 14 per cent gave counts of over 1,000,000 per c.c. A large proportion of those within the standard for bacterial count would be ruled out, however, on account of the presence of *bacillus coli*, indicating contamination with material of faecal (probably bovine) origin. The presence of *bacillus coli*, in fact, indicates a much more serious state of affairs than the bacterial counts alone would suggest and in some samples this species comprised the greater part of the bacteria present. Streptococci were also of frequent occurrence, denoting the inclusion of milk from cows suffering from udder infections, etc.

45. Examination of the content of fat and "solids not fat" was also made and a calculation of the probable percentage of added water made. Thirty-six per cent of samples showed added water in proportion varying from less than 10 per cent to over 30 per cent. In some cases the result may have been due to removal of cream, but having regard to the high percentage of fat generally in milk produced in Kenya, the figures indicate a considerable degree of adulteration, against which the consumer should receive protection.

46. In a large number of cases the milk was stated to have been purchased from European farms. Comparison as between milk from native-owned cattle and that from European farms could be made only with reserve, as the samples were taken from unsealed receptacles and there was nothing to show what treatment the milk had received since despatch from the farm.

THE LAW.

47. Under the Public Health (Milk and Dairies) Rules, 1925, power is taken to apply to any local district Rules governing the production and sale of milk within the district. The Rules provide for registration of dairies, both within and without the local district, and for the restriction of the business of "purveyor of milk" to persons in possession of a licence. The Rules cover in a comprehensive manner the whole process

of production and handling, and provide for inspection at any time by medical and veterinary officers and for revocation of licences in cases of non-compliance.

48. Under the Food and Drugs Adulteration Ordinance, 1930, the Milk Butter and Cream Regulations, 1931, lay down minimum standards for milk, these being 3.2 per cent of milk fat and 8.5 per cent of solids not fat. Milk containing preservative is to be presumed to be not genuine and to be injurious to health. No dirt must be visible to the normal eye or detected by straining through a cotton filter pad. Cream containing preservative or any thickening substance is to be presumed to be not genuine. Butter must contain no preservative other than common salt and must contain not more than 16 per cent of water.

49. The Public Health (Milk and Dairies) Rules, 1925, have been applied to certain municipalities. In Nairobi the Rules were gazetted in October, 1929 (Government Notice No. 637 of 2nd October, 1929), but have not been strictly enforced. Two dairies outside the township have so far been registered, but we are informed that control cannot be effectively exercised owing to lack of staff.

50. In the Nairobi municipal area convictions have been obtained against vendors for selling milk not having the necessary butterfat content, but it has hitherto been considered inadvisable to apply strict control in respect of native vendors. The dirt test is difficult to apply in the absence of an official standard. Analyses are expensive; the fee for analysis of fat and solids not fat laid down in Government Notice No. 388 of 1922 is Sh. 10. We consider that such analysis could and should be carried out at a much reduced figure. Only one inspector is employed by the Municipality and his duties cover inspection of meat and other foods. Most of the work of inspection must be carried out before 8 a.m., and the view of the Medical Officer of Health, Nairobi, is that without at least one full time milk inspector it is impossible to ensure that the regulations are carried out in a satisfactory manner.

51. A number of witnesses urged the stricter application of the regulations governing the sale of milk for liquid consumption, and this is doubtless important from the point of view of public health. The question of adulteration is of more direct economic import, and the consumer and the reputable producer are entitled to protection against fraudulent practices.

52. The estimated consumption of milk in Nairobi, namely 2,590 gallons per day, corresponds to a daily *per capita* consumption of 0.44 pint per day. The corresponding figure for England is in the region of one-third of a pint.

CHEESE PRODUCTION.

53. The trade in cheese is somewhat more complicated than that in butter, by reason of the variety of types produced. Local manufacture ranges from the common cheddar produced and marketed in bulk, to small fancy cheeses, gorgonzola, etc. The commercial value and the cost of manufacture and marketing differ greatly between the different types. Some producers have built up a specialized trade and clientele.

54. Small quantities of cheese are exported, mainly to Tanganyika Territory and India. Cheese does not appear to offer any immediate prospects for export in considerable quantity however. The cost and difficulty of transporting whole milk to a creamery precludes the practice except in the case of favourably situated farms. Farm cheese is too variable in type and quality to form the basis of an export trade. No successful outlet has yet been found for pig products on a large scale and the whey as a by-product is thus without the value it bears in countries such as New Zealand.

55. The following figures show the relation between creamery and farm cheese and exports :—

| | Creamery Cheese | Farm Cheese | Total |
|-----------|-----------------|-------------|------------|
| | <i>lb.</i> | <i>lb.</i> | <i>lb.</i> |
| 1932-3 .. | 92,938 | 155,525 | 248,463 |
| 1933-4 .. | 124,922 | 140,633 | 265,555 |

These figures relate to the Agricultural Census for the year ended 28th February. Owing to the fact that no Agricultural Census was taken for the year 1934-35, they cannot be brought down to the present year. They may be compared with trade returns for the calendar year first mentioned in each case :—

| | Exports | Transfers to Uganda | Imports (Kenya and Uganda) |
|-----------|------------|---------------------|----------------------------|
| | <i>lb.</i> | <i>lb.</i> | <i>lb.</i> |
| 1932.. .. | 57,344 | 9,520 | 5,600 |
| 1933.. .. | 52,976 | 12,208 | 6,720 |
| 1934.. .. | 67,424 | (Not given) | 9,296 |

Consumption in Kenya for the year 1933-34 would thus appear to be in the region of 205,000 lb.

GHEE.

56. The production of ghee on European farms in 1933-34 was 35,708 lb. In addition 55,822 lb. were manufactured by creameries. The manufacture on farms showed a steady decrease from 116,117 lb. in 1929-30, this no doubt reflecting the steady penetration of the creameries into the remoter areas with the improvement in transport facilities.

57. Ghee is to be regarded as in the nature of a waste product on European farms and in creameries. It is of greater importance in native areas, where, before the commencement of purchase of cream by the creameries it was the only feasible outlet for dairy produce. Its production in Native Reserves has been steadily fostered by the Animal Industry Division of the Department of Agriculture.

58. The Deputy Director (Animal Industry) gives the output of ghee in 1934 in certain native areas as follows :—

| | |
|---|-------------|
| South Kavirondo | 784,000 lb. |
| Central Kavirondo | 257,000 „ |
| North Kavirondo | 62,000 „ |
| Northern Frontier District and Tana River | 46,697 „ |
| TOTAL .. | 1,149,697 „ |

In addition appreciable quantities are produced in Machakos and other districts.

59. A certain quantity of ghee is exported, chiefly to Tanganyika Territory and Zanzibar, and some Tanganyika ghee is imported. The Tanganyika trade may be regarded in part as in the nature of in-transit trade. The statistics for the last three years are as follows :—

| YEAR | Exports | Transfers to Uganda | Imports |
|---------|------------|---------------------|------------|
| | <i>lb.</i> | <i>lb.</i> | <i>lb.</i> |
| 1932 .. | 189,168 | 112,224 | 552,496 |
| 1933 .. | 258,608 | 10,080 | 850,192 |
| 1934 .. | 327,824 | 232,400 | 971,936 |

60. Efforts are being made to develop an export trade to India, the United Kingdom, and other areas. Up to the present time little result has been achieved because the export surplus has been small and erratic. The local market has been able to absorb the bulk of the output at prices higher than are obtainable on the export market. The level of local prices is in fact the greatest bar to an increase in exports and it

accounts for the fact that increasing quantities of ghee are imported from a neighbouring territory into the Lake area, the most important producing area in Kenya. Admittedly this imported ghee is of low quality, but it evidently meets the needs of a definite section of the Kenya market.

61. For the development of a stable export trade, it would be necessary to establish a central refinery through which the very variable article as produced could be treated so as to leave a product of uniform quality. Such a refinery is not likely to be established by private enterprise until the local price of ghee falls appreciably below export parity and Government action would probably be necessary for early development. It is considered that the time is not yet ripe for action.

62. Customs duties on ghee are generally heavy. That into India amounts to 25 per cent *ad valorem*, the value being assessed by the customs authorities. It is stated that the corresponding absolute rate of recent months has been in the neighbourhood of Sh. 15/50 per cwt. This is a heavy imposition and we are of the opinion that the possibility of securing a British preferential rate should be explored.

EXTENSION OF THE CESS.

63. We now revert to the proposal to extend the operation of the cess on local sales to all kinds of dairy produce.

The practical difficulties of operating such a measure without a Control Board and an adequate executive organization are obvious. There would be every possibility of evasion on a large scale. Loose milk, cream and cheese in lots of varying weight do not lend themselves to the stamp method of checking. Differences in sale values would result in corresponding variations in the incidence of the cess. This is so in the case of the butter cess, but in this case the imposition bears more heavily on the poorer qualities, and there is some advantage in eliminating these from the market. As between loose milk, semi-wholesale milk, bottled milk, cheese, butter, common cheese, fancy and cream cheese, etc., the position is different, as all these varieties fill a recognized place on the market. In strict equity it would be necessary to base the rate of the cess not only on sale values, but also on comparative production and marketing costs. Legislation on equitable lines would involve unworkable complications in practice.

FIXATION OF MINIMUM PRICES.

64. An attempt to fix minimum prices by legislation alone would meet with similar difficulties. The prices actually paid by consumers are partly for the packing and services which go with the article. It would be impossible to prevent a real

reduction in the price of the article by more frequent delivery, more attractive packing, long credit, over-measure, free samples, refunds, discounts, and all the incidental means, which are commonly employed in commercial competition. Some such methods might be employed even if the price fixation were confined to wholesale prices. In this case there would be additional complications due to the intermediate position of semi-wholesale sales and the existence of numbers of producer-retailers. In producer-retail trade the wholesale price, as distinct from the retail price, can exist only on paper, and it must not be forgotten that every producer within reach of rail or postal facilities is a potential producer-retailer. An attempt to control wholesale prices without regulation of retail prices would certainly prove unworkable in practice.

COMPULSORY POOLING.

65. We now come to the proposal to bring all sales of dairy produce within the operation of a common pool. This would enable the drawbacks incidental to the foregoing methods to be avoided in large measure and the immediate object to be achieved.

66. A pooling arrangement could be effected by setting up an organization to deal either with the physical produce itself (produce pool) or with the book entries alone (receipts pool).

67. We think that the method of handling the whole of the physical produce through a pool would prove to be impracticable. It would involve the provision of a large amount of capital, it would raise difficult questions of compensation for goodwill values, and would involve wasteful transport in bringing produce into one or more depots and redistributing it to the centres of consumption. There would be grave difficulties in making provision for the smaller centres of consumption.

RECOMMENDATION.

68. We recommend, therefore, that there should be established a receipts pool, i.e. a pool based on book-entries alone. The practical operation of the scheme we have in mind may be sketched out as follows :—

Appointment of Dairy Produce Control Board.

A Dairy Produce Control Board would be set up to operate the scheme. The Board would have power to delegate part of its powers and duties to an agent or agents appointed on its recommendation. We recommend that the Board should consist of four members, viz. :—

(a) An independent Chairman, representing Government.

- (b) One member representing consumers and distributors of dairy produce.
- (c) Two members representing producers of dairy produce.

Producers of dairy produce would make arrangements for the disposal of their produce as at present. That is to say they would either—

- (a) arrange with distributors to handle their produce ;
- (b) sell by retail direct to consumers ; or
- (c) send their milk in the form of cream to the creamery, with the proviso, however, that all arrangements between producers and distributors or manufacturers must be subject to approval by the Board.

Instead of producers selling independently to distributors, the Board would be an intermediate party to every contract. Producers would merely despatch the physical produce, sending to the Board returns of the quantities despatched. The financial aspect of the transactions would then become the responsibility of the Board. The Board would send invoices to the distributors receiving the produce, collect moneys due and, after covering its operating expenses, place the receipts in a pool from which payment would be made to producers.

The Board would be concerned with wholesale transactions only. It would fix minimum (and in certain cases maximum) prices to be paid by distributors. The proposed pool would be based on sales at the minimum prices declared by the Board. We recommend that at the inception of the scheme the minimum prices should be, for liquid milk for consumption as such Sh. 1 per gallon, for cheese 90 cts. per lb., for butter Sh. 1/25 per lb., and for other dairy products in an equitable ratio.

Where a producer, by reason of producing a superior article or by reason of an established reputation, was able to command a price higher than the official minimum, the excess would be credited to him individually, and not brought into the pool.

Not all producers would be able to make arrangements with distributors or manufacturers to handle the whole of their produce. The Board would arrange for the acceptance of the remainder in the form of cream which, on delivery to a creamery, would be graded and paid for by the Board on a butterfat basis.

In the case of the producer-retailer the one party would be considered as filling the two independent roles of producer and distributor. As a distributor he would be deemed to buy his produce through the Board at the declared minimum price ;

as a producer he would share in the pay-out made by the Board from the pool. In practice his transactions with the Board would be reduced to the settlement of the difference between the official minimum price and the pay-out. His retail trade would not be the concern of the Board.

69. It will be seen that the proposed scheme offers the following advantages :—

- (a) Stability of prices on the local market.
- (b) Assistance to exports.
- (c) Protection of vendors from bad debts.
- (d) All producers of dairy produce would be provided with a market for their surplus milk in the form of cream, sharing in the pay-out on a butterfat basis.

70. It is obvious that for the advantages of the scheme to be fully realized it would be necessary to appoint the Kenya Co-operative Creamery, Ltd., as agents under the Board. The Kenya Co-operative Creamery is the only organization in a position to carry out certain parts of the scheme recommended.

PAY-OUT.

71. From the pool the Board, or its agents, would pay to producers such prices for butterfat, butter, milk and other dairy produce received as would equalize on a relative basis the returns from local sale and export. Milk and cheese producers would receive due consideration for extra attention required, for loss of skim milk, and for other factors affecting the final returns. It is recommended that the Dairy Control Board should not exercise control over ghee until they consider it practicable.

72. We have gone into the matter of the cost of administration of a scheme on the lines proposed, and from evidence received estimate the annual cost as follows :—

Expenses of Board—£500.

Allowance for dealing with milk from unlicensed producers—
£2,000 (see paragraph 75).

Inspection—£400.

Sundries—£500.

Agents' and secretarial charges—1 per cent on pool receipts.

73. It seems clear to us that in the long run the wholesale value of all dairy produce must be governed by the ruling price for the largest single item, which is, and must to an ever-increasing extent become, export butter. The pay-out would therefore depend in the main upon the amount and value of the export surplus. Assuming the continuance of present

conditions on the local market, the financial basis of the scheme may be illustrated as follows. In this illustration cream for consumption as such, fancy cheeses, etc., are neglected for the sake of simplification; the sales of such are not sufficient to affect the figures appreciably. The figures are expressed on a uniform basis of equivalents in gallons of milk, the following conversion factors being used:—

1 lb. butterfat equals 2.50 gallons of milk.

1 lb. butter equals 2.12 gallons of milk.

1 lb. cheese equals 1 gallon of milk.

POOL RECEIPTS AND PAY-OUT PER DAY
BASED ON PRODUCTION AND EXPORT VALUES IN 1934

| | Equivalent in Gallons of Milk | Wholesale Price per Gallon | Total Receipts |
|--|-------------------------------------|----------------------------------|-------------------|
| RECEIPTS— | | | |
| Local Sales—Milk | 4,500 | Sh. cts. 1 00 | Sh. 4,500 |
| " " Cheese | 800 | 90 | 720 |
| " " Butter | 4,880 | 59 | 2,879 |
| Export (U.K.)—Butter .. | *4,983 | 23½ | 1,171 |
| | — | — | 9,270 |
| DEDUCTIONS— | | | |
| Administrative Expenses, Reserve, etc. | — | — | 278 |
| PAY-OUT | 15,163 | — | 8,992 |

*Customs.

It is proposed that the pay-out should be distributed thus:—

| | |
|--|-------|
| | Sh. |
| Allowance for manufacture of butter at 20 cents per lb. butterfat (8 cents per gallon of milk) | 789 |
| Extra to milk producers at 37½ cents per gallon | 1,687 |
| Extra to cheese producers at 20 cents per gallon of milk | 160 |
| General pay-out for all produce—(42 cents per gallon of milk-equivalent) | 6,356 |
| | 8,992 |

Milk-producers would thus receive a total of 79½ cents per gallon of milk, cheese-producers 62 cents per lb. of cheese, butter-producers Sh. 1/06 per lb. of butter, and butterfat-producers Sh. 1/05 per lb. of butterfat.

74. The above figures are based upon the returns actually realized for butter exported during 1934. These are the lowest on record. It will be apparent that any increase or decrease in the quantity or value of butter for export would be reflected in an increase or decrease in the returns to producers of all kinds of dairy produce. The recent increase to Sh. 112 per cwt. on the London market would give rise to a material increase in the corresponding pay-out for milk equivalent.

On the other hand an increase in the quantity exported would result in a proportional decrease. The following table has been prepared to show the approximate pay-out which would be possible in varying circumstances. In this table allowances have been made for variations in administration expenses, but for the sake of simplicity the reduction of costs of manufacture of butter which would follow increase in the quantity has not been allowed for.

PROBABLE PAY-OUT WITH DIFFERENT QUANTITIES AND VALUES OF BUTTER EXPORTED

| Price of butter in London | Commodity | Quantity of butter exported in cwts. per annum | | | |
|---------------------------|-------------------------|---|--------------|--------------|----|
| | | 7,660 | 15,000 | 20,000 | |
| 78 | | Pay-out in cents for different kinds of produce | | | |
| | | <i>Cents</i> | <i>Cents</i> | <i>Cents</i> | |
| | Milk per gallon | 79 | 73 | 70 | |
| | Butter per lb. | 106 | 93 | 87 | |
| | Butterfat per lb. | 105 | 90 | 83 | |
| | Cheese per lb. | 62 | 56 | 53 | |
| 100 | Milk per gallon | 82 | 77 | 75 | |
| | Butter per lb. | 112 | 102 | 98 | |
| | Butterfat per lb. | 112 | 100 | 95 | |
| | | Cheese per lb. | 65 | 60 | 58 |
| | 110 | Milk per gallon | 84 | 79 | 78 |
| Butter per lb. | | 116 | 106 | 103 | |
| Butterfat per lb. | | 116 | 105 | 102 | |
| | | Cheese per lb. | 66 | 62 | 61 |
| 120 | | Milk per gallon | 85 | 81 | 80 |
| | Butter per lb. | 119 | 110 | 108 | |
| | Butterfat per lb. | 120 | 110 | 108 | |
| | | Cheese per lb. | 68 | 64 | 63 |

It should be realized that this table is constructed on the basis of the minimum prices as suggested to be fixed by the Board. Only that portion of the receipts which was attributable to sales at these minimum prices would be brought into the pool.

UNLICENSED PRODUCERS.

75. It is probable that some native and other producers would be unable to reach a minimum standard of production which could be considered suitable for milk for consumption in liquid form. It is proposed that depots should be set up to deal with milk brought in by such producers. A depot for Nairobi and one for Mombasa would be necessary at the outset. These depots would be run by the Board through their agents,

in such a way as to ensure an adequate distribution of milk to native quarters at a reasonable price. It is proposed that this price should not exceed what we understand to be the ruling price at present. At first there might be difficulty in operating the depots on a self-supporting basis under these conditions, and we have allowed a margin of £2,000 per annum in our estimates to cover possible losses, interest on capital for erection of depots or rent of premises, provision of equipment, etc.

76. Surplus milk would be separated and the butterfat sent to a creamery. Unlicensed producers would be in a position to share on the same basis as other producers in the butterfat pay-out according to the grade of their produce. At the same time they would be provided with an assured market for the whole of their produce, part of which, in present circumstances, is often saleable only at sacrifice prices.

77. With the assistance of the Legal Department we have prepared a draft Bill (Appendix I), modelled on the lines of the previous draft Bill referred to in paragraph 5 of our report. This draft Bill has been drawn up on lines which would enable our proposals to be carried into effect. We have inserted provisions governing the constitution and procedure of the proposed Board, assigning to the Board powers to fix minimum and maximum wholesale prices, to create a special fund, to issue licences to producers and distributors, to erect and operate depots, to call for returns, and to carry out other measures which appear essential to the successful operation of the proposed scheme. We realize that it may be argued that the time will come when circumstances, such as a disproportionate increase in the ratio of export butter to dairy produce consumed locally, may necessitate drastic alterations in the scheme that we now recommend, and it is for this reason that in the draft Bill we have purposely left wide powers in the hands of the proposed Dairy Industry Control Board, so that if and when necessity arises, the Board, in the light of experience, and under the conditions prevailing at the time, may make suitable arrangements to deal with any situation that may have arisen.

H. B. WATERS,
Chairman.

H. B. HAMILTON.

E. CASWELL LONG.

F. O'B. WILSON.

V. LIVERSAGE, *Secretary.*

NOTE OF DISSENT BY MR. H. B. HAMILTON.

I sign this report with one point of dissension.

After the most careful study and consideration of all sections, individuals and memoranda submitted to the Committee, I do not think it is practicable or feasible to control, as is suggested, the whole liquid milk trade of Kenya—especially with the mixed communities that exist in the Colony.

I do feel, however, that some cess should be paid by milk-producers, as their proportion, to assist in a more intensive campaign to increase consumption and also help others in the dairy industry who stand the losses in exportation to overseas markets of other dairy products.

H. B. HAMILTON.

APPENDIX I.

**A Bill to make Provision for the Advancement
and Control of the Dairy Industry.**

BE IT ENACTED by the Governor of the Colony of Kenya, with the advice and consent of the Legislative Council thereof, as follows :—

PART I.—OPERATION AND INTERPRETATION.

Short title and commencement

1. This Ordinance may be cited as the Dairy Industry Control Ordinance, 1935, and shall come into force upon such date as the Governor may by notice in the Gazette appoint.

Operation of Ordinance.

2. (1) The provisions of this Ordinance shall apply to such areas in the Colony (hereinafter referred to as proclaimed areas) as the Governor from time to time may notify by Proclamation upon the advice of the Board established in accordance with Part II of this Ordinance.

(2) In any such Proclamation the Governor may apply the provisions of this Ordinance wholly or in part to any proclaimed area and in such Proclamation may exempt any person or class of persons or any specified class of trade from all or any of such provisions.

(3) The Governor may at any time by Proclamation alter, vary or revoke any Proclamation made under this section.

Interpretation.

3. In this Ordinance, unless the context otherwise requires—

“agency” means and includes any person or persons appointed in accordance with the provisions of section 18 of this Ordinance ;

“approved sale” means a sale of dairy produce by a licensed producer to a distributor with the approval of the Board in accordance with the provisions of Part III of this Ordinance ;

“Board” means the Dairy Industry Control Board established under Part II of this Ordinance ;

“butter” means the clean, non-rancid product made by gathering the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of other milk constituents, with or without salt, and a harmless colouring matter, and which contains not less than eighty per cent of milk fat and not more than sixteen per cent of moisture ;

“butterfat” means the fat of milk;

“cheese” means the solid product obtained by coagulating the caseinogen of milk by means of rennets, pepsins, or acids, with or without the addition of ripening ferments or seasoning ingredients;

“consumer” means a person who buys dairy produce for his own use and not for resale to any other person;

“dairy” means and includes any land, premises or buildings used in connection with the production of milk;

“dairy produce” means and includes milk, cream, butter, ghee or cheese, and any other product of milk or cream;

“dairy produce premises” means and includes a store, dairy, depot, factory and any place where dairy produce is deposited, treated, dealt with, or sold;

“depot” means a dairy produce depot established under this Ordinance by the Board for the purchase of dairy products from unlicensed producers;

“distributor” means a person or body of persons who buy dairy produce from a producer for the purposes of re-sale to other persons;

“export” means export from the Colony to a place outside the limits of the Uganda Protectorate or of the Tanganyika Territory, or of the Colony;

“factory” means any building, premises or place where dairy produce is processed, manufactured, prepared or treated;

“ghee” means clarified butter fat;

“inspector” means a person appointed as such by the Board;

“licensed producer” means a producer of dairy produce in the Colony in respect of whose premises a licence has been granted by the Board under Part IV of this Ordinance;

“milk” means milk from a cow;

“owner” includes a part or co-owner and the owner’s agent or representative, and in relation to any dairy produce premises includes the person having the control or management thereof;

“package” includes a cask, keg, crate, can, box, case, wrapper, tin, bottle, carton, and every other receptacle or covering used for the packing of dairy produce;

“prescribed minimum price” means the lowest price for which any class of dairy produce may be sold to a distributor, such price being declared from time to time by the Board with the approval of the Governor in Council and notified in the Gazette in accordance with the provisions of section 8 (g) of this Ordinance;

“prescribed maximum price” means the highest price for which any class of dairy produce may be sold to a distributor, such price being declared from time to time by the Board with the approval of the Governor in Council and notified in the Gazette in accordance with the provisions of section 8 (g) of this Ordinance;

“proclaimed area” means an area in the Colony to which any of the provisions of this Ordinance have been applied in accordance with section 2 of this Ordinance;

“to sell” means and includes to offer, advertise, keep, expose, transmit, convey, deliver, or prepare for sale, and includes an exchange or any disposal for any consideration whatsoever, and the words “seller”, “selling”, “sale” and “sold” have a corresponding meaning;

“unlicensed producer” means a producer of dairy produce in the Colony to whom a licence under Part IV of this Ordinance has not been issued.

PART II.—THE DAIRY INDUSTRY CONTROL BOARD.

Constitution of
the Dairy
Industry Con-
trol Board.

4. (1) There shall be constituted a Board, to be known as the Dairy Industry Control Board, which shall consist of the following members who shall be appointed by the Governor :—

- (a) One member who shall represent the Government of the Colony, and who shall be chairman of the Board;
- (b) One member who shall represent the consumers and distributors of dairy produce in the Colony; and
- (c) Two members who shall represent the producers of dairy produce in the Colony.

(2) One member of the Board shall retire annually and shall be eligible for re-election to the Board.

(3) If a vacancy occurs on the Board by reason of the death, resignation, or removal of any appointed member of the Board or by effluxion of time or from any other cause,

the vacancy shall be filled by a fit person who shall be appointed by the Governor upon the recommendation of the Board, and the person so appointed shall be a member of the Board for so long only as the member in whose place he is appointed would have been a member.

(4) The powers conferred on the Board by this Ordinance shall not be affected by any vacancy in the membership of the Board.

(5) In any case in which the Governor is satisfied that any member of the Board is incapacitated by illness, absence or other sufficient cause from performing the duties of his office, the Governor, on the recommendation of the Board, may appoint some fit person who shall be named by the Board to be a deputy to act for such member during such incapacity; and any such deputy shall, while he acts as such, have all the powers and authority of the member for whom he is so acting.

(6) The appointment of any such deputy, and the acts of any such deputy, shall not be questioned in any proceedings on the ground that the occasion for such appointment had not arisen or had ceased.

(7) Where a member of the Board, without the leave of the Board, has failed to attend three consecutive meetings of the Board, and no person has been appointed to act as his deputy as provided by sub-section (5) of this section, such member shall cease to be a member of the Board.

5. The Board shall be a body corporate with perpetual succession and a common seal. and may sue and be sued and may purchase, take, hold and dispose of lands and other property for the purposes of this Ordinance.

The Board to be a body corporate.

6. (1) The first meeting of the Board shall be held on such day and at such place as may be appointed in that behalf by the chairman.

Meetings of the Board.

(2) Save as is provided in the last preceding sub-section of this section, meetings of the Board shall be held at such times and places as the Board shall from time to time appoint.

(3) The chairman or any two members of the Board may at any time call a special meeting of the Board.

(4) At all meetings of the Board three members shall form a quorum.

(5) The chairman shall preside at all meetings of the Board at which he is present.

(6) In the event of the absence of the chairman from any meeting of the Board the members present at such meeting shall appoint one of their number to be chairman of the meeting.

(7) At any meeting of the Board the chairman shall have a deliberative vote, and in the case of an equality of votes shall also have a casting vote. A decision of the majority of the members present at a meeting of the Board shall be deemed to be the decision of the Board.

(8) At least seven days before any meeting of the Board the chairman shall send to every member at his address a notice of the meeting, and in such notice shall state the time and the place where such meeting will be held and the nature of the business to be transacted at the meeting.

**Advisory
committees.**

7. The Board, with the approval of the Governor, may constitute such advisory committees as it may think proper. Every such advisory committee shall consist of a member of the Board as chairman and such other persons, not being members of the Board, as the Board from time to time, with the consent of such persons, may appoint.

**Powers of the
Board.**

8. The Board shall have power—

- (a) to regulate its own proceedings, and to make standing orders governing the conduct of its business and the conduct of business by any committees appointed under section 7 of this Ordinance;
- (b) to appoint such persons as the Board considers necessary to enable it to exercise its functions, at such remuneration and on such conditions as it may determine;
- (c) to erect, acquire, or hire any property which the Board considers necessary for the purpose of exercising its functions;
- (d) to make from the Dairy Pool Account established under section 11 of this Ordinance any payments which the Board is authorized to make in the exercise of its functions under this Ordinance or any Rules made thereunder and to defray from the moneys in such Account any expenses properly incurred by the Board and its agents, and from time to time to establish separate funds from such moneys for purposes connected with the dairy industry;

- (e) to direct any licensed producer and any owner of a milk or cream depot, creamery, cheese factory or other dairy produce premises to keep such records and furnish such returns as the Board or its agents may from time to time require;
- (f) with the approval of the Governor in Council, to make rules governing the export of butter, cheese and ghee;
- (g) from time to time, with the approval of the Governor in Council, to declare by notice published in the Gazette the minimum and, where necessary, the maximum price for which any class of dairy produce may be sold to a distributor;
- (h) when occasion arises, with the approval of the Governor in Council, to declare by notice in the Gazette the maximum price for which any class of dairy produce may be sold to a consumer;
- (i) to pay to producers who have contracted, with the approval of the Board, for the disposal of their produce at a price above the minimum price declared by the Board, the difference between the contract price and the minimum price;
- (j) to publish, from time to time, particulars of current prices at cream or milk depots, creameries, cheese factories, ghee factories, or other dairy produce premises for butterfat and milk;
- (k) generally to disseminate such information concerning the dairy industry as, in the opinion of the Board, may be calculated to inspire confidence and to ensure stability in the industry;
- (l) to issue licences at a fee not exceeding five shillings for each licence to dairy producers;
- (m) to erect depots for the purpose of receiving and dealing with milk produced by unlicensed producers;
- (n) to conduct a pool for the equalization, on a relative basis, of the returns received from the sale of dairy produce.

9. (1) Where any maximum or minimum price under section 8 (g) or (h) of this Ordinance has been declared by the Board by notice published in the Gazette, such price shall remain in force until it is varied or altered by a further notice similarly published by the Board.

Publication of
prices in the
Gazette.

(2) Any person who, while any such notice is in force, purchases or sells any dairy produce to which such notice refers at a greater or less price, as the case may be, than the maximum or minimum price published in such notice shall be guilty of an offence against this Ordinance.

Functions of the Board.

10. In addition and without prejudice to the powers conferred by section 8 of this Ordinance, the Board shall be responsible for the exercise of the following functions in connection with the dairy industry in the Colony :—

- (a) Co-ordinating as far as possible the primary production, manufacture and marketing of dairy produce ;
- (b) Taking such measures as, in the opinion of the Board, may be necessary to stabilize the prices of dairy produce in the Colony ;
- (c) Advising the Governor generally on all matters relating to the development of the dairy industry and recommending any measures which, in the opinion of the Board, may be calculated to promote the general welfare of the industry.

Dairy Pool Account.

11. The Board shall establish and maintain a Dairy Pool Account into which shall be paid all revenue which the Board may derive from any source whatsoever, except as provided in section 22 of this Ordinance.

Audit and publication of accounts.

12. The accounts of the Dairy Pool Account shall be audited in such manner as the Governor may direct, and shall as soon as may be after the close of each year, and after audit as aforesaid, be published in such manner as the Governor may direct.

Annual report.

13. The Board shall prepare annually a report of its operations, and such report shall be published in such manner as the Governor may direct.

Non-liability of members of the Board:

14. No member of the Board shall be personally liable for any act or default of the Board done or omitted to be done in good faith in the course of the operations of the Board.

PART III.—SALE AND DISTRIBUTION OF DAIRY PRODUCE.

Sales to producers.

15. No person shall sell any dairy produce to any distributor in a proclaimed area unless—

- (i) such person is a producer whose premises are licensed in accordance with the provisions of Part IV of this Ordinance ; and

- (ii) the sale of such produce is in all respects an approved sale under this Part.

16. No person shall sell any dairy produce to any consumer in a proclaimed area unless— Sales to consumers.

- (i) such person is a distributor selling produce which has been included in an approved sale under this Part; or
- (ii) such person is a producer whose premises are licensed in accordance with the provisions of Part IV of this Ordinance and who is selling to a consumer in accordance with the provisions of section 23 of this Part.

17. Save as is provided in sections 15 and 16 of this Ordinance, no person shall sell dairy produce in a proclaimed area except in accordance with the provisions of Part IV of this Ordinance and through a depot established in accordance with section 40 of this Ordinance. Sales through depots.

18. (1) The Governor in Council, on the recommendation of the Board, may by notice in the Gazette appoint any person or persons to be an agency for the purpose of exercising on behalf of the Board all or any of the powers or functions assigned to the Board in this Part, and in such notice the Governor in Council shall specify the powers and functions which may be so exercised by the agency and the areas and districts to which the appointment relates. Agencies.

(2) Every agency appointed under this section shall at all times be responsible to the Board for every matter or thing done by the agency by virtue of such appointment. The Board may make a report in writing to the Governor in Council in any case where it is dissatisfied by reason of anything done or proposed to be done by an agency.

(3) Any appointment made under this section may be varied or revoked at any time by the Governor in Council by notice in the Gazette.

19. (1) No producer shall enter into any contract, whether oral or in writing, for the supply of dairy produce to a distributor unless and until he has obtained the approval of the Board to such contract. Approved sales of dairy produce.

(2) Every such application for approval shall be made by the producer to the Board in the prescribed form.

(3) After so obtaining the approval of the Board the producer may proceed to complete the contract to which such approval relates and may deliver to the distributor the dairy produce which is the subject of such contract.

(4) No distributor shall accept delivery of any dairy produce from a producer unless the Board has given its approval in accordance with this section to the contract in respect of which such delivery is made, and every distributor shall be responsible for satisfying himself that such approval has been duly given.

(5) Completed contracts under the provisions of this section shall be referred to as "approved sales".

(6) As from the date of this Ordinance all pre-existing contracts shall become null and void.

Returns.

20. (1) The Board may call upon producers and distributors to render returns to the Board in accordance with any Rules made under this Ordinance upon any matter relating to the dairy industry, and any producer or distributor who refuses or neglects to render a prescribed return or who makes or causes to be made a return which is false in any particular shall be guilty of an offence against this Ordinance.

Books and accounts.

(2) The Board shall keep such books and accounts as may be necessary and as may be prescribed by Rules made under this Ordinance.

Payments for approved sales.

21. (1) The Board shall collect monthly from the distributors concerned the amounts owed by the distributors in respect of all approved sales effected in the preceding month.

(2) The Board shall collect monthly from all exporters of dairy produce to places outside Kenya, Uganda and Tanganyika the net amount received f.o.r. station nearest the factory for all dairy produce so exported during the previous month.

(3) All amounts as in sub-sections (1) and (2) of this section shall be paid by the Board into the Dairy Pool Account established under the provisions of section 11 of this Ordinance.

Payments to producers.

22. The Board shall set aside every month from the moneys in the Dairy Pool Account such sums as may be needed to defray the expenses incurred by the Board and its agents in giving effect to the provisions of this Ordinance, together with such other sums as may be required for any purposes provided for by this Ordinance or any Rules made thereunder. From the balance remaining in the Dairy Pool Account the Board, so soon as may be, shall pay out monthly

to every producer the sums due for all dairy produce included in the producer's approved sales for the preceding month, such payment being made at the pool pay-out price as determined by the Board :

Provided that where a distributor has contracted to pay to a producer in respect of any approved sale a price in excess of the prescribed minimum price for the time being, the Board shall credit the amount of such excess to the producer concerned, and shall not pay such excess into the Dairy Pool Account.

23. (1) In any case where a producer sells dairy produce direct to a consumer, without the intervention of a distributor, such producer shall in respect of such sale be deemed for the purposes of this Ordinance to be a distributor. Sales to consumers by producers.

(2) Notice of every such transaction shall be given to the Board by the producer in the prescribed form, and any producer who fails to give such notice shall be guilty of an offence against this Ordinance.

(3) The producer shall pay to the Board in respect of the dairy produce included in any such transaction the prescribed minimum price. The sum so received shall be paid into the Dairy Pool Account by the Board, and payment shall be made to the producer in accordance with the provisions of section 22 of this Ordinance.

24. (1) The Board shall purchase daily from all producers the surplus milk of such producers. All such surplus shall be converted into cream by the producer and shall be delivered by him at such place or places as the Board may direct. Surplus produce of producers.

(2) Payment in respect of such surplus, calculated on a basis of butterfat content and grade, shall be made by the Board by including the amounts due to the producer in respect thereof in the monthly payment made to him in accordance with the provisions of section 22 of this Ordinance.

25. Every producer of dairy produce shall, if required by the Board, be responsible for the proper grading of dairy produce delivered to the Board in accordance with the classification of grades of dairy produce laid down by the Board. Grading of dairy produce

26. (1) Every producer of butter or cheese shall put up all butter or cheese manufactured by him in packages bearing a brand. Every such brand shall be registered under this Ordinance, and shall show the name of the manufacturer and the class of dairy produce contained in the packages. Brands on packages.

Net weight.

(2) The net weight of the contents of every such package containing dairy produce shall be clearly indicated upon such package as prescribed by Rules made under this Ordinance.

Power of Board to sell butter.

27. The Board may sell butter in any market, whether within or without the Colony, but it shall be the first duty of the Board to supply the demands of the Colony and of the Uganda Protectorate and of the Tanganyika Territory to the satisfaction of the Governor.

Appeal.

28. Any person aggrieved by any decision of the Board or of an agency as to the price to be paid to him for dairy produce or by the failure or refusal of the Board or agency to purchase dairy produce from or to supply the legitimate demands of such person for dairy produce may appeal in writing to the Governor within one month of the date of such decision, failure or refusal, as the case may be :

Provided that nothing in this section contained shall be deemed to deprive any person of any right of action which he may have in any competent court in the Colony.

Saving.

29. Nothing in this Ordinance contained shall be deemed to prohibit the sale or purchase of dairy produce which has been produced elsewhere than in the Colony or the Uganda Protectorate or the Tanganyika Territory.

Rules.

30. The Board may, with the approval of the Governor in Council, make rules generally relating to the sale and distribution of dairy produce under this Part, and more especially with regard to—

- (a) the forms and documents to be used ;
- (b) the returns to be rendered ;
- (c) the establishment of and expenditure from funds in connection with the dairy industry ;
- (d) the procedure to be followed and the form to be used in giving any notice or obtaining any approval required by the provisions of this Part ;
- (e) the methods whereby payment is made by distributors and by or to producers in respect of dairy produce ;
- (f) the procedure relating to approved sales ;
- (g) the collection of moneys due in respect of approved sales ;
- (h) the keeping of books and accounts ;

- (i) the grading, inspection, packing, labelling, branding and marking of dairy produce;
- (j) the purchase and sale of surplus dairy produce; and
- (k) the procedure to be followed in cases where any dispute arises in regard to the quantity or quality of dairy produce supplied or received or in regard to any other matter.

31. (1) Any person who contravenes or fails to comply with any of the provisions of this Part or of any Rules made thereunder or any of the conditions or restrictions subject to or upon which any licence, permit or approval is granted under this Part shall be deemed to have committed an offence against this Ordinance, and shall on conviction by a magistrate of the first or second class be liable for the first offence to a fine not exceeding one hundred pounds or to imprisonment for a period not exceeding six months or to both such fine and imprisonment, and for a second or subsequent offence shall be liable to a fine not exceeding five hundred pounds or to imprisonment for twelve months or to both such fine and such imprisonment. Penalties

(2) The Board, in its discretion, in the case of any person who has been convicted under this section on more than two occasions, may cancel any licence issued to such person under the provisions of Part IV of this Ordinance.

32. Wherever in this Part the expression "producer" occurs such expression shall be deemed to refer only to a licensed producer as defined in section 3 of this Ordinance. Interpretation

PART IV.—REGISTRATION AND LICENCES.

33. (1) As from the date of the coming into operation of this Ordinance no premises in a proclaimed area shall be used for the production, collection, manufacture or distribution of dairy produce unless such premises are registered with the Board in the manner prescribed by Rules made under this Ordinance. Registration of
cream depots,
creameries,
etc.

(2) Where application has been made to the Board for the registration of any premises, and the Board is satisfied that the requirements of this Ordinance in respect of such premises have been complied with, a licence shall be issued, at a fee not exceeding five shillings, to the applicant by the Board.

(3) Every licence issued under this section, together with all privileges conferred by such licence, shall expire on the thirty-first day of December next succeeding the date of issue

of the licence, but any such licence may be renewed by the Board if the Board is satisfied that the requirements of this Ordinance are being complied with in respect of such premises.

Requirements before registration is granted.

34. No premises shall be registered under this Ordinance unless and until the premises comply with such requirements as may be prescribed by rules made under this Ordinance for the class of premises for which the registration is desired.

Registration marks.

35. (1) A register of distinctive marks used by the holders of licences and by manufacturers of dairy produce shall be kept in the office of the Board in the form and manner prescribed by Rules made under this Ordinance. The register shall show the number of each such mark, and the name and address of the licensed holder thereof, and shall contain a copy or exact representation of such mark, together with an entry of the dates of the licence applied for and when the licence-holder respectively was granted the licence.

(2) The register shall be open to inspection by any person during office hours.

(3) Every manufacturer of butter and cheese shall register a mark under this Ordinance in respect of dairy produce manufactured by him.

(4) The registered holder of a distinctive mark may, with the consent of the Board, transfer the right to use such mark to any other person, or may cause another person to be joined with him as the registered holder of such mark. Every such transfer or joinder shall be registered when approved by the Board.

(5) The registration of a mark under this section may be cancelled by the Board if the Board is satisfied that the mark is no longer used by the registered holder thereof or that the registered holder has died or has permanently left the Colony and that no action has been taken or is contemplated for effecting a transfer of the registration of such mark.

Offences in respect of unregistered premises, registration numbers and registered marks.

36. (1) Any person who in contravention of this Ordinance uses any premises for the production, collection, manufacture or distribution of dairy produce, unless he holds such a licence in respect thereof as is required by this Part, shall be guilty of an offence against this Ordinance, and shall be liable on conviction to a fine not exceeding fifty pounds and to a further fine not exceeding five pounds for every day on which the offence continues.

(2) Any person who in respect of dairy produce manufactured at any premises (whether or not licensed under this Part) uses any licence number which has not been allotted to him under this Part, shall be guilty of an offence against this Ordinance and shall be liable on conviction to a fine not exceeding ten pounds and to a further fine not exceeding one pound for every day on which the offence continues.

(3) Any person who uses, for the purposes of designating dairy produce manufactured by him, any distinctive mark of which he is not the registered holder under this Ordinance shall be guilty of an offence against this Ordinance and shall be liable on conviction to the like penalties as are provided for offences under sub-section (2) of this section.

37. Notwithstanding anything contained in this Ordinance, the Board, with the consent of the Governor, may refuse to issue a licence to any applicant in respect of any premises sought to be licensed under this Ordinance where such premises are situate in any area where there are, in the opinion of the Board, sufficient other licensed premises for the manufacture of dairy produce :

Power to
refuse
registration.

Provided that where a licence is so refused in respect of premises already in existence at the date of the coming into force of this Ordinance, such compensation for any loss caused by such refusal shall be paid from the funds of the Board as may be agreed upon between the Board and the person in respect of whose premises a licence has been so refused, and, failing agreement as to the amount of such compensation, the sum so to be paid shall be ascertained by arbitration in accordance with the provisions of the Arbitration Ordinance.

Cap. 18.

38. (1) No unlicensed producer shall sell any dairy produce in any proclaimed area save to a depot established by the Board under the provisions of section 40 of this Ordinance.

Unlicensed
producers to
sell only to
depots.

(2) All such sales of dairy produce by unlicensed producers shall at all times be effected in accordance with the provisions of this Ordinance and any Rules made thereunder governing such sales, and not otherwise.

39. (1) Where at any time the Board has erected or is intending to use any premises or building in a proclaimed area as a depot for the purposes of this Ordinance, the Board, by notice published in the Gazette, shall declare such premises or building to be a Dairy Produce Depot.

Establishment
of depots.

(2) Any such premises or building shall cease to be a Dairy Produce Depot upon the publication by the Board at any time of a notice to that effect in the Gazette.

Rules.

40. The Board, with the approval of the Governor in Council, may make rules generally relating to depots and more especially with regard to—

- (a) the erection, establishment, and maintenance of depots;
- (b) the appointment of officers for carrying out the functions of depots, and the duties of such officers;
- (c) the financial working and management of depots;
- (d) the keeping of books and accounts by depots;
- (e) the purchase and sale of dairy produce by depots, including the regulation of the quantities of produce which a depot may purchase and the method of calculating the price to be paid and of making such payment;
- (f) the inspection and grading of produce;
- (g) the forms to be used in connection with registration and licensing under this Part and the fees to be paid in connection therewith;
- (h) the conditions required to be fulfilled in regard to premises in respect of which a licence is to be issued or renewed or in respect of which registration is to be granted or renewed;
- (i) licence numbers; and
- (j) the grant, registration, renewal, transfer and joinder of ownership of registered marks, including the fees to be paid in connection therewith.

PART V.—GENERAL.**Power of inspectors.**

41. (1) An inspector, at any reasonable time, may enter any dairy or dairy produce premises, or any premises, place, vehicle or vessel where dairy produce is produced, stored or sold, and there may—

- (a) make any inspection or perform any work or do any thing which is required or authorized to be done by this Ordinance or any other law in force in the Colony relating to the dairy industry; and
- (b) examine any dairy produce found therein which he shall have reason to believe is intended to be used as human food.

(2) Where, upon any inspection or examination under this section, any dairy produce appears to an inspector to be unfit for use as human food, he may seize and detain the same, and any magistrate on the application of an inspector may order any produce so seized and detained to be destroyed or to be disposed of so as to prevent it from being used as human food : Provided that no destruction or disposal of dairy produce shall be so ordered unless and until the owner of such produce shall have been offered an opportunity of being heard upon the matter by the magistrate.

42. Where, upon any inspection made under this Ordinance or under any Rules made thereunder, an inspector is of opinion that on any premises, place, vehicle, or vessel where dairy produce is produced, stored or sold any person is suffering from any infectious or contagious disease, he shall report the fact to the medical officer of health, and if the medical officer of health certifies that such person is suffering from any infectious or contagious disease the inspector may, by written order, require the isolation or removal of such person for such time as the medical officer of health may deem necessary.

Removal or isolation of persons suffering from infectious or contagious diseases.

43. No member of the Board and no servant or agent of the Board shall, save where the same is necessary in connection with the administration of this Ordinance or in connection with any legal proceedings under this Ordinance, disclose any information supplied to the Board for any of the purposes of this Ordinance.

Disclosure of information prohibited.

44. No person shall mark upon any dairy produce, or upon any package containing dairy produce, any incorrect information as to the grade or quality of such produce or as to the place where, the time when, or the person by whom such dairy produce was made, nor shall he so mark any information or representation which is likely to be misleading in any way whatsoever.

Incorrect statements on dairy produce.

45. Save in so far as provision to the contrary is expressly made in this Ordinance, nothing in this Ordinance shall be deemed—

Saving.

- (a) to affect any other law in force in the Colony relating to public health or to the adulteration and sale of dairy produce ;
- (b) to apply to any dairy produce intended for consumption on the premises whereon it is produced and which is not sold or offered or exposed for sale:

Fraudulent acts.

46. Any person who, with intent to defraud—

- (a) obliterates, defaces or alters an inspector's mark or any mark registered under this Ordinance, such mark having been placed on dairy produce which has been inspected thereunder or on any package containing such produce; or
- (b) counterfeits any such mark, or places upon any dairy produce or package containing dairy produce the mark of an inspector or a mark registered under this Ordinance, or the mark of a manufacturer; or
- (c) empties or partly empties of its contents any package which has already been marked after proper inspection under this Ordinance, in order to insert in such package any dairy produce (whether or not of the same class or grade as the original contents) which was not contained therein at the time of such inspection; or
- (d) uses for the purposes of packing dairy produce any package which has been previously used for that purpose without first effacing all existing marks thereon,

shall be guilty of an offence against this Ordinance, and shall be liable on conviction to a fine not exceeding one hundred pounds or to imprisonment for a period not exceeding six months or to both such fine and imprisonment.

Penalties for obstructing or failing to carry out orders of an inspector, etc.

47. Any person who—

- (a) obstructs or hinders an inspector or any other person authorized under this Ordinance to exercise any power or perform any duty while such inspector or person is executing any such power or performing any such duty;
- (b) when lawfully required under this Ordinance to give information to an inspector or to any other authorized person fails to give such information or gives false information knowing it to be false;
- (c) when lawfully required to carry out any written order given by an inspector or any other authorized person under this Ordinance wilfully or negligently fails to carry out the terms of any such order within the period allowed therefor; and
- (d) fails to give any notice or render any return which under this Ordinance it is his duty to give or which he is lawfully required to give,

shall be guilty of an offence against this Ordinance.

48. (1) Every omission or neglect to comply with and every act done or attempted to be done contrary to the provisions of this Ordinance or of any Rules made thereunder or in breach of the conditions or restrictions subject to or upon which any licence, permit, authorization or approval has been granted under such Ordinance or Rules shall be deemed to be an offence against this Ordinance. **Penalties.**

(2) For every offence against this Ordinance for which no penalty is specially provided, the offender shall be liable on conviction to a fine not exceeding seventy pounds.

(3) The Board, in its discretion, in the case of any person who has been convicted on more than two occasions of an offence against this Ordinance, may cancel any licence, permit, authorization or approval which has been granted to such person under the provisions of this Ordinance or of any Rules made thereunder.

(4) If any offence against this Ordinance shall be committed by a company, the secretary and the person or persons who shall be in control of the business thereof in the Colony shall each be liable to the penalties for such offence; and if any such offence shall be committed by a firm or partnership every member thereof and the person in control of the business thereof in the Colony shall be liable to such penalties: Provided that nothing in this section contained shall exempt any other person from liability in respect of such offence.

49. The Board, with the consent of the Governor in Council, may make rules for all or any of the following purposes:—

- (a) The examination, inspection, grading, analysing and testing of dairy produce and for prescribing the conditions upon and the manner in which samples of such produce may be taken, whether compulsorily or otherwise, for all or any of such purposes;
- (b) The examination and inspection of all books and documents relating to any dairy produce premises;
- (c) The inspection of any premises, place, cooling chamber, vehicle or vessel where dairy produce intended for sale is produced or stored, and of all dairy produce found therein or thereon and of all utensils, machinery, chemicals, apparatus or appliances used in connection with such dairy produce and of all vehicles or vessels used for the carriage of such produce;

- (d) The taking of samples, whether compulsory or otherwise, of dairy produce or of any water or of any food supplied to live stock, or of any article used in connection with dairy produce ;
- (e) The opening, for the purpose of inspection, of any package which contains or is suspected of containing dairy produce ;
- (f) The inspection, examination, supervision and control of the manufacture, preparation, storage, keeping or transmission of dairy produce ;
- (g) The inspection, examination, supervision and control of any live stock on or at any dairy, dairy produce premises or premises where milk is produced or cooled or cream separated, and for the prohibition of the sale or use of milk from any diseased animal, and the detention or removal, pending examination or inquiry, of animals suspected of being diseased ;
- (h) Prescribing the conditions upon which an agency may be appointed ;
- (i) Prescribing the duties and functions of an agency ;
- (j) Prescribing the qualifications, powers and duties of inspectors and other persons appointed to exercise powers and perform duties under this Ordinance ;
- (k) Prescribing the manner of handling, transporting and storing any dairy produce intended for the use of or for consumption by any person other than the producer thereof ;
- (l) Prescribing the manner in which premises, numbers and marks shall be registered under this Ordinance and the requirements to be fulfilled prior to such registration or to a renewal of registration ;
- (m) Prescribing the manner of branding or marking articles intended for use in connection with dairy produce, including wrappers or packages containing dairy produce ;
- (n) Prescribing the forms of application, and the forms of licences, marks, brands, registers and of all other documents to be used for the purposes of this Ordinance ;
- (o) Prescribing the grade of cream to be used for making butter and the grades of cream to be used for purposes other than making butter ;

- (p) The disposal of condemned dairy produce ;
- (q) The grading and testing of dairy produce :
- (r) Prescribing the charges which may be made for any grading, testing or examining dairy produce under this Ordinance ;
- (s) Any other purpose or object for which rules may be made in accordance with the provisions of this Ordinance ;
- (t) Prescribing the procedure for the nomination of proposed members of the Board for appointment by the Governor as representatives of the respective interests referred to in section 4 of this Ordinance ; and
- (u) Generally for the better carrying out of the purposes and provisions of this Ordinance.

50. The Butter Levy Ordinance, 1931, together with all Ordinances amending or replacing the same is hereby repealed. Repeal.

OBJECTS AND REASONS.

1. This Bill is designed to assist the economic production and marketing of dairy produce in the Colony and to assure by improved marketing methods a more equitable distribution of returns to all producers in supplying both local and overseas markets.

2. Provision is made in the Bill for the establishment of a Dairy Control Board and a system of pool marketing, and for the regulation and control of the sales and distribution of dairy produce.

3. The details of the proposed organization include the registration of dairy premises, the licensing of approved producers and the introduction of registered dairy produce marks for the protection of manufacturers. Sales by unlicensed producers are to be strictly controlled under arrangements to be made by the Dairy Control Board.

4. The Bill repeals the Butter Levy Ordinance, 1931, together with its amending Ordinances.

5. No expenditure of public moneys will be involved if the provisions of this Bill become law.

APPENDIX II.

THE NAIROBI MILK MARKET.

1. From a survey made in April, 1935, the supply of milk to Nairobi was estimated at 2,790 gallons per day, of which 2,190 gallons were supplied from European farms and 600 gallons brought in by natives. The origin of supplies from European farms is shown briefly in the following table:—

| | No. of Suppliers | Gallons of Milk |
|----------------------------|------------------|-----------------|
| Producer-retailers | 12 | 479 |
| Suppliers to milk shops— | | |
| Within 25 miles | 20 | 594 |
| Within 26–55 miles | 5 | 775 |
| Over 55 miles | 6 | 342 |
| TOTAL .. | | 2,190 |

The 25-mile radius is taken to include Nairobi, Athi, Ngong, Kikuyu, Limuru, Kiambu; the 55-mile radius includes Machakos, Konza, Ulu, Uplands, and Longonot. Supplies from further distances come from Naivasha and Kinangop.

2. The quantities supplied daily were as follows:—

| | Gallons |
|--|---------|
| 20 suppliers of 5–20 gallons each supplied | 250 |
| 11 suppliers of 30–60 gallons each supplied | 400 |
| 4 suppliers of 60–100 gallons each supplied | 340 |
| 8 suppliers of 100–350 gallons each supplied | 1,200 |
| | 2,190 |

3. A check was made on various roads entering the municipal area of Nairobi in the period referred to. In all, 401½ gallons of milk were brought in by 115 natives. The check was under the supervision of the Stock Inspector, Nairobi, who is of the opinion that these figures did not represent the total amount of native milk brought in to the municipal area of Nairobi, owing to the many footpaths which natives traverse, and estimates that the total amount brought in was about

600 gallons. These supplies come from all directions: from Mbagathi, Masai, Dagoretti, Dondora, and so on. The quantities brought in by each individual, according to the enumeration by the Stock Inspector, were as follows:—

| | Gallons |
|--|---------|
| 65 natives with $\frac{1}{2}$ –3 gallons each brought in | 89 |
| 29 natives with $3\frac{1}{2}$ –6 gallons each brought in | 138 |
| 16 natives with 6 $\frac{1}{2}$ –9 gallons each brought in | 117 |
| 5 natives with 9 $\frac{1}{2}$ –12 gallons each brought in | 56 |
| | 400 |

On account of favourable grazing conditions, the supply at that time was probably at its maximum.

4. An independent examination made at the instance of Dr. Tilling, Medical Officer of Health for Nairobi, in October, resulted in a count of 111 natives supplying milk to Nairobi from a total of 1,250 cows in milk. Dr. Tilling estimates that the average daily supply throughout the year from native sources is in the region of 250 gallons.

5. The Nairobi milk supply is transported to Nairobi by train, lorry, bicycle and head portorage. The railway milk trains convey slightly more than 1,000 gallons a day; the special freight rate for milk in cans ranges from 8 cents per gallon for 25 miles to 14 cents per gallon for 50 miles and to 20 cents per gallon for 100 miles.

6. Milk is retailed in Nairobi by milk shops and dairies, both European and Indian, and by native hawkers. In April, 1935, 14 European producer-retailers and milk-shop owners distributed 820 gallons, and 9 Indian owners of milk shops or dairies distributed 1,370 gallons per day. A noticeable feature is the erratic supply from certain producers. This is particularly evident in the case of native milk supplies, which are estimated to range from less than 200 gallons per day in the dry season to over 600 gallons a day in the wet season.

7. In order to test the quality and condition of the Nairobi milk supply we have caused a number of samples to be taken and submitted to examination at the Veterinary Research Laboratory. In the collection of the samples we have received valuable assistance from Dr. Tilling, Medical Officer of Health,

Nairobi. In all, 68 samples were taken, almost all being secured in Indian and native quarters of Nairobi. In a large number of cases the milk was stated to have been purchased from European farms. As most of the samples were taken from unsealed receptacles, and there was nothing to show what treatment the milk had received since despatch from the farm, comparison with supplies of native origin could be made only with reserve.

8. Of the 68 samples taken, two contained no bacteria, and had obviously been treated in some way. The following bacterial counts relate to the remaining 66 samples:—

| BACTERIAL COUNT | No. of Samples | Percentage of Total |
|-------------------------------|----------------|-----------------------|
| Below 30,000 per c.c. | 11 | <i>Per cent</i> 17 |
| 30,000—200,000 | 22 | 33 |
| 200,000—1,000,000 | 24 | 36 |
| Over 1,000,000 | 9 | 14 |
| | 66 | 100 |

The lowest group (below 30,000) corresponds to the standard laid down for Certified Milk in England, and the next lowest to that laid down for Grade A Milk. It will be seen that on the basis of bacterial counts 17 per cent of the samples came within the Certified standard and 50 per cent within the Grade A standard. A large proportion, however, would be ruled out owing to the presence of *Bacillus Coli*, indicating contamination with material of faecal (probably bovine) origin. The prevalence of *Bacillus Coli*, in fact, indicates a much more serious state of affairs than the bacterial counts alone would suggest, and in some samples this species comprised the greater part of the total bacteria present. *Streptococci* were also of frequent occurrence, denoting the inclusion of milk from cows suffering from udder infections, etc.

9. Examination of the content of fat and "solids not fat" was also made. From the figures obtained, the content of milk of minimum quality was calculated on the basis of standards laid down under the Sale of Food and Drugs Act (England), namely, 3 per cent fat and 8.5 per cent solids not

fat. The probable percentage of water added was then estimated by subtracting the resulting figure from 100. The results are given below :—

| PERCENTAGE OF ADDED WATER | No. of Cases | Percentage of Total Samples |
|---------------------------|--------------|-----------------------------|
| Nil | 44 | <i>Per cent</i> 64 |
| 1—10 | 12 | 18 |
| 10—20 | 2 | 3 |
| 20—30 | 4 | 6 |
| Over 30 | 6 | 9 |
| | 68 | 100 |

10. The above calculation has been made by taking into account deficiencies in either fat or solids not fat, and it is possible that in some cases the quality may have been partly reduced by removal of cream. It is also possible that fat deficiency may have been due in some cases to a sample having been taken from the bottom of a receptacle after the upper portions, richer in fat, perhaps partly churned by shaking, had been removed in the course of retail distribution. On the other hand, the proportion of fat in milk in Kenya is usually high. Examination of the figures obtained for solids not fat throws further light on the matter, though even here we are informed that recent research has brought to light some cases of genuine milk containing a lower proportion than that laid down in the official standards :—

| PERCENTAGE OF SOLIDS NOT FAT | No. of Cases | Percentage of Total |
|------------------------------|--------------|-----------------------|
| 9 and over | 20 | <i>Per cent</i> 29 |
| 8.5—8.99 | 21 | 31 |
| 8—8.49 | 8 | 12 |
| Below 8 | 19 | 28 |
| | 68 | 100 |

Forty per cent of the total number of cases gave a figure below the standard laid down in England.

APPENDIX III.

STATISTICAL.

TABLE I

DOMESTIC EXPORTS OF DAIRY PRODUCTS FROM KENYA
AND UGANDA (FROM CUSTOMS REPORTS)

| YEAR | Butter | | Cheese | | Ghee | | Total |
|---------|-------------|--------|-------------|-------|-------------|-------|--------|
| | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | £ |
| 1921 .. | 24 | 234 | 66 | 713 | 308 | 1,799 | 2,746 |
| 1922 .. | 167 | 886 | 199 | 1,841 | 776 | 3,929 | 6,756 |
| 1923 .. | 499 | 2,885 | 394 | 2,269 | 1,277 | 5,922 | 11,076 |
| 1924 .. | 720 | 6,287 | 350 | 2,145 | 1,172 | 5,980 | 14,412 |
| 1925 .. | 560 | 2,087 | 162 | 909 | 62 | 420 | 3,413 |
| 1926 .. | 792 | 7,389 | 180 | 1,456 | 54 | 448 | 9,293 |
| 1927 .. | 507 | 4,938 | 149 | 1,304 | 116 | 786 | 7,028 |
| 1928 .. | 513 | 4,917 | 106 | 523 | 152 | 1,243 | 6,683 |
| 1929 .. | 2,631 | 15,126 | 143 | 824 | 596 | 4,953 | 20,903 |
| 1930 .. | 7,798 | 53,065 | 521 | 2,919 | 805 | 4,979 | 60,963 |
| 1931 .. | 6,326 | 35,618 | 654 | 2,916 | 1,015 | 3,866 | 42,400 |
| 1932 .. | 9,242 | 40,604 | 512 | 2,421 | 1,710 | 6,755 | 49,780 |
| 1933 .. | 7,514 | 27,268 | 473 | 2,186 | 2,337 | 7,184 | 36,638 |
| 1934 .. | 11,330 | 41,266 | 602 | 2,576 | 2,946 | 8,004 | 51,846 |

TABLE 2

DOMESTIC EXPORTS OF BUTTER
DISTINGUISHING UNITED KINGDOM AND OTHER DESTINATIONS

| YEAR | To United Kingdom | To other destinations | Total |
|---------|----------------------|-----------------------|----------------------|
| 1929 .. | <i>Cwt.</i> 1,052 | <i>Cwt.</i> 1,579 | <i>Cwt.</i> 2,631 |
| 1930 .. | 6,534 | 1,264 | 7,798 |
| 1931 .. | 5,153 | 2,437 | 6,326 |
| 1932 .. | 7,999 | 1,243 | 9,242 |
| 1933 .. | 5,383 | 2,131 | 7,514 |
| 1934 .. | 7,660 | 3,670 | 11,330 |

TABLE 3
IMPORTS OF DAIRY PRODUCTS FOR HOME CONSUMPTION IN KENYA
AND UGANDA (FROM CUSTOMS REPORTS)

| YEAR | Milk, Con- densed, etc. | | Butter | | Cheese | | Ghee | | Total |
|--------|----------------------------|----------|-------------|-------|-------------|-------|-------------|--------|---------------------|
| | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | £ |
| 921 .. | Report | for nine | months | only | avail- | able. | | | |
| 922 .. | 3,351 | 12,817 | 36 | 412 | 16 | 201 | 4,209 | 14,631 | 28,061 ¹ |
| 923 .. | 3,105 | 11,912 | 5 | 74 | 13 | 180 | 5,253 | 13,717 | 25,883 |
| 924 .. | 4,379 | 17,008 | 10 | 122 | 29 | 292 | 8,592 | 28,740 | 46,162 ¹ |
| 925 .. | 6,528 | 22,990 | 24 | 283 | 32 | 401 | 7,309 | 42,685 | 66,359 |
| 926 .. | 8,009 | 29,132 | 23 | 275 | 118 | 1,397 | 7,099 | 49,838 | 80,642 ¹ |
| 927 .. | 8,531 | 27,321 | 61 | 675 | 161 | 1,780 | 10,475 | 46,832 | 76,608 |
| 928 .. | 12,170 | 39,155 | 147 | 1,624 | 262 | 2,980 | 8,986 | 36,372 | 80,131 ¹ |
| 929 .. | 14,018 | 40,310 | 153 | 1,565 | 285 | 3,146 | 8,910 | 37,164 | 82,185 |
| 930 .. | 13,246 | 31,839 | 41 | 460 | 101 | 1,117 | 6,553 | 21,634 | 55,050 |
| 931 .. | 11,434 | 23,807 | 110 | 803 | 122 | 1,228 | 5,813 | 14,891 | 40,729 |
| 932 .. | 7,045 | 14,864 | 10 | 81 | 50 | 505 | 5,647 | 14,805 | 30,255 |
| 933 .. | 7,724 | 14,322 | 21 | 114 | 60 | 491 | 8,310 | 18,245 | 33,162 |
| 934 .. | 7,552 | 13,435 | 8 | 71 | 77 | 672 | 10,995 | 23,652 | 37,830 |

TABLE 4
TRANSFERS OF KENYA DAIRY PRODUCTS TO UGANDA
(FROM CUSTOMS REPORTS)

| YEAR | Butter | | Cheese | | Ghee | | Total |
|---------|-------------|-------|-------------|-------|-------------|-------|--------|
| | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | <i>Cwt.</i> | £ | £ |
| 1926 .. | 988 | 8,949 | 187 | 1,701 | 192 | 1,533 | 12,183 |
| 1927 .. | 749 | 7,591 | 192 | 1,427 | 142 | 801 | 9,819 |
| 1928 .. | 706 | 7,491 | 145 | 1,020 | 155 | 1,187 | 9,698 |
| 1929 .. | 779 | 7,013 | 227 | 1,847 | 252 | 1,998 | 10,858 |
| 1930 .. | 863 | 7,178 | 245 | 1,279 | 457 | 2,460 | 10,917 |
| 1931 .. | 726 | 6,075 | 153 | 737 | 589 | 2,848 | 9,660 |
| 1932 .. | 759 | 6,186 | 85 | 490 | 1,002 | 3,472 | 5,329 |
| 1933 .. | 755 | 5,186 | 109 | 598 | 90 | 402 | 2,198 |
| 1934 .. | 769 | 5,351 | * | * | 2,075 | 5,374 | — |

*Not stated.

TABLE 5
DAIRY PRODUCTS SOLD BY EUROPEANS
(FROM AGRICULTURAL CENSUS REPORTS)

| YEAR | Milk | Butter | Cheese | Ghee |
|---------|----------------|------------|------------|------------|
| | <i>Gallons</i> | <i>Lb.</i> | <i>Lb.</i> | <i>Lb.</i> |
| 1929 .. | 1,027,375 | 1,370,915 | 228,836 | 230,595 |
| 1930 .. | 1,101,704 | 1,519,989 | 210,415 | 170,485 |
| 1931 .. | 1,018,868 | 1,354,363 | 181,364 | 115,887 |
| 1932 .. | 1,138,743 | 1,778,876 | 248,463 | 73,514 |
| 1933 .. | *939,434 | 1,542,368 | 265,555 | 91,530 |

*NOTE.—The total consumption of milk has been estimated at 1,650,000

(see paragraph 42).

TABLE 6
BUTTER PRODUCTION, TRADE AND APPARENT CONSUMPTION

| YEAR | Creamery production | Farm production | Total supplies | Exports | Transfers to Uganda | Total exports | Apparent local consumption |
|---------|---------------------|-----------------|----------------|-----------|---------------------|---------------|----------------------------|
| 1930 .. | 1,207,295 | 312,694 | 1,519,989 | 873,448 | 96,656 | 970,104 | 549,885 |
| 1931 .. | 1,069,043 | 285,320 | 1,354,363 | 708,512 | 81,312 | 789,824 | 564,539 |
| 1932 .. | 1,428,471 | 350,405 | 1,778,876 | 1,035,104 | 85,008 | 1,120,112 | 658,764 |
| 1933 .. | 1,235,019 | 307,349 | 1,542,368 | 841,568 | 84,560 | 926,128 | 616,240 |

TABLE 7
BUTTER LEVY STATISTICS
(FROM BUTTER LEVY ADVISORY COMMITTEE)

| YEAR | Levy received from producers | Quantity of butter on which levy received | No. of lb. of butter exported (excluding Tanganyika, Belgian Congo, Zanzibar and Seychelles) | Subsidy to butter exporters |
|---------|------------------------------|---|--|-----------------------------|
| | <i>Sh. cts.</i> | <i>Lb.</i> | <i>Lb.</i> | <i>Cts. per lb.</i> |
| 1932 .. | 152,554 94 | 610,220 | 897,382 | 17-000 |
| 1933 .. | 151,571 32 | 606,285 | 705,047 | 20-655 |
| 1934 .. | 165,728 20 | 662,913 | 1,081,860 | 15-319 |

TABLE 8
DAIRY FARMS IN KENYA (EUROPEAN AREAS)—ANALYSIS OF AGRICULTURAL CENSUS, 1932

| TYPE OF FARM | No. of Occupiers | Area Occupied | Cows and Heifers over 3 years | SALES OF DAIRY PRODUCE | | | | | |
|-----------------------|------------------|---------------|-------------------------------|------------------------|------------|------------|----------------|------------|------------|
| | | | | Milk | Butter | Butterfat | Cream | Cheese | Ghee |
| | <i>No.</i> | <i>Acres</i> | <i>No.</i> | <i>Gallons</i> | <i>Lb.</i> | <i>Lb.</i> | <i>Gallons</i> | <i>Lb.</i> | <i>Lb.</i> |
| Dairy | 232 | 893,217 | 34,637 | 766,288 | 194,669 | 421,006 | 40,035 | 84,390 | 73,286 |
| Dairy and wool .. | 34 | 331,022 | 8,935 | 94,309 | 39,500 | 114,296 | 6,851 | 25,572 | 10,369 |
| Mixed crop and cattle | 251 | 689,076 | 14,845 | 147,415 | 37,818 | 136,068 | 28,012 | 190 | 10,310 |
| TOTAL OF ABOVE.. | 517 | 1,913,315 | 58,387 | 1,008,012 | 271,987 | 671,370 | 74,898 | 110,152 | 93,965 |
| TOTAL ALL FARMS | 2,107 | 5,199,093 | 75,342 | 1,018,868 | 285,320 | 675,910 | 77,063 | 111,582 | 96,471 |

53

TABLE 9
DAILY MILK SUPPLY TO MUNICIPALITIES
AND TOWNSHIPS

| | Gallons |
|----------------------------|--------------|
| Nairobi | 2,590 |
| Mombasa | 968 |
| Nakuru | 230 |
| Eldoret | 160 |
| Naivasha | 110 |
| Kisumu | 100 |
| Kakamega | 95 |
| Kitale | 90 |
| Nyeri | 40 |
| Nanyuki | 28 |
| Others | 109 |
| DAILY TOTAL | 4,620 |

Equivalent per annum 1,650,000.

TABLE 10
RETURN TO THE FARMER FOR DAIRY PRODUCE SOLD
IN DIFFERENT WAYS

| | Cost of transport from farm to factory | Cost of manufacture | Cost of transport from factory to market | Total cost from farm to market | Price at market | Return to farmer | Return to farmer per gallon milk-equiva- lent |
|---|---|---------------------|---|-----------------------------------|-----------------|------------------|---|
| | Cents | Cents | Cents | Cents | Cents | Cents | Cents |
| BUTTER (Per lb.) | | | | | | | |
| (a) Sold locally .. | 3 | 20 | 4 | 27 | 125 | 98 | 46 |
| | — | — | — | — | 100 | 73 | 34 |
| (b) Sold in neigh- bouring terri- tories .. | 3 | 20 | 19 | 42 | 125 | 83 | 39 |
| (c) Sold in U.K. . . | 3 | 19 | 21 | 43 | 82 | 19 | 9 |
| | — | — | — | — | 71 | 28 | 13 |
| | — | — | — | — | 89 | 46 | 22 |
| | — | — | — | — | 98 | 55 | 26 |
| MILK (Per gallon) | | | | | | | |
| Sold in Nairobi .. | 8 | — | 20 | 28 | 100 | 72 | 72 |
| | — | — | — | — | 85 | 57 | 57 |
| | — | — | — | — | 70 | 42 | 42 |
| CHEESE (Per lb.) | | | | | | | |
| (a) Sold locally .. | 8 | 25 | 4 | 37 | 80 | 43 | 43 |
| (b) Sold in U.K. . . | 8 | 25 | 21 | 54 | 39 | (—15) | (—15) |
| GHEE | | | | | | | |
| Sold locally .. | 4 | 10 | — | 14 | 50 | 36 | 13 |



COLONY AND PROTECTORATE OF KENYA

**INSPECTION NOTE ON THE KENYA
COTTON CROP IN NOVEMBER AND
DECEMBER, 1935**

BY
S. MILLIGAN

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Price : 50 cts.

NAIROBI
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1936

Foreword

In the middle of last year His Excellency the Governor, Sir Joseph Byrne, approached the Empire Cotton Growing Corporation in London with a view to securing the interest of the Corporation in Kenya cotton, and as a result the Corporation agreed to send a cotton expert, Mr. S. Milligan, to Kenya to advise the Government on the best means of extending cotton production.

Mr. Milligan duly arrived in Kenya in October, 1935, and his "Inspection Note" relating to cotton, which was prepared as a result of his visit, is published herein.

The main conclusion at which he arrived is that our knowledge of cotton growing, which requires investigational work to acquire, should not lag behind cotton development, and his main recommendation is that facilities should be provided to enable further investigations to be started forthwith.

The proposals made by Mr. Milligan have been accepted. Three temporary Agricultural Officers are to be appointed to enable the technically trained Agricultural Officers to undertake the necessary additional investigational work. The visit of a suitable Agricultural Officer to Barberton, the central cotton station of the Empire Cotton Growing Corporation, is being arranged. The services of the entomological and pathological sections of the Department will be called upon as available and as required.

The thanks of officers of the Department of Agriculture and of all those interested in sound cotton development are due to Mr. Milligan for his valuable and encouraging visit and report.

Nairobi,

18th March, 1936.

H. B. WATERS,
Director of Agriculture.

Inspection Note on the Kenya Cotton Crop in November and December, 1935

By S. MILLIGAN.

Advice on the policy to be pursued in the development of cotton-growing in Kenya was sought from the Empire Cotton Growing Corporation and I was deputed by that body to pay a brief visit to the Colony in an advisory capacity towards the end of the year. To make a thorough inspection of a crop, and in particular of a cotton crop, it should be observed throughout the growing period, but as such is not feasible the next best thing is to see it at the beginning of the picking season when the first plantings are just opening and the later are sufficiently young to give some idea of the earlier growth. November and December were thus selected as the most suitable months and, on the whole, the time turned out to be satisfactory.

This note is not in the nature of a Report. No detailed description of the cotton-growing area is attempted. The absence of rain gauges in the Nyanza Province renders it impossible to discuss climatic conditions in the main cotton area. I have merely set down what I have seen and based my recommendations on what I consider to be the fundamental difficulties existing at present, and those likely to be encountered in the future.

Owing to the high altitude of the best arable tracts and the low rainfall in by far the greater part of the remainder, cotton-growing in Kenya will always remain a limited possibility. It is already established on the Coast and in the Lake basin, and efforts are being made to extend it to certain of the lower lying areas in the Central Province where altitude and rainfall are not too unfavourable, and where some cash crop or other is urgently required in the Native Reserves. Outside these specified areas there seems little hope of extension owing to climatic limitations. The crop is almost entirely grown by the native population.

COASTAL BELT.

The accepted cotton area in the coastal belt may be said to extend from the Colony's boundaries to the north and south within a distance varying between ten to twenty-five miles from the sea.

SOIL.

The typical soil of this area belongs to the light sandy type varying, so far as fertility is concerned, mainly with the amount of organic matter present.

The coast climate is warm and moderately humid, the range in temperatures being comparatively small. Normal years cannot be said to exist, but the following descriptions by the Agricultural Officer for the Coast Province gives a general idea of what may be expected.

“January and February should be mainly dry and hot with strong winds from the northern quarter. March brings the ‘grass’ rains, but the long rains proper should not begin until April. Coming to a peak in May, they ease off in June. The weather, from being hot and close, gradually becomes cooler and more pleasant. At some stage strong gales may be expected from the southern quarter.

July to September is a cool period, when gentle rains may be expected, though conditions are mostly dry. At this time plant growth is at its most vigorous. With the approach of the short rain season, the weather becomes better and rain may be expected towards the end of October or later. A period of close weather is experienced again until pleasanter conditions set in towards the close of the year.”

Rainfall decreases in amount from about 50 inches at the Tanganyika border to 40 inches at Malindi. When normally distributed, this would be quite sufficient for cotton-growing, but on examination, and even more so in practical experience, it is not so favourable as might appear. Heavy downpours are frequently succeeded by severe spells of drought, and the reaction of the latter on the lighter soils and on the plants growing on these, cannot be too good. The heavier soils and those better supplied with organic matter suffer less.

Cotton-growing on the coast is of recent origin, although spasmodic attempts have been made to introduce the crop. The following is a brief résumé of what has happened during the last twelve years :—

1923.—Cotton seed was introduced from Uganda through Mr. Marchant, District Commissioner, Malindi, and Mr. Ghulam Hussain, a Mombasa merchant. The

experiment was limited to the neighbourhood of Malindi and Mambrui. The plantings continued up till 1930 with varying success. The out-turn ranged from 250,000 to 500,000 lb. of seed cotton, the latter figure being obtained in the year 1929-30.

1930.—Was marked by very serious drought, the crop dropping to 50,000 lb. probably due to too late an accepted planting date, that is to say too much reliance on late rains.

1931.—A propaganda for earlier plantings was instituted. This season's crop reached 600,000 lb. of seed cotton. The change in the accepted date of planting was based on the general observation during the previous season that only the early planted fields had survived. A nucleus of seed of the N.17 variety was imported from Uganda, the experience of the previous year having shown that the longer stapled varieties in use produced extremely weak lint. The produce was ginned separately and issued for the following year's crop.

1932.—A real extension in area was attempted, and the crop exceeded 1,000,000 lb. of cotton seed. In this year a system of buying posts was organized.

1933.—A new ginners' was started at Mazeras, and the old ginners' at Malindi was completely renovated. This turned out to be a very dry season, but the crop went up to 1,500,000 lb.

1934.—Another new area (Digo, Coast) was opened. This year was abnormally wet and the cotton was accordingly poor (50 per cent off colour). Early planted cotton for the first time suffered most. The final crop exceeded 2,000,000 lb. for seed cotton, and the loss on grade was to a considerable extent offset through an increase in price.

1935.—Owing to extensive propaganda involving an increase in area, coupled with a more favourable season a considerable increase in out-turn is anticipated. 4,000,000 lb. is expected, but this will depend on the occurrence of late rains as in much of this area early plantings were not possible.

It will be seen that there has been a steady increase in production since the year 1930.

I visited the coast area during the latter days of October and the first week of November. The following are my notes with regard to this season's crop.

RAINFALL UP TO DATE AND GENERAL APPEARANCE OF CROP.

The season has been reasonably good. The early planted fields had, of course, lost much of their bloom and a considerable quantity of the early bolls had failed to mature, due presumably to stainer and boll worm damage. Stainers and pink boll worms were to be found, but in no place to excess. Later plantings were, as might be expected, much fresher, but their fate depends on late rains. Such rains belong to the category of the short rains common to most parts of the Colony, but are, I am told, none too reliable on the coast.

INSECT PESTS.

Little is known of the incidence of insect pests—*Stainers* are recognized, but to what extent the obvious damage to the early crop is due to this agency, it would be difficult to say.

Red Boll Worm is to be found in the area, but Mr. Kirkpatrick (Amani), on a visit some years ago, considered this pest to be under control, under natural agency, at the time. There is obviously a want of information as regards both pests, either of which may prove the final arbiter of the fate of cotton-growing in any country.

SPACING AND CULTIVATION.

This calls for few comments. On the whole it has been well done, considering the difficulties encountered in establishing a recently introduced crop. Stands were, for the most part, good, and the fields had obviously been well weeded throughout the season. Spacing appeared on the whole to be satisfactory, giving plenty of room for interplant cultivation, and at the same time being about right from the point of view of drought.

There was some talk of closer spacings with a view to enhanced yield, but I should be reluctant to depart from the accepted standards to any great extent. The desirability of wide spacings on manured land under good moisture conditions was in many cases very obvious, and, on the other hand, the necessity for giving room for the plant roots during periods of drought was exemplified over and over again during my inspection of the crop in the districts. For the later plantings, spacings might be somewhat reduced, but this should not be done for the earlier and mid-season crops.

TIMES OF PLANTING.

Reference has already been made to the disastrous drought in the year 1930, and to the fact that early planting suffered less than the later crops, although the reverse held good in Digo during the previous season, which was a wet one. There is thus strong reason to believe that the dry years are the most dangerous, and that too much reliance must not be placed on the short rains for finishing off the later sown crop. It was observed in 1930 that well established plants resisted the drought sufficiently well to pull through, whilst those struggling to do so died out. Thus, while very early plantings are to be avoided, there is a strong case for making an early start so that the crop may be well established before it is likely to be subjected to drought. From experience May appears to be the optimum month for starting planting, and the limit of safety to be not later than late June.

VARIETIES.

The crop shows a considerable degree of admixture, but is in the main derived from the seed obtained from Uganda in 1931, namely N.17. This variety has served its turn quite well and the intention to stick to it until something better turns up and has been properly tested is a sound one. The Agricultural Officer in Charge of the Coast Province is, however, not quite satisfied with regard to its resistance to jassid and "blackarm" and is also desirous of obtaining a better drought resister.

Bulk trials of U.442 bred from seed produced in Tanganyika have, therefore, been undertaken near Kilifi. Although there is nothing to be said against this year's crop of U.442 as seen in the field, I should strongly advise against any further extension of area under the variety until its suitability has been thoroughly established. There are quite definite reasons for care regarding this particular selection from U.4. One of its main characteristics is extreme earliness in crop formation, and at Barberton where it originated it is mainly used where a quick growth is imperative, such as in places where the season is a short one, or for late plantings. On account of its early maturing qualities, it is apt to set a somewhat larger crop than it can comfortably mature if weather conditions go against it. At Shinianga (Tanganyika) for example, in the year 1931, it set a heavy crop (1,000 lb. per the acre of seed cotton over 40 acres), while other strains produced practically nothing, but the subsequent weather was

so bad that the lint produced was very harsh and short. There is just a danger of a similar experience on the coast, after the variety in question has become established.

Again from an examination of the crop types grown on the farm at Kibarani (Kilifi), it would appear that some of the other U.4 selections might easily turn out to be better suited generally to local conditions than U.442. U.4. 920, amongst others, looked very well. This is rather a different style of plant—later than U.442, stronger in growth and more consistent as regards lint. Thus, with prospects of a better strain being forthcoming, there appears good reason for delay in increasing the area under U.442 in the district.

GINNING AND MARKETING.

Marketing arrangements are conducted more or less on the lines adopted in Uganda, through a system of buying posts which are inspected by the Department of Agriculture. Seed cotton is graded by the growers into two classes, 1st and 2nd qualities. This grading is entirely on colour and the result is a first grade of very nice appearance which meets a good sale abroad. Grade B. is mostly bought for shipment to Lancashire.

Ginning arrangements appear to be satisfactory—in fact the whole marketing organization leaves little to be desired.

The lint on the coastal belt classes with that produced in Uganda, and fetches a somewhat similar price, benefiting to a slight extent through the greater proximity to Port. It appears desirable that the class of cotton produced should not be altered, without good reason, from the marketing point of view. The quantity produced at the coast is at present far too small to find a market for itself, and it is desirable that it should correspond in class either to that of Uganda or of Tanganyika.

SUGGESTIONS REGARDING PLANT IMPROVEMENT.

The Department have an agricultural station at Kibarani adjoining Kilifi. It is a general station, that is to say, it deals with most of the crops grown in the Province, cotton being one of the principal of these. Variety trials were begun in 1931 with S.G.29, N.17 and Old Malindi, the original cotton of the area. In 1932 the variety Over the Top from Nyasaland was added. In that year Mr. C. A. Thorold, Government Mycologist, discovered Jassid in the plot, and accordingly a U.4 bulk sample, obtained from Tanganyika,

was added to the varieties already grown in the trials. All others were discarded in 1934, and it is now considered that the most suitable cotton for the coastal areas will be found from amongst the various types existing in the U.4 belt. In 1935, ten of Mr. Parnell's U.4 re-selections were planted. Although I found it impossible to make any reliable comparisons between these types owing to the complete lack of uniformity of the plot in which they were growing, it was quite obvious for the current season at least that the U.442 re-selection which has been subjected to a bulk trial in the district, was very far from being the most suitable. Further work, beginning with a properly conducted variety experiment carried through a series of years on reasonably uniform land, is urgently required. I should not advise sticking rigidly to U.4 strains. N.17, which has already established itself as a useful cotton for the Province, ought to be included.

Something ought to be done to improve the lay-out of the station at Kibarani. At present it contains little land suitable for field experiments of any kind. For variety trials or even observation plots some degree of uniformity of soil conditions is imperative. The Agricultural Officer in charge is on very short rations so far as money for the farm is concerned, but is prepared to add a new block which would improve matters.

NYANZA PROVINCE.

Before inspecting the cotton area in the Nyanza Province, I paid a visit to Uganda with the object of seeing the Eastern Province crop in order to acquire some standard from which to judge the neighbouring crop in Kenya, and to see what plant breeding developments had taken place at Serere since my last visit in 1931. The Agricultural Department had already begun work on one of Mr. Parnell's U.4 selections, viz., U.442, and resistance to "blackarm" appeared to be one of the characters inherent in this particular strain. At that time the main stumbling block was the question of the inferiority of its lint to accepted Uganda standards.

During my recent visit, I found that by careful re-selection the lint difficulty had been to a great extent overcome, and that the Department, after extended field trials, were multiplying the latest re-selection from U.442, namely S.P.20, with the object of distributing the seed in certain areas of their Eastern Province.

This development is of great importance to the neighbouring cotton areas in Kenya. It should be remembered that

the nucleus of supply of seed to the Colony has been obtained from Uganda, and that it is desirable, if possible, from the point of view of marketing, etc., to produce the same class of cotton in the two territories.

Nyanza Province contains the most important cotton-growing tract in the Colony, producing in the season 1934-35 9,500,00 lb. of seed cotton out of a total of 11,600,000 lb.

The existing and potential cotton area in the Province may be said to be that part of the Lake basin lying below an elevation of 4,600 feet, or about 900 feet above Lake level. The upper limit is a somewhat arbitrary one, but has been arrived at from practical experience, that is, by the failure to establish cotton crops above this contour. It happens to coincide with the altitude of many of the numerous ridges running through the area, and as cotton-growing appears to be feasible, from climatic considerations, only in the valleys and on the flats this accepted "ceiling" rests on a very sound basis.

The following historical note on the cotton industry in the Nyanza Province has been supplied by the Agricultural Officer in Charge:—

"In the year 1910 the British East African Corporation Limited established a ginnery in Kisumu. The main object of this was to deal with seed cotton produced in Uganda. At this time efforts were made to grow cotton locally in the Seme, Kisumu, Kano and Nyakach locations. They met with little success and were given up in 1913. At the same time cotton-growing continued in the Samia country on both sides of the Sio River and was sold to an agent of the Corporation at Sio Port. The amount bought one year had approximated 50,000 lb.

In 1920 the Uganda Government enacted legislation prohibiting seed cotton from passing to Kenya, and in that year the Corporation removed all their gins to Uganda. Baling of half pressed bales from Uganda continued at Kisumu till 1923, when the export of these bales from Uganda was prohibited. This ended the first phase of cotton ginning in Nyanza.

From 1914 to 1922 cotton cultivation was almost non-existent, with the exception of a small amount grown around Samia and Wamia and sold to the store at Busia or to the ginnery at Tororo.

The Kenya Government decided to encourage cotton-growing in the Uganda border region in 1922 and granted a ginnery site to Capt. Gordon Small. Some seed cotton was bought in 1923, but ginning actually started with the 1923-24 crop.

Following on this four gins were installed in the Kibos Flour Mills and a small amount of seed cotton was produced in the neighbourhood.

Other two sites were granted at Nambare to Messrs. Folkes and Company, and Malakisi to The British Cotton Growers' Association. The latter firm then procured a site at Asembo and actually ginned cotton in 1924. In 1925 they bought approximately 500,000 lb. and in 1926 only 200,000 lb. after which they closed down. The ginnery on Lusumu River, near Mumias, only bought 45,000 lb. seed cotton and the owners were also obliged to close down. In South Kavirondo, the natives were introduced to the crop and sold 24,600 lb. seed cotton. In 1926 an Assistant Agricultural Supervisor was posted to the district for a few months with cotton production as his chief line of work, but the outlook changed and planting ceased.

The third phase only started about the 1931-32 season when prices were at their lowest and 2,166,352 lb. seed cotton sold in No. 1 area. Since that date there has been a vigorous effort made and the natives have gradually increased output."

PRICE INFLUENCES.

At the time when cotton-growing commenced the price was 30 cents per lb. of seed cotton. From that date there was a gradual fall in price till 1933 when it reached its lowest point of 8 cents. In spite of that, production increased steadily from 1931, the "blackarm" year, when just less than one million pounds were sold, till in 1934-35 season, nine and a half million pounds were sold.

It will be seen that cotton-growing in the Province has had a chequered career, but that in spite of all difficulties it is now making steady progress. It may be considered an established industry in the western areas and looks like "having come to stay" in some others. There are now five ginning factories, viz., at Sio, Nambare and Malakisi in the west, at Kibos in the centre and at Kendu in the south.

CLIMATE.

The climate is fairly warm and moist being under the Lake influence. Owing to the absence of rain gauges in the areas where the cotton is actually grown, there has, however, always been a great doubt about the rainfall and its distribution. In most of the western area it is somewhat similar to the adjoining Eastern Province of Uganda and pretty reliable, giving best results as far as cotton is concerned when the crop is planted from June till August. Other parts are less reliable, and many precarious. The Nzoia River Valley appears to be very different from the country bordering on it. Kadimu in Central Kavirondo has less rainfall than Sakwa which is in juxtaposition. The North Kano is wet compared with South Kano. The rainfall on most of the South Kavirondo Lake shore is sufficient, but in the Karungu and Gwasssi locations there is a very low fall and cotton planting is said to be useless unless effected in the month of February.

For convenience the cotton-growing areas may be divided into three main tracts:—

- (1) The western area adjoining Uganda.
- (2) A central area, being south and east of the Nzoia River.
- (3) South Kavirondo.

No. 1 Area.

The cotton-growing part of this area has been estimated to extend to about 1,100 square miles with a population of 157,000, producing in the last season nearly 8,000,000 lb. of seed cotton out of a total of about 9,500,000 lb. for the Province. The tribes are mainly Bantu and more progressive than the Nilotic Luo found in the two other areas. They are better cultivators, and anti-erosion methods are occasionally to be met with in the fields. These mainly consist in piling up weeds and refuse in rows in the crops, but a few growers are actually attempting contour ditches and stone bands.

CROPS.

The main products are cotton, finger millet, sorghum and sweet potatoes, with an increasing amount of cassava as a permanent crop. The food crop receives first attention, being planted in February–March, cotton seedings starting in July. A rotation is observed. Attempts are made to follow millets with cotton in the same season—this results in late plantings, and is in consequence speculative. A short season

millet bred by the Agricultural Department with an opening period of about three weeks less than the local product ought to be very useful for this class of rotation, and two early sorghums from the same source should still further improve matters. The Provincial Agricultural Officer explains that this will help to reduce the encroachment made into the grass and bush reserves of the cultivators. Any measure tending in this direction is of the greatest importance. The Department is also making attempts to introduce legumes interplanted with the cotton crop. It is said to have been successful in years of good rainfall. This year's results, with a pronounced break in the planting rains are, however, not encouraging.

VARIETY OF COTTON GROWN.

This belongs to the N.17 type imported from Uganda. It is rather mixed in the field, but has served its turn and is likely to be grown until Eastern Uganda changes over to a new variety. Trials of fresh strains are in progress—these will be referred to later.

SOILS.

Little study has been made of the soils in this tract. For cotton-growing the type does not appear to matter greatly, so long as the fertility is at the proper pitch—when this is too high, as is sometimes the case, the plant tends to go to vegetative growth to the neglect of "bolling". When it is too low the result is a miserable and uneconomic crop.

Position as regards exposure to winds is of primary importance. This is generally recognized.

TIME OF PLANTING.

Planting is generally begun in July, if possible, as late crops are precarious. An example of this was to be seen in the current season where a serious "break" in the planting rains was experienced, the bulk of the crop not being got in before the end of August. The normal picking season is from January onwards, but late August plantings are not due to ripen until February at the earliest. Their maturing thus depends on good rains in December and January, and on the absence of insect attack and disease during these months. Such plantings are thus speculative in the extreme. On the other hand very early plantings also suffer through the "break" and do not appear to make a good recovery. July is thus probably the safest month for planting so far as present knowledge goes, but there still remains a good deal to be learned on the subject.

SPACINGS AND SUBSEQUENT CULTIVATION.

Planting is done by the hoe, the spacings recommended being 3 feet by $1\frac{1}{2}$ feet for single plants, and 3 feet by 3 feet to $3\frac{1}{2}$ feet by $3\frac{1}{2}$ feet for two or more. The space per plant is thus about half a square yard, or at the rate of 9,600 plants per acre. This is in accordance with general spacings elsewhere and, as the season is a long one, there is little to be said for, and much against, closer spacings. There is said to be some difficulty as regards excessive seeding at planting time. Heavy seeding produces an attractive appearance immediately after germination, and the seed is issued free of charge, both factors operating against economy!

There seems to be no difficulty as regards subsequent cultivation; a man and his wife can look after $1\frac{1}{2}$ acres of cotton or even more. The Bantu children are said to be cultivating gardens on their own to produce revenue for clothes and schooling.

SELLING ARRANGEMENTS.

Selling is restricted to organized centres where the ginner or their representatives purchase direct from the growers, the buying posts being distributed so that no grower is outside a radius of six miles from the nearest post. A system of zoning was introduced last season.

In newly opened areas only the ginner nearest the area is allowed to open a store selected by Government, and so long as his services are considered satisfactory, he is the sole buyer up to a limit of 200,000 lb. of seed cotton, or until it is considered that more than one can buy economically. The buying system is under close supervision by the Agricultural Department.

GINNING.

There are at present three ginneries in the area, each having an exclusive buying zone with a radius of about seven miles. The arrangement is exclusive to the buyer, but not to the seller who can dispose of his produce in whatever zone he pleases. The factories are up-to-date in their equipment. Gins are mainly of the usual roller type, but the double acting roller gin is being given a trial and satisfactory results are said to have been obtained from their use.

No. 2 and 3 Areas.

The western area is the established cotton tract of the Province. No. 2 and 3 Areas may be considered together—they are still on probation, but have prospects in some localities. I consider these are distinctly good in parts of Central

Kavirondo near the shores of the Gulf, in certain localities on the northern shore of the Lake, quite fair in part of the Kano Plains served by the ginnery at Kibos, but not nearly so promising in the more northerly areas further removed from the "Lake influence".

CLIMATE.

There are again no rainfall statistics, but it may be said in general that the precipitation is less than in the west. The climate is considered less favourable to cotton-growing owing to the occurrence of distinct dry periods. This, however, may or may not be a disadvantage as cotton is none the worse for such, provided the weather is sunny and not overcast.

PLANTING DATES.

Correct planting dates have yet to be worked out. They will probably vary for different localities. The accepted date March-May will, it is thought, have to be altered for the inland areas to suit a somewhat different rainfall.

SPACINGS, ETC.

Spacings have been based on those accepted for the western area, and unless experience indicates the necessity for some modification will be continued with.

METHODS OF CULTIVATION.

The crop, being still more or less on probation, cannot be said to have passed the experimental stage although in the aggregate a considerable area has been planted in the current season. This has been effected through "community" blocks which are in reality large scale demonstrations, the policy being to get down to individual holdings as soon as possible. The blocks had been planted earlier than the fields in the western area, and for the most part were carrying a better-grown crop. Many of them had been already picked and had given satisfactory results. There were, however, quite a number of failures, more especially in the north and in parts of the Lake shore areas. I should strongly advise the utilization of the better blocks for cotton-growing in the coming season, where it is not possible to get down to individual holdings. There exists an idea that cotton should not be grown on the same land in successive years. This is not so. The second year's crop of cotton on new land is usually better than its predecessor. By using the "community" blocks for next season the opening up of fresh land would be avoided and much

labour saved thereby. It would be also a safer proceeding in the drier localities as new land is notorious in its moisture demands.

General Remarks on the Nyanza Province Crop.

The absence of meteorological stations in the areas in which cotton is actually grown renders it difficult to make any specific suggestions as regards such questions as times of plantings, choice of soils, etc. These are for local investigation, and can only be arrived at through observation. I am only able to give a few general hints from my own experience:—

Rapid extensions of area of any crop are to be avoided on the experience of one year only for a variety of reasons. This holds especially with regard to cotton as the insect position, a dominating one with regard to this particular crop, is rarely revealed during the first two years.

In the second place no extension should be attempted in localities where the crop has not proved successful. On the contrary, the growers should be actively discouraged until further experience, through small scale trials, shows the true position for the particular area.

As regards times of planting, extremes should be avoided. In general, early plants may be said to have a greater chance of success than late plantings owing to the nature of the cotton plant as regards flowering. On the other hand crops planted too early are apt to get "tired" at the end of a long season, lose their freshness, and are often incapable of responding to improving conditions, while later plantings are more vigorous and responsive. There is thus a strong case in most instances for a middle course. This is especially so in an expanding industry where conditions have not been sufficiently studied. The same advice may be equally applied as regards spacings. Too wide spacings do reduce the potential out-turn of the crop, but overcrowding is too risky except in special cases, and requires intimate knowledge of local conditions which is lacking throughout the cotton-growing areas of the Colony. I should not, therefore, advise any change in the accepted spacings for the Nyanza Province, except in the case of late plantings, which are actually *safer* with more plants to the acre. This is explained from the consideration that the first pickings from a closely grown crop are in general heavier than from one wider spaced, and, as later pickings from late plantings are always speculative, the main objective should be towards increasing the former.

FIELD SITES.

With regard to sites for cotton fields, valleys are in general preferable to open flats, although the latter may be greatly improved by tree planting. Shelter being of primary importance, large fields are to be avoided. The best crops are usually to be found in the small areas adjoining habitations—these are generally better grown, better balled, and freer from insect trouble.

VARIETIES.

Mention has already been made of developments in Uganda, involving a possible change in the variety grown in the Eastern Province. Although it is not necessary to conform strictly to what happens "over the border", there are obvious advantages in doing so when it comes to a question of growing the same variety, avoiding as it does complications with regard to seed issues. No decision on the question has already been made by the Uganda Department, but it appears likely that if a change over is made it will be to S.P.20 or one of its derivations. This is an entirely different type of cotton to the existing N.17 variety which is at present grown on both sides of the border, and it is perhaps unnecessary to point out that its adoption in Kenya should not be determined on without exhaustive trials to determine its suitability to local conditions. I should, however, desire to stress the necessity of losing no time in making a start in this direction. A few small scale trials, in which S.P.20 had a place, were carried out this year, but no reliable results can be expected owing to the abnormal season. The tests should not only be on a larger scale, but there should be many more of them; what is really required in the first place is a decision as to whether the new variety is a suitable one for the Province especially for the western areas, what are its advantages and disadvantages, and whether the former outweigh the latter. In short, qualitative rather than strictly quantitative results ought to be the first objective. This removes the necessity for statistical plot work which is so difficult to undertake over a wide area.

All that would be required would be a wide-spread series of observation plots in typical areas, in which the existing N.17 and new S.P.20 varieties could be grown side by side to permit of a comparison as regards essential agricultural qualities, such as resistance to disease and, possibly, jassid, resistance to, and powers of recovery from drought, behaviour during prolonged rainy and cloudy weather, etc. Crop weights should be taken, but these should be considered more as a

check on the opinion formed as regards general suitability of the respective varieties than as a strict comparison of yielding power.

DAMAGE BY DISEASE AND INSECTS.

Far too little is known on this subject. Until recent years cotton-growing has never been taken seriously in Kenya and fundamentals have thus been neglected. I am not certain whether if more was known, much could be done in the field to obviate disease and insect attack, although varieties resistant to jassid on the insect side, and "blackarm" from the point of view of disease, are obtainable. But the position as regards bollworm and the stainers in the various areas should be ascertained. I do not recommend in this case an inquiry, such as is necessary in the Central Province, and which must include a complete life history of these pests, but the degree to which cotton fields in specific localities are liable to insect attack should be known. Such knowledge is an essential part of the wider question of the general suitability of an area for cotton-growing.

CENTRAL PROVINCE.

Attempts to establish cotton-growing in Machakos, Kitui, Embu, Fort Hall, Nyeri and Meru districts belong to the last few years. The crop, it is true, was grown by a few settlers in the early days and by Government (in 1924-25), but no records are available, and it was not until 1933 that any real trials were made by the Department of Agriculture.

In 1933 eight experimental plots were laid down, six of which were in the Kitui and two in the Embu district. The cotton was planted on small areas mainly on new land. Rainfall was poor and crops on these suffered accordingly, the best results being obtained from previously cultivated areas. Two complete failures on the new lands were recorded. In Kitui, however, one of the plots planted during the short rains gave good yields, although the plantings at the time of picking in August are stated to have been covered with stainers, which had apparently arrived too late to do much damage, as the general quality was very good. Both plots at Embu were planted at the end of October, and both failed.

1934—*Kitui*.—Eight plots were planted at Kitui in April, the idea being to try both the long and the short rains as seasons for planting. Little at that time was known of the distribution of the rainfall, germination was poor and the crop withered up and there was no opportunity for replanting.

After further inquiries into rainfall conditions, the idea of a long rains crop was abandoned. One crop survived on the high rainfall area near the township and yielded at the rate of 600 lb. of cotton per acre. Stainer is reported to have been present, but not in large numbers.

About 800 acres were planted in the short rains owing to anxiety on the part of the cultivators to try some new crop. All crops with the exception of cotton died from drought, but the yields were very poor, averaging about 150 lb. per acre of seed cotton. Subsequent to harvesting the plants died out. Few insects were reported. The farm plot at Kitui again survived, and gave about 300 lb. per acre, harvested in April and August.

1934.—*Trials at Embu, Fort Hall and Meru.*—A series of sixteen plots in these districts were planted in March and early April of 1934. Yields varying from 40 to 265 lb. per acre were obtained in September and October, and later pickings brought these figures up to 400 to 1,200 lb (Fort Hall) per acre. The Fort Hall plots were, however, badly stained.

Machakos.—Elevation 4,000 feet and under.—Short rains plantings (October and November) were badly droughted, but the yields varied from 200 to 450 lb. per acre, reaped in April. Another planting in April yielded from 599 to 834 lb. per acre.

COMMUNITY PLANTING.

Encouraged by the results obtained in the previous season extensive areas were planted to cotton in the Reserves in 1935. Unfortunately, new land had to be employed and it was found impossible to fulfil the programme without having recourse to "community areas".

I was able to inspect these in only three districts, viz., Fort Hall, Embu and Nyeri, weather conditions being too bad to permit of a visit to Meru and Kitui.

It was obvious that the season had been quite unsuitable for community plots on new land. Such requires a good rainfall for all crops, especially for cotton, both at seeding time and subsequently.

In most fields the plants had obviously been badly checked in their early stages, and, worse still, where growth was better, the bolls had been so damaged by disease (probably through stainer) that there appeared to be no hope of anything but a miserable crop from what remained to be harvested. The amount of cotton already picked could not be ascertained, but

this in any case must have been low. Over 90 per cent of the bolls examined by me were badly damaged and although a portion of these may be expected to open, the lint cannot be otherwise than of low grade. Some pickings may yet be obtained from late flowers, but this can only happen through the occurrence of exceptionally favourable weather conditions.

The programme for next year's plantings in the Reserve is on altogether better lines. "Community" planting will be dropped and operations will be confined to individual plots and on previously cultivated lands. Better results may be anticipated. The crop will be more easily established and there should be a better general response on the older lands.

TIME OF PLANTING.

There seems to be at present two main problems. One has been referred to, viz., boll disease which is probably introduced by stainer. The other consists in the relatively low temperature after the long rains. This cold snap lasts from the latter part of June until the end of July. What happens to the crop is not quite clear. Growth is said to cease entirely, but the position with regard to bolls already formed has apparently not been observed. The weather gradually warms up and the plants recover and make renewed growth with the advent of the short rains. It is a most unusual situation and one entirely outside my experience. An extremely difficult problem arises with regard to planting dates. On the one hand, there is no time to get the crop far enough advanced to give a picking before the cold snap and the advent of the dry season makes late planting in the long rains an altogether risky procedure. Planting in the long rains and cutting back before the advent of the short rains would at first sight appear to offer the best solution, but apparently either growth is too slow or the pruning too long delayed for the conditions met with. Possibly the attempt to take two crops is a mistake, and that an early cutting back before the first bolls are open would result in a more vigorous growth capable of maturing during the short rains period. In this case the pruning would be done just before the weather begins to warm up. As a practical method in the Reserves, however, such procedure would encounter great difficulties owing to the disinclination to sacrifice a prospective crop. In the meantime, and until further experience has been gained, it would be well to stick to early plantings without any attempt being made to prune.

The whole position regarding planting times is, as has been already stated, mixed up with the occurrence of boll

disease. If this is due to stainer attack, then a ripening date which will coincide with the off season of this pest (if there is one) will be the most suitable, other things, such as moisture conditions, being equal.

VARIETIES.

Comparative trials have been made between the varieties N.17 and U.422, in experiment plots scattered throughout the districts. Yields had not been fully recorded, as there was still some crop to come, but it was expected that from previous experience U.442 would probably show better results. There is, however, an absence of real information as to how the respective varieties have behaved throughout the season, and in view of the difficulties already mentioned with regard to times of planting and the cold snap during the middle of the season, it is very necessary that more detailed notes with regard to such items as date of flowering, behaviour during unfavourable weather conditions, etc., should be kept. The most suitable variety will be found that which is able to withstand unfavourable conditions and pull off a crop in adverse years. It has yet to be decided whether an early or a late variety is better, and ability to mature bolls during the cold period will also be an important quality in cottons for the Central Province areas. The observation plots already established are undoubtedly on the right lines for gaining information, but a more complete system of recording is required. The present system of depending altogether on yields must be replaced by recorded observation at definite seasons. In this way the leeway in knowledge of what actually happens throughout the growing season ought to be rapidly made up and it will then be possible to speak with much greater certainty than at present regarding the more important factors involved.

BOLE DAMAGE.

Although stainers appear to be the most likely cause of the extent to which boll disease is prevalent in the fields, the position as regards disease generally should be cleared up. This could be done by frequent despatch of diseased bolls to the Pathological Section at the Scott Laboratory. But no time should be lost in investigating the stainer position as this is almost certain to be the chief limiting factor to the success of cotton-growing in the area. Investigation should cover the whole life history of these insects which spend only part of their existence in the cotton fields. It will occupy the full time of an entomologist, and will require to be carried

on throughout the year. I look for an improvement as regards stainer attack when the scene of operations is shifted from the large community blocks to the small fields adjoining the habitations, especially in those places where poultry are kept, but full relief cannot be expected. A full knowledge of the wild host plants and their connection with stainers would indicate in which direction, if any, some control could be obtained, and would also indicate the most suitable planting seasons for avoiding attack. It would further indicate generally whether or not cotton-growing in the Reserves is likely to be a permanent economic proposition.

A good deal of damage had been done in some fields by some insect no longer present. I strongly suspect American boll worm, as the damage very closely resembles that usually associated with this pest. If it has been due to the American boll worm, it is more than likely that it would be less in small fields, as the pest prefers to attack the crop in the centre of an area rather than on the outside. In large fields quite a wide margin is usually left untouched on the outside, and as this amounts to much more in smaller areas than in the larger, less damage may be expected in the former. It is a matter that can easily be cleared up through observations during next season.

GENERAL REMARKS AND RECOMMENDATIONS.

I have endeavoured to give a general picture of the position in each of the three Provinces in which cotton is at present grown. It may be said that the crop has become fully established after years of uncertainty and difficulty in the coastal belt and in the Lake area, while in the Central Province it is still on trial. It is likely to be confined more or less to altitudes under say 4,500 feet, and to areas where there is sufficient rainfall. Total annual rainfall figures do not give too good an indication of local suitability to the crop, as their distribution is such that considerable dry periods intervene between the two main seasons, viz., the long and the short rains. With the possible exception of Kitui district cotton is a long rains crop, finishing, however, at the end of the short rains. Although the total crop produced in the Colony is never likely to be a large one, it is of great importance to certain localities. During its period of probation up till the time when considerable extension was effected, it had strong competition from other crops, but now that prices for these have fallen, the situation has changed, and the low prices prevailing for cereals renders it possible for cotton to compete

successfully with these at a moderate yield of say 300 lb. seed cotton per acre. Prices of cotton moreover have now reached a steadier basis, and a sharp fall is not anticipated.

The crop possesses several advantages so far as Kenya is concerned. In the first place it does not compete in local markets, and its price is not thereby affected. Further, owing to a steady demand from India, Japan and Lancashire for the class of cotton produced, it is readily saleable, and preparation for the market, that is ginning and baling, is relatively a simple matter. These considerations are of first importance.

With regard to recommendations for the improvement of the situation, I have already indicated the lines on which they should be carried out. They are rather different for each of the Provinces concerned, and in summarizing it is convenient to treat the areas separately.

COAST PROVINCE.

The most important recommendations for this area are :—

- (1) Trials of varieties at the experimental station of Kibarani, and the improvement of the station itself.
- (2) Investigation with regard to the insect position, more especially the stainers and the pink boll worm.
- (a) As regards variety trials, an extension to a suitable and more uniform area is required at the Kibarani station.
- (b) The Officer in Charge should receive special training in the work as such trials must include an examination of staple.

This could be readily arranged for by The Empire Cotton Growing Corporation at their central station at Barberton. Barberton would be the most suitable place, as the variety at present in favour originated from the Empire Cotton Growing Corporation station there. I should recommend, therefore, that one Agricultural Officer be deputed for instruction at this station during next season. This would necessitate his being absent from Kenya from, say the month of March until August. He would during this period be able to see the lines on which selections are made, both as regards the plants themselves and their lint. After picking time he would be instructed in the rather intricate technique of lint examination. After his visit to Barberton he would arrive in time to work on similar lines

on his own crop at Kibarani. This would entail the appointment of a temporary officer to carry on the work in his area at Kilifi and Malindi during his absence and for a few years subsequently.

With regard to extension of cotton on the coastal area, this should, I think, be proceeded with on existing lines as there is no visible objection in doing so from either the point of view of unsuitability of land or immediate danger from insect pests, provided the operations are confined to proved areas.

Intensive plantings within the accepted area should, however, be avoided. This is very important. The permanent fertility of the soil in this tract depends at present on sufficient land being available for periodic bush and grass fallows, and an encroachment on these would be dangerous. With this proviso there seem to be no objections to going ahead, if the "Instructor" staff is sufficiently well trained to avoid making mistakes.

NYANZA AREA.

As has already been indicated the chief requirement at present is for trials of the N.20 Uganda selection. There is also a great need for increased knowledge regarding local conditions and as to the suitability of the new areas to cotton-growing. This involves more knowledge regarding times of planting, sites for cotton fields and the position with regard to insects and disease. A sufficiently good "scatter" of plots is required, representing the different conditions to be met with and frequent notes will have to be made as to the progress of the crops and of the incidence of disease and pests during the growing season. These observations will have to be carried out throughout several seasons before reliable results can be obtained. The chief difficulty lies in the fact that three different districts are involved, and that the personal equation does to some extent enter into the question.

I had at one time considered the question of the appointment of a Special Agricultural Officer to carry out the work, but this would involve a great deal of travelling with the possibility of his not being able to carry out inspection at critical times, and, to some extent, a duplication of work. I am now inclined to think that a better method would be that the Agricultural Officers of the three districts should keep their own records, and be given assistance in the form of temporary staff, so as to permit of their devoting the necessary attention to recording. This would be necessary in the case of North

Kavirondo, where the Agricultural Officer is far removed from his most important cotton area, and for the Kisumu area which is at present in the charge of the Provincial Agricultural Officer. The work in South and Central Kavirondo could, I think, be done by the Agricultural Officer in charge. The proposal, therefore, entails the appointment of two temporary Agricultural Officers.

CENTRAL PROVINCE.

The crop here is still in its experimental stage, and should be considered so. I am very doubtful about this area owing to the prevalence of boll disease and suggest that no large extension of area be attempted until the situation with regard to this has been cleared up. Mixed crops would lessen the risk, but the general situation should receive immediate attention. The nature of the trouble can be investigated by the Pathological Section at the Scott Laboratories, and if it is found to be due mainly to "stainer", continuous field investigations throughout the year will be necessary. This can only be properly done by a specialist. One of the three Entomologists of the Department should if possible be detailed for this work.

The relative position of development and knowledge of cotton-growing require adjustment.

My recommendations amount to the employment of three temporary agriculturists to enable the more highly trained officers to undertake the necessary additional work, and the employment of one of the Entomologists on what is really normal duty. The cost to Government will be the pay of the agriculturists plus the necessary travelling expenses and will, therefore not amount to much—at most £1,500 per annum for three years. This can be met from the proceeds of the cotton tax. If at the end of three years the situation should have been clarified and if assistance is then required from the Empire Cotton Growing Corporation, I feel sure that an appeal to that body will receive sympathetic consideration.

In conclusion, I have to express my warmest thanks for the excellent arrangements made by the Headquarter's staff for my tour in the cotton areas, and to a large number of Administrative and Agricultural Officers for their invaluable assistance and the great hospitality extended to me in their Districts and Provinces.

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