

F.M.S.
SURVEY DEPARTMENT
REPORT FOR THE YEAR 1921







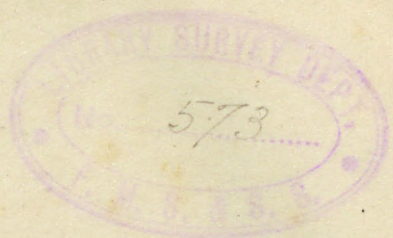
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Number Buku	2495
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FEDERATED MALAY STATES.

REPORT ON THE SURVEY DEPARTMENT FOR THE YEAR 1921.

EXPENDITURE AND REVENUE.

Of an estimate of \$1,750,166, \$1,368,448 was expended, together with \$28,033 for Clerical Service, and \$347,589 for temporary allowances, making a total expenditure of \$1,744,100. Of this \$80,897 was recovered from the Government of the Straits Settlements leaving a net total expenditure of \$1,663,203.

The revenue collected was \$176,316 as compared with \$229,155 in 1920. There was a falling off of \$64,933 in the receipts from Revenue Surveys. The revenue from the Photo-lithographic and Instrument Repairing Sections continues to increase. In 1919 it was \$7,374, in 1920 \$23,989, and in 1921 \$38,465. (Appendices A and B.)

HEAD-QUARTERS, BRANCH, AND DIVISIONAL REPORTS.

HEAD-QUARTERS.

2. The expenditure amounted to \$296,600 of which \$16,448 was recovered from the Colony, leaving \$280,152. This included \$129,246 the cost of officers on leave, transfer of officers, training of European Probationers, and purchase of instruments, formerly distributed among the branches.

ADMINISTRATION.

3. The cost of the Surveyor-General's Office was \$37,243. Surveyor-General Mr. C. M. Goodyear returned from leave in January. Mr. C. J. Perkins, Superintendent, who had acted for him, acted as Assistant Surveyor-General until he went on leave in July, when he was replaced by Mr. V. A. Lowinger who acted in addition to his duties as Superintendent of Trigonometrical Surveys. The Assistant Surveyor-General, Mr. E. W. Hedgeland, was in charge of Topographical Surveys until the return from leave of the Superintendent in January and was on leave from February to the end of the year.

CENTRAL DRAWING OFFICE.

4. The cost of the Central Drawing Office was \$33,281.

The Chief Draftsman Mr. E. A. Nolan was engaged the whole year on Topographical Surveys in Singapore. His place was taken by Mr. O. Watson till September, Mr. C. A. Rust for two months, and then by Mr. C. de Silva.

The work carried out included the completion of 4 1" Topographical Sheets of Negri Sembilan and 3 1" Topo. Sheets of Perak started last year for provisional issue, also completed for final issue, and the drawing of the new topo. map of Kuala Lumpur and environs was taken in hand. Progress was also made with the eight mile General Map of British Malaya, at present in abeyance awaiting further topographical details of recent surveys in Pahang. The State Maps of Selangor and Negri Sembilan were revised for publication also District Maps of Selangor. District Map of Kinta was redrawn and District Maps of Negri Sembilan were taken in hand.

Minor miscellaneous works included special topographical plans of Ampang Catchment Area, Mount Ophir Catchment Area, Sungei Besi Malay States Volunteer Rifles Camp Area, Penang Hills Residential Area and Fraser's Hill Residential Area, Contour Maps of Jerantut, Raub, Mentakab, Bentong and environs, Perting Sand Flats and proposed Perting Deviation. Drawings for publication were made of a number of one chain town plans of Kampar, Ipoh and Seramban also 16 chain sheets of Krian and Selama Districts and 238 tracings of eight chain sheets were prepared for the Superintendent Revenue Surveys, Selangor.

Numerous drawings were prepared for the Government departments and the public in connection with schemes and publications.

PHOTO-LITHOGRAPHIC SECTION.

5. The cost of this Section was \$64,384.

Mr. W. D. Mavor, Assistant Superintendent was in charge until April when Mr. T. R. Black, Superintendent, returned from leave.

The total number of copies of plans, maps, etc., printed during the year was 345,621.

The Helio. Section produced 423 plates of various sizes and six Ferro Gallie prints.

The Photo. Section produced 300 negatives.

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The total value of work done amounted to \$37,140 including \$1,089 cost of work done for the Town Planner and \$1,288 cost of work done for other Government departments both irrecoverable. The revenue collected was \$34,791 including \$4,770 from sale of maps.

Maps to the value of \$2,185 were issued free including maps valued at \$404 supplied to the Town Planner.

The Zinographic branch in Singapore was closed down and the machinery transferred to Kuala Lumpur.

INSTRUMENT REPAIRING SECTION.

6. The cost of this Section was \$16,224.

Mr. W. J. Austen was in charge throughout the year.

The total value of work done amounted to \$12,052 of which \$3,096 was recoverable from the general public and Government Departments, the amount collected being \$3,674 as compared with \$2,382 in 1920.

Requisitions on this section totalled 398 against 353 in 1920.

TRIGONOMETRICAL BRANCH.

7. The cost of this branch was \$113,727, of which \$33,622 was recovered from the Colony.

Major Edwardes continued the Topographical Reconnaissance of the Rompin district of Pahang and during the season did the field work necessary for the mapping of 1,200 square miles. This map when completed will form a notable addition to our knowledge of the less explored parts of the country.

Mr. Cochrane was employed in the Straits Settlements throughout the year and completed the triangulation and the fixing of Control points in Penang, Singapore and Malacca. The following is the number of points fixed in each Settlements:

	Major.	Minor.	Standard Traverse Pipes.
Penang	9	2	31
Singapore	9	6	19
Malacca	8	2	15

Mr. Dunn was engaged on fixing a net work of Standard levels in the west of Perak, north of Telok Anson. These levels were urgently required for the control of the surveys of the area west of the Perak River which is being investigated with a view to an irrigation scheme. Mr. Dunn did in all 132 miles of completed levels, *i.e.*, 264 miles of levelling.

Mr. Cochrane was in charge until the return of the Superintendent, Mr. V. A. Lowinger, in May. During the rest of the year, Mr. Lowinger was in charge and from July acted as Assistant Surveyor-General in addition.

TOPOGRAPHICAL BRANCH.

8. The cost of this branch was \$159,745, of which \$30,827 was recovered from the Government of the Straits Settlements.

During the year a total area of 282 square miles was surveyed on a scale of 1 inch = 1 mile for the standard topographical map, 186.1 square miles in connection with Sheet 3 $\frac{B}{15}$ (Selangor) and 95.9 square miles on Sheet 2 $\frac{N}{14}$ (Perak).

On Sheet 3 $\frac{B}{15}$, the area remaining over from 1920 was completed. This area comprised 183.3 square miles of one inch survey, 12.25 square miles of Forest Reserve Surveys on a scale of 4 inches to one mile, vertical interval 50 feet, and 8.86 square miles of the map of Kuala Lumpur and environs, also on the 4-inch scale, vertical interval 20 feet. In addition to this 2.8 square miles of one inch work and portions of the Forest Reserves lying outside the margin of the sheet were surveyed, *viz.*, an area of 7.13 square miles in Bukit Lagong Reserve and 5.1 square miles in Bukit Cherakah Reserve (east). The survey of the former, a total area of 12.54 square miles was completed and that of the latter with an area for the season of 11.78 square miles is in hand. Thus, the total area of all classes of survey in Selangor amounted to 219.46 square miles.

The survey of Fraser's Hill, on a scale of 8 inches to a mile with a vertical interval of 25 feet, commenced in 1920 was completed for present requirements in March, the area surveyed being 0.8 square miles. Later in the year a special survey on a scale of one chain to an inch with a vertical interval of 5 feet was made of a site for a proposed hotel, the area being about three acres.

A survey for town planning purposes, of Karai and its vicinity on the banks of the Perak River was commenced late in October and by the end of the year 0.18 of a square mile was completed. The scale was 20 inches to a mile with a vertical interval of 10 feet.



The following surveys were made in the Straits Settlements:

The survey of Penang Hills residential area, commenced in 1920, was completed in February, the area surveyed being 0.61 of a square mile. The total area of the survey is 1.87 square miles, the scale 10 inches to a mile, and the vertical interval 20 feet.

In Singapore two areas were surveyed, 4.45 square miles at Telok Blanga, and 3.62 square miles at Kalang-Gelang. The scale used was 20 inches to a mile with a vertical interval of 10 feet.

The 4-chain Revenue Survey Sheets of Singapore Island were traced for reduction by photography, for use in connection with the survey of the island on a scale of four inches to a mile which commences in 1922.

The Superintendent, Mr. J. N. Sheffield, returned from leave in January, and Mr. E. W. Hedgeland, Assistant Surveyor-General, who had acted for him continued to be attached to this branch till he went on leave in February.

REVENUE SURVEYS.

EXPENDITURE AND REVENUE.

9. The total expenditure on Revenue Surveys was \$1,168,757. The revenue collected was \$137,851 as compared with \$202,784 in 1920. The cost of surveys done for other departments for which no charge was made was \$48,119 in 1920 it was \$48,036. (Appendices A & B.)

OUTTURN AND COST.

The actual field expenditure was \$436,303 as compared with \$389,152 in 1920. In all 15,741 lots were surveyed, 119,381 acres and 478,731 chains. In 1920, 12,209 lots were surveyed, 153,711 acres and 380,906 chains. The cost per chain was reduced from \$1.02 to \$0.88, and the cost per acre of mining, agricultural and small holding applications was \$3.45, \$1.11 and \$3.88, respectively, as compared with \$3.21, \$1.11 and \$4.36 in 1920. (Appendix C.)

OFFICE.

The number of documents of title prepared was 23,452 of which 19,045 were forms for extract from the mukim register. The corresponding numbers in 1920 were 22,039 and 16,626. (Appendix D.)

The number of extracts is higher than in any previous year.

PROGRESS WITH REFERENCE TO REQUISITIONS.

On the 1st January, there were requisitions on the books for the survey of 33,909 lots, and during the year requisitions were received for 13,294, making 47,203 to be dealt with. Requisitions for 28,640 lots remained unsatisfied at the end of the year, of which 14,051 awaited survey, 10,399 were surveyed and awaiting action in office, and 4,190 were with Land Offices for settlement. Of 12,543 small holdings awaiting survey, 5,882 were in Perak, 3,771 in Pahang, 2,358 in Selangor and 532 in Negri Sembilan. (Appendix F.)

PERAK DIVISION.

EXPENDITURE AND REVENUE.

10. The expenditure was \$425,817.

The revenue collected was \$49,125 as compared with \$82,681 in 1920, and \$12,875 was the cost of work done for other departments. (Appendix B.)

OUTTURN AND COST.

The actual field expenditure was \$157,588 as compared with \$136,222 in 1920. In all 5,947 lots were surveyed, 29,473 acres and 173,403 chains. In 1920, 4,350 lots were surveyed, 39,785 acres and 133,483 chains. The cost per chain fell from \$1.02 to \$0.91, and the cost per acre of mining, agricultural and small holding applications was \$4.23, \$2.11 and \$4.20 as compared with \$2.86, \$0.99 and \$4.90 in 1920. [Appendix C (i).]

OFFICE.

The number of documents of title, etc., prepared was 8,231 compared with 8,427 in 1920. (Appendix D.)

PROGRESS WITH REFERENCE TO REQUISITIONS.

On the 1st January there were requisitions on the books for the survey of 14,213 lots, 4,089 were received during the year, making 19,072 to be dealt with. Of these 6,351 were satisfied and 307 cancelled. There remained at the end of the year 12,414 of which 6,783 awaited survey, 4,618 were at some stage in the office and 1,013 were with the Land Offices for settlement. [Appendix F (i).]

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PARTICULARS OF WORK.

In Kuala Kangsar and Upper Perak, the field staff was increased and good progress was made in dealing with arrears of small holdings. The number awaiting survey was reduced from 4,885 to 3,152.

There was an increased demand for small holdings in Lower Perak, and an increase of field staff is required there.

In some parts of Perak work is delayed by the lack of proper framework of reliable surveys. A number of control traverses have been surveyed, and others planned for action when surveyors are available.

EFFECTIVE STRENGTH, ETC.

Mr. E. W. Geyer, Superintendent, was in charge until his transfer to Negri Sembilan in February, and Mr. F. A. Sugden, Assistant Superintendent, acted until the return from leave in May of Mr. L. U. Stafford, Superintendent.

The effective strength was 134.6 as compared with 130.5 in 1920. The latter number was given wrongly as 111 in last year's report.

SELANGOR DIVISION.

EXPENDITURE AND REVENUE.

11. The expenditure was \$270,885.

The revenue collected was \$49,193 as compared with \$69,437 in 1920. (Appendix B.) The value of work done for other departments for which no charge was made was \$13,658.

OUTTURN AND COST.

The actual field expenditure was \$94,433 as compared with \$77,630 in 1920. In all 4,245 lots were surveyed, 33,078 acres and 99,019 chains. In 1920, 2,893 lots were surveyed, 21,735 acres and 61,784 chains. The cost per chain fell from \$1.26 to \$0.94, and the cost per acre of mining, agricultural and small holding applications was \$2.37, \$1.14 and \$3.22 as compared with \$3.90, \$1.11 and \$3.72 in 1920. [Appendix C (ii).]

OFFICE.

The number of documents of title, etc., prepared was 6,342 as compared with 6,792 in 1920. (Appendix D.)

PROGRESS WITH REFERENCE TO REQUISITIONS.

On the 1st January there were requisitions on the books for the survey of 6,459 lots; 4,192 were received during the year, making 10,651 to be dealt with. Of these, 4,295 were satisfied and 196 cancelled. There remained at the end of the year 6,170, of which 2,508 awaited survey, 1,644 were at some stage in the office, and 2,018 were with the Land Offices for settlement. Of the lots awaiting survey more than half were for survey in advance of application. [Appendix F (ii).]

PARTICULARS OF WORK.

In addition to the usual work, a detail survey of Kajang town was nearly completed, a contour survey of a proposed Town Site at Rasa was made and a rough contour survey was made of about 650 acres of mining land at Kanching.

EFFECTIVE STRENGTH, ETC.

Mr. F. R. Twiss, Superintendent, was in charge throughout the year.

The effective strength was 103. In 1920 it was 102.4.

NEGRI SEMBLAN DIVISION.

EXPENDITURE AND REVENUE.

12. The expenditure was \$218,380.

The revenue collected was \$7,007 as compared with \$18,890 in 1920. The cost of work done for other departments for which no charge was made was \$21,626. (Appendix B.)

OUTTURN AND COST.

The actual field expenditure was \$71,939 as compared with \$78,916 in 1920. In all 1,752 lots were surveyed, 23,521 acres and 79,112 chains. In 1920, 1,951 lots were surveyed, 52,317 acres and 77,872 chains. The cost per chain was reduced from \$1.01 to \$0.90, and the cost per acre of mining, agricultural and small holding applications was \$4.41, \$1.40 and \$7.66, as compared with \$2.55, \$2.82 and \$8.74 in 1920. [Appendix C (iii).]

OFFICE.

The number of documents of title, etc., prepared was 3,478 as compared with 3,425 in 1920. (Appendix D.)



PROGRESS WITH REFERENCE TO REQUISITIONS.

On the 1st January there were requisitions on the books for the survey of 1,771 lots, 1,362 were received during the year, making 3,133 to be dealt with. Of these 1,431 were satisfied and 453 cancelled. There remained at the end of the year 1,249, of which 644 awaited survey, 518 were at some stage in the office and 87 were with the Land Offices for settlement. Of 644 lots awaiting survey, the requisitions for 510 were received in the last two months of the year, and 80 were subdivisions held up in connection with Town Planning Schemes. [Appendix F (iii).]

PARTICULARS OF WORK.

The number of applications for surveys was small and there are no arrears. It is desirable to reduce the subordinate staff by transfer, but transfers to the Colony await the approval of the revised scale of salaries, and lack of quarters at Kuala Lipis delays transfer of Draftsmen to Pahang. In the meantime a number of Draftsmen were employed on Pahang work, and seven Assistant Surveyors and Mandors were seconded for work on the Rubber Census.

The detail and contour survey of Seremban and other towns and villages was continued, on a scale of one chain to an inch, 2.2 square miles were completed during the year, 1.9 with a vertical interval of 5 feet, and 0.3 with a vertical interval of 10 feet.

Two Reserved Forests were surveyed, Jeram Padang North and Jelei-Gemas.

EFFECTIVE STRENGTH, ETC.

Mr. W. A. Wallace, Superintendent, went on leave at the end of February, and was relieved by Mr. E. W. Geyer, Superintendent.

The effective strength was 91 as compared with 93 in 1920.

PAHANG DIVISION.

EXPENDITURE AND REVENUE.

13. The expenditure was \$253,675.

The revenue collected was \$32,526 as compared with \$31,776 in 1920. The cost of work done for other departments was \$2,395. (Appendix B.)

OUTTURN AND COST.

The actual field expenditure was \$99,511 as compared with \$96,385 in 1920. In all 3,797 lots were surveyed, 33,309 acres and 127,197 chains. The cost per chain fell from 0.89 to 0.78 and the cost per acre of mining, agricultural and small holding applications was \$2.80, \$0.63 and \$3.55, as compared with \$3.62, \$1.14 and \$3.45 in 1920. [Appendix C (iv).]

In addition, \$12,832 was spent on special topographical surveys.

OFFICE.

The number of documents of title, etc., prepared was 5,401 as compared with 3,395 in 1920. The increase being chiefly in the number of extracts. (Appendix D.)

PROGRESS WITH REFERENCE TO REQUISITIONS.

On the 1st January there were requisitions on the books for the survey of 11,466 lots, 2,881 were received during the year, making 14,347 to be dealt with. Of these 5,384 were satisfied and 156 cancelled. There remained at the end of the year 8,807, of which 4,116 awaited survey, 3,619 were at some stage in the office and 1,072 were with the Land Offices for settlement. [Appendix F (iv).]

PARTICULARS OF WORK.

Good progress was made in dealing with arrears of small holdings. In the Temerloh district at the end of July there were requisitions for 5,018 applications unsatisfied and this number was reduced to 3,534 by the end of the year.

In the Lipis district control traverses were undertaken to enable outlying groups of holdings to be surveyed.

The field staff was increased, and, as the lack of quarters at Kuala Lipis made it inadvisable to transfer draftsmen there, the Seremban office undertook a part of the Pahang work.

The following topographical surveys were carried out by the Revenue Survey Staff at Kuala Lipis, 1.8 square miles, cost \$4,429, at Jerantut 2.5 square miles, cost \$2,612, and at Raub 0.6 square miles, cost \$943, all on a scale of 4 chains to an inch, with 10 feet vertical intervals. At Bentong a topographical survey of 13.7 square miles was made for a special purpose at a cost of \$4,848.

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EFFECTIVE STRENGTH, ETC.

Mr. T. Le Fevre, Assistant Superintendent, continued to act as Superintendent till the end of November, when he was transferred to Malacca. His promotion to the grade of Superintendent was approved from 1st January, 1921.

Mr. W. A. Wallace, Superintendent, took charge in December on his return from leave.

The effective strength was 97.7 as compared with 80.5 in 1920.

RUBBER CENSUS.

14. A number of Assistant Surveyors were seconded for work on the Rubber Census, and a large number of tracings were supplied. The expenditure under this head amounted to \$5,271.

STRAITS SETTLEMENTS.

15. This department took over the surveys of the Straits Settlements in 1920. An entire resurvey is required based on a framework of accurate control traverse. As a necessary preliminary the Trigonometrical Branch, during 1921, extended the triangulation of the Peninsula to the Settlements, and has arranged to complete the control survey of Malacca in 1922. In Singapore and Penang, the Revenue Survey Staff are proceeding with control traverse and completed 74 miles during the year. Until this work is further advanced a systematic resurvey cannot be commenced. The subordinate staff is being trained, and the current requirements of the Land Offices are being dealt with, so far as is possible in the absence of reliable surveys or proper records.

REVENUE SURVEYS.

EXPENDITURE AND REVENUE.

Of an estimated expenditure of \$264,126, \$235,036 was expended. With temporary allowances the total expenditure was \$299,769. In 1920 it was \$246,049.

The revenue collected was \$47,470 as compared with \$41,972 in 1920.

FIELD.

The actual field expenditure was \$98,377 as compared with \$80,798 in 1920. Two thousand six hundred and forty-six lots were surveyed, and the total of lines traversed was 104,685 chains at a cost of 94 cents per chain. The corresponding figures for 1920 were 2,808 lots and 92,385 chains at 87 cents per chain. The cost per acre of agricultural lots and customary holdings was \$2.63 and \$3.38, respectively.

OFFICE.

One thousand eight hundred and seventeen documents of title were prepared as compared with 695 in 1920.

PROGRESS WITH REFERENCE TO REQUISITIONS.

The arrears of customary holdings in Malacca are 4,691. Of other surveys there were on the books at the beginning of the year requisitions for 2,545 lots, 1,276 were received during the year making 3,821 to be dealt with. At the end of the year there remained unsatisfied 1,809 of which 1,166 awaited survey.

Mr. J. Griffiths in Singapore and Mr. R. L. Buckwell in Penang were in charge throughout the year as Acting Superintendents. Mr. E. Aune acted as Superintendent, Malacca, till he went on leave on the 1st December, when he was replaced by Mr. T. Le Fevre. Messrs. Le Fevre and Buckwell have since been promoted to the grade of Superintendents from 1st January, 1921.

KEDAH SURVEY DEPARTMENT.

16. Mr. W. J. C. Stevens was in charge until the Superintendent, Mr. J. Dewar returned from leave in May. Six other officers of this department were employed in Kedah.

In the year 1339 (A.H., ending 3rd September, 1921) 3,066 lots of 19,973 acres were surveyed as compared with 2,822 lots of 17,765 acres in the previous year, and 12,164 lots of 74,665 acres were demarcated as compared with 13,503 lots of 65,609 acres. Three thousand four hundred and thirty-six documents of title were prepared as compared with 2,949 in the previous year.

The growth of the Kedah Survey Department is illustrated by the fact that in the year 1339, the length of traverse surveyed and demarcated was 4,659 miles, while nine years before in 1330 it was only 352 miles.



JOHORE SURVEY DEPARTMENT.

17. Mr. J. W. Johnston acted as Superintendent until the end of March, when he went on leave prior to retirement. Mr. R. R. Goulding acted as Superintendent for the rest of the year. Six other officers of this department were employed in Johore.

Two thousand and ninty-one lots of 96,784 acres were surveyed during the year. In addition, 71 miles of control traverse were surveyed. Thirteen minor Trigonometrical Stations were erected and observations taken from six of them. One thousand nine hundred and ten documents of title were prepared.

The Acting Superintendent reports a shortage of subordinate staff and a difficulty in obtaining suitable recruits.

PERSONNEL.

18. A list is attached of the Senior Officers of the Survey Department on the 31st December, 1921.

Six Surveyors engaged by the Johore Government signed agreements with the Surveyor-General. Nine other Surveyors on agreement were engaged and one was transferred from the Railway Department. These 10 were distributed as follows:—Straits Settlements 2, Kedah 2, Federated Malay States 6. Two Probationers appointed by the Secretary of State arrived in August.

The scheme of salaries for Assistant Superintendents was amended to make the rate of annual increment the same as in other Technical Departments. The salaries of the European Staff of the Photo-lithographic and Instrument Repairing Sections were also amended.

The proposed new salary scheme for subordinates is still under discussion. Improved rates of field allowance to Assistant Surveyors were approved.

The following Assistant Superintendents retired on pension: Mr. F. A. Sugden who had been employed for 20 years in the Taiping office of the Revenue Survey Branch and Mr. J. W. Johnston who was acting Superintendent of Surveys, Johore.

I regret to record the death on the 23rd July of Mr. L. C. Bleechmore who joined the department on agreement in November, 1920. He died of heart failure due to malaria. And, also, on the 26th July, the death of Mr. G. V. Seenivasagam, Office Assistant to the Surveyor-General.

C. M. GOODYEAR,

Surveyor-General, F.M.S. and S.S.

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