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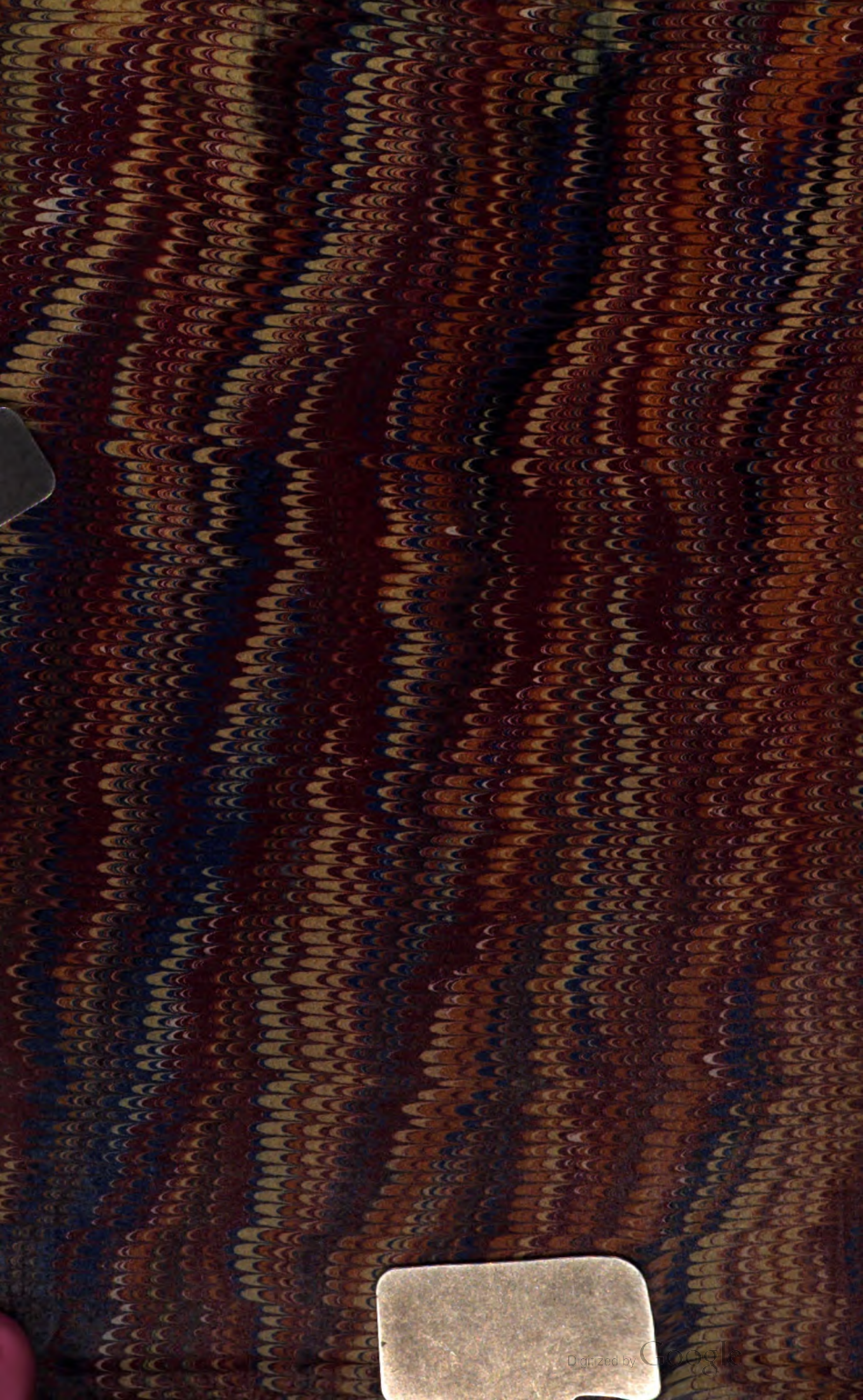
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THE

ANNALS

OF

INDIAN ADMINISTRATION.

EDITED BY

MEREDITH TOWNSEND.

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ADVERTISEMENT.

THE Governments of India publish on an average a volume every four days. From Reports affecting the entire Empire to accounts of local drainage, from the opinions of the ablest officers to the cost of a cutcha bye-road in a frontier province, every thing finds a place in these publications. There is scarcely a subject connected with Indian Administration on which they do not exhaust official knowledge. There is no officer in the country who may not obtain from them, in reference to his special task, all the advantages of experience. The information thus vast is, however, widely scattered. The Records of one Presidency are scarcely known in another. The books are not very readily procurable, and above all they are like all other blue books dry, ill-digested, and overlaid with detail. It costs an hour to find a fact, and in India men who care about facts cannot spare hours.

The object of the Compiler is to remove this defect, to do for the official information of India what Mr. Leone Levi is doing for the Blue Books of England. The Annals will comprise every fact, and almost every opinion of importance in the records of the quarter. A copious Index will enable the reader instantly to refer to the subject of which he is in search, and any peculiarity of opinion and even of style is carefully retained.

A word may be necessary on the arrangement adopted. It is intended that the most important subject should have the largest space, but in estimating the relative importance of the records the Compiler has been compelled to rely on his own judgment. Usually all subjects of imperial interest have the preference, statistics occupy the next place, and subjects purely historical the last. The only exception to this rule is in the case of records like the History of the Rohilcund Survey. They are not very important, and not at all interesting, but they can only be condensed to a certain point. Of the labour thus saved to the public, but one illustration must suffice. The Number contains 132 pages. The books analyzed comprize just two thousand five hundred.

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THE

ANNALS

OF

INDIAN ADMINISTRATION.

THE ENAM COMMISSION.

Bombay Records, No. XXX.—New Series, page 55.

On 1st July, 1848, Mr. Hart, Enam Commissioner, reports on the history and operations of his department. It has long been known that estates have been alienated from Government in a fraudulent manner. The Peshwa's Government endeavoured to check the abuse, but from the remoteness of the districts, the unsettled state of the country, and the power and character of the officers who held them, the attempt failed. The alienations became more frequent under Bajee Rao. Sir Thomas Munro on taking possession of the Southern Marhatta Country noticed the abuse in letters to Mr. Elphinstone of 8th March, and 28th August, 1818. In those letters he stated that "a large portion of the alienations would be found to have arisen from unauthorized grants and other frauds. Every one from the Kurnum of a village to the Sursoobah of the Carnatic granted both land and pensions." In 1819, Mr. Elphinstone as Commissioner prescribed some rules, temporary and imperfect, for Enam claims. He added that when our system was more matured, it would be expedient to add, as a further reward to officers discovering recent fraudulent alienations, a grant of the revenue of the year in which the resumption took place. The first general scrutiny was instituted by Mr. Thackeray, Principal Collector of Dharwar, who died with his work unfinished. Since then all proceedings have been desultory. The decisions also have been vitiated by the dependence placed on interested evidence, the Peshwa's Duftur being almost unknown. Mr. Goldsmid, Superintendent of Survey, found that besides the Muhals alienated as Jagheer and Surinjam, 700 villages out of the Khalsat Mehals of Dharwar and Belgaum had disappeared.

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Out of 2,452 villages left to Government and nominally Khalsat, 60,000 were gone, the share of Government even in its own villages not averaging one-half.

Mr. Goldsmid found that many of these alienations were fictitious, and in 1841, suggested the expediency of additional precautions for the examination of the Poona records. In 1841, he was despatched to make arrangements for the papers relating to the Southern Marhatta Country. On his report, a Committee composed of himself and Moro Punt, Principal Sudder Ameen, was formed to investigate the titles of persons holding Enams in the Southern Marhatta Country. On the 17th January, 1844, Mr. Hart was added to the Committee and subsequently he and Capt. M. F. Gordon formed the Committee.

Between 1843 and 1846, the area of investigation was extended so to include the whole of the Southern Marhatta Country. The work, says Mr. Hart, has consisted principally in hearing statements made by Enamdars, and reporting on them, and in miscellaneous business; also reporting on the condition and proposed settlement of hereditary village offices. Between 26th May and 20th November, 1847, Mr. Hart began to pass decisions himself. That system however, though comparatively rapid, was abandoned, in consequence of doubts as to its legality.

Classified lists have been made of cases referred by the Collectors of Dharwar and Belgaum, amounting to 2,868. Large quantities of records have been collected. Information has been received as to the village establishments, and lists shewing the extent, value, &c. of each Enam in Dharwar.

The cost of the Commission in 1847 was Rs. 25,425-13-10. It is impossible to state the effect of the Commission on the revenue, but Mr. Hart calculates the permanent gain at Rs. 18,000 a year. He can form no estimate of the time to be consumed, but it will be great if he is compelled to report each case to Government. In a postscript, Mr. Hart gives some details of the financial result of the Commission up to 1848:—

Total actual expense of Commission, ... Rs. 66,395

Annual revenue recoverable in consequence of Commission, ... 40,748

Government approves on 25th October, 1848, of Mr. Hart's report.

On 13th May, 1846, Mr. D. A. Blane, Revenue Commissioner, Northern Division, submits a correspondence from Broach relative to the investigation of Enam titles. The Collector of Broach wants an establishment. This is disallowed, and on 13th February, 1847, Mr. Blane submits another correspondence, saying the new Collector of Broach will dispense with the establishment, but has taken a view of Reg. VI. of 1833, the accuracy of which he (Mr. Blane,)

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questions. In reply, on the 30th April, Government determines the interpretation of the Act, and orders Mr. Blane to ascertain exactly the position in which the proceedings for investigating the validity of rent free titles stand, in the several Collectorates under his control. On the same day the same order is sent to the Revenue Commissioner of the Southern Marhatta Country. Mr. Townsend, Commissioner of the Southern Marhatta District replies on the 26th Nov. 1847, that no investigation into Enams generally has ever been made in the Poona Collectorate. No regular enquiry has ever been instituted in Ahmednuggur, while in a sub-division under Mr. Tytler only doubtful Enam claims have bee investigated. The acknowledged and registered Enams have not been touched. In Sholapore an investigation into the value and extent of the Enams in the four Southern districts has been made. That of the Warshashuns in the Sholapore district is nearly completed. In the northern districts a preliminary investigation has been made by the Mamlutdars. The quantity of Enam land held free of service is 83,115 acres, worth Rs. 37,959 a year. In Rutnagherry no general enquiry has been instituted. Little therefore has been done, except in Sholapore, and under the Sub-Collectorate of Mr. Tytler. Enclosed in Mr. Townsend's report is a letter from the Collector of Rutnagherry stating the general facts given above, but adding that:—

"By Regulation VI. of 1833 the period of enjoyment necessary to confer a prescriptive right is reduced from sixty to thirty years, whereas in the Rules of 1842 sixty years' enjoyment is requisite, as also two successions in lineal descent, when the claimant possesses no Sunuds or other documentary evidence in support of his hereditary title." The Collector therefore would adhere to the Rules of 1842, and adds that the 30th year from the fall of the Peshwa is now current. He estimates the alienations in Rutnagherry at Rs. 77,653. In reply the Government on 24th January, 1848, remarks that it by no means follows that because an Enam is registered it is acknowledged, and declares that even under Reg. VI. of 1833, Government has power to enquire into titles. For, Clause 2 excludes from the thirty years' privilege all land alienated since the British Government obtained possession of the country, and without its permission, and the 3rd Clause excludes grants made without the authority of the Peshwa since 1803. The following eleven letters only carry on the official routine.

On 5th December, 1848, Mr. W. A. Blane, Revenue Commissioner, Northern Division, reports on the progress of the Enam Enquiry in his division, enclosing correspondence from all his Collectorates. In Ahmedabad there were originally 1,35,393 beegas of land in Khalsa villages wholly or partially rent free. Notices

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affecting 18,190 beegas have been issued. Of these 8,980 have been declared exempt, or only to be resumed after a period, and 9,464 have been resumed, 3,923 beegas "are under notice, and the rest remain as they were." He believes the work requires a special officer. From Kaira the Collector submits a table which shews that 15,031 beegas of land have been under notice, while on 3,99,837 no notices have been served.

He reports that in cases were the titles have been found defective, the lands have been continued to the parties, as matter of favour, for a few years. On the passing of Act X. of 1831, and Act VI. of 1833, many parties maintained that they had enjoyed lands for sixty or thirty years, and recovered them. From Broach, Mr. Davies reports that in the four talooks of Broach, Wagra, Unklesur and Hansote the operations of the Survey leave nothing to be desired. In Ahmode and Jumboosur Talooks and the Mehal of Dehej no investigations have been made, though the proportion of alienated lands is very great. The titles still open to investigation are the service tenures, and prescriptive tenures, and Sircar lands alienated since the British Government obtained possession of the country. The prescriptive tenures amount to

Grassia lands per annum, ...	Rs.	2,82,012
Vechanea and Guranea, ...		44,317
Blood money assigned to Patels to secure immunity from retaliation, ...		2,867
Hindoo Temple lands, ...		28,528
Mosque lands, ...		32,854
Total, ...		3,90,578

SERVICE LANDS.

Lands assigned in charity to individual Hindoos, ..		1,37,541
Hindoo Mendicant's lands, ...		2,115
Total, ..		1,39,656
Of the total amount there have been		
Investigated by Survey Committee, ...	Rs.	2,06,379
Not investigated, ...		3,23,879

Mr. Davies explains that the "old Wanta" or Grassia lands are held by immemorial tenure, and cannot be upset. The new Wanta are very generally surrendered by the holders. He proceeds to describe the tenures, and believes it impossible for the regular establishment to make any investigation. It must be effected by a Committee of which the Collector may be a Member. From Surat, Mr. Stewart reports that no regular enquiry has ever been instituted in the Zillah. The Survey officers

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concerned themselves only with occupancy not title. If any Enamdar held more land than he was entitled to, it was marked as Wadara or excess, and in some instances assessment on these lands has been enforced. Mr. Stewart submits a table shewing that 1,07,917 beegas of land have been alienated in Surat, of which 497 beegas have been resumed under Reg. XVII. of 1827, and the holders of 912 beegas more have been served with notices. 1591 beegas have been confirmed to the holders, but of this quantity decisions affecting 1296 beegas have not been submitted to Government as required by Reg. XVII. of 1827. From Tanna the Collector reports that 1900 notices have been served, but no final decision has been received. He suggests that an Assistant Collector should be appointed to the work, and questions the necessity for examining all such claims. He also deprecates the practice existing in the Collectorate of attaching all Enams on the death of their holders till the decision of the Government is known. He adds that 2386 beegas have been investigated, and 2553 remain to be enquired into. From Khandeish the Collector reports that the extent of Enam land is 3,23,525 beegas or Rs. 4,10,396 a year. Of this there has been

	Beegas.	*Revenue.*
Confirmed by Govt., ...	... 1,87,539	Rs. 2,50,778.
To be investigated, ...	... 1,35,985	„ 1,59,623

The Agent at Colaba reports that alienations amount to Rs. 14,722 a year, of this amount the holders of Rs. 12,576 have registered their sunuds. Promises to enquire further.

On 9th April, Mr. Shaw sums up the results of these investigations in the northern and southern Divisions thus :—

" The amount thus alienated would appear to be estimated for both divisions at an annual valuation of Rs. 82,14,787-15-8 for the year 1846-47, of which large amount Rs. 36,71,034-8-2 appertained to this division (vide figured statement following), distinguishing Rs. 8,09,413 as service lands to Patels, Koolkurnees, and others, and leaving Rs. 28,61,621-8-2 as the amount wholly alienated from Government.

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Divisions.	Amount entered in Col. 6 of Statement A, accompanying Collector's Annual Reports for 1846-47.			Amount entered in Col. 8 of Statement A, accompanying Collector's Annual Reports for 1846-47.		
	Rs.	A.	P.	Rs.	A.	P.
Ahmedabad, ...	80,394	15	0	8,18,166	9	3
Kaira, ...	74,989	4	11	8,48,053	8	10
Surat, ...	1,01,951	6	6	4,88,086	3	5
Broach, ...	1,71,731	1	2	7,50,518	5	8
Tanna, ...	37,768	0	8	1,95,931	7	10
Khandeish, ...	3,42,578	3	9	5,56,364	1	0
Agent at Colaba, ...	...	...		13,914	4	2
Total Northern Division, ...	8,09,413	0	0	36,71,034	8	2
Total Southern Division, ...	22,39,155	6	5	45,43,753	7	6
Total Northern and Southern Divisions,	30,48,568	6	5	82,14,787	15	8

The Collectors universally, with the exception of the Agent at Colaba, are of opinion that they have not the means to commence a satisfactory enquiry. Mr. Shaw quotes their suggestions, and requests that one officer should be appointed as Assistant to the Collectors of the Division, and be guided by the rules drawn up by the Enam Commissioner of the Southern Marhatta Country. He does not propose to relieve the Collectors of any responsibility, but simply to extend aid to them. On 9th October, 1849, he submits a letter from the Collector of Surat. Mr. Fawcett reports that the term of 30 years fixed by Reg. XVII. of 1827, Cap. 10 having nearly expired, his predecessor issued 15,017 notices. 996 had been issued before. There are therefore 16,010 cases to be disposed of. The present establishment will not be able to dispose of them for years, during which time the holders' titles must remain uncertain. Suggests therefore the adoption of extraordinary measures for the disposal of this business.

On 27th June, 1848, Mr. Hart, Enam Commissioner, submits observations on the expediency of placing the Enam Commission on a more definite and satisfactory basis. He observes that while the rules for determining titles appear sufficient, the means for enforcing them are deficient, and an enactment remedying such deficiency would be of great public advantage. When the Regs. of 1827 were introduced, the rules contained in them for the conduct of Enam investigations were declared inapplicable to these provinces. The adjudication of titles remained therefore in the hands of Government. Since the Enam Commission was founded, the cases have been too numerous for

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Government to decide. For this reason and others Government prescribed a system, by which an appeal from the Enam Commissioner was made to the Revenue Commissioner, and in a certain class of cases to Government. Not long afterwards it was ruled that Government alone could decide finally on this class of cases, and Government was compelled to revert to the old system, just as objectionable now as before. Mr. Hart proceeds to illustrate the inconvenience by a reference to results. Under the old and present system in the 4 years preceding 1848, 872 claims were reported, and 862 decided. In the six months between June and November, 1847, the claims disposed of amount to 638, shewing that the proportion of work done is 6 times as great. The reason is that the Revenue Commissioner was content with a record in the vernacular, and no time was lost in translation. There are still 58,000 holdings to be investigated. Of these 30,545 being service holdings may, it is true, be speedily disposed of, but still the remaining 28,000 must be carefully and separately examined. Another reason for such an Act is that the power even of Government for absolute resumption in any case, however groundless the title may be, is doubtful. Mr. Hart has reason to believe that the Sudder Adawlut is of that opinion. Lastly the Remembrancer of Legal Affairs holds that the Enam Commissioner should be kept out of sight, and that this officer has no power to cause the production of evidence. The Enam Commissionership has passed its ordeal with approbation. The remedy for the evils of its constitution is simple, and Mr. Hart annexes a sketch for the Act required.*

On 20th June, 1849, the Hon'ble Court praise and recapitulate Mr. Hart's Report, but are of opinion that further measures are expedient. The Court considers the report to Government in every case unnecessary. In ordinary cases an appeal to the Revenue Commissioner is sufficient. Those cases in which the rules strictly interpreted would operate harshly, should alone be reported to Government.

On 7th January, 1850, the local Government recapitulates the facts to the Government of India, and recommends that the duty of investigation should be entrusted to one Chief Commissioner with Assistants. It requests also that a Draft Act (given) may be passed, applicable only to the Southern Marhatta Country, Deccan and Khandeish; the law can subsequently be extended or modified for Guzerat and the Konkan. The Government considers that the Commission should be its own Appellate Court, the Assistants deciding with appeal to the Commissioner, the Court of Directors having expressed an opinion unfavourable

* Sketch not given.

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to Adawluts in such matters. On 27th September the same Government asks for a reply.

On 11th October, 1850, the Government of India apologizes for delay, sanctions expenditure, but feels a difficulty as to the Act from the absence of any definition of a good title. It approves the scheme for appeal, and points to Reg. XVII. as supplying a definition of titles, and rules of procedure. On 28th November the Government of Bombay appoints Mr. Hart, Enam Commissioner on Rs. 2,000 a month, and directs him to furnish the Rules required by the Government of India, and a system of procedure. It also directs him to add to the Draft Act Clauses conferring on the Commission, original and appellate power. Also requests his opinion on some other matters of detail. On 30th December, Mr. Hart replies submitting and explaining an amended Draft. He objects to rules in Clause 9 of Reg. XVII. of 1827, as in themselves unjust, and unsuited to the country. He gives reasons for condemning Clause 10 of that Act. He argues also that those rules never did apply to the conquered territories. Mr. Hart proceeds to describe the Draft Act. On 1st January he forwards also a Code of Rules, and observes that it is merely an arrangement of the Rules of 1839, and 1842 already approved by the Court of Directors, with some additions described at length.

The remaining correspondence discusses alterations of detail in the Act. The Act was passed on 13th February, 1852, as

Act No. XI. of 1852.

The Preamble states that in the Bombay Presidency claims against Government for Enams are excepted from the cognizance of the civil courts, and former Rules are inapplicable.

1. Repeals former rules in all provinces not brought under Regulations by Reg. XVII. of 1817 of the Bombay Code.

2. The Governor may appoint an Enam Commissioner and Assistant.

3. Their duties are regulated by Schedule A.

4. Titles shall be determined by Schedule B.

5. The Commissioner and his Assistants possess the ordinary powers of a Civil Court. Complaints are cognizable only as specified in Rule 2, Schedule A.

6. Bribery or abuses committed by any officer of the Commission are punishable with fine, and imprisonment not exceeding five years. The receipt of a present is an abuse. Such penalty shall not preclude Civil Action.

7. No decision shall be questioned in any Court of Law, nor shall, any Member of the Commission be liable for an act done bona fide.

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Schedule A.

The duty of the Enam Commissioner is to investigate the titles of claimants of Enams or exemptions. 2. All orders of the Assistants are appealable to the Commissioner, and orders of the Commissioner to local Government. 3. The Enam Commissioner shall receive and record evidence from claimants. 4. These statements may be received also through the Revenue Authorities without any previous procedure, except an invitation to claimants to state their titles. 5. When such invitation is not attended to, a notice may be issued requiring claimant personally or by Agent to shew title. The notice shall state nature of investigation, date, and the liability on non-appearance to attachment of estate. 6. Notice to be served upon proprietor, or person in charge. 7. If neither can be found it shall be posted in the office of the native Revenue officer, and public place of the village, calling on claimant to prove his title in six months. 8. Attachments shall be enforced by Collector on written requisition of Enam Commissioner. 9. When statements have been received they shall be tested, and compared with State Records, or other evidence, and decisions passed. 10. If parties do not appear the Commissioner or his Assistant shall proceed exparte. 11. An attachment may be removed on the requisition of Enam Commissioner, but the results collected shall not be restored except under general or special instructions of Government. 12. Copies of decisions shall be given to the parties, or sent in their absence to the revenue authority of the Talook. 13. Decisions shall be carried out by Collectors in any manner specified by Government. 14. Appeals may be presented within 100 days from decree. Appeal may be admitted subsequently if good cause is shown for delay.

Schedule B.

Rules for the Adjudication of Titles.

1. All lands held under specific and absolute declaration of the British Government or competent officer acting under it, continue according to such declaration. Provided that if question arises as to the competency of the officer, the Government shall decide.

2. Any land held under a Sunud declaring it to be hereditary shall be continued according to Sunud. Provided that authority granting or recognizing the grant was competent, such competency to be decided by Government. And also that conditions of tenure involve no breach of law, or of the rules of decency. And also that the grant has not been revoked or altered.

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3. "Lands held uninterruptedly as wholly or partially exempt from assessment for a period of sixty years before the introduction of the British Government, and then in the authorised possession of a grand-son in male descent, or male heir of the body of such grand-son of the original grantee, shall continue to be so held so long as there shall be in existence any male heir of the body of the person who was incumbent at the introduction of the British Government, tracing his lineage from such incumbent through male heirs only."

4. "All lands, uninterruptedly held as wholly or partially exempt from assessment for a period of forty years before the introduction of the British Government, and then in the authorised possession of a son, or male heir of the body of a son of the original grantee, are to be continued for one succession further than that of the person who was incumbent at the introduction of the British Government, that is, until the death of his last surviving son."

5. Provided that the mere entry of the holding in genuine accounts of district officers shall prove authorized possession, unless there are entries which prove that such holding must have been unauthorized by Government or Paramount Power. Also that if there be no evidence in disproof, claimant's right shall be admitted. Also that the introduction of the British Government shall be reckoned from the time when the East India Company became the paramount power as respects Enams. Thus in the Peshwa's territory it begins from the close of the Government of the Peshwa. On the lapse of an independent principality or Jaghire older than the Peshwa's Government time must be counted from the date at which the general management of the districts came into the hands of the Company. In cases of doubt Government will decide. 6. Exempt land the right to which is not admitted, will be resumed at the death of the incumbent. Provided that the word incumbent shall apply to person in possession when investigation is commenced. Also that in case of a recent fraud the Enam shall be resumed at once. 7. All Lands held for Mosques, Temples, or permanent institutions shall be permanently continued. Provided as in Rule 2. Also if in such a case there is no evidence to prove the consent of paramount power, 40 years' possession shall suffice. Also unless evidence is forthcoming to disprove assertion of continuous possession the title shall hold. Also, the advantages of this rule, shall not apply to individual claimants. Claims under this rule if not admitted are to be decided by Rule 6.

"All lands authorisedly held by an official tenure, which it is evident from local usage was meant to be hereditary, and has been so considered heretofore, even though there be no Sunuds declaring it to be so—are to be continued permanently."

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8. Provided as in Rule 2 even if no proof of consent by competent authority is forthcoming, continuous possession shall suffice. But this Rule does not apply to emoluments for service performed to the State. Mere length of enjoyment of land by an official does not bring him under this rule. If a claim under this Rule is not admitted, claimant shall be allowed the advantage of any preceding rule applicable to his case. 9. On the lapse of lands a moiety may be continued in cases of poverty to widows of last incumbents. Provided that the widow of the holder of an hereditary exemption who dies without heirs shall be considered his heir. 10. These rules shall not be necessarily applicable to service or political tenures. 11. These rules may be relaxed under instruction from Government of Bombay.

THE POONA DUFTUR.

Bombay Records, No. XXX.—New Series.

On 15th September, 1819, Mr. J. Macleod, Secretary to Mr. Elphinstone, describes the Poona Duftur, as the official record of the Peshwa's Government. In it were kept all accounts of the revenue and expenditure except the private accounts of the prince, and such statements as it was not the interest of individuals to record. The Duftur was very complete till the reign of Bajee Rao. That ruler adopted the farming system. The Duftur was divided into three or four departments all under the Hoozoor Furnavees. The Fur was the immediate office of the Furnavees. All grants issued out of it. It was the depository of financial information.

The Behera department received the accounts of the districts, and made them up for the inspection of the Furnavees.

The Surinjam department had charge of all Surinjamis.

The Ek Berij department at Poona received accounts from all others, and framed abstracts and registers of all financial transactions.

The Duftur at Poona contained all official accounts of district settlements, and villages, rendered by the officers of Government, of all alienations of revenue, of all privileges, rights and pay of State and village officers, of the strength and pay of troops, and of all establishments. The accounts were well kept up to the accession of Bajee Rao. From that time the Duftur was neglected, people permitted to carry off records, &c. Poona was occupied in November, 1817. The records were found in disorder, but nearly complete from 1729 to 1817, except those

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from 1757 to 1763. During the reign of Bajee Rao they are by no means complete.

The accounts shew a remarkable degree of consistency and relative accuracy, though they may have been altered to suit individuals.

On the foundation of the Duftur establishment under the Commission the Duftur has been arranged, partly by districts, and partly by Pergunnahs. Full statements of all allowances and exemptions have been forwarded to the Collectors. The Dufturs of the Konkan for ten years have been sent to Bombay. Abstracts of the produce, deductions, and revenue during the last year of Bajee Rao have been framed and authenticated. Mr. Macleod describes the measures of authentication. The Duftur contains much curious general information, especially as to taxation and the Peshwa's army.

On 9th May, 1826, Mr. Chaplin, Commissioner in the Deccan, again describes the Poona Duftur. It is of importance that these documents, now well arranged, should be kept entire. He recommends, as the trust may be easily abused, that it should be confided to a Civil Servant on Rs. 1,400 a month. Also that the duties of the native Dufturdar should be extended to all the Collectorates. They are so extended in Madras. The duties of the native kutcherry may be discharged under the direct orders of Government. Mr. Chaplin proceeds to describe the functions of the native establishment under a Civilian Superintendent of the Duftur. He reports that complaints are constantly coming in which should be investigated by the Superintendent, and decided by Government. Recommends Mr. John Warden as Superintendent, Mr. Steele for a temporary Assistant, and the existing Dufturdar for Sheristadar. Estimates annual cost at Rs. 23,808, and subjoins list of statements to be furnished to Superintendent by each Collectorate. (List not given.)

On 19th May, the Government sanctions Mr. Chaplin's proposals.

On 4th June, 1835, Mr. S. Marriott, Agent for the Poona Sirdars represents that the records have been kept under the "general care" of the Agent's Sherishtadar, but the plan is inconvenient. Recommends appointment of a Keeper of the Records.*

On 4th September, 1835, the Government order that five native gentlemen shall be appointed unpaid Superintendents of the Duftur, that they shall have only two writers, that the key shall remain with the Chief Superintendent, and that two of them shall always attend the opening of the Duftur. On 9th

* There is a hiatus in these papers. Mr. Chaplin's proposal, though sanctioned, seems not to have been carried out.

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October, Mr. Bell, Agent for the Sirdars, replies showing that the Superintendents request an establishment, and that a personal attendance would be inconvenient, but that they accept the charge, and offer various suggestions for its fulfilment.

On 26th October, 1835, Government sanctions the Superintendents' requests, but slightly diminishes the establishment, and directs them to investigate all frauds and report the same to the Magistrate. On 1st August, 1836, Mr. Bell transmits a Report from the Superintendents. They state that 1,300 bundles of papers have been arranged and 13,000 require arrangement, which will be effected in five years. Mr. Bell says the expense of the arrangement is Rs. 23,544 a year, and doubts its advantages.

On 6th September, 1836, Government refers the question to the Revenue Commissioner, Mr. T. Williamson, who on 9th December replies, recommending the continuance of the existing arrangement, as an investigation of Enam Titles is desirable, and he verily believes that "if Government had a competent officer available to enquire" into them "many titles would be found invalid," to the advantage of the Revenue. Accordingly on 28th January, 1837, Government overrule Mr. Bell, order the continuance of existing arrangements, and direct him to accept an offer of the Superintendents to register such papers as are indispensably necessary for public use in two years.

On 7th November, Mr. P. W. LeGeyt, Acting Agent for the Poona Sirdars, encloses a Memorial from the Superintendents requesting an extension of time. They have registered 7,712 bundles of papers, and arranged 900; 5,000 more remaining to be arranged. Mr. LeGeyt supports the proposal for extension of time. On the 3rd January, 1839, the Government hears the demand with regret, but grants extension to 1st June, and directs that a copy of the Register should be forwarded to Government.

On 3rd January, 1839, a Committee is ordered to report on the best method of preserving the Poona Duftur. The Committee consists of Mr. R. Mills, the Agent, Mr. Frere, the First Assistant Collector and such of the Superintendents as are in Poona. The report on 1st June, 1839, that the papers are well arranged, but there are eight rooms full of fragments, some of which may be of value. They are of opinion that a further outlay must be incurred; and suggest that a European should examine the documents thrown aside. They also recommend that the whole of the records should be forwarded to the Collectorates to which they belong. If it is determined to preserve them they recommend that they be left with the Superintendents. Mr. Mills in enclosing this report suggests that the examination of the eight rooms full of records will cost

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money, and that the fragments had better be sold as waste paper. On 9th September, 1841, the Government censures Mr. Mills for delay, orders him to "transfer to the several Collectorates the Zhartees and Taleebunds appertaining to them," and to have the fragments gradually examined by the native Superintendents.

On 2nd April, 1842, Mr. H. E. Goldsmid, Superintendent, Revenue Survey, Southern Marhatta Country, informs Mr. Warden, Agent at Poona, that he has not received the documents relating to this territory, and has reason to believe that they are detained by influential personages. He requests therefore that the papers may be made over to a Karkoon, appointed by Mr. Hart. Mr. Warden in consequence reports to Government that he cannot make over the papers, but has ordered them to be locked up, and thinks Mr. Goldsmid had better examine them. On 23rd April, 1842, Mr. Goldsmid is directed to repair to Poona. On the 11th February, 1845, Mr. Goldsmid forwards his report on the condition of the Duftur. After recapitulating certain proceedings of the Agents, and certain correspondence on the arrangement of papers, he proceeds to say that the arrangements, and catalogues ordered by the native Superintendents appear sufficiently good. But no means are taken to prevent the substitution of fictitious papers, valuable and useless papers are put together, and documents are put up as a whole which were found in parts. The seal, made by a common silversmith of Poona, can be imitated, and in 1841 stamping was abandoned. He describes the useless character of many documents put up, and mentions that the Karkoons have put up the records of Khurch or expenditure, which are totally useless to Government, with the Jumma or receipts, a statement of high value. Mr. Goldsmid also remarks that the abstracts of the Duftur taken by Capt. Macleod are imperfect, and too much condensed, but valuable. They might be curtailed but not abstracted. The Rozkhirds, Ghurneas, Beras, and some other statements ought to be condensed into tables. He also recommends that the ledger prepared by Capt. Macleod should be collated with the Peshwa's diary, and other accounts, and that extracts should be made of all accounts relating to Enams. Until such a check is prepared the officer employed to search the accounts must be all powerful. The better arranged of the scattered papers Mr. Goldsmid finds to be of importance. The remainder he thinks may contain documents of value. Condemns the plan of sending them to the different Zillahs without precautions against fraud, and recommends the adoption of certain improvements in the mode of keeping the records.

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Mr. Warden in his letter of the 28th February, 1845, enclosing this report, commends Mr. Goldsmid's quickness and clearness, and recommends that he should hereafter finish his examination, explains the disappearance of some papers and observes. The reason "none but persons long conversant with the documents could know in what direction they should turn when searching for particular information" is, that the office of Duftur Karkoon was hereditary, and the son served his apprenticeship to it while his father was yet alive to teach him the mazes of the labyrinth; and the service of these persons was obtained by Mr. Elphinstone, and their honesty secured, by high pay and reversionary pensions,—one Rowjee Pense still lives at Poona, and is referred to on doubtful points. Mr. Chaplin's safeguard (says Mr. Warden) was the appointment of a Canarese Brahmin from the Ceded Districts, who was not mixed up with the private interests of the Peshwa's subjects, to the office of Record-keeper, on a salary of Rs. 500 a month, and a reversionary Enam of Rs. 4,000 per annum. He, again, was succeeded by his son. Mr. Warden objects decidedly to native Agency in the matter. The temptation is too great.

On 25th August, 1845, the Government commends Mr. Goldsmid, but states that a reference has been made to the Court of Directors.

The remaining correspondence relates and rebukes the remissness of certain Collectors in not stamping papers, received from the Duftur, with sufficient speed.

CONCEALMENT OF RECORDS BY HEREDITARY OFFICERS.

Bombay Records, No. XXIX.

On 25th March, 1854, Capt. T. A. Cowper, Assistant, Enam Commissioner, reports on the Surinjam of the Nuggurkur family. At the conquest their Surinjam consisted of land work Rs. 8,695 a year as jagheer, and R. 694 as Enam. Mr. Elphinstone decided, in spite of a Sunud signed by Bajee Rao, that this Surinjam should belong to Ramchunder Mahadeo and his nephew. The decision appears to have been acted on, and by a final arrangement the exemption was continued for two generations, a pension being granted to the third. Capt. Cowper in reporting upon the position of the estate discovered that a portion of the Surinjam had been entered fraudulently as Enam. This is proved by the

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title deeds, by the Peshwa's Memoranda, and by Mr. Elphinstone's release. The accounts of the village were examined. The records for 1818 and 1819-20 were not forthcoming. In those of 1820-21 it was entered as Shet Sunud land. In those of 1821-22 it was entered as Shet Sunud land under the head of Enam. From that year to the present it has been so entered. The claimants are Koolkurnees of the village and must be held responsible. The Assistant Commissioner therefore restored it to its heading as Surinjam. Capt. Cowper continues complaining of the concealment of accounts by this family. They had at one time functions in Ahmednuggur similar to those of the Enam Commission. One branch of the family declare the records were destroyed by vermin. The other branch say they were destroyed at the capture of a fort. In 1853, Capt. Cowper had found an account lent by this family in consideration of Rs. 15 to settle a boundary dispute. A bond also for Rs. 250, was executed, to be enforced in case of the non-return of the paper. He also discovered a catalogue of other accounts which must have been in the same hands. He has not been able to discover the accounts. These documents he believes are concealed to reagitate questions finally settled by the Enam Commissioner.

On 30th April, 1855, Government determine the question as to the Surinjam and direct Capt. Cowper to summon Gunput Rao Neelkunt before him, and point out the dangerous position in which concealment places the family. Captain Cowper is also requested to report as to the possibility of defeating the intentions of the family by a Draft Act. On 7th August, Capt. Cowper, Enam Commissioner of Northern Division replies. He considers it proved by Mr. Elphinstone's and Mr. Chaplin's reports that the falsification of accounts was of frequent occurrence. It remains to show that this was accompanied by an universal concealment of accounts. Hereditary officers convicted of the offence have of late been punished by the stoppage of two months' pay. The accounts produced during the Revenue Survey in the Deccan have been usually manufactured. He must advert to the enormous alienations in Tanna, Rutnagherry, Surat, Kaira, Broach, and Ahmedabad where Reg. XVII. of 1827 is very inadequate, and indeed inoperative when accounts are withheld. Capt. Cowper proceeds to describe the origin of his discoveries. Act XI. of 1852 was useless to adjudicate claims about which no documents existed in the Peshwa's Duftur. The want of other records was also felt in the Southern Marhatta Country. In 1851, a notice was issued in Sholapore directing Government officers to surrender public accounts in their possession. Each was required to declare

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in writing that he had retained nothing. The result was nil. The hereditary officers denied the existence of accounts, but produced any calculated to serve their own interests. A similar attempt in Poona similarly failed, only some forgeries being given in. The object of this concealment was to prevent the recovery of alienated lands, a fact exultingly hinted at in a petition against Act XI. of 1852 submitted on 17th Nov. 1851. On the passing of that Act the Enam Commissioner pressed on Government the importance of securing such documents, and was told to take possession of them. Under these instructions at Bagulkote in Belgaum a set was found in possession of an hereditary officer. In 1846, this man had produced only 29, denying the existence of others. In 1852, 1800 accounts were found with him. In April, 1852, Mr. Hart directed Capt. Cowper to secure some accounts said to be in the possession of Janoba Despandey of Sewapore, who was insane. Capt. Cowper took charge of the Duftur and some hundred bundles of accounts, and learnt from Janoba that a large Duftur ought to be fourthcoming. On the evening of the same day, 24th April, 1852, he received information of the existence of 1000 bundles in the house of the Despandey at Sewapore. Capt. Cowper travelled all night, reached Sewapore at daybreak, and found in the upper story of the Despandey's barn about 1000 bundles, each 1½ feet cube in size. Subsequently he found another mass built up in a wall of a Karkoon of the Despandey. They were chiefly Sunuds. All were brought to Poona. Acting on orders from Mr. Hart, Capt. Cowper attached the records in the possession of the Mahal Zemindars, and on 4th May, 40 bundles more concealed in the house of Wamun Ramchunder Despandey. In June, 1852, the head of the Rastia family surrendered a large collection. His predecessor had denied their existence, though the first and best of the Deccan Sirdars. In fine, 150 persons had been found in possession of many thousands of these documents in the south-eastern portion of Poona. Capt. Cowper had expected to find some accounts in the hands of the Soopa family, who however concealed the whole with the exception of one bundle. In 1852, the family of the Despandey of Jooneer ceased. The widows professed an anxious desire to surrender all accounts. Captain Cowper found them concealed, but recovered some in the Despandey's Duftur, 164 bundles in a built up recess belonging to the Gomashta of Khair, and a tolerably complete Duftur at Chuchoolee, and reported in favour of the discontinuance of the office. Capt. Cowper quotes an opinion from Mr. Hart adverse to the continuance of Despandeys, and Government on 6th January, 1853, abolished this one.

In Sept. 1852, Captain Cowper found accounts in the

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shops of shroffs and snuff-sellers of Poona. He also obtained 330 bundles from the Waug family of Monganun. These had in 1819 been concealed. In another instance Capt. Gordon obtained 4 cart loads of accounts from the Deshmook family of Poona. They refer to the Nuggur Collectorate, and in 1820 had been sought in vain. It seemed to Capt. Cowper certain that these concealments would entail great loss upon the State. In November, 1852, an immense mass of papers, the existence of which had been denied, were sold to grocers and fire-work makers. Several sackfuls were recovered, but 260 lbs. had been used up by a grocer. Capt. Cowper remarks that concealment of British accounts is punishable, but concealment of the Peshwa's accounts is not punishable. Yet, the latter involve the revenue and titles.

By November, 1852, Capt. Cowper had recovered from 400 persons in 70 different villages many hundred thousand accounts in the 3 northern districts of Poona. By December, 200 persons in Poona alone had been found in possession of enormous numbers (50 or 60,000). On 6th December, 1852, Mr. Hart had reported that in one small division 24 dufturs had been discovered in one month, concealed by officers who hold exemptions for preserving the papers. In another case, Capt. Cowper found a valuable collection in the hands of a Moonsiff, a 2nd Class Sirdar, who had concealed them for 35 years, and defended his conduct by falsehood. On 25th February, 1853, Capt. Cowper reported that a valuable set had been discovered in the hands of the Furnavees of the Nuggurkur family.

An attempt, says Capt. Cowper, has been made to procure the accounts of Ahmednuggur. A large number have been obtained, but the attempt is comparatively a failure. The hereditary officers have removed the accounts by cart loads below the Ghauts where Act XI. of 1852 does not apply. In this state of the law alienations in Guzerat and the Konkan can never be examined. On 19th May, 1848, the alienations in Guzerat alone amounted to thirty lakhs of Rupees, to which must be added some coming under the head of political charges. There are also cash payments to an extent unknown elsewhere. In Surat above Rs. 1,50,000 are annually paid for "Tora Girass" allowances. No enquiry can take place without the records. Collector after Collector has pointed out the iniquity, but no enquiry can be useful without the records. Capt. Cowper proceeds to detail the measures necessary to check the practice. The greatest existing defect is the absence of a specific provision for searching for concealed records. In Madras under Section 9 of Reg. IX. of 1822, a Collector can issue a search warrant for records on receiving information on oath. This power if entrusted also to

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the Commission would be sufficient. No duplicate list however of papers can be made, as the law directs in Madras. The Madras Code punishes hereditary officers for destroying or concealing records by imprisonment for not less than 1 year or more than 5 years.

Of all measures, however, one declaring the emoluments of any hereditary office to be forfeited would be the best. The offices are shared like all property, and are held on the tenure of keeping these records. A proclamation would suffice. Public accounts which remain concealed should after a proclaimed date be declared inadmissible in evidence. Government has laid down the principle that pensions shall not be paid if accounts are concealed, but it should be carried out more stringently. Capt. Cowper proceeds to shew how the revenue has been affected by the Enam Commission. Only Rs. 81,698-9-0 have been spent on this portion. The recovery of revenue is Rs. 1,22,913-1-1. Deducting Rs. 40,995-4-1 spent in arranging accounts of the former Government, the recoveries amount to 3 times the expense. The addition to the permanent revenue will be Rs. 78,698-15-10. Deducting the amount spent on the accounts of the former Government the permanent increase of revenue is double the expense.

"I should fail, says Capt. Cowper to present to Government what I believe to be a complete statement of the case, did I omit to place before them my strong and deliberate conviction that it would be far better at once to put a stop to all enquiry whatever, and to recognise every existing alienation, than to continue an investigation while four-fifths of the documentary evidence upon which alone it can be properly based, and in the absence of which no decision can be final, remain in the possession of the persons who, of all others, have the strongest possible personal interest in baffling and impeding it."

The Right Hon'ble the Governor on 3rd November, 1855, approves Capt. Cowper's report, assents to his views, and considers an enactment punishing the concealment of revenue accounts imperative. He also in a subsequent Minute (no date) approves making co-sharers in an office responsible, because if the duty is not fulfilled the office should cease.

Messrs. Lumsden and Malet concur. On 12th December, 1855, the Court of Directors approve. The Draft Act submitted by the Remembrancer on 8th April, 1856, provides a fine of Rs. 500 or a year's imprisonment or both for any person wilfully concealing records. Any person known to be in possession of such, and not authorized to hold them shall be held prima facie guilty. Government shall in such cases have power to confiscate the office, but any co-sharer who may give information shall retain his share. No account received after the date of the

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proclamation declaring the officers appointed to receive records, shall be admissible as evidence, unless produced by an officer. Any person who shall without permission disclose or copy any record shall be fined R. 100 or 3 months' imprisonment. The Draft on 28th April, 1856, was submitted to the Court of Directors.

MR. DAVID SMITH'S REPORT ON THE COAL AND IRON DISTRICTS OF BENGAL.

In a letter to Col. Baker, Secretary to Government in the Public Works Department, July 2nd, 1856, Mr. Smith reports that the coal of the Damoodah Valley, though inferior to the English and Welsh coals, is a reliable fuel for the reduction of ores in blast furnaces with the aid of a hot blast. The "Lange" of the Rancegunge seam yields an imperfect coke; but the waste in coking is so great that it would be better to use the raw coal. The Raneegunge seam is of very peculiar quality. It is composed of bituminous coal, of free burning or steam-coal, and anthracite, in alternating thin layers. Still it ignites readily, burns freely, gives out great heat, and in a furnace with the blast heated to 600 Fht. would turn out from the ores of the neighbourhood 65 or 70 tons weekly of Iron, well suited for Railway bars and other ordinary purposes. A peculiar Iron ore is freely distributed over the surface of the coal field. It is known as ferruginous gravel, is argillaceous, and is identical with the ore worked at Boulogne and other parts of France. It is now used in making roads, for which it forms an admirable metalling, but it might be more advantageously used with the other clay ores of the neighbourhood in the manufacture of Iron.

The Barrool Iron Ore Field which Mr. Smith proceeds to describe in detail is bounded on the North by Chooroolia, on the East by Jamsol, on the West and South by Sottoor, the extent from North to South being 4 and from East to West 5 miles. The surface of the tract is thickly strewn with lumps of Iron ore. A section of the iron bearing strata is exposed at less than half a mile west of the village of Barrool. A trial shaft sunk near Barrooll gave at a depth of 52 feet 38 inches of clay Iron ore of very superior quality, and 52 inches of carboniferous ore. This latter is of the sort known in Great Britain as "black band" but it is very inferior to the Scotch black band. In its raw state it would yield but from 20 to 23 per cent. of Iron, but if previously calcined would probably yield

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40 per cent. The black band iron has the advantage of being easily worked, and when mixed with the clay ores of greatly facilitating the process of smelting. Assuming, which there is every reason to do, that all these beds extend throughout the whole field under notice, and making every allowance for blank spaces and wastage in working, Mr. Smith estimates the contents of the field at 4000 tons of clay ore, and 6000 tons of black band per acre, in all 10,000 tons per acre and 64,00,000 tons per square mile. Supposing that every four tons of the ore produced but one ton of pig iron, the field would yield 16,00,000 tons of pig iron per acre, equal to the make of eight furnaces at 70 tons each per week for 59 years. Owing to the cheapness of labour and the facilities for mining operations, the cost of the Barrool ore would not exceed 5 per ton whereas the ores of Staffordshire do not cost less than 10, and the average of Wales is 13. The undulations of the surface also present opportunities for mining by "patch work" which is much readier and cheaper than the system of pits and adits. It is also probable that a deeper shaft would give more beds, but enough has been done to show the existence of ore in abundance, and the further development of the field may be left to private enterprize.

The Taldanga Field announces itself between the 146th and 148th mile stones on the Grand Trunk Road, in sections exposed by the water-courses running southerly to the Barakar. The field extends two miles from North to South and one from East to West. Four beds of very good clay iron ore are here exposed. A trial shaft was begun, but from accidental causes not proceeded with, so that further information is required. The beds are worked by native smelters.

The Rajarah Coal Field near Palamow is worked by the Bengal Coal Company. The coal is different from the Damoodah coal. It leaves a red ash and does not burn so freely. Like the Damoodah coal it will not coke well. The dimensions of the field from East to West are 2½ miles. Those from North to South are not stated. It has hitherto been worked by "patch" on the outcrop, but the Company is sinking a fine shaft in the centre of the field. Near the junction of the Mamit river with the Coyle is seen the outcrop of a vein of inferior coal six feet thick with a sand-stone covering. The coal measures extend thence three miles in a southerly direction beyond the Mamit. Other beds of very inferior quality are found in the neighbourhood. The bad quality of the coal in this neighbourhood and its distance from a market preclude the expectation that it can be profitably worked.

Mr. Smith proceeds to give his opinion as to the prospects of Iron manufacture in India. He holds that European superin-

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tendence on a large scale is indispensable at the outset, but has no doubt that if the natives had the strength they would quickly acquire the skill necessary for all the operations in the manufacture of iron. But to this end they must entirely change their habits, and must adopt the dress and diet of Europeans. The districts of Raneegunge and Barrool supply both coal and iron ore in abundance. But the want of a flux is a serious obstacle. Kunker lime can only be had in small quantities, and limestone would have to be imported. The difficulty would be diminished by the use of the scoriæ of the blast furnace which possess high fluxing properties, and are only not used in England because limestone is so abundant. Mr. Smith thinks that the iron made at Barrool would be superior to that used in England for rails, and that rails could be turned out at £5-10 per ton; English rails costing at present when landed at Calcutta £9 per ton. But supposing the price of English rails to fall to £6 per ton, there would still be a large profit on Indian rails. He is confident therefore that iron manufacture in the Barrool field would pay. But this question will shortly receive a practical solution as the Bengal Coal Company is erecting a blast furnace at Raneegunge.

THE JUBBULPORE SCHOOL OF INDUSTRY.

India Selections, No. XV.

On the 23rd May, 1854, Capt. G. R. Edwards, Officiating General Superintendent for Suppression of Thuggee and Dacoity acknowledges an order to furnish a Report, laments his want of personal knowledge, and states his intention to quote Col. Sleeman up to 1848. In 1837, Mr. Shore proposed to establish the approvers in villages. Col. Sleeman objected as the Thugs would either follow or teach the trade of murder. A manufactory struck him as the better plan. In the same year Capt. Brown (apparently of the Thuggee Department) succeeded in establishing a factory for lacdye, blankets, cloth work, and cotton work, generally. The approvers disliked the plan, and kept their children back. As soon as they found they were to have a share in the profits this prejudice relaxed. Orders were issued to enforce obedience, Rs. 1,000 were advanced, and Mr. Williams, a Patrol in the Delhi Customs, was appointed to superintend on Rs. 150 a month. He gave up a higher salary. A cottage was built for him at Jubbulpore in a garden of

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Col. Sleeman's. The wives and families of the approvers were located in a small village near. It was known that the approvers would not attempt to escape, for any one doing so was left to the law, and hunted down by the relatives of the Thugs they had betrayed. The profits were at first very small, but persons from Mirzapore taught them to make carpets, and from Futtehgurh to make tents. Both found a ready sale. The boys made carpets, the men the tents, the women the thread for canvass. In 1842, Major Ramsay became Superintendent, and in 1845, Capt. J. Sleeman, Mr. Williams remaining Overseer. By 1848, the Thugs had become ashamed of their past lives. Their sons were well dressed, well taught, and acted in a theatre, a drama translated into the vernacular. The Forty Thieves was the drama. In 1847, Rs. 4,953, was paid to the Thugs for work done, and Rs. 2,396 to their wives. The sons also entered into service. There were 543 Thugs and their sons manufacturing, and 307 performing different duties, guards, brickmakers, cleansers, &c. They made 131 tents, 5324 yards of Kidderminster, 46 woollen carpets, cloths, towels, &c. realizing Rs. 35,230-13-8. The young lads obtained permission to set up independent establishments. The position of the factory had been changed from a debt of Rs. 1,207-9-2 to a balance in favour of Rs. 25,282-14-1. Col. Sleeman recommended the importation of a carpet-maker from Kidderminster.

From 1848 to 1851, the History of the Institution is not supplied. It was a period of increasing prosperity. On 22nd January, the Superintendent submitted to the Governor General the following statement of accounts for the half year. There were 50 boys, sons of approvers, maintaining themselves independent of the Institution; some hundreds more were preparing bricks for a native. The operations of 1851, left a profit of Rs. 6,730-6-5, and the demand for Jubbulpore articles was general throughout India. In April, 1851, 30 sons of approvers were sent to Meerut to form a factory there under Major Graham. The experiment succeeded. At this time 120 boys remaining in the factory learning trades, while 40 more acted as pedlars for the School. The Mooltan Bunjarah dacoits became good rope and leather-workers. The Berriahs make weavers, but the Bhuddaks will not work, preferring day labour or even begging. Mr. Williams has a share in the lacdye factory, but his private pursuits do not interfere with his official task. In 1853, a Brussels carpet-maker and loom were imported. In 1853, the profits amounted to Rs. 8,600-6-6¾. The number of articles manufactured has been reduced being principally tents, carpets and towelling of every description. All subsidiary work, carpentry, smith work, stamping, dyeing, and printing is done in the factory. In May, 1854, the factory contained 533 approvers,

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268 of their sons, 231 prisoners, 16 teachers (freemen) or 1088 in all. Of these are employed on

Tents,	473
Table linen,	40
Carpets, (woollen,)	159
Carpets, (Kiddermiuster),	13
Unprofitable labour,	363
Total,	1088

The funds of the School had grown thus:—

	1815.	1854.
Liabilities,	Rs. 4,763	Rs. 1,210
Assets,	13,137	64,043
Balance,	8,374	62,833
Year's profit,	4,049	8,600

SURVEY OF CENTRAL DISTRICT OF PEGU.

India Selections, No. XVI.

"The central district of the Pegu Survey is that portion of the Valley of the Irrawaddy embraced between the parallels of the latitudes of Akontoung to the North and Henzada to the South. Its average length and breadth are 60 and 75 miles, and the approximate area 4,500 square miles, which is divided into two nearly equal parts by the Irrawaddy."

The district is rugged, subsiding into a flat in the central part of the river. Innumerable nullahs join in ten streams, pouring the drainage of the western half of the district into the Irrawaddy and Bassein Rivers. The nullahs have high banks, and tortuous courses, are dry in the hot season, and torrents in the rains. They are navigable for a few miles in the S. W. Monsoons. Even the Kwengouk, Taun, Mamya, Alon, Sanda, Pado, and Khawa rise in the Arracan mountains. The Simpon and Noukmee near the Thoo Lake and Poutine in the Akontong hills.

Length.		*Debouchure.*
Kwengouk, ...	30	Bassein river.
Taun, ...	25	Kwengouk near Kwengouk.
Opho, ...	60	Bassein near Soongoon.
Simpon. Noukmee,	20	Opho. Irrawaddy.
Mamya, ...	30	Thoo Lake.

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	Length.	*Direction.*	*Debouchure.*
Alon, ..	25	S. E.	
Sanda, ..	30	N. E.	
Pado, ...	40	N. E.	
Poutine, ...	10	E.	Irrawaddy.
Khawa, ...	22	N. E.	Irrawaddy.

The Bassein branch strikes off from the Irrawaddy about 9 miles above Henzada. The entrance 300 yards wide is choked by a bank.

The Arracan Mountains run North and South forming a boundary between Arracan and Pegu. The greatest elevation within the limits is 4000 feet above sea level. The hills, summits excepted, are covered with forest. The only pass is at Layma west of Kangaen. It can be used by mounted passengers, and is traversed by considerable traffic. There are improvable springs. There are villages all over the district, usually scattered about the streams. The inhabitants cultivate rice. Those of the marshes are engaged in fishing. The hill villages are usually occupied by Khins and Karens, who grow rice or vegetables. The Burmese occupy the towns, work the fisheries, grow tobacco, and are in possession of all trade. The country is intersected in every direction with parallel lines of ruts doing duty for roads. They are only impassable in the S. W. Monsoon when water carriage is perfect. There are occasionally wooden bridges, and brick footpaths near towns of importance.

The east half of the district contains six townships; Henzada, Kwengouk, Opho, Kawoung, Myaoung, Kangoen.

	Houses.	*Remarks.*
Henzada, ..	1700	Military station.
Kwengouk, ..	30	
Opho,		Extensive.
Kawoung, ..	200	On the river.
Myaoung, ..	1000	Head Quarters, Pegu, N.E.
Kangoen, ..	700	
Saitha, ..	350	On Irrawaddy.
Thombo, ..		
Phayay, ...	250	On Bassein.

The rice cultivation commences in June, after rain has fallen. The water is retained by little dykes, and seed sown broad cast. The harvest, is in Decr. or Jany. The tobacco is cultivated on the churs. The plough drawn by oxen is the only agricultural implement. The soil is sometimes laterite clay, but rocks occur only in the hills. Limestone exists North of Thombo.

The trade is confined to rice, napee, wood oil, bamboos, tobacco, and cattle. Petrolium is imported, and a little indigo manu-

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factured near Henzada from the wild plant. Large forests of the wood oil tree exist, and the country can meet 10 times the demand. The oil is used for torches and making baskets water proof.

The bamboo is abundant. Cattle are brought for the Rangoon market. Numbers go down the river on the bamboo rafts. The timber trade does not thrive. The teak is very scarce, and the Pingodo, a hard, heavy, lasting wood is used instead. It resists insects. The people live always in bamboo houses, and even Pagodas are only substantial near the towns. Buddhism is the religion of the country; well digging and orchard planting are commendable practices in the eyes of the people. The inhabitants have no peculiar customs apart from other Peguans. There is a want of population, the district being covered with uninhabited forest and elephant grass. The Burmese have an antipathy to exertion.

REPORT ON THE NORTHERN DISTRICT OF THE PEGU SURVEY.

"The Northern or Third District of the Pegu Survey consists of that portion of the Valley of the Irrawaddy which lies between the boundary line marked by Major Allan in the North, and an imaginary line drawn due East and West through the latitude of Akouktoung to the South. It is bounded on the East by the Yoma Range, which separates the Valleys of the Sitang and Irrawaddy Rivers and on the West by the Arracan Mountains, comprising an area of sbout (90 × 66) 6000 square miles, which is divided into two nearly equal parts by the Irrawaddy on the left bank."

In this district the spurs of the Arracan Mountains run down to the Irrawaddy, sometimes losing their old character. They are sometimes hills of 200 or 300 feet in height, sometimes only undulations. One spur runs due East, but the majority South. The main spurs consist of high peaks connected by saddles of a few feet in width. They are covered with tree and bamboo jungle, and are very precipitous. The drainage is effected by small nullahs which midway form larger channels, and these again 4 streams, the Matoong, Maday, Shooetana, and Shelayding. In the monsoon only boats drawing 2 or 3 feet of water can proceed up the Matoong to Mendoong. In the other nullahs the boats can only ascend 8 or 10 miles. The Matoong rises in the Arracan Mountains and running 120 miles South East discharges itself into the Irrawaddy; one

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bank is precipitous the other shelving. The breadth varies from 70 to 120 yards. The Mudday rises in the same Mountains, flows 40 miles, and empties itself into the Irrawaddy. It is navigable in the rains for 12 miles. The banks are precipitous, and it varies from 30 to 70 feet in width. Beyond Kyoupoo it is a mountain torrent. The Shooetena is about 150 yards broad and 4 feet deep. Five miles from the Irrawaddy it branches into the Kyenpyoo and Boiyo. The former rises in the Arracan Mountain, and runs South East 80 miles to Nyoungkeedouk. It is about 20 to 40 yards in breadth. The Boiyo runs 30 miles South East. The Theree rises in the Arracan Mountains and runs 40 miles E. S. E. to Kyoungoo, then runs South till it falls into the Boiyo. All these streams are mountain torrents with pebbly or rocky bottoms, high banks, and currents of great velocity. "The Theloyding rises in the Arracan Mountains and runs into the Irrawaddy in an Easterly direction, about 6 miles North of Akouktoung." The Mingday rises in a range 10 miles West of Thyatmo, runs 35 miles and falls into the Irrawaddy south of Thyatmo. Its banks are low and its bed about 15 or 20 yards in width. In dry weather water is obtainable by digging a few inches below the bed.

The principal valleys are the Matoong, Punnee, Boiyo, Kyenpyoo, Theree, and Theloyding. The Matoong valley is the most important. Two miles above the mouth of the river we come on a cultivated tract 2½ miles broad, with mango, tamarind, or palmyra trees to mark the villages. On the left bank the open ground continues to the junction of the Punnee and Matoong. From Kanlay to Mendoong it is from 3 to 1½ miles in width and this is well inhabited. Water is raised from the river by a water wheel, and the ground yields 3 and sometimes 4 rice crops a year. Chillies, brinjal, tobacco, onions, and maize are raised on the low ground.

"Looking from the hill on which Mendoong is situated in a Westerly direction, the valley seems to open a little for a few miles, and there is a large tract of cultivation to its North and West."

This valley is exceedingly picturesque. In the valley of the Punnee there is little cultivation. Spurs covered with jungle run down to the bank, but every level space has been taken advantage of. In part of the valley the villages are unusually large.

"In the valley of the Mudday, from the mouth of that nullah to a distance of about 8 miles to Alayyua, there is a large tract of open ground, varying from 2½ to 5 miles in width."

But a portion of this is cultivated, though more has been. In the valley of the Shooetena and Boiyo there is a large tract partially cultivated. It is however neither fertile nor populous. The

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villages on the bank have been deserted. In the valley of the Kyoupoo there is a cultivated tract, and some ruined villages. The same may be said of Theloyding. Only 2 villages out of 30 now remain. The roads are mere tracks, the Burmese going a circuit to avoid a fallen tree. There are some small bridges. There are a few Kayins, a simple mountain race, in the district. They have no idea of future reward or punishment, and deny the existence of sin. They burn their dead, but collect and bury their ashes. Their God resides on Mount Guowa. The females tattoo their faces. The district is chiefly occupied by Burmese who resemble Burmese everywhere else. The population is small and increases slowly. The Burmese have large families, but the children die rapidly of smallpox and other diseases. Their cultivation is as usual, but they cultivate a small and highly prized rice in a peculiar way. The jungle is cut in February or March, and burnt in May. The charcoal is the manure, but only one crop can thus be obtained in 25 years. The only implement of labour is a rude plough. At Thyatmo the exports are rice, paddy, betel-nut, napee; bamboo and wood oil are sent down from the North. Lime and cutch may one day be sent down. The imports are silk, earth oil, lacquered ware, lead, copper and cutch.

In the west district there is a thermometrical difference of 40 or 50 degrees in the temperature at dawn and midday. In the morning there is fog which clears away about 9 A. M. when the thermometer rises 45 degrees at once. The Towns have usually one good street 60 feet broad with lanes leading into it. They are situated on the river or a large nullah, and contain several phoongee houses. There is no drainage except at Prome and Thyatmo. The villages are irregular, each person having his own plot of ground. The houses are raised some feet from the ground, and made of timber, jungle trees being used for frame work, and bamboo for floors. The walls are of bamboo mats. The phoongee houses are built of teak frame floors, and partitions; the roof is made of flat tiles or leaves. On the body of the building are five or six roofs, one above another, crowned with a gilt tall or umbrella. The cornices, eaves, and angles are ornamented with figures. The largest Capt. Oakes had seen covered an area of 10,402 square feet.

"The principal wild animals and birds met with in the Northern district are the elephant, the tiger, the bear, the deer, the hog, the hare, the porcupine, and monkeys in great abundance; the crane, the crow, the wild duck, the hawk, the jungle fowl, the kite, the minah, the paddy bird, the parroquet, the partridge, the peacock, the pigeon, the pheasant, the quail, the snipe, the sparrow and the teal."

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In the Appendix Captain Oakes gives a table of the trees of the district, and describes the waterwheel.

Burmese name.	*Botanical name.*	*Uses.*
Myooshan,	Dalbergia,	Like lancewood.
Sha,	Acacia catechu,	The cutch bearing tree.
Lepan,	———	The pod contains silk cotton.
Deedo,	———	Idem.
Gway B,	———	A fruit like a plum.
Gyo B,	———	Extremely hard wood.
Peemal,	———	A large timber tree useful for building.
Thingan,	Hopea Odorata,	For canoes and building.
Thesing,	———	Like a chestnut.
Shonk,	Citrus bergamia,	Large lime.
Kookko,	Acacia,	Timber tree.
Jug B,	Dipterocarpus grandiflora,	Wood oil tree, the tree is tapped.
Teethee,	———	Chinese date.
Thabya,	———	Its bark used as a mordant.
Yee B,	———	A plum.
Tree B,	Zezyphus jujube,	Jujube lozenges are made from it.
Touksha,	Vitex arborea,	Small timber.
Padouk,	———	Valuable timber.
Teak,	———	Teak.

REPORT ON THE FLAX OPERATIONS OF 1855 IN THE PUNJAB.

India Selections, No. XV.

On 29th November, 1855, Mr. Cope reports on certain measures suggested by the Agri-horticultural Society of the Punjab, and sanctioned by Government for the improvement of linseed. The Government allotted Rs. 800 for an experiment on 40 beegahs of ground near the Society's Garden. The ground was not very well suited to the purpose. The seed was mixed with rape, and other seed, which involved expensive weeding. The crop however might have been a good one, when it was destroyed in April by a hailstorm. Only the small plot sown with English seed was saved. The Society then printed papers offering rewards and affording instructions for the cultivation. They

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had an effect. The breadth of land under this cultivation which had been 3455 acres, was in 1854 increased to 19,039 acres. It was supposed that in the latter season 1,46,538 maunds of seed were produced throughout the Punjab. The returns were not so profitable as they might have been. The Zemindars cultivated carelessly, looked rather to breadth of land than to produce, and the profit of a rising market was absorbed by the dealers. Government offered to purchase the crop. A shed was erected for storing. M. Laurenz Steiner, a German, acquainted with the cultivation, was appointed Superintendent, a price was fixed with the growers, and orders were sent to the District officers to store. The price was to be in Hoshearpore 27 seers to the rupee, in Guzerat 27 seers, and everywhere else 34 seers. The public were kept informed in Calcutta, Bombay, and Kurrachee, and instruments for stripping the seed from the plant were made.

The cultivators however found a more profitable market, and only 11,301 maunds out of 1,46,538 produced reached Government. The seed sent to Kurrachee was sold at Rs. 4-6 per maund; it cost Government in purchase, carriage, freight, and commission Rs. 2-12. The average profit will be Rs. 1-10 per maund, or 59 per cent. on outlay. The linseed delivered at Lahore amounted to 4840 maunds, the whole of which was sold to a Mooltan firm for Rs. 9,410. The Financial Commissioner immediately published a notice embodying these results. The people believe Rs. 2 per maund will yield them a fair profit. Should Government be of opinion that the system should be kept up, the Society recommends that a price of Re. 1 for 20 seers should be paid on delivery at Lahore, and the Society be authorized to import 2 of Dray's winnowing and blowing machines, and two of Robinson's flax seeding machines.

It was thought that the indigenous flax plant was incapable of producing fibre. The first attempt to improve the fibre and lengthen the stem failed, from neglect of instructions. The arrangements for steeping were completed, and heckles set up. They were not however, required, flax being taken to market in England scutched, and heckled in great factories. The outturn of 2365 maunds amounted to only 100 maunds,—the straw being green and dry,—which has been sold at Rs. 8 per maund in Calcutta. The average return is not very unfavourable in quantity, according to English experience.

It is however from English seed that the best results have been obtained. The Society planted half a beegah with this seed. The country straw yielded only 2 maunds per beegah. The half beegah of English flax yielded 3 maunds 35 seers far superior in length and quality. Flax is worth £40 per ton in London, or Rs. 10 in Lahore, which at 3 maunds per beegah

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gives Rs. 30 per beegah besides seed. It is therefore desirable to secure English seed for 1856-57. The Society had recommended the purchase of 5 tons of English seed. The Court of Directors shipped it. Only 2900 lbs. have reached the Society. Of this 600 lbs. was damaged. The remainder was distributed, but the seed was all bad. The English seed grown at Lahore therefore alone was used, and the Society recommended the purchase of 50 tons of linseed by themselves direct. The rewards offered to Zemindars for cultivation were not claimed, the conditions not having been attended to. Some persons and villages have however sowed largely, and incurred cash losses which should be liberally considered. The total amounts to Rs. 1,490. Everything connected with the operation is superintended by M. Laurenz Steiner, who is most efficient. It is recommended that he receive an addition of Rs. 50 to his stipend, and that his horse allowance of Re. 1 a day be continued. Also that he be authorized to keep a small establishment of blacksmiths. In the course of these experiments the question of fibres in general has forced itself on the Society. The sunokra (hibiscus cannabinus) and sun (crotolaria juncia) are grown, also hemp of wonderful strength, and a fibre producing nettle are indigenous. In 1853, the Society received a Chinese fibre plant a species of Corchorus. The fibre seemed strong, 12 square yards were sown in June, 1855, the plant grew luxuriantly, and the straw is now steeping. The Bengal jute is also cultivated. Half a beegah of sun has been steeped, and a quantity of sunokra. Hemp and nettle are on their way from Kangra and samples of all will be experimented on. Larger experiments are however required. A maund of goods can now be conveyed from Lahore to Kurrachee for Annas 13. It was formerly Re. 1-8 to Rs. 2 A School of Industry is to be found at Lahore where gunny will be manufactured. For this the cultivation of jute, is necessary. The Society recommend that the Choogean and Mamood Bootee rukhs be devoted to cultivation of flax, sun, jute, sunokra, and mulberries. The Rukhs are let for thatching grass. The leases expire on 1st May, 1856. Mr. Steiner has constructed an underground plough which will clear away the roots, and the cultivation of the rains of 1856 will only cost Rs. 4 per beegah, 3 or 400 beegahs might be taken up at once. The Society consider the suggestion important. The demand for fibre is great. The cost would be only Rs. 3,000, the receipts at least Rs. 4,000. The total expenditure on flax and linseed operations has been Rs. 35,812. Receipts Rs. 39,209. Rs. 5,773 have been spent in plant, and the available portion of this added to actual receipts brings the profits to Rs. 6,810. Samples have been forwarded to the Court of Directors. In conclusion the Society expresses its

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sense of the liberal and enlightened spirit in which its suggestions have been received.

SALT REPORT.

On 24th May, 1856, Mr. G. Plowden reports to the Government of India on the Salt Monopoly.

The Report was suggested by the House of Commons at the close of the Session of 1853. The House carried a Clause allowing till 1st May, 1856, to change the Salt Monopoly into an excise. The Lords struck out the Clause, but the Court of Directors ordered an enquiry. Mr. Plowden was on 16th February, 1853, directed to enter on the enquiry at once. He visited Bombay and Madras, the Hidgellee and Tumlook Agencies, Narayunpore and Goordah in the Sunderbunds. Mr. Plowden understood his primary duty to be to ascertain the practicability of establishing an excise. He trusted for data chiefly to the information already in existence.

Mr. Plowden begins by a History of the Salt Revenue. In Bombay it was till 1837, only one of the miscellaneous items of revenue. In the previous year the net revenue was only Rs. 2,08,532, but this amount does not represent the entire proceeds of the complicated system then in force. In 1837, an excise duty of 8 Annas a maund was laid on salt in compensation for the transit duties then abolished, and 8 annas a maund on sea-borne salt. Under Act XXVII. of 1837 any one could manufacture salt. He must however give notice of his intention and describe his works, and allow the Revenue officers free access to them. Salt-fish were subsequently exempted from duty. The salt duty thus imposed produced to Government as compared with the transit duties a loss of Rs. 2,51,607 a year, the transit revenue having been 16,60,879, and the Salt Revenue, on an average of 6 years from 1838-39 to 1843-44, only 14,09,272. In 1844, the Town duties were abolished, and the tax on salt raised to 1 Rupee per maund. The rate was soon after reduced, under orders from home, to 12 Annas. Owing to delays the Town duties were not abandoned till after the salt tax had been increased. There was therefore a serious riot at Surat. The revenue relinquished was Rs. 10,88,501. The revenue gained was Rs. 7,31,720 a year. In 1850, Act No. XXXVI. was passed as a Protective Act. It provided that the duty on salt passing out or in to foreign territories should be 12 Annas a maund. Also that any one passing salt by land or sea contrary to any Salt Act, should be punishable with imprisonment not exceeding 3 months, or a fine not exceeding Rs. 500, or both, and that the salt, the vessel, or the package used should be confiscated, or made redeemable by a fine.

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Informers might be rewarded. No new salt works could be established, or old works re-opened without the permission of Government, under penalty of fine or imprisonment. Government might suppress any work not producing on a 3 years average, 5000 maunds a year.

Mr. Plowden describes the existing system. The salt is produced entirely by solar evaporation. The average quantity is 46,29,946 maunds. The salts are of two kinds. "The manufacture of sea-salt is carried on in the Island of Bombay, and more or less in every district on the seaboard of the Presidency, from Rairee on the Goa Frontier Southward to the shores of the Gulf of Cambay in a Northerly direction. The inland salt manufacture is met with almost exclusively on the Eastern border of the saline desert known as the Little Runn of Cutch, but small quantities of very impure salt are also produced in the Deccan by washing saline earths."

Mr. Plowden describes the process of manufacture. The inland salt, obtained by digging pits in the desert called the Runn of Cutch, is the better of the two. The works all over the Presidency either belong to Government, or to owners whose lands were not reclaimed by Government, or to owners whose lands belong exclusively to themselves. Almost every work, however, has been constructed under a separate and special bargain with Government, as original owner of the soil. In Government works the produce theoretically belongs to Government. It is usual, however, to lease it out, half being given to the middleman. In some cases the labourers receive from a half to a third of the produce as wages, the remainder constituting the Revenue. The holders of lands not reclaimed by Government usually pay a rent in one form or another. The free landholders pay no rent. The manufacturers are pretty much on a level with other agriculturists, and the labour is not unhealthy. The duty is levied at the pans before any salt can be removed. In certain cases however the exporter is not required to pay till his cargo has arrived, and if it is lost on the way Government allows him to remove an equal quantity free of duty. All salt imported into the Presidency pays 12 annas a maund. The salt excise of Bombay (Town) was until 1854 a department under the Collector of Sea Customs. The salt excise of the Presidency is a department under the Collector of Continental Customs. All customs are now under the control of one Commissioner. Mr. Plowden describes the establishment. "Over each large Salt Work, or over several small detached Works, a double Establishment, suited in strength to the extent of the Works, is maintained, superintended in each Talooka or District by Officers termed Inner and Outer Darogahs. The Establishment of the Inner Darogah is charged with watching

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the production and store, with the care and custody of the salt produced and stored, and with the delivery of the same upon written orders from the Officers by whom the duty is collected. The Establishment under the Outer Darogah is the Preventive Establishment, stationed at Chowkies, established under the provisions of Section 7, Act XXVII. of 1837, in the immediate neighbourhood of each Salt Work (Agur) or group of Salt Works (Suza,) the distance in each case being regulated by local circumstances, for the purpose of preventing any salt from being removed from the pans, except the quantities passed by the orders of the Inner Establishment."

"Parties desiring to purchase salt at the pans must, in the first instance, address to the Inner Darogah, or Head Native Officer of the Manufacturing Department, a written application, stating the quantity of salt they require, the Augurs or Works from which they propose to take it, and its destination. Upon this, the necessary preliminaries (whether payment of Excise, or execution of a bond or other document) having been fulfilled, the permit for delivery of salt is granted, and the amount of duty brought to account in the *Khird*, or 'Cash Journal.'"

The sale price of salt at different works ranges from nine pies to two annas per maund. The permit from the Inner Darogah under which salt is delivered is only nominally signed by the Collector. He signs blank permits. The chowkees command all access to the pans by land or water. The total establishment charges of the department, including frontier charges, are Rs. 2,07,060 per annum.

"According to a statement prepared, the total deliveries of salt from the Works of the Bombay Presidency and those in Cambay, in the year 1852-53, being the latest year for which an account has been obtained, amounted to 41,50,553 Indian maunds, of which 7,09,059 maunds were delivered from the pans in the Island of Bombay, and 34,41,494 maunds from the Continental Works: of the total deliveries, 28,56,801 maunds were taken by Sea and Land for consumption in the interior, which includes the whole home consumption of the Presidency, on payment of the full Excise of 12 annas per maund, excepting the portion produced at Works in Cambay, on which an Excise of only 5 annas 11¼ pie was received, *viz.*,—from the pans of the Island of Bombay, 15,976 maunds, and from the Works on the Continent, 28,40,825 maunds. The Exports by Sea to Calcutta, paying the full Excise of 12 annas per maund, amount to 4,00,018 maunds, of which 2,67,433 maunds were exported from the Island of Bombay, and 1,32,585 maunds from the Continent. The Exports by Sea to British Ports under the Madras Presidency, paying only a charge of 3 pies or a quarter of an anna per maund,

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to cover expenses, amounted to 4,34,576 maunds, *viz.*, from the Island of Bombay 3,20,790 maunds, and from the Continent 1,13,786 maunds. The Exports to Foreign Ports under the Madras Presidency, paying a duty of only one anna per maund, amounted to 4,53,698 maunds, of which 99,400 maunds were exported from the Island of Bombay, and 3,54,298 maunds from the Continent. The deliveries for free export to Ports in the Straits of Malacca, and to other places beyond the Continent of India, amounted to only 5,460 maunds, the whole from Works in the Island of Bombay. The total deliveries for Export by Sea beyond the Presidency thus amounted to 12,93,752 maunds, *viz.*, 6,93,083 maunds from the Island of Bombay, and 6,00,669 maunds from the Continent."

The Gross Revenue for 1852-53, ...	Rs.	24,62,262
Charges, ...	"	2,03,995
Net Revenue, ...	Rs.	22,58,267

The revenue is equal to a tax of 9¼ annas a maund on the total deliveries, and the charges equal to 8¼ per cent. on collections.

It is Mr. Plowden's opinion that the scheme of Salt Administration in the Bombay Presidency is creditable to the fairness and liberality of Government, and his only regret is it was not introduced earlier. He has been unable to discover the reasons which caused Government to adopt the Excise in preference to a monopoly, but considers the system satisfactory, and is "unable to perceive why a larger or more expensive force should be required to watch production and protect and collect the Revenue when individuals manufacture freely for themselves, than when they manufacture exclusively for the Government; or what facilities for illicit practices exist in the one case which do not equally exist in the other; or why, the Agency being necessarily of the same character in both cases, it should be less trustworthy or less efficient in the one case than in the other."

With reference to the results he finds that in Bombay Island the consumption in 1852-53 was only 8¼ lbs. a head, a low rate. There has been a steady decline in the quantity of salt delivered. The population has increased. It is presumable therefore that the demand is met by an illicit supply. The causes of this evil Mr. Plowden finds in the absence till 1850 of a stringent Protective Act, and in lax and incapable superintendence. Moreover the works are too detached, small works are not suppressed, and there are no means of securing an accurate account of the stock in hand at a given time and in a given place. This might be remedied by the introduction of the system in force in Madras, where salt is always stocked in heaps of 1200 maunds. The salt is weighed for carriage by land, but not for export by sea. The

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system of measurement rather than of weight is partially adopted, and Mr. Plowden conceives it might be made universal, were the practice of reweighing ten per cent. of the salt carried inland abolished. That practice is unnecessary. M. Plowden discusses the propriety of remodelling the establishments, and recommends plans for disposing of the Government Salt Works. He would also abolish all duty on salt exported to ports in India, levying it only at ports of arrival. Finally Mr. Plowden does not consider that the Protective Laws are at present unduly severe. The decision is given usually by the Assistant Commissioner in a summary way.

Mr. Plowden passes on to the rate of duty. At present the Bombay rate of duty is positively much lower than the Bengal rate. Comparatively to the cost of produce it is much higher. Thus the cost in Bombay is 1¼ anna a maund. The duty therefore is 1000 per cent. In Bengal the cost is eight annas a maund, and the duty 500 per cent. The two points to be settled are: Is the tax oppressive? Can it be reduced with benefit to the Revenue? The Bombay officers are of opinion that the increase of the tax to twelve annas diminished the consumption among the poorer classes. It is impossible to decide on the quantity consumed. We know nothing even of the population. The price per pound to the consumers however is just one farthing, and each man should have 12 lbs. a year. That would cost him three pence* "or one and a half anna, and this cost, assuming the average wages of agricultural labour at three Rupees per mensem, which is equal to 36 Rupees of 72 shillings per annum, would amount to the 288th part of his yearly earnings, or a tax upon his income of between a quarter and a half per cent., supposing he had only himself to provide for."

12 lbs. however is too much. 7 lbs. is allowed in the Jails. 8 lbs. may be taken as a sufficient though stinted supply "supposing a family of five persons, adults and children, to consume, at the rate of 8 lbs. each all round, 40 lbs. of salt per annum, and to earn between them only three rupees per mensem, and to pay the highest of the prices above assumed for their salt, *viz.*, one Rupee per maund of 82.3 lbs., the cost of the whole supply, even in this extreme case, would amount to only the seventy-second part of the yearly earnings, or an income tax of scarcely more than 1⅓ per cent."

The tax is therefore not oppressive. The Bombay officers think a reduction not required financially, and Mr. Plowden acquiesces, and passes on to Sinde salt. "In all parts of Sinde there are extensive tracts of barren and unculturable land, so

* There is some mistake here. Three pence is equivalent to *two* annas, not one and a half.

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impregnated with salt that it effloresces naturally on the surface, and in some of the Southern Districts of Lower Sinde the saline efflorescence is so abundant as to allow of the salt being gathered at once, without any artificial process, in large crystallized lumps called in Sinde *Loon Gundra* or *Gunder*."

It has been calculated that the Kotree field alone would supply, "1,48,41,51,430 tons, a quantity sufficient, at an annual allowance of 20 lbs. a head, to supply a population of 100 millions for one thousand six hundred and sixty-two years."

The salt, though there is a local prejudice against it, is good and hard, but from scarcity of labour and other causes the production costs from 2 to 3 annas a maund. The manufacturers usually retail the salt, carrying it on donkeys. There is no duty, and the supply does not exceed the demand. The salt, it is considered, could not compete with Bombay salt. It may possibly be exported to Calcutta as ballast with profit, but even this appears improbable.

Mr. Plowden recapitulates, and passes on to Madras salt. In 1805 the Salt Monopoly was established in Madras to meet the expense of the judicial establishments. The system then established has never been changed. The salt is sold to Government only at a fixed price. Government sells to the dealer at a fixed price, but beyond this it does not meddle. The dealer may sell where and how he pleases. Salt manufactured without permission is liable to confiscation. Salt in transitu unprotected by a Pass is also liable. Any person entering into a clandestine trade in salt is permanently excluded from the service of the Company. The sale price per garce or 120 maunds up to 1820 was Rs. 70. It had been raised once, but the smuggling increased so much that Government reduced it again. In that year it was raised to Rs. 105. In 1844, the Transit Duties were abolished, and the rate raised to 180 per garce, or Re. 1-8 per maund. The Court of Directors ordered a reduction, and on 1st April, 1844, the sale price was reduced to Rs. 120 per garce or Re. 1 a maund, which it has since retained. Marine salt is made exclusively by solar heat. The manufacturers make between January and July, and are compelled to leave the pans by a prescribed route. The salt is delivered to Government officers, and paid for without allowance for wastage as fast as it can be delivered. The salt is stored in great depots. The heaps are all weighed, and a purchaser who takes an entire heap obtains a discount of 5 per cent. The moment a heap is sold its produce is reported. If less than the quantity it was known to contain the Accountant and Superintendent must account for the deficiency or be dismissed. The average cost price is Rs. 8-11-5 per garce, the Revenue charges Rs. 3-6, and total cost 12-1-6 per garce.

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The average cost to Government on the Coromandel Coast is 1 anna 10 pie per maund.

"The persons who make the salt are either the descendants of the original manufacturers, or have acquired their holdings by purchase, or are the descendants of purchasers. In Masulipatam the salt is made by hired labourers paid by the Government at the rate of 2 annas per diem, but with this exception, the salt manufacturers are in the possession of rights and privileges more or less valuable, according as their pans are situated in the Southern Districts and in Canara, or in the Northern Circars. Socially they are in the same position as the ordinary village ryots, but in general they are, or ought to be, in better circumstances, inasmuch as a Salt Pan is more valuable property than an ordinary grain land occupancy of the same extent. Their labour is entirely voluntary, and the climate of the Coast where they work is exceedingly healthy. Every proprietor of a Pan is registered; and when the Government extend the manufacture in any locality, the preference of the new Pans is usually offered to the villagers of that locality." The salt is very good. In 1852-53 the total produce was 52,67,110 maunds, and the total sales 48,32,937. In Canara the salt is brought from Bombay, and sold to Government at 32½ per garce, or adding Revenue charges, at 39½ Rs. per garce.

"In some districts salt spontaneously produced in marshy swamps is partially collected, stored, and sold in the same manner as manufactured salt, and partially destroyed. In other Districts salt so produced is altogether destroyed. This swamp salt might be collected in the Districts of Tanjore and Masulipatam more especially, to almost any extent, of fine quality and at a small charge, probably, on an average, for about four Rupees per garce of 120 maunds, or half an anna per maund." This spontaneous produce is usually destroyed as it affords facilities for smuggling. The mode of destruction is to tread it down with cattle. This earth-salt is wholesome. The Madras Government desires to send the salt to Bengal, but has usually charged too much. "In 1779 the Bengal Government imposed a Duty of Sicca Rupees 30 per 100 maunds on all imported Bay-salt, and shortly afterwards prohibited its importation altogether. In 1795 the Madras Government succeeded in procuring the partial removal of this embargo. On the establishment of the Monopoly by Regulation I. of 1805, it was provided by Section 19 of that Law that the usual annual supply of Coast salt required by the Bengal Government should be furnished to contractors, and to persons desirous of exporting it on permit, at the prices heretofore paid for salt so furnished and exported. In 1810 the annual supply for Bengal was fixed at 12 lakhs of maunds; in

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1814 it was reduced to five lakhs. In subsequent years the supply was a matter of the greatest caprice, varying according to the success or failure of the manufacture in Bengal, the utmost possible quantity being required at one time, and the total suspension of importation being proposed at another. Of late years, the supply at any time required for the service of the Bengal Monopoly has been drawn on indents for Calcutta and Chittagong. The indents for Calcutta were discontinued in 1845, as the Government Warehouses then contained a very large stock of Madras salt, and it was expected that the demand would be supplied by private importations from the Coast, Bombay, and other quarters. For eight years no salt was exported to Calcutta on Government indent; but in the year 1853-54 the stocks in Bengal had run so low, owing to a sudden falling off in the importations of Foreign salt, that it became necessary to indent for a supply of five lakhs of maunds of Coast salt for that year, and of 10 lakhs of maunds for the following year 1854-55. The greatest difficulty was experienced in obtaining tonnage for these supplies, and it is doubtful if the indents have yet been completed; the last orders from Bengal were that every endeavour should be made to bring up the remainder of the Salt, whatever might be the rate of freight which the Government might have to pay for its carriage." The Madras Government has now abandoned the idea of making a profit on these exports. Salt for export on private account is sold by Government at cost price, but the quantity exported is insignificant. Foreign salt was not admitted into the Madras Presidency till 1818. It was not till 1853 that it was admitted at a duty of 12 annas a maund.

The result of the system now in operation may be thus stated :—

Total manufacture, 1852-53, ...	mds.	58,63,108
Total deliveries, ...	„	53,82,255
Total receipts, ...	Rs.	49,94,124
Cost price, ...	„	4,08,198
Charges, ...	„	2,36,161
Nett Revenue, ...	„	42,89,765

The nett profit is equal to 13¼ annas per maund. The salt costs Government on an average 1¼ anna per maund. The charges of management amount to 5¼ per cent. on the nett profits.

On the practicability of continuing the monopoly Mr. Plowden observes 1st, that the monopoly is not oppressive, good salt being sold at a very low price. The question therefore is to be considered solely in its revenue aspect. It is observable that in 1805 the Board of Revenue wished for an excise. The Government did not oppose. The monopoly was ordered from Calcutta. The Board now admit that an excise is possible. Mr. Plowden

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analyses the opinions pro. and con. of various local officials, and proceeds to observe, that in his opinion a system identical in principle with that of Bombay might be readily adopted in Madras. In the following six pages Mr. Plowden discusses various objections, and suggests many detailed improvements in the Madras system not essential to the Report.

With reference to the rate of duty Mr. Plowden quotes the figures submitted to the Court of Directors in 1852. Their result was to show that the price now charged or Rs. 120 per garce had not diminished consumption. Mr. Plowden himself argues that it is not oppressive since each person can obtain 12 lbs. of salt at 4*d.*, or the 140th part of the lowest income. Or "supposing, as in the Bombay case, a family of 5 persons, adults and children, to consume, at the rate of 8 lbs. each all round, 40 lbs. of salt per annum, and to earn between them only 3 Rupees per mensem, and to pay the outside average price for their salt, *viz.* Rupees 1-3 per maund, the cost of the whole supply, even in this extreme case, would amount to only the 60th part of the yearly earnings or an income tax of one and two-thirds per cent." Again "supposing that the whole quantity sold (51,94,713 maunds) were consumed within the limits of the Presidency, the annual consumption per head, taking the population at 2,23,01,697, as shown by the Census of 1850-51, would be a little over 9¼ seers or 18½ lbs."

And therefore as it seems certain that 12 lbs. per head of this quantity is consumed within the Presidency, there seems no cause to believe that a reduction of price would stimulate consumption. But as the Bombay rate is 12 annas a maund, and the assessment of the same rate on earth-salt would prevent smuggling, and redeem any loss to the revenue, he would propose a reduction to that extent.

Bengal Salt. The system now in force in Bengal is regulated by the report of a Committee which in 1836 was ordered "'to enquire into the supply of salt for British India,' but which in fact restricted its report to the salt revenue system of the Lower Provinces of the Bengal Presidency."

Mr. Plowden recounts the history of the tax up to that point. Salt was taxed under Jaffier Ali. The privileged Europeans who traded in everything else free of duty, paid duty on salt to Jaffier Ali Khan. In 1767, on the failure of Lord Clive's plan the Directors insisted "that the manufacture and trade should be perfectly open to all Natives, provision being made for the payment of such a tax on salt as should not raise its wholesale price beyond Sicca Rupees 140 for every 100 maunds."

In 1780 after several attempts to introduce less restricted systems Mr. Hastings introduced the monopoly. The revenue rose

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at once from Rs. 8,427 in 1780-81 to Rs. 6,25,747 in 1784-85. It however sunk again till Lord Cornwallis instituted public salt sales in Calcutta. Since that period the Salt Regulations have been :—

Of	1793	Regulation	XXIX.	Repealed.
„	1795	„	LII.	Ditto.
„	1798	„	IV.	Ditto.
„	1800	„	IV.	Ditto.
„	1801	„	VI.	Ditto.
„	1801	„	XII.	Ditto.
„	1803	„	XLVIII.	Ditto.
„	1804	„	VI.	Ditto.
„	1804	„	VII.	Ditto.
„	1806	„	IX.	Ditto.
„	1810	„	IX. Section 18	Ditto.
„	1810	„	XVII.	Ditto.
„	1814	„	XXII.	Ditto.
„	1817	„	XV.	Ditto.
„	1819	„	X.	
„	1824	„	I.	
„	1826	„	X.	
„	1829	„	XVI.	Repealed.
„	1835	Act	IX.	
„	1838	„	II.	Repealed.
„	1838	„	XXIX.	
„	1843	„	XIV.	
„	1848	„	XVI.	
„	1849	„	XIII.	
„	1851	„	III.	

In 1790, the duty was Co.'s Rs. 3½ per maund. The public auctions however, strengthened the sub-monopoly formed by an association of capitalists who clubbed together to buy all the salt. In 1835-36 sales at fixed prices of unlimited quantities were finally adopted. In 1836, the Commons' Committee recommended :—

"*First*.—That the system of public periodical sales should be abolished.

Secondly.—That the Golahs should be kept open at all times for the sale of salt in quantities not less than 100 maunds.

Thirdly.—That the price to be paid by the purchaser should be fixed at the cost price to Government, added to a fixed duty.

Fourthly.—That the import into Calcutta of salt manufactured in any other country than the districts subject to the Bengal Monopoly should be permitted, such salt to be sold at such times as the proprietors may please in quantities not less than 100 maunds.

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Fifthly.—That such imported salt should be subject only to the same duty, as that sold by the Company, and no other duty or charge whatever, except a fair and reasonable rent on such salt as may have been bonded.

Sixthly.—That the duty to be imposed should not exceed the average rate of the nett profit of the 'Company's monopoly for the last ten years.' "

These recommendations have most of them been obeyed, but it was not till 1847 that the present system of fixing prices was adopted. In 1844, the duty was reduced to Rs. 3 a maund, and in three years the quantity sold increased from 57,66,729 to 63,38,864 maunds. In 1847, a further reduction of 4 annas was made, and the price was fixed for the first time at the cost price plus the duty. The actual loss of revenue from this change was in 21 months Rs. 12,18,288, consumption having increased to the extent of 23,801 maunds a month. On 1st May, 1849, a further reduction of 4 annas was made. The duty was now Rs. 2-8 a maund, the present rate. The total reduction of duty since 1844 has been 23 per cent., or from Rs. 3-4 to Rs. 2-8 a maund. The consumption in 1854-55 was 66,07,100 maunds. An increase of 4½ lakhs would restore the Revenue to what it was before. Foreign salt began to be largely imported in 1835 when 2,84,858 maunds came in. In 1851-52 the quantity increased to 29,26,866 maunds. It has fallen to an average of 19,51,796 mds. for each of the last three years. There are now seven Salt Agencies; Pooree, Cuttack, Balasore, Hidgellee, Tumlook, 24-Pergunnahs, and Chittagong. In 1854-55 there were 49,33,981 maunds consumed; the receipts were Rs. 1,82,47,000 and the charges Rs. 27,06,000. The gross revenue therefore was Rs. 1,55,41,000. Deducting charges Rs. 13,53,000, the nett profit on the salt monopoly was in that year Rs. 1,41,88,000.

Mr. Plowden proceeds to consider the expediency of introducing an excise. He narrates the history of Mr. Prinsep's unsuccessful experiment, and the re-opening of the Narainpore and Goordah Works under an excise system. He subsequently analyses the correspondence between the Lieutenant Governor and the Board of Revenue to establish an excise. The experiment was tried in the 24-Pergunnahs under the most favourable circumstances. Two persons applied for licences, and they manufactured only 20,000 maunds. The prospect of success appeared doubtful and remote. The two manufacturers who came forward however intend to enlarge their operations. Mr. Plowden considers this fact satisfactory, and holds that all the arguments against the success of the plan are based upon the result of a very small experiment which affords no fair criterion. He continues to dispose of objections. It is argued that "*under a system*

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of private manufacture, the supply of salt in the interior of the country would be deranged." Salt obeys the ordinary laws of trade.

"That under a system of private manufacture a few capitalists would obtain a monopoly of the suply." Any sub-monopoly is impossible while salt can be imported so freely.

"That under a system of private manufacture, there would be more evasion of the tax by illicit manufacture and sale, than there is under the present system of Government manufacture." The master manufacturer would be better able to smuggle than the molunghees or labourers. But he would only occupy the position now occupied by the native agency. There would be preventive officers, and the only effect of the change would be that corruption must be spread over a wider surface, and be consequently less profitable.

"That the preventive system necessary under an Excise would be more expensive to Government, and more vexatious to the Molunghees than the present plan of Government manufacture." This is true if the manufacture is to be absolutely free. But it is not proposed to make it absolutely free. The measures taken now to ascertain the quantity of salt in stock, and its concentration in different golahs, could be taken "equally whether the salt is made on account of Government or on account of a private person. In either case precisely the same danger has to be guarded against, by precisely the same means; and in either case precisely the same result follows any laxity of administration. It is not possible that, all other circumstances being the same, a Molunghee can find it less easy to manufacture salt clandestinely, and to pass it away from the Works secretly, because he is pretending to be making salt only for Government, than he would find it if he were pretending to be making salt only for a private person, to be stored and registered by Government."

Mr. Plowden therefore holds that it is possible to introduce a system of excise. Mr. Plowden proceeds to notice various details connected with the existing system, and suggests plans to overcome minor difficulties, and records his deliberate opinion that the molunghees are well treated, and that the discontinuance of the salt manufacture would not deprive them of the means of subsistence. He proceeds to observe that the salt duty throughout India, is productive, is familiar to the people, and could not be replaced by a duty less objectionable: "apart from the questions of the rate of duty and the manner of levying it, and presuming the amount of the duty upon salt to be moderate with reference to the circumstances of the people, the whole of the evidence on both sides of the question of monopoly goes to this, that no less objectionable tax can be pointed out. The people are accustomed to it, and pay it with-

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out complaint, and though it does press upon the labourer more severely than upon a man of the classes above him, in proportion to the respective means of each, it is the only tax, direct or indirect, of any description, which labourers and other poor people in India are obliged to pay."

He is also unable to admit that the present price even in Gyah where salt costs Rs. 5 a maund, is so high as to become a material burden on the poor man, but still he considers that salt in Bengal is unnaturally dear. The duty is high when it is considered that the cost price is four times as great as on any other Indian coast. Moreover the consumption may be stimulated. In fourteen years a revenue of thirty-five lakhs of rupees has been abandoned by successive reductions. An increase of 14 lakhs of maunds would restore the revenue. An increase of 11¼ lakhs of maunds has occurred. If a reduction is made it should be of 8 annas a maund. The benefit of small reductions is felt principally by the dealers. The reduction would enable Government also to dispense with the preventive line below Allahabad, beyond which point a differential duty exists. The loss would amount to 53 lakhs of rupees a year, which would require an increase in consumption of eighteen lakhs of maunds, which will scarcely occur for many years.

Mr. Plowden next recounts the History of the Salt Administration of Arracan. The salt is manufactured in Aeng and the Island of Ramree. The manufacture and sale are absolutely free, but the export is totally forbidden to Bengal. Mr. Plowden recommends that this restriction, so far as Calcutta is concerned, should be abolished. In the Tenasserim Provinces the manufacture of salt is absolutely free subject only to an excise, levied in the shape of a license of 4 annas on every earthen pot, and 1 Rupee per iron boiler employed in the manufacturer. The average revenue of 10 years is only Rs. 2,638. The total of 1854-55 was however Rs. 3,465-14, representing an outturn of 1,47,583 maunds. In Pegu also the manufacture is free, subject to an excise of 4 annas per earthen pot. In 1854, 16,000 pots were worked in the district of Bassein, yielding an estimated outturn of 1,81,770 maunds, of which one-third is sent across the frontier. A tax of 1 Rupee per 100 viss. or 4½ maunds is levied on salt exported across the frontier. Mr. Plowden recommends that this duty be abolished. Also that a drawback be allowed on salt exported by Sea.

In the North-West Provinces the manufacture of salt is prohibited. The Provinces are supplied from Bengal, or the rock salt mines of the Punjab. Native salt is also obtained from the Sambhar Salt Lake in Rajpootana. It is subjected to a duty varying at different places from Rs. 2 to Re. 1, and a further

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duty of Rs. 8 per maund if it passes to the Eastward of Allahabad. Mr. Plowden examines this Custom's line, its establishments, and the powers entrusted to it. The average quantity of salt imported in the ten years ending 1852-53 was 21,73,015 maunds, and the duty 47,24,366. It has fallen since from the excess of imports from the Punjab. To the mass of the people the price of salt may be taken at 1 penny for 1¼ lb. At this price the cost of salt to a family using 8 lbs. a head, would be Re. 1-5-4, and thus equal, if they earned Rs. 3 a month, to 3¾ per cent. of their wages. This is the only tax he has to pay, and it cannot be regarded as burdensome. There has been no material advance in imports between 1841-45 and 1852-53, "nor do the importations of those years exhibit, on an average, an advance of so much as a lakh of maunds on the average importations of the preceding six years, from 1838-39 to 1843-44." The population which consumes the salt crossing the custom's line may be taken at 3,08,72,766. At 12 lbs. a head they would consume 46,30,915 maunds. The imports are only 22,60,376 maunds. Therefore half the salt consumed is subject to no taxation. The illicit salt is partly smuggled, partly manufactured in private houses from earth- salt. It is also manufactured from salt-petre works. This practise should be suppressed.

In the Punjab the salt is found all over the salt range. It is very good salt. The Cis-Indus mines are in the hands of Government. The salt is sold at cost price, plus a duty of Rs. 2 a maund. At the Trans-Indus mines the duty is only 2 or 4 annas a maund, and a preventive line is established along the Indus. The total cost of the Punjab Salt Department is Rs. 1,85,472 a year. The gross receipts in 1853-54 were Rs. 19,50,535. Deducting charges and Rs. 1,21,908 for expenses of excavation, we have Rs. 16,43,155 as the revenue derived from salt. The charges amount to 11 per cent. on the nett receipts. The extreme cost at the furthest spot is 1 Re. a maund, and the extreme expenditure of a family, 1-10 annas a year, or 4½ per cent. on the minimum income. The total quantity sold in 1853-54 east of the Indus was 9,75,267 maunds or sufficient at 12 lbs. per head for 65,01,780 persons. There were at least 11,00,000 of people in the Punjab.*

Mr. Plowden accounts for some delays. He was ill from January 30th, 1855. The Second Section of the Madras part of the Report was "forwarded to England by the Mail from Bombay of the 28th of April; the remaining three Sections of the Madras Part, and the four first Sections of the Bengal Part were transmitted by the following Mail of the 12th of May; and the remaining seven Sections of the Bengal Part, completing the Report, will be forwarded by

* Mr. Plowden had not seen the last Census. It gives a population of thirteen millions.

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the next Mail of the 28th instant. A duplicate copy of the Report and Appendices has also been transmitted to Calcutta, on various dates, of all but the last four Sections of the Bengal Part of the Report, which are now about to be despatched."

He travelled from 19th Feby. 1854, to 3rd June. On 25th May, 1855, he received orders to proceed to Nagpore. In the interval he was employed in digesting papers. "The first Report of the Madras Public Works Commission occupied three stationary Commissioners two years uninterruptedly. The Post Office Commission occupied three Commissioners, one for each Presidency, for fourteen months and a half. In the Salt Commission Mr. Plowden has been alone."

In conclusion Mr. Plowden thanks certain officers who have assisted him with information.

BOMBAY EDUCATION.

Examination at Elphinstone College.

On 31st March, 1856, Mr. C. J. Erskine, Director of Public Instruction, submits five reports on the Examination of Elphinstone College. Mr. Erskine mentions the documents, and observes that the Examiners have performed an ungracious task with much care, but that allowances must be made for the want of books and apparatus, the scanty establishment of Europeans, and the want of power in the Professors to prevent paying students from passing up through the different classes without any examination at all. Mr. Erskine considers the estimates less favourable than those of former years. Attention is drawn especially to the want of thoroughness. The Examiner in English Literature was much disappointed. He had heard that the students might contend with Collegiate students in England. He was obliged to lower his standard of examination, and would if again called upon, set even simpler papers. The lads are not equal to English students. They have merits, and make great progress in some branches, but have no opportunity of literary study, few books, and no masterpieces in a complete form set before them. The Examiner thought it indiscreet to encourage the young men to study our great writers at present. That is a large question, but Mr. Erskine feels that much more time must be devoted to elementary teaching. The Principal will propose the details of this scheme. The students are specially deficient in English Composition, which must be attended to more sedulously. The students rely little on their own thought and observation. This evil must be met in the lower schools. "Boys must there be taught how to observe, how to delineate

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and describe what they have observed, and how to exercise their minds on common things." The prevalence of bad Spelling, bad Grammar, and bad Penmanship have been often pointed out by the Professors. They indicate the necessity for more European teachers. If the merits of the native teachers are recognized, their own good sense will see the propriety of English being taught by a native of England. There has grown up among the students a habit of plagiarism. The Principal has animadverted on this before, and will animadvert on it again. Government will not however overlook the testimonies to proficiency, especially in "some portions of history and some branches of mathematical, economical, and moral science." Mr. Erskine would be glad to adopt Captain Rivers' suggestion as to College Tutors. He only hesitates to recommend an increase in the Vernacular Department from a hope that English study may first be arranged. He sincerely trusts the change to independent Examiners will not discourage the students. The number of scholarships on this occasion is limited. Mr. Erskine was doubtful if they should be so, the scholarships being given not only as the rewards of successful study but as inducements to further effort. The minimum number of marks, however, had not been reached. It is unfortunate that the negotiations in England for three new Professors and a Headmaster for the School Department have been delayed.

Major G. Pope on 28th January reports the result of his examination of the Vernacular Department. The students to be examined were the candidates for admission, and the 1st and 2nd year leds. The students generally "have not acquired the power of expressing themselves with facility and correctness in their several vernacular languages when translating from English; nor of rendering those languages into correct and idiomatic English." The students rather lose ground than otherwise after they pass into the College. The second year class failed in translating the English passage selected, (from an Essay by A. Helps) only two came at all near, and their translations deserved no marks. The passage was not easy. An easier one was given. There were some tolerable translations of this. The Murathee were better than the Guzeratee students. This arises from the more fixed character of the former language. The students in the same class were singularly unequal, owing to rules of admission, "on which" it was not Major Pope's "duty to remark." More time should be devoted to the study, as there is a tendency to neglect the vernaculars. Major Pope adds a table of the examinations. The number of marks was ninety, 30 for viva voce examination, 30 for each of the translations. Of the candidates the highest obtained 18 for translations into the Vernacular, 26 for those

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from the vernacular, and 18 for the viva voce examination. All obtained some marks for translation into the vernacular, and for the viva voce examination, but 13 obtained none for translations from the vernacular. Of the first year's students only four out of 34 obtained any marks for translations out of the vernacular, and of the 2nd year students four failed utterly in the same branch.

Captain H. Rivers on 1st February, 1856, reports the result of his examination in Arithmetic and Mathematics. He found the students "quick in Arithmetic, well acquainted with Algebra, and the six books of Euclid: but while knowing the rules, they did not seem so well grounded in Plane Trigonometry or Analytical Geometry as he could have wished, nor always to understand the meanings of the terms or the real nature of the magnitudes discussed."

The first year class answered questions in the theory of Numbers, Logarithms, and Equations, and the Rules for the Solution of Spherical Triangles, but a simple question given to elicit their ideas of the nature of a ratio was not answered correctly by one-third of the class. The second year's students answered in Conic Sections, Hydrostatics, and Hydraulics, well, but they knew nothing of Statics, of the Centre of Gravity, or the Mensuration of Surfaces and Solids. The third and fourth year's students answered well in Dynamics and the Elements of the Differential Calculus, but knew nothing of the simple mechanical powers. There was much in the examination to call for admiration, but without books the students were unable to apply similar reasoning by analogy to easier examples. They had no thorough comprehension of the terms or symbols used. Captain Rivers thinks this state of things partly owing to the desire of showing to the public a high state of attainment, and to the good opinion which the students thereby acquire of themselves. Much of this exercise of the memory rather than of the reasoning powers, is true also of English Universities. The difference is owing to the introduction of private tutors. The Professors and Masters have done all that ever is done without such a system.

Assistant Surgeon R. Haines, M. B., on 23rd February reports his examination on Chemistry and Physical Science. A printed paper was given containing seven questions. This was followed by a viva voce examination. The candidate class knew little of Physics, one-third giving creditable answers. In Physical Geography the answers were far from satisfactory. A large number could not tell where the Tropic of Cancer was. The written answers were better. The answers on Chemistry were creditable.

The first year class answered badly in Physical Geography. The answers were worse than might have been reasonably expected. A large proportion knew nothing about the Mississippi, the

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Dead Sea, or the Jordan. In Chemistry the answers displayed acquaintance with facts, but the majority had not studied attentively. The second year class answered well in this science. The third and fourth class answered the written questions fairly, but in viva voce examination deficiencies appeared. This was especially the case with reference to Palæontology. They appeared to better advantage in the Mineralogical Division, being able to identify the typical specimens of rocks and fossils submitted.

Mr. A. G. Fraser on 29th February, reports on Political Economy and Moral and Mental Philosophy. The first class had evidently studied Locke. The second class was crammed to the mouth with the ipsissima verba of the authors read, but it was melancholy and astonishing to observe how little idea they had of thinking and reasoning, or habitual reflection. What thought had been elicited was in connection with Locke's Essay. The third and fourth year classes were more satisfactory. The students are forming the habit of thinking and reasoning. 150 questions on Butler's Analogy were well answered in words of the students own. The students had no acquaintance with the literature of the subjects on which they were examined.

Mr. Howard on the 7th March, reports on English Literature. Mr. Howard apologizes for the length of his Report on the ground that his conclusions differ from those of all previous examinations. He considers the classes inferior to English under-graduates. Mr. Howard is " surprised at their almost universal carelessness. Written exercises at an English School or University are invariably copied from a rough draft after careful revision. I saw no trace of this wholesome practice in the papers sent in to me. On the contrary, they appeared hardly in any case to have been read over and corrected by the writer." The Orthography was defective to an extent which seemed unaccountable, unless indeed Spelling had been taught on Phonetic Principles. In the viva voce examination the student's pronunciation and accent were bad. They were quite insensible to Prosody. The students seemed however intelligent, eager to learn, cheerful, and modest.

In the candidate class the Spelling was in some cases deplorable, so bad as to be discreditable to the School. The English letter, however, describing life in Bombay, was in two or three instances fairly done. The class made a very creditable show in History, and almost all were ready in Chronology. Their geographical knowledge appears to have been acquired from books, a deficiency which showed itself in the viva voce examinations. The written answers were good, the oral answers vague and meagre. The first year students failed in Geography, but replied readily to Questions on the History they had read. The History was Murray's.

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The answers on Heeren's Manual of European History were defective. To questions on English Literature the boys' answers showed only memory. Fifteen described Pope in the same words, the words being the first of the Article on Pope in Chambers' Encyclopœdia. The descriptions of life in Bombay were very good. As to the second year's class "they struck Mr. Howard as inferior to the students of the first year. They seemed to have been neglected at School. The Spelling of the large majority of the written papers was nothing less than disgraceful. The Grammar was mostly deplorably bad. The *viva voce* answering of all, except four or five students, was poor in the extreme." There was no indication of a real insight into the facts of the History they had read.

The third and fourth classes sent in most unsatisfactory Essays. The subject was the effects produced on the History of the World by the invention of printing. The best of them were fair in respect to Grammar and idiom. They did not show any surprising or disgraceful want of instruction, but not one of the young men seemed to have a notion of methodical composition. The writers seemed to have exercised their memories and no other faculty. These papers however were good compared with the papers upon Literature, which Mr. Howard hesitates to describe.

On 29th April, the Governor in Council resolves that "the Examiners are entitled to the acknowledgments of Government, and that Mr. Erskine has analysed the results of the examinations with accurate discrimination." The Governor in his Minute, dated 21st April observes that it is impossible to read these Reports without a feeling of disappointment. The Government would be guilty of a serious error if it blinked the facts which they disclose." Too much has been attempted. The staff of Professors, and of European Assistants is too small. Previous to their introduction the number of subjects of study should be reduced. Mr. Lumsden in a Minute, dated 27th April, strongly supports Captain River's suggestion as to the introduction of private tutors.

BOMBAY EDUCATION.

Examination of Poona College.

On 26th December, 1855, the Reverend P. Anderson reports on the examination of the students of this College in English Literature. The pupils of the Normal Class in the School Division are intended to be Teachers in the Vernacular Schools. They read

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fairly, and could explain most of the words used in McCulloch's Reading Book. Of the class of candidates (27) four read well. Not one in the class could write quite accurately from dictation. Four failed altogether. Their answers on History shewed diligence, but there were faults in Grammar. "Whenever a sentence was correctly expressed, it was an exact transcript of the author's words. Thus the whole twenty-seven, without, I believe, a single exception, wrote of the Emperor Baber, that he proclaimed 'the voice of honour was loud in his ears,' and of Aurungzebe, that 'his crimes were written in deep and legible characters.'" Their answers were incomplete, and in broken English. In the Essays this class all made errors, varying in number from five to sixty-seven. The Senior College Class (12 students) were examined in Political Economy, Shakspeare, Extracts from Chambers' Encyclopœdia, and Essay Writing. They succeeded in Political Economy. Many of them had studied Richard the Third so successfully that they could evolve the meaning of obsolete phrases, and obscure passages.

Professor Draper on 18th January reports favourable of the student's examination in Logic. The book used was Whateley's Easy Lessons on Reasoning. "Raoji's paper would no doubt have been better but for his inability to express himself in English." The class generally manifested great attention.

Captain J. Hill reports on 7th January on the examinations in Mathematics and Natural Philosophy. He observes that the classes generally succeeded in Mathematics. They had however no "competent knowledge of English." On 11th March, Captain T. A. Cowper reports that he examined the Vernacular Department of the College. His opinion is decidedly unfavourable. The answers in Murathee Grammar were indifferent. The Murathee writing was bad. Some of the stipendiary students were indifferent. In one case a student, paid for nine years, sent in a Vernacular Essay, as wanting in arrangement as destitute of consecutive reasoning. One student "*who is an English Teacher*, has, at the close of several sentences in such broken English as to be sometimes scarcely intelligible, written for 'they find the tables turned upon them,' 'they turn the tables over them ;' while another *Teacher* has thus expressed himself :—'wicked men always try to injure other person, but if he is superior to them, or Roland for Oliver, then he brings them into difficulties and distresses ;' and has added in a note—'Rowland for Oliver is a historial frase.'" The Principal informed Captain Cowper that the students had no instruction in the Vernacular. There was a general disinclination to the study. Of the 1st Translation Class some acquitted themselves creditably. In the second class none of the stipendiaries succeeded. There was a

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marked tendency in all the classes to translate literally. None of them attempted written translation. Of the Arithmetic Classes a third of the first class passed a fair examination. Of the rest all but three in the 2nd class were bad. The students in the 1st Literature Class passed a fair examination. Their ideas of Political Economy were confused. In the 1st and 2nd Mathematical Classes three boys succeeded. All of the remainder failed more or less.

Captain Cowper concludes with the Normal Class. Their performances were very unequal, the students having been in the College for periods varying from six months to four and a half years. Two of this class passed a superior examination. Some were indifferent, the time passed being considered, and some had even retrograded. Captain Cowper offers as a general opinion that all classes in the department, have been pushed on too fast and too far.

DISTRICT ROADS.

Madras Records, No. XXX.

The Deputy Chief Engineer in the Department of Public Works, on 22nd September, 1855, submits the reports from the District Collectors, and gives the following as the works in progress :—

Ganjam. North Trunk Road, Berhampore and Russelcondah Road. Russelcondah and Koinjuroo, Berhampore, and Gopalpore Roads. Roads from Purla Kimedy and Palcondah to Calingapatam, and Poondy.

Vizagapatam. It was resolved during the scarcity of 1853-54 to apply labour to some important lines between the interior and the Coast. They are progressing. Bridges were sanctioned in the last Budget. All will be brought up to first class.

Rajahmundry. No roads in progress except the Trunk Road. The department has devoted itself to canals.

Masulipatam. No roads, but the great canals from the Kistna Anicut have been prosecuted.

Guntoor. The Trunk Road from Madras to Hydrabad has proceeded. The Kistna Canals advance.

Nellore. The Kistnapatam, Nellore and Cuddapah Road, the Goodoor and Chitivel Road, and Enamellore and Cummun Road proceed.

Cuddapah. The two northern lines above mentioned have been prolonged. The road from Cuddapah to Bellary has been begun. The Trunk Road between Madras and Bellary is also

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in progress. The large nullas, the Ralla and Boogga, between the town and cantonment of Cuddapah were partially bridged during 1854.

Bellary. Rs. 13,21,925 was expended on 289 miles of substantial road during the scarcity. When perfected with bridges these roads will be of lasting benefit. The Bellary and Dharwar Road, and the Trunk Road to Madras have also progressed.

Canara. A large expenditure has been distributed in moderate sums over the communications from Cassergode to Sedasheoghur. The new works are the Guersappa Ghaut between Honore and Mysore. The Charmady Ghaut leading into Mysore from Mangalore. The Singawaree and Kyga Ghauts on the right and left banks of the Sedasheoghur. The increase in trade has been, including cotton, 17 lakhs.

Chingleput. Not much work.

North Arcot. No considerable works. Several lines improved.

South Arcot. Extensive works on "the Cuddalore and Salem Road, the Porto Novo and Bowangherry Road, the Cuddalore and Punrooty Road." The Trunk Roads to Trichinopoly and Tanjore under construction.

Salem. This district is well furnished with communications. The Topoor Ghaut between Bangalore and Trichinopoly has been improved, and new Ghauts opened between the Shivaroy Hills and the low country of Salem.

Tanjore. Two new Roads, and 13 large bridges.

Trichinopoly. The expenditure has been applied to "the Trichinopoly and Madura Road, the Trichinopoly and Salem Road, the Koolitully and Poodoopolium Road, and the extension of the Trichinopoly and Arealore Road." The Trunk Road to Madras within the district has been completed. The roads in Trichinopoly generally are in an advanced state.

Coimbatore. Several roads improved.

Malabar. No new undertakings.

Madura. Nothing of importance.

Tinnevelly. A large expenditure chiefly for bridges has been made upon the Southern Road. 17 miles of this road remain in their natural state. The cotton roads have been prosecuted as vigorously as the supply of labour will allow.

Kurnool. No report, though repeatedly written for.

The Collectors' Reports which follow contain only details of the works thus described, and are of no general interest. The Deputy Superintending Engineer adds tables of estimates for Roads and Bridges containing the name and date of every work commenced, the amount sanctioned, and the amount expended.

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District.	*Amt. Sanct.*	*Expenditure.*
Ganjam, ...	4,32,564	1,90,120
Vizagapatam, ...	1,02,091	54,648
Rajahmundry, ...	40,929	26,254
Masulipatam, ...	20,376	Not given.
Guntoor, ...	17,891	6,866
Nellore, ...	2,95,555	1,69,074
Cuddapah, ...	1,34,766	2,86,006
Bellary, ...	2,90,086	13,91,412
Canara, ...	3,50,616	1,40,187
Chingleput, ...	49,784	22,378
N. Arcot, ...	1,53,085	26,317
S. Arcot, ...	1,44,721	1,07,644
Salem, ...	27,203	3,710
Tanjore, ...	3,53,080	1,20,110
Trichinopoly, ...	1,24,251	1,01,865
Coimbatore, ...	2,35,406	39,538
Malabar, ...	90,706	55,124
Madura, ...	78,617	34,388
Tinnevelly, ...	2,87,406	32,561
Total, ...	32,29,133	28,08,202

FORCED LABOUR IN SCINDE.

Bombay Records, No. XXXIV.

On 9th April, Lieutenant Colonel J. Jacob, Acting Commissioner in Scinde, reports that Mr. Frere left his summary incomplete, but still he submits it. Statute labour is employed in the canal clearances of Hydrabad and Upper Scinde, and partially in Shikarpore. Col. Jacob considers the summary to express all the arguments necessary. The difference of opinion among the Collectors consulted arises from want of study and of acquaintance with the general laws affecting the question. The amount of work to be done is the same in all cases. If done by a contribution of Rupees, or a contribution of labour the result is the same. But men paid at fair rates work with a will. Men forced to work, work unwillingly. The system if left to Mr. Frere or Colonel Jacob would gradually die out, but much mischief meanwhile may be done, and the Acting Commissioner therefore suggests an order prohibiting the practice. As to details he suggests that the canals should be cleared by men paid at free rates. He has found it an excellent plan to allow men to contract for bits of

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work, ten Rupees worth or so. Very little superintendence is required, and every member of the family can do something. The people often work in relays all night. "Wherever statute labour may have been due for the clearance of canals, I would recommend the levy of a water rate on the lands irrigated; the rate being proportioned to the number of labourers which the Zemindars holding those lands have hitherto been compelled to supply."

Any Zemindars who wish to clear their own canals should do so. It does not appear that Government ever authorized forced labour. It is an abuse which began under the Ameers, and which has been continued by the Civil officers. Being deeply impressed with the ruinous effects of the old system, Colonel Jacob in anticipation of the Governor's orders has prohibited forced labour in Scinde.

Mr. Frere in his summary records the correspondence. In February, 1855, it was found that the Government departments, under cover of official works, exacted supplies at less than the market rate. No such practice is allowed by Government, and the Commissioner prohibited it by Circular. Lieutenant Colonel Jacob in reply to the Circular informed the Commissioner that he had always enforced free trade on the frontier, and considered forced labour might also be abolished. That system caused all labour to be looked on as a hardship. The Commissioner on 28th February, 1855, forwarded this letter to the Superintending Engineer, and the Collectors, requesting information as to the financial effect of abolishing statute labour. The Superintending Engineer in reply stated that in parts of Upper Scinde the labourer was wholly unpaid. The system was wretched, and produced robbery. The labourer on the canals however benefited himself as well as Government, and it was doubtful if the revenue could dispense with the privilege. Major Stewart thought the system not productive of so much demoralization as people fancied. It existed in Scinde in its mildest form, and it was doubtful if free labour could be obtained. Lieutenant R. Cowper, Acting Collector of Shikarpore agreed with Major Jacob, but doubted if a sufficient supply of labour could be obtained. Lieutenant Ford considered that the wages given would be doubled under a free system, and suggested a gradual change.

"The comparative cost of clearing a certain given number of canals by free and by a statute labour would be as follows :—

Actual cost of clearing a certain given number of canals with statute labour, ...	Rs. 4,699
Estimated cost of performing the same work with free labour, ...	,, 65,705

The number of persons who received the above, Rs. 4,699 was

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4,845, and the average length of time they were employed was about sixty-seven days."

After some further correspondence, Major Stewart reported that the people would not like a change. They detested measurements, and dreaded a water tax. In Sehistan the people offered to do the whole work themselves. Other Deputy Collectors agreed with Major Jacob. Mr. Bellasis fully concurred in deeming the forced labour system an enormous evil, crushing energy, stopping improvement, and looked upon as an intolerable hardship. Mr. Bellasis forwards the old rates under which the labourer earned only 5 to 10 pies per diem. Private individuals cannot obtain labour at that price, and therefore "every cultivator who puts up a wheel is bound to send one, two, or three men to clear the canals. They are detained on an average for three months, and as they will not work at five pies a day, the owner of the wheel is obliged to make up the difference to the market price of labour, or more commonly to hire substitutes at two annas per diem. If he sends his own men, he of course keeps the best for cultivation and sends the worst—the cripple, the aged, and the sick. If he sends a substitute, he has no interest in the work and is lazy and indolent, so that, under any circumstance, we get the very worst description of labourers for our canals. They have to be collected in large gangs and driven to their work, and are always discontented and unwilling workmen."

All Mr. Bellasis' Deputies advocate free labour. As to supply of labour Mr. Bellasis once wanted to remove a sand bank. The Kardar reported he could get no men. Mr. Bellasis offered 2½ annas per diem, or ½ anna above market rate. In a few days he had 600 men working cheerfully. The canal clearance in Hydrabad, in 1854, cost 1,36,591. The work will cost more, and the European agency must be increased; Mr. Bellasis believes the Zemindars could not be compelled to pay the difference, but thinks Government might abstain from clearing the Kurriahs or minor channels. Other opinions are quoted, all indicating the impression of the officials that statute labour should cease. The Commissioner therefore reviewing all the correspondence ordered, that where the people cleared their own canals there should be no interference, and where the Government paid, the wages should be adequate.

On 22d May, Mr. Hart intimates the concurrence of Government in Colonel Jacob's views. Government is surprised at the facts revealed, attributes much of the canal mismanagement to that source, and approves the issue of a proclamation in anticipation of orders.

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THE HILLY REGION OF KURRACHEE.

Bombay Records, No. XXXV.

On 8th July, Lieutenant Colonel John Jacob, C. B., Acting Commissioner in Scinde, submits a Report by Major Preedy, Collector of Kurrachee, upon the Hill Region in the West of the Collectorate. "These hilly tracts are outlying branches of the great mountain range stretching almost unbroken from Peshawur to the ocean. They reach northward until Sehwan, where they abut on the river; and their southern extremities are Munora Point and Cape Monze. The aspect of the region is wild and savage. The valleys and plains lie at an elevation of some 1,000 feet above the level of the Indus, while the hill ranges rise above the valleys from 1,500 to 2,000 feet higher. The formation, which is of stratified lime-stone, bears evident marks of volcanic action; and the entire district forms a thorough contrast to the other portions of this province."

Mr. Frere intended to have reported on this tract, but left from ill health. Major Preedy was therefore requested to visit it and report. "It appears that the entire district is about 120 miles in length, with an average breadth of fifty miles, containing about 6,000 square miles of country. The establishment hitherto employed in its revenue management has been unprecedentedly small, costing only Rs. 90 per mensem. The total revenue derived in 1854-55 amounted to Rs. 1,171, of which sum Rs. 650 were realised by the levy of Re. 1 per cart-load on grass cut in the Guddap Valley, and the balance, Rs. 514, on garden lands lying along the Mulleer river banks."

Colonel Jacob is of opinion that flocks and herds must be the staple wealth of the districts. Major Preedy proposes a rough survey, and a light assessment, and grazing lands, the farm to be offered to the Chief. Would also recommend pukka wells near large villages, and roads, and would make small advances for bunds. Also he would endeavour to improve the cattle and educate the people, and would import a European Superintendent. The district is as large as Wales, and the Collector cannot attend to it in addition to his other duties. Colonel Jacob concurs, but would not recommend a greater expenditure. He would rather that Captain Hodgkinson, Supernumerary Deputy Collector should be "temporarily made available for a more detailed inspection, and such general ameliorative measures in regard to it as he may find opportunity for effecting." His establishment should not exceed Rs. 205 per month, or Rs. 115

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more than at present expended. It appears from the Census made in February, 1856, that the district contains

Permanent habitations, ...	187
Huts, ...	3222
Hindoos, ...	2246
Mahomedans, ...	14,154
Total population, ...	16,400

Equal to 2¾ per square mile. Major Preedy gives the Topographical description already quoted, and proceeds to say that Agriculture seems never to have been attempted till our rule, though since then encouraged. The floods of 1851 and 1852 destroyed all the gardens, and only a few patches are now cultivated. "The southern portion consists of extensive plains, divided one from the other by low ranges of hills, running parallel in some parts, and in others diverging like the sticks of an open fan. At Peer Mungah the hills form a series of concentric circles round a lofty peak, and which peculiar formation is evidently the effect of volcanic action at some distant period of the world's history. The plains or valleys between the several ranges of hills are usually intersected by the wide sandy bed of a mountain stream, which, except after rain, presents a dry, unpromising surface, beneath which, however, at the depth of a few feet, abundance of excellent water is found. The plains on either side, after seasonable showers, produce abundance of forage, and are frequented at such seasons by vast herds of cattle brought from the Valley of the Indus and other parts."

The four rivers are usually well supplied with water, and the valleys are extremely beautiful. The scenery generally is magnificent. The population is scanty, chiefly Sindees, and Beloochees. The principal tribes are the Noomreas and Jokeas, who are divided into clans, with portentous genealogical trees.

The Noomreas are sub-divided into twenty branches, who acknowledge a Sirdar residing at Humulanee as their Chief. He usually resides however at Kotree, where he has a substantial house. He is under the influence of two uncles. The Jokeas are men of aquiline features, courage, and martial bearing. They claim to be Rajpoots, and are divided into numerous clans all obeying Jam Meer Ali. He has Jaghires and a pension of Rs. 250 a month, but is always in debt. He is unostentatious, 70 years of age, and has a son twelve months old. The Jokeas and Noomreas have always conducted themselves well. They have abundance of cattle. They supply the ranks of the city police. The Kulmutties, who reside among the Jokeas, claim to be

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Arabs. The Beloochees are very few. Major Preedy proceeds to offer the suggestions already mentioned by Col. Jacob.

ADOPTIONS IN THE DECCAN.

Bombay Records, No. XXVIII.

In 1852, a Memorandum was placed before the Governor of Bombay, "*regarding the question as to how far Government are bound by Unrecognised Adoptions on the part of Enamdars and others holding Liens on the Public Revenue.*" On 4th April, 1845, Government in reference to a case which had arisen observed, "whether an Enamdar who held his Enam for himself and his descendants could alienate it from those descendants, or could, by any transfer to other parties, deprive Government of its right to escheat should the family become extinct, was a question on which much doubt had arisen, but in the cases coming before Government it was as well to avoid, if possible, any discussion in respect to it." On 15th April, 1845, Mr. Hart, Enam Commissioner observed that it had always been a standing rule that, "an adoption not sanctioned by Government gave the person adopting no right to perpetuate any alienation of Government revenue." It had been recently enforced. In reply, Mr. Hart was requested to collect facts. Information was requested from the Residents at Baroda and Indore, and the Agent in Gwalior. Their opinions having been received. Mr. Hart on 27th March, 1847, reported that "as a general rule among the existing Governments of India no adoption was looked on as valid unless *previously sanctioned* by the Sirkar." The same rule was observed by Mr. Chaplin, the officer employed in settling the Southern Marhatta Country and Deccan after the conquest. No orders to relax the rule were ever passed. The rule seems clear, "but Government has not been equally decided in its opinion of transfer of Enams by gift or sale." This follows however logically, from the other. On 30th September, 1847, the Governor ordered that the principle should be formally announced. Mr. Hart accordingly submitted rules containing such an announcement. They were forwarded to the Court of Directors who referred them to the Government of India. In July, 1851, Mr. Hart referred to an order published on 24th October, 1831, in which the Government of Bombay declares that "as a general rule, in the Deccan, Government admits that children adopted with such forms and sanctions as may have

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been usual should succeed to Enam lands, or whatever may be considered private property."

A quantity of correspondence followed, the right of adoption without special permission being generally allowed, pending the orders of the Court of Directors. In 1848, the Court of Directors ordered that "a general notification should be issued, warning the hereditary district and village officers that adoptions made without previous sanction will not be held to convey any claim to the succession to their Wutuns."

On 14th September, 1852, the Government informs Mr. Hart that "on reading over the Memorandum, His Lordship in Council can come to no other opinion but that Government have a right to reserve in all cases the power of granting or refusing such assent to an adoption as will confer upon the adopted son a title against the State." Pending final orders the Government would generally sanction adoptions, but refuse to allow claims under adoption without special sanction. Government has nothing to do with the rights of co-sharers in an Enam as against each other.

On 26th May, 1855, Captain T. A. Cowper, Enam Commissioner submitted another Memorandum. Up to 1825 the sanction of Government to an adoption was held essential to entitle the adopter to convey an Enam. In 1825, the Government ruled that Enams were private property. This order seems to have been issued under some misapprehension, or else "in describing the necessity of 'such forms and sanctions as may have been usual,' the sanction of the ruling power was understood to be included as a matter of course." The last is the theory supported by collateral evidence. Immediately after 1825, Sir J. Malcolm ruled that a certain amount of Nuzzarana should be levied. This plan was negatived by superior authority. His successor, Lord Clare issued the order of 24th October, 1831. The practice has not been in accordance with that order, but with the one found in existence at the conquest. At length a reference was made to the Court of Directors who on 22nd May, 1850, informed the Government of India that in their opinion "the previous consent of Government is requisite to the validity of all adoptions, so far as they affect succession to assignments of the public revenue."

The Government of India however were of opinion that it would not "be just and expedient either to alter the laws, or to extend the practice of requiring the consent of Government to the alienation of Enams or appointment of heirs to succeed to them, in any cases or classes of tenures in respect of which such consent is not now required by law or practice, or a stipulation

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to that effect is not now contained in the instrument creating the tenure."

And therefore the Court on 23rd March, 1853, finally decided that they would not "direct any alteration in the existing practice in this respect, but desired that in all cases in which by law or practice the grantees of public revenue, under whatever title held, have hitherto been restricted from alienating their possessions from the direct line of the original holder, such restriction may continue to be maintained."

It remains, says Captain Cowper, for Government to determine any, and if so what are the cases in which bye-law or practice the grantees of revenue have hitherto been allowed to alienate. Captain Cowper holds from a most careful perusal and comparison of the Peshwa's records that under the native Government even a son could not hold his father's Enam without the sanction of Government. Consequently without such sanction any transfer of an Enam was null and void. Sir T. Munro also after he had settled the Southern Marhatta Country recorded his opinion in these strong terms:—

"In this country, under the Native Governments, all grants whatever are resumable at pleasure; official grants are permanent while the office continues, but not always in the same family; grants for religious and charitable purposes, to individuals or bodies of men, though often granted for ever, or while the sun and moon endure, were frequently resumed at short intervals; grants of Jagheers or Enam lands from favour or affection, or as rewards for services, were scarcely ever perpetual. It was rare that any term was specified, and never one or more lives; but it made usually little difference whether the grant was for no particular period or perpetual,—the (Altumgha) perpetual grant was as liable to resumption as any common grant containing no specification of time; it was resumed because it was too large, or because the reigning sovereign disliked the adherents of his predecessors and wished to reward his own at their expense, and for various other causes. There was no rule for the continuance of grants but his pleasure; they might be resumed in two or three years, or they might be continued during two, three, or more lives; but when they escaped so long, it was never without a revision and renewal. I believe that the term of their lives is a longer period than grants for services were generally permitted by the Native princes to run." Even Nana Furnavees when in the height of his power could not transfer a small portion of Enam land without sanction. Moreover instances are given in "*which adoptions were disallowed and Enams resumed, on the specifically recorded grounds of such*

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adoptions not having been made with the sanction of the Peshwa's Government."

The knowledge of these facts must have been withheld from Mr. Chaplin by the hereditary Duftur Karkoons. Captain Cowper proceeds to show that the ideas entertained by Mr. Warden, Member of Council, as to the principles on which the Deccan was settled were incorrect. Indeed they were at variance with an opinion acted on by himself when in 1845 he acted as Agent for Sirdars.

On 31st January, 1855, the Court of Directors ordered that the following Rule should be considered inviolable :—" We are decidedly of opinion that in no case should the alienation of an Enam be recognised for any term exceeding that for which the present holder and his heirs may possess an interest, and that the eventual right of Government to resume the revenue on the extinction of the family of the original grantee should be carefully maintained." Lastly, Captain Cowper quotes the following opinion recorded by the Marquis of Hastings on 21st September, 1845 :—

"Of all subjects of taxation I should conceive the profits of rent-free lands the most legitimate. The holders of land of this description are at present exempted from all contribution, whether to the local police or Government by whom they are protected, or to the public works from which their estates derive equal benefit with the rest of the community. They are indebted for the exemption either to the superstition, to the false charity, or to the ill-directed favour of the heads of former Governments and other men in power, and have little personal claim upon ourselves for a perpetual exemption from the obligations they owe as subjects. Most of the tenures may be considered invalid; indeed, the scruples which have saved the whole of these lands from indiscriminate resumption have given cause to admire as much the simplicity as the extreme good faith of all our actions and proceedings."

On 9th July, the Government of Bombay forwarded Captain Cowper's Memorandum to the Court of Directors signifying that it was intended to require the sanction of Government to any alienation. The Court approved. On 15th May, Captain Cowper submitted further proof that the order of 1825, had been misapprehended. That order was based on Captain Robertson's representations. But six years after Captain Robertson declared judicially " my opinion is, that to enable the Hindoo son to inherit the possession of his adoptive father, in any country or jurisdiction of India, the sanction of the Government of that country to the act of adoption is required by the Hindoo law as a *sine qua non* of legal title."

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CANALS IN HYDRABAD COLLECTORATE.

Bombay Records, No. XXXII.

On 22nd January, 1856, Mr. Frere, Commissioner of Scinde, submits to Government an annual Report by Mr. Beatty, Assistant Collector for Canals in the Hydrabad Collectorate. The annual Report is the first of the kind and bears date 1st August, 1855. The Canal Department has deteriorated. The Canals are shallow, unnecessarily numerous, tortuous in course, with high spoil banks close to the edge. Little has been accomplished towards giving the Canals a proper slope of bed, from want of instruments. Till instruments can be procured and sections made, the supply of water will never be obtained. Mr. Beatty made some sections of the Canals and "in *every* instance found the slope of bed inclined the wrong way. In some Canals through the entire length from mouth to tail, and in others for some miles from their mouths." As regards straightening and sloping the canals considerable improvements have been effected, Mr. Beatty reports other improvements in construction, and says that 368 have been cleared during the year. Mr. Beatty names the principal canals, mentioning the peculiarities in construction involved in the local circumstances of each. Lieutenant Colonel Turner, adverting to the report, expresses confidence in its accuracy, and observes that the result of employing European Agency alone for the measurements has been satisfactory. Tables are added giving length, cost within the year, area of ground watered and other particulars relative to the canals. The total cost in 1855-56 was Rs. 1,17,315. Government on 10th May, 1856, reviews correspondence, orders it to be printed, and sanctions the employment of four European Canal Surveyors on Rs. 150 each for measurement work.

PUBLIC WORKS, MADRAS.

Madras Records, No. XXIX.

The Department of Public Works on 28th September, 1854, called for the opinions of the Collectors on the Public Works affecting their districts, and suggestions for improvements Accordingly the Collector of Madras reports that of the works suggested in the Collective Memorandum the coast canal and sup-

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ply of water alone affect the Presidency. He considers that for the canal "too much reliance must not be placed on tidal supplies of water." The means for preventing the choking of the Canal must be made more effectual. He agrees with the Collective Memorandum as to the supply of water, and proceeds to speak of Guntoor.

The Collector of Canara considers that ghauts, roads, bridges, canals, harbour improvements, light-houses and the means of instruction in the Arts and Engineering are required. Mr. Maltby enters into detailed suggestions on all, pointing out the places for Ghauts, and the localities which require roads. The peculiarity of Canara is "that while the soil is most favorable for making cheap roads, the surface of the country is such, that unless a road is made no cart can possibly be used." In regard to instruction he proposes to employ under the Ordnance Artificers appointed to the district "two or three youths as Carpenters, and the same number as Blacksmiths, paying them from five to eight Rupees a month. They will be a kind of Apprentices. Under the Civil Engineer and under each Executive Officer several pupils might be advantageously placed."

The Collector of Tanjore reports that relieving him of the duties of the maramut department is no relief unless the whole revenue establishment is also relieved. Unless one officer has the control of the subordinates of all departments, the subordinates will clash. If not the departments must be distinct. Mr. Forbes demurs to the opinion that only professional men are required to decide on the most efficient public improvements. The communications in Tanjore are usually "under the second class—made roads, with tunnels and bridges complete, but without any surface coating of metal. There are but two soils available in the delta of Tanjore,—black mud and river sand being mixed together, however, they formed very fair communications. The roads are high causeways running through the irrigated lands. The system advocated by the Committee of gradually forming a net work of internal communications by the annual expenditure of twenty Rupees per mile, in making roads between all cusbah towns, is one that does not appear adapted very speedily to effect its object. The average cost of earth work for a mile of road in Tanjore is Rupees 400, so that supposing the two towns to be united were only sixteen miles apart, it would require twenty yards on the Committee's system, to perform the earth work only, and on a moderate estimate of three channels in the mile, requiring each a tunnel costing 80 Rupees and taking an account of bridges, a further period of nearly thirteen years would pass before the communication was of any practical use. I should be much disappointed if I thought that one rate of pro-

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gress was to be sixteen miles of road in 33 years." Mr. Forbes strongly advocates a low speed Railway between Negapatam and Trichinopoly, or "a tram-way of granite stone, laid on a masonry foundation—the cost of such a work would probably be about 4,000 Rupees a mile, and it could be constructed on the present road from Trichinopoly to the coast for the sum of four lakhs of Rupees." Mr. Forbes does not think that the plan of forming reservoirs to supply the rivers is indispensable, for the rivers of Tanjore have failed but once in thirty years, and the settlement is made on the assumption that irrigation is constant. "A variety of circumstances have combined to place Tanjore considerably in advance of other districts as regards its public works; it has about 1,000 miles of made road, all bridged and tunnelled, its works of irrigation and drainage are almost innumerable, and the liberality of Government has this year been shewn in the sanction given to two large bridges across the Coleroon, at Combaconum, and Anakaren Choultry, so as to afford to traffic those facilities for entering and leaving the district, which it has long enjoyed within the province itself." The traffic on the Negapatam and Tanjore Road has been in August, 1854:—

"Carts, ...	80,770	Foot passengers, ...	5,35,251
Bullocks,.. ...	1,13,712	Bullock carriages, ...	1,107
Horses, ...	1,490	Palanquins, ...	261
Asses, ...	10,978	Sheep, ...	2,775"

Tanjore requires short lines to connect the roads with the villages. The villages are in the paddy fields, and the people cannot convey carts along the paddy bunds. They therefore use bullocks.

Mr. Parker, Collector of Madura, does not perceive that the district requires more works of irrigation. The only possible port is Autenkary where the Vigay disembogues, but it is disadvantageously placed. The most profitable object of expenditure is roads; Madura has many lines of road, but they are made of the natural soil, and only ten miles are metalled. The roads should be improved, particularly certain lines pointed out. The proposal for embodying a corps of labourers should be sanctioned, as labour is scarce and given unwillingly.

Captain A. Boileau, Civil Engineer, 2nd Division, reports that few roads have been commenced in his division. The additional lines are indicated, and the road from Nellore to Cuddapah specially pressed on the attention of Government. He suggests that the waters of the Pennair may be made available for irrigation, but his personal acquaintance with the district is limited.

"When it is borne in mind that this Division embraces an area of upwards of 20,000 square miles of country, and that for the whole of this extensive range there is but one Civil Engineer,

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one Assistant Civil Engineer and 2 Surveyors, the Assistant having abundant occupation for months to come in completing the Pennair anicut, and estimating for and carrying out the improvement of the channels and tanks under it, while the Surveyors are chiefly employed in what may be termed ordinary tank duties, examinations of works and so on, it will appear how great is the task imposed upon the Head of the Department, and, I will add, how impossible for him to perform more than a fraction of his duties. In this year 1854, this spring-time of Public Works, there are Ghats to be traced, and roads to be estimated for in every corner of the Division, there are sections of rivers to be taken for the construction of bridges in the north, in the south, in the east and in the west, there are Overseers awaiting the presence of the Civil Engineer to be instructed in their duties at one end of Cuddapah, at the same time that arrangements need to be made for recommencing the works at an important mountain pass at the other end. A single project, before alluded to, (the diverting of the waters of the Pennair on its disembogueing from the hills for perhaps 1,00,000 acres) would rightly engage his whole attention for months, but in the terms of the Committee I regret to say 'no such definite project can yet be brought forward owing to the want of Officers in the Civil Engineer's Department.'"

The department is altogether inadequate to its duties.

The Engineer of the 3rd Division or Bellary, Canara and Kurnool, indicates the detailed lines of road required, and declares that "the Bellary and Kurnool Districts are positively without direct communications passable by carts to enable their produce to reach the Coromandel Coast, and to facilitate the supply of salt inland." He indicates the Toombuddra as the only stream from which great results can be expected, and observes that in Canara owing to the copiousness of the rains irrigation is of little importance. Upon Ports and Harbours the Engineer reports that the river and harbour of Sedasheghur may be improved; "just below this harbour and forming an inner recess of its bay there is good shelter for vessels to lie up during the prevalence of the south westerly winds that are sometimes so destructive to life and property on this coast. To secure protection against north westerly gales it has been suggested that the island of Coormaghur should be connected with Sedasheghur fort by a solid stone quay. At present the bar is north of the island and fort, having greatly altered its original position, and there is very shallow water (four feet at low springs) between the former and the sand bank of the river. If materials were collected and means provided, so as to carry out the whole work in one season, it would not be one of either great difficulty or cost, as

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rough stones heaped up a little above highest tide mark would suffice to secure the object." Bellikerry bay has capabilities of usefulness, while Tuddry is the best on the Canara Coast, Coomptah, the cotton emporium is an open roadstead, but considerable capital has been invested here, and the works required are the excavation of a canal from the creek to the Tuddry river, the removal of the Custom House to the mouth of the creek, and the construction of a good wharf. Honore is a good harbour for boats of a certain size, and the remaining harbours have not yet been accurately surveyed. The Engineer represents the enormous size of the division, which is nearly 23,000 square miles in extent, requiring 2,000 miles of road, and the chief town of one of whose districts is 400 miles from the chief town of another. He proposes to divide the Division into two, Canara and the four West talooks of Bellary for one, the remainder of Bellary and Kurnool for another. A rupee a mile a month on the roads "set aside for training and supporting permanent Superintendents, would insure a supply of good men for the Executive Department. These might be appointed to particular road circuits, which could be averaged at 150 miles, for the portions of which whereon work was actually to be done during the year they would receive one Rupee monthly per mile, rising in time to the full salary for maintenance and repair of the entire circuit when completed. The entire annual expenditure, without detail estimates, but to be carefully accounted for, proposed to be incurred under this system would be Rupees 80,300 for the Kurnool and east Bellary roads, whereof Rupees 40,900 or more than one-half has already been recommended for sanction to the Bengal Government. For Bellary western roads only Rupees 19,500; with which sum at the Civil Engineer's disposal, not three months would pass without a good beginning being made of those hitherto neglected lines. For Canara, Rupees 96,500 a year, including all present permanent sanctions, would afford the means of completing the net work of main roads in a comparatively short time."

Captain Collyer, Engineer of the 4th Division reports on the condition of the roads in his division, and suggests other lines. As to irrigation the district is a tank district, the rivers sometimes having water only for three months. Captain Collyer after noticing several anicuts proposed or in progress says he has "plans and estimates for the restoration of the large ruined tank of Mahundravady capable of holding 6,20,00,000 cubic yards of water, and for this, he now contemplates a channel direct from the Palaur at the anicut instead of taking it off from the Cauverypauk tank, this abstracting so much more for the eastern Talooks of Sydapett, Manimungalum, Chingle-

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put and Terooporoor, these works will cost 1,50,000 Rupees."

Captain W. H. Horsley of the 8th Division reports on the roads making, and supplies an estimate for maintenance :—

"MADURA.

For keeping 574½ miles of made road in order,	Rs.	84,280	4
Superintendence,... ...	„	2,715	0
Total for Madura, ...	Rs.	86,995	4

TINNEVELLY.

For keeping 257¾ miles of made road in order,	Rs.	40,806	1
Superintendence, ..	„	2,715	0
Total for Tinnevelly,	Rs.	43,521	1
Total for No. 8 Division,	Rs.	1,30,516	5

He describes the roads, and suggests local lines of canal, but sees little room for new works of irrigation in Madura. In Tinnevelly an anicut may be thrown across the Tambrapoorney and some of the streams now wasted in Travancore may irrigate Tinnevelly. All the harbours on the coasts of Madura and Tinnevelly are with the exception of Tuticoreen mere roadsteads.

Captain F. H. Rundall of the 9th Division advises a low speed railway "from the town of Parvattipore at the foot of the hills bordering the Jeypore country, to the port of Bimlipatam." "The present cost of transit under the most favourable circumstances in the dry weather is 1½ annas per ton per mile, and double that in the wet weather. If therefore the cost were diminished by ¾ and 6 pie charged, and if only half the daily charge is to be paid by goods, it would require a thorough traffic of about 74 tons per day. At this present time there is nearly one-fourth that amount carried in *salt* alone." It would run through a rich country, with good levels. It could be made on the American plan at Rs. 12,000 a mile and the cost would be follows :—

"10 per cent. Interest on 12,000,	Rs.	12,000	0	0
Management,..	„	100	0	0
Repairs, ...	„	100	0	0
Sundries, ...	„	300	0	0
Total per mile per annum, ...	„	1,700	0	0

Captain Rundall further suggests a Commission to examine certain ghauts or passes towards Nagpore.

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MADRAS BUDGET OF 1855-56.

Madras Records, No. XXVIII.

On 22nd February, 1855, Major J. H. Bell, Secretary to the Board of Revenue, Department of Public Works, submitted "List No. 1, of the Budget for 1855-56, containing items amounting to Rupees 25,36,232 of which Rupees 16,51,363 are proposed to be expended in 1855-56." He proceeds to report on the works suggested.

The Samulcottah and Toonee Canal. This canal is to cost Rs. 2,34,305. The work is intended to extend the benefit of the Godavery anicut to the furthest practicable limit. In connection with the Samulcottah Canal, already in use, the junction of the Kistnah and Godavery Canals, and another canal from Kistnah to the southward, it will provide water communication of 182 miles in length. All the parts lying on these canals will be in connexion with the sea-port of Cocanada, and Coringa. "The length of the Canal will be 37 miles; and it will be 20 yards wide at bottom, the depth of the cutting averaging 1½ yard. The estimate for the earth work only is Rupees 1,00,782. The line of the canal is laid down along the highest practicable level with a fall of only half an inch per mile; and the soil all the way is easy of excavation." The aqueducts will be twelve in number. There is no made road between Toonee and Samulcottah. The cost of transit is 6 annas per ton per mile. With the canal made this would be reduced to 3 pice.

Samulcottah and Cocanada Canal. A canal necessary as a continuation of the former, connecting it with the sea. It will cost Rs. 1,17,339. The canal will be only nine miles long, but the fall is 36 feet, and the locks will be expensive.

Rajahmundry Junction Canal will cost Rs. 1,22,357, and connect "by a line parallel and near to the Coast the two great and the two minor arms of the Godavery, and all the Canals parallel to the river." The whole line of the canal is a dead level. It will be 75 miles long of which only 25 require to be newly cut.

The works proposed for irrigation and navigation in the central delta of Rajahmundry will cost Rs. 3,15,932. The Report describes these works in detail. They are all in connection with the Godavery anicut. The amount hitherto expended on all these works is :—

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"For Anicut, ...	9,55,921	4	8
For right bank, ...	4,41,468	14	9
Add Ellore Canal, sanctioned in Budget of 1854-55, ...	2,87,643	11	4
	7,29,112	10	1
For left bank, ...	5,08,664	9	11
For Central Delta, ...	4,40,625	1	9
Total Rupees, ...	26,34,323	10	5"

The improvement of Coringa harbour will cost Rs. 6,28,389. The river above the port is to be straightened, to scour the passage. The expense will be in the new excavations, and the bunds across the old channel. The Lighthouse on Hope's Island also is to be raised 20 feet.

The improvement of Cocanada Harbour will cost Rs. 84,639. The mouth of the Cocanada shifts. To remedy this inconvenience a new channel was cut in 1848, and a groyne commenced to defend the new outlet. The works however were suspended, and the river returned to the old passage. They have been recommenced, and will be continued so as to obtain 6 feet on the bar at low water. "The bulk of the estimate is accordingly for lining the banks of the river with stone, for a length of 2,100 yards, between the mouth and the towns of Cocanada and Jaganaikpoorum." In January, 1854, 750 boats passed through the Dowlaiswarum lock, and in January, 1855, 896. The value of cargoes in 1854, was Rs. 55,125 and in 1855, Rs. 1,84,757. There are 6 officers of whom 5 are experienced in the Rajahmundry district, 13 Overseers, and 2 Surveyors. Labour is plentiful, and the organization of the department so excellent that there is no difficulty in carrying on any extent of works.

The bridge over the Kistnah Anicut at Bezoarah will cost Rs. 1,99,931. The stream is too rapid for an arched bridge. A platform bridge on wooden supports is therefore recommended. The passage is now unsafe even for the post, and though a steam ferry would be an improvement, it would be useless in the dry weather. "The total length of the bridge is 1416½ yards and its height above the Anicut is 18¾ feet. The bays are in number 203, being 20 feet in breadth, except at the ends where they diminish to 15 feet over the sluices."

The "high level channel from the Boodemair to Perikeed, and from Perikeed to Dendaloor, beyond Ellore," will cost Rs. 2,14,385. This work is an extension of the Kistnah Anicut

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Works. It also unites the Kistnah with the Godavery system of navigable canals. The country through which the canal will pass is unfavourable to communication by road. No road has ever been made.

The "high level channel from the Poolairoo, near Weyoor, to the canal basin at Masulipatam," will cost Rs. 2,37,107. "This project is similar in character to the Ellore Canal, that is, it provides for cutting a channel on the highest practicable level relatively to the Anicut, for the irrigation of land on both sides, and at the same time for communication between Bezoarah and Masulipatam."

The "high level channel from the Toohgauddra, near the Kistnah Anicut to the southern part of the Guntoor district to Inganampadu," will cost Rs. 1,46,787. This canal resembles the Northern canal above mentioned. The difficulty of the division is labour, though superintendence is well supplied. There are seven experienced officers, ten experienced Overseers, and four qualified Surveyors in the Kistnah Division. The total amount allowed for the Kistnah Anicut project is Rs. 20,46,326, while the Court have sanctioned only fifteen and a half lakhs. The Board have however explained to Government that the amount stated to the Court was less by five lakhs than Captain Lake's rough estimate.

The Road between Cuddapah and Poonamallee on the way to Madras will cost Rs. 1,92,220.

In Malabar "improving the Paulghaut and Trichoor Road, constructing two bridges upon it, and forming two branch Roads in connexion with it," will cost Rs. 49,061. This road connects Coimbatore with the Cochin territory and port. Parts of the line are in order, and the great expense will be on two bridges over the Kumady, and Vaddakancherry.

The "road from Calicut, by Beypoor, Condotty, Malapoorum Angadypoorum and Manar to Mundoor, on the Trunk Road to Paulghaut," will cost Rs. 52,083. The distance, along part of which road tracks already exist, is seventy-nine miles seven furlongs. There are some tunnels, and bridges are not included in the estimate. The road pierces the heart of the Moplah territory.

The "extension of the Eastern Coast Canal. From Doogoorazpatan to the Rampairoo River, commonly called the Kistnapatam backwater," will cost Rs. 1,39,665. "The distance of twenty miles, now proposed, is all that is required to place Madras in intimate connection with the town of Nellore; for, from the Kistnapatam backwater to that place, a distance of seventeen and a half miles, a direct and excellent road is now under construction, and will be completed within six months." The

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indigo and native cloths of Nellore will thus at once reach Madras. The ryots object to the proposed route. The canal will be eighteen yards wide at the water surface, and twelve at the bottom.

On the Yellapoor, Seercee and Halandee Road circuits Rs. 34,996 will be expended. This has been sanctioned, and the circuits measuring 430 miles are gradually to be worked up to first class roads. The price does not include the bridges. Rs. 1,00,000 are placed in the Budget to the operations for opening the navigation of the Upper Godavery. Rs. 50,000 was granted by Government for the operations, and Rs. 56,717 for removing rocks and other obstructions. Lieutenant Haig "has strongly represented the necessity of allowing additional funds for the prosecution of his expedition, which has been organized on a scale suitable to the extent of the contemplated operations, and the necessary difficulties of working in a wild and unhealthy part of the country. Besides the Civil Engineer, there are five Commissioned Officers, some uncovenanted Assistants, and several Overseers employed with the expedition." The first object of the expedition is to procure an accurate survey of the river, and an estimate of the outlay required.

The "Bridge over the Ponyar river on the Southern Coast Road, immediately north of Cuddalore" will cost Rs. 50,000. This bridge is on the line of communication between Cuddalore and Pondicherry, and the bridge will complete the communication.

The bridge across the Hurdree at Kurnool will cost Rs. 30,744. This bridge will connect Kurnool with its suburbs.

The "Bridge over the Coleroon, on the Southern Road between Chellumbrum and Sheally," will cost Rs. 1,30,000. Of this sum Rs. 92,000 is provided from Pagoda funds. It has been sanctioned by the Madras Government. The bridge consists of forty arches of fifty feet span. The anicut across the Huggry near Yeparal will cost Rs. 1,13,841. This work will irrigate only a small tract of land at present waste, but it is necessary to secure the revenue at present obtained. Its influence may hereafter be extended.

On 30th March, J. D. Bourdillon, Esq. Secretary to Government of Fort St. George in the Department of Public Works submits statements of works to be completed in 1855-56. The works in No. I. are beyond the competence of the Madras Government to sanction. This statement includes the works above noticed in detail. Statement 2 exhibits the works sanctioned, the estimates for which amount to Rs. 75,50,165. Up to the end of the current official year Rs. 32,84,498 will have been expended. The amount for the ensuing year is Rs. 34,49,704. The total estimated cost "of works other than repairs, proposed

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to be under execution wholly or in part, during the ensuing year under this Presidency, amounts to Rupees 1,01,65,546 ; of which amount Rupees 32,34,498 has already been expended, and Rupees 51,59,179, it is proposed to lay out this year, leaving Rupees 17,21,769 for future years." Mr. Bourdillon recapitulates the facts quoted, and adds tables describing nature of work, for which expenditure has been sanctioned of which the following is an abstract :—

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DISTRICTS.	Total Estimate sanctioned.	Amount already authorized to be expended.
1	2	3
Works under the Board of Revenue, D.P.W.	Rs.	Rs.
1 Ganjam, ...	2,58,332	1,41,629
2 Vizagapatam, ...	1,53,303	46,000
3 Rajahmundry,..	1,70,287	1,06,000
4 Masulipatam, ...	11,11,849	7,00,000
5 Guntoor,..	6,85,334	5,50,000
6 Nellore, ...	2,61,572	2,10,660
7 Cuddapah, ...	39,000	20,000
8 Bellary, ...	1,94,999	1,07,520
9 Kurnool, ...	1,25,426	1,07,160
10 Canara, ...	1,87,944	1,18,566
11 Chingleput, ...	4,15,016	90,343
12 North Arcot, ...	7,76,647	2,02,427
13 South Arcot,..	1,85,524	1,06,000
14 Salem, ...	17,274	.....
15 Trichinopoly, ...	1,19,330	72,000
16 Tanjore, ...	2,43,416	1,70,192
17 Coimbatore, ...	1,12,097	96,171
18 Malabar, ...	52,800	30,312
19 Madura, ...	38,577	.....
20 Tinnevelly, ...	91,601	31,989
21 Upper Godavery, ...	1,06,717	30,000
22 Madras, ...	38,176	15,000
Total,...	53,85,221	29,51,969
Works under the Military Board, ..	12,71,150	12,71,150
Works under the Superintendent of Trunk Roads,	8,93,794	....
Grand Total,..	75,50,165	42,23,119

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Amount already expended.	Amount to be authorized for the year 1855-56.	Furtheramount that will be required for completion.	REMARKS.
4	5	6	7
Rs.	Rs.	Rs.	
96,243	1,33,391	28,698	
44,000	1,09,303	.....	
88,000	82,287	.....	
6,20,000	4,24,205	67,644	
4,60,000	2,25,334	.....	
1,69,505	92,067	.....	
20,000	19,000	.....	
25,000	1,69,999	.....	
25,000	1,00,426	.....	
65,829	1,22,105	.....	
78,000	1,42,148	1,94,868	
1,86,221	3,69,150	2,21,276	
71,000	1,14,524	.....	
.....	17,274	.....	
70,000	49,330	.....	
1,41,000	1,02,416	.....	
60,000	52,097	.....	
30,312	22,488	.....	
.....	32,038	6,539	
29,710	59,031	2,859	
30,000	76,717	....	
.....	38,176	.....	
23,09,830	25,53,506	5,21,884	
5,64,161	5,16,996	1,89,602	
3,60,507	3,79,202	1,54,085	
32,34,498	34,49,704	8,65,571	

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On the 1st June, Col. Baker, Secretary to the Government of India, Department of Public Works, commends the execution of the Madras Budget, asks for a skeleton map of the Presidency showing all communications, works, &c., and complains of some indistinctness in the manner in which the canal question is treated. "A canal might be a profitable work if it would both irrigate completely a certain tract of country, and be available as a sufficient line of inland navigation between two places; which yet might not be a profitable work if confined only to one of these objects; whilst, at the same time, it might be impossible to attain both. In such a state of things, it is waste of public money to make any canal at all: but if the authority which has to determine the question, judges on a vague impression that irrigation and navigation are both good things, and both obtainable by canals, wherefore every canal must have credit given to it for both these things, that authority is very likely to come to a mistaken determination." The canals however are sanctioned, or favourably submitted to the Court of Directors. Nos. 12 and 13 however, must await subsequent consideration. No. 22 is too vague. Col. Baker proceeds to communicate sanction for works under one lakh, points out clerical errors in Statement 2 and is surprised that the Budget should have been communicated to the press while under consideration. That course is irregular and undesirable.

Extracts are added from Notes by Col. Baker. That officer observes that navigation and irrigation are not always compatible. "A Trunk Canal carrying a large volume of water for the supply of branches, such for instance as the upper parts of the Ganges and Jumna Canals, may always be usefully employed for navigation, but of small or branch canals, if used to their utmost capabilities as irrigating machines the supply is too fluctuating to admit of steady navigation, and if in order to secure a certain depth of water, recourse be had to dams or locks in the bed of the canal, the general fall of the canal is diminished, the velocity of the stream is checked, and the 'discharge' or irrigation supply is injuriously curtailed." He remarks that the waterway of the Ponyaur Bridge is insufficient, as is the case also in the Nugguram aqueduct. On the 1st June, Government recapitulates the works sanctioned, and calls the attention of the Board to Col. Baker's opinions and remarks. The works sanctioned are thus condensed:—

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				Rs.	As.	P.
"No. 4.	Irrigation works in the Delta of the Godavery,			3,15,932	0	8
„ 7.	Bridge across the Kistnah, ...			1,99,930	15	9
„ 5.	Improvement of Coringa Harbour, ...			62,838	12	0
„ 6.	Do. of Cocanada Harbour, ...			84,639	2	11
„ 14.	Palghaut and Trichoor roads and bridges, ...			49,060	15	0
„ 15.	Calicut to Palghaut road, ...			52,083	7	3
„ 17.	Roads in Canara, ...			34,996	8	0
„ 19.	Bridge over the Ponyaur, ...			50,000	0	0
„ 20.	Do. the Hindree, ...			30,743	12	8
„ 21.	Over the Coleroon, ...	1,30,000				
„	Deduct Pagoda Funds, ...	92,000				
				38,000	0	0
„ 23.	Completing and strengthening the flooring of the Nagarum aqueduct, ...			36,112	0	7
„ 25.	Adyar and Palaur canal, ...			2,21,872	13	4
				11,76,210	8	2
„ 24.	Construction of Stone Groins near Clive's Battery, ...			43,037	3	3
				12,19,247	11	5

SURVEY OPERATIONS IN ROHILCUND.

On 11th May, 1848, the Government of the North West Provinces resolves that certain portions of land shall be surveyed viz. :—

	Square miles.
Shahjehanpore, ...	864
Bareilly, ...	953
Mooradabad, ...	697
Bijnour, ...	656
Saharunpore, ...	1092

In survey will be checked by triangulation. In Rohilcund, the survey will embrace the resurvey of villages which were incorrectly surveyed. "The laying down from the old survey and the demarcation, in correspondence with the Revenue Officers, of the boundaries of all jungle tracts belonging to Government, and of all villages adjoining the jungle. The formation of the Government forest land into convenient allotments for grants, each of which should be named and numbered, and the boundary marked off on the ground in some permanent manner, and separately mapped. The laying down with accuracy the course of all streams, both large and small, the limits of basins of drainage, and the site of all existing works for irrigation, with the position and extent of the watered land. The formation of pergunnah maps on a scale of one mile to an inch, showing the vil-

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lage boundaries and sites, and the geographical features of the country." The forests will also be mapped out.

On 21st February, 1850, Captain H. L. Thuillier, Deputy Surveyor General reports to Government, North Western Provinces, on the Survey Operations carried on in consequence of this resolution in the Rohilcund Division. Lieutenant Vanrenen and establishment left Nusseerabad on 24th October. The establishment was divided. Lieutenant Burgess with his party taking the Delhi district, and Lieutenant Vanrenen, Shahjehanpore and Bareilly. The work done may be thus described:—"Three pergunnahs of Bareilly, comprising 152 villages and 354¾ square miles, surveyed mouzahwar, and complete. One pergunnah of Shahjehanpore, 533¼ square miles in area, the exterior circuit only surveyed. The forest portion, comprising four allotments of Government lands, with 64 adjoining villages, have been defined approximately, and kucha pillars built, to be replaced by masonry ones, when the existing disputes are settled. A series of levels have been taken in these pergunnahs, viz. four circuits extending, from their southern boundaries to the foot of the line of springs, 437½ square miles. Another series of levels carried through the Chukkata and a portion of the Kotah Bhabur Province of Kumaon, comprising three circuits over an area of 233 square miles. The above detail comprises all that Lieutenant Vanrenen has included in his returns for the season, amounting in the aggregate to 10 pergunnah circuits, 7 circuits of levels, 282 village circuits, and 3,409¾ square miles, of which 670½ consist of levels, the total expense being Co.'s Rs. 34,372-9-5, yielding a general average of Rs. 10-3-7 per square mile, or Rs. 12-11-8 on the circuit work only, thus leaving a saving to Government, from the annual maximum sanctioned, of Co.'s Rs. 3,839-6-7, which is in excess by Rs. 1,326-1-4 of the previous season." Moreover a circuit survey of five pergunnahs in Bareilly was made for an object which proved unattainable. The Nynee Tal Settlement was surveyed, and 46 estates mapped out. No report had been received but three pergunnahs of Bareilly were ready. "A survey of the entire Uslee Pergunnah Circuit of 533 square miles was made, as Lieutenant Vanrenen states, under a misconception." This work is unsatisfactory, the cause of failure being the vast extent of the circuits. The forest lands of this pergunnah have been surveyed, and the villages adjoining. The boundaries of the forest tracts remain to be fixed. The survey of the Nynee Tal Settlement has been made. Captain Thuillier proceeds to notice the services of individuals, and remarks that the expenditure for elephants and bildars requires sanction.

Lieut. Vanrenen reports in detail the facts summarized above.

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On (date not given) Captain Thuillier reports on the proceedings of the succeeding year 1849-50. An area of 1638½ square miles had been surveyed "comprising fifteen pergunnahs and 747 village-circuits in the Delhi, Shahjehanpore, and Bareilly Districts, at an outlay of Co.'s Rs. 35,358-14-10, or at an average rate of Rs. 21-9-4 per square mile. This is not inclusive of the contingent charges for cooly labour in cutting the jungle in the forest grants, amounting to Rs. 1,405-3-1, and for elephant feeding Rs. 1,278-13-5. These expenses, however, are indispensable in such a country, although not provided for by the annual maximum sanctioned by Government. If added to the abovementioned sum, the average rate will be brought up to Co.'s Rs. 23-3-7 per square male, and the total expenditure is still within the sum allowed, the savings under other heads being more than sufficient to meet the contingencies." The work costs Rs. 8-13-5 more per square mile than that of the former year, but is more minute. The extent of work done, at the cost, is pronounced satisfactory. An excellent map of the 22 forest grants has been submitted The average area of these forest allotments is 3433 acres. A mouzahwar Survey of pergunnahs Kauber, Sirsanwah, Chowmellah, Richuh, Jehanabad, and Mina Joondee has been submitted and the maps prepared. The maps are unusually good. Captain Thuillier quotes Lieutenant Vanrenen's explanation of the previous year's apparent shortcomings, and considers it sufficient. The map prepared of Nynee Tal is very creditable, and certain additions specified by the Lieutenant Governor may readily be made. Captain Thuillier proceeds with remarks on this map, and states that statistics from each village of Shahjehanpore and Bareilly were collected in 1848. They were therefore not collected again. Lieutenant Vanrenen considers his establishment insufficient. In reply to a requisition he supplies details of proposed increase. This will increase the expense from 3029 a month to 3164 but the establishments might be divided between Lieutenants Vanrenen and Burgess.

Lieuts. Vanrenen and Burgess again detail the work above summarized. Mr. E. W. Hoppner, Assistant Surveyor, also reports on his operations in pergunnah Poorunpore Suban of Shahjehanpore. This is forest land. The Zemindars were ordered to put up boundary pillars between their estates and Government forest land. They were unwilling, and included the entire jungle within the bounds of each conterminous village. The Government forest land therefore disappeared. A meeting of Collector, Revenue Surveyor and Zemindars was therefore held, and "the surveyor was authorized to define the limits of the Government forest by straightening the boundaries as far as practicable, in accordance with the *old professional* maps, and with

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reference to the area of each tract." Earth pillars were put up, and the survey postponed to the next year. In 1850, it was recommenced, and numerous discrepancies and difficulties discovered in the old maps, all detailed by Mr. Hoppner. The survey commenced on 15th January, and boundaries for the allotments fixed. The whole extent of forest allotted is 118.03 square miles or 70,541.54 acres. Mr. Hoppner describes the principles on which he proceeded, "the villages adjoining the forest have been mapped separately, and the positions of the pucka pillars have been shewn on them as well as on the grants and general map; they are easily distinguishable. It was not considered necessary to alter the traverse calculations to suit the altered boundaries inseparable from the straightening of the forest bounds. In making up their areas therefore, it was only essential to adhere to that portion of the village which remained to the Zemindar, and to reject that claimed by him, and lying within the traverse circuit." The new maps differ considerably in detail from the old. The boundaries of the forests have scarcely changed. The timber is poor, and the soil not worth clearing unless it can be irrigated.

On 23rd June, Mr. J. Thornton, Secretary to Government, N. W. P. replies to Captain Thuillier. He expresses generally satisfaction with the year's operations, and cordial appreciation of Captain Thuillier's assistance.

On 21st May, 1851, Captain Thuillier submits the season report of 1850-51. After detailing the arrangements made, Captain Thuillier proceeds:—"The returns exhibit but a small superficial area in topographical and boundary work, amounting to 261¾ square miles in the pergunnahs and districts, comprising 268 village circuits. The outline survey of another pergunnah (Kashcepore,) has been effected, but as the interior could not be filled up owing to the lateness of the season, no area has been returned for it. In addition however to the above, three circuits and thirteen sections of levels have been run in pergunnah Richuh, which was topographically surveyed in 1849-50, occupying two European and three native Assistants for three months. A route survey has likewise been made from Kaleedoongie to Almorah, *via* Nynee Tal, but of which no mention is made in the Surveyor's Report. This may be called therefore the *bona fide* fresh work of the season, besides which a very careful re-examination has been made of the villages in the Terai pergunnahs of Roodurpore, Kilpooree, and Gudderpore for the purpose of checking the omissions in the survey of the previous year, and of introducing the minutest details of topes, wells, gools, open glades, nullahs and footpaths, all of which have now been represented on the map. The expense of Lieutenant Vanrenen's establishment amounts to Rs. 37,976-5-10,

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for the season, exclusive of a sum of Rs. 4,332-2-2, for bildars, elephants, &c., passed as a contingent charge, and independent of the fixed annual grant as sanctioned by Government." He submits a table of the cost of the work. The Teraee pergunnahs are very difficult, but the resurvey has been well done. Captain Thuillier proceeds to remark on the maps, and the arrangements for carrying on the work, and adds tables which shew the following results :—

Work actually done from 1st October, 1850, to 30th September, 1851.

Profession Work, ...	Square miles,	261.73
Khusreh Work, ...		0
Money drawn, ...	Rs.	37,976 5 10
Total passed, ...	„	38,712 0 0

Lieutenant Vanrenen supplies details. In his Report he quotes an Extract from Lieutenant Burgess on Pergunnahs Neemuch, Muttah, and Bilheree. Some portions of these pergunnahs are covered with forest, chiefly sal of great height. The drainage however is bad ; the large rivers are full of quicksands, the nullahs are so swampy as to be difficult to cross, and small springs of a red oily looking fluid ooze from the banks. The stationary inhabitants of the Pergunnahs are Tharoos, a healthy, good humoured race, who look like Tartars, and are given to ardent liquors. " Their villages consist of a broad street invariably running nearly north and south, with houses of wattles and dab, facing inwards. Their houses are roomy and apparently very clean and comfortable inside, having a verandah in front, nicely plastered, and usually covered with rude paintings."

The Tharoos will seldom take money, but like spirits, are well housed, but dread the night air. The inhabitants have more land than they can use, and care nothing about boundaries. The sickness attacked the Survey, and compelled Lieutenant Burgess to remove leaving 18 villages unfinished. Mr. Hoppner, quoted by Lieutenant Burgess, describes the survey of pergunnah Bazpore in Moradabad and 18 villages in Kasheepore. The land is frightfully unhealthy, looks desolate, and is scantily populated, but there are traces of previous cultivation.

On 5th July, Mr. Thornton replies expressing general satisfaction. On 22nd May, 1853, Captain Thuillier again reports on the operations of 1851-52. During the year, " by the united exertions of these two parties an area of 740.03 square miles in the districts has been surveyed, occasioning an expense of Co.'s Rs. 45,724-9-3, and yielding an average of Rs. 61-12-7 per square mile. It will be perceived that the rates on both the surveys assimilate very nearly. Although the average upon the circuits actually surveyed professionally on the total

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comes to Rs. 165-1-1, still this can scarcely be considered a fair cost, when the peculiarities and desultory nature of the surveys, and additional duties of levelling performed, are taken into consideration." Captain Thuillier enters into some remarks on the details of the work, and expresses satisfaction with the maps. The records completed are, "2 Maps of Deoha river survey on scale of two inches to the mile, 2 Maps of Pilleebheet forest, on scale of two inches to the mile, 1 Map of city of Pilleebheet, five chains to the inch, 2 Maps of Kumaon Bhabur, 2 Maps new Poorunpore boundary, 101 Village plans in duplicate, 67 Village plans, on chudders." The map of the city of Pilleebheet is nearly ready, and very well done. Captain Thuillier proceeds to remark on the work to be done in the following year.

Lieutenants Vanrenen and Burgess supply details of the survey, summarized above. On 20th July, Mr. W. Muir replies to Capt. Thuillier expressing satisfaction, and making suggestions on points of detail.

On 29th April, the Deputy Surveyor General reports on the operations of 1852-53, "a very considerable area, amounting in the aggregate to 1257.73 square miles, has been surveyed by the joint efforts of the two parties. This area is comprised in 856 village circuits, chiefly lying on either banks of the Ganges, Ramgunga and Deoha rivers, and in large tracts of forest of the Bhabur of Kumaon, and Terai pergunnahs of Rohilcund. The total expenditure for the two establishments amounts to Rs. 57,193-2-11, which is below the grant sanctioned for the same by Rs. 3,827-10-5, as shewn. This sum thrown on the area performed, yields an average rate of Rs. 45-7-8 per square mile, which contrasts very favourably with that of the previous seasons as described in my last Report, shewing a decrease of Rs. 16-4-11 on the square mile."

"These rates are nevertheless still considerably above those of the surveys progressing in Bengal and the Punjab, but the whole of the Rohilcund operations have been tedious, most difficult and expensive." The forest survey, a very difficult one, has been well carried out.

The extent of country remaining to be surveyed is about 800 square miles.

Lieut. Burgess' return shews a total area of 495 square miles surveyed in detail, comprising 393 mouzahs belonging to no less than 15 pergunnahs of the six districts and inclusive also of the Cawnpore Cantonment Work. The total outlay for the season amounts to Rs. 26,206-12-9 which gives a general average of 52-15-1 per square mile, which is somewhat below the rate of the previous season.

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"The nature and description of the work performed is specified in the leading paragraphs of Lieutenant Burgess' Report, and may be summed up as follows :—A trigonometrical survey of the Deoha river, and conterminous villages completed. The connection of the forest circuit with the station at Mochini, near Burmdeo, rendering the check over the whole of this work, which is duly connected with the Grand Trigonometrical Survey, complete. On a comparison of the direct distances deduced by this triangulation and by the Grand Trigonometrical Survey, the error is found to be 11 feet per mile. The whole of the interior of the Kumaon and Bhabur Circuit has been carefully filled in, and, considering the nature of the country, with extraordinary minuteness and fidelity.

"The forest between Captain Ramsay's new road, the limit of last year's operations, and the foot of the hills, covering 28½ square miles has been surveyed, as correctly as the nature of the ground admitted. The Bilheree forest which has been delayed since the year of its commencement, has been at last finished in a way, Lieutenant Burgess remarks, that will make the delay no matter of regret."

Captain Thuillier proceeds to remark on the details of the Survey, and the expenditure connected therewith. The Surveyor's Report is enclosed, and on 27th June, 1854, the Government expresses satisfaction, and calls for a Report from Captain Thuillier on the objects of the Survey, the manner in which it has been completed, and the means by which its results may be turned to future improvement. Similar requests were on 27th June, 1854, submitted to the Board of Revenue.

On (date not given) Captain Thuillier reports on the Survey for 1853-54. During this season "both the establishments having been raised during the previous season to the full or double strength, a much larger area has during the period in question been effected, the results of the two parties aggregating 2376 square miles, at a general cost of Rs. 74,367-11-4, the grant sanctioned by the Government of India, which shews a small saving to Government of Rs. 680 only. The comparative results of the two seasons' operations will stand as follows :—

District.	*Name of Surveyor.*	*Area surveyed.*	*Total cost.*			*Average rate per square mile.*		
		Sq. miles.	*Rs.*	*As.*	*P.*	*Rs.*	*As.*	*P.*
Rohilcund, ...	Captain Vanrenen,	1034	37,020	0	6	35	12	8
Bundelkund,...	Lieut. Burgess, ...	1342	37,347	10	10	27	13	3
Total, ...	1853-54, ...	2376	74,367	11	4	31	12	11
	1852-53, ...	1257	57,193	2	11	45	7	8
Difference, ...		×1119	×17,174	8	5	—13	10	9

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He reviews the details of the work performed, and supplies the following Table of the time and money expended on the Rohilcund Survey :—

Seasons.	*Total square miles.*	*Total cost.*	*Average rate per square mile.*
1848-49, ...	2,587·27	34,872 9 5	13 7 8
1849-50, ...	1,638·29	35,358 14 10	21 9 4
1850-51, ...	261·73	37,976 5 10	145 1 5
1851-52, ...	412·88	28,016 15 4	67 13 8
1852-53, ...	762·71	30,986 6 2	40 10 2
1853-54, ...	1,034·32	37,020 0 6	35 12 10
Total and average cost, ...	6,697·20	2,04,231 4 1	30 7 10

Captain Thuillier considers it impossible to give fuller information on the results of the survey. Captain Thuillier remarks that he is preparing a series of maps on the Eastern division, and promises the local maps of Rohilcund. The remainder of the correspondence contains information of the details connected with the Survey, and on 16th July, the Lieutenant Governor reviewing the proceedings declares the Survey minute and accurate, and most creditable to the officers employed.

INDIAN TREATIES MADE SINCE 1834.

Abstract of Return of all Treaties and Arrangements with the Native States of India, since 1st of May, 1834, ordered by House of Commons to be printed, July 8th, 1856.

Arabs. *June 1st,* 1843. The Chiefs of the Joasmee, Beni Yas Boo Falasa, Amulgavine and Ejmaun Tribes on the Arabian Coast, bound themselves to a mutual truce of ten years, and agreed to refer all disputes to the British Resident in the Persian Gulf or the Commodore of Bassidore. At the expiration of the truce notice to be given of any intention to renew hostilities.

April 17th, 1838. The Chief of Ras-ool-Khymah grants to British cruisers, the right of searching all the vessels on the high seas, suspected of being slavers, and of confiscating all vessels proved to be such.

July 3rd, 1839. The Saikh of the Joasmee Tribe, granted a similar right in reference to all vessels found "beyond a direct line drawn from Cape Delgado, passing two degrees seaward of the Island of Socotra, and ending at Cape Guadel." Except in

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cases when the vessel should be driven beyond this line by stress of weather the sale of Somalee slaves is declared piracy. In the same month, a similar agreement was signed by Saikh Khalifa Bin Shukhboot, Saikh Makhtoom of Debaye and Saikh Abdoollah Bin Rashid of Amulgavine.

April 30th, 1847. The Chief of Ras-ool-Khymah and Shargah prohibited the exportation of slaves from the African Coast in vessels belonging to him or his subjects, and consented to the right of search and to the confiscation of slavers. In April and May, the Chiefs of Debaye, Ejman, Amulgavine, Aboothabee and Bahrein entered into precisely similar engagements.

On the 22d of May, 1849, the Chief of Sohar engaged as above.

January 23d, 1838. The Sultan of Lahej entered into a preliminary agreement for the transfer of Aden to the British Government within two months. 2d and 4th February, 1839, the Sultan of Lahej and Captain S. B. Haines of Indian Navy signed a Treaty of Friendship and Peace between the Abdallees and the English Government. On 18th June, Sultan M'Hassen of Lahej agreed in consideration of a payment of 541 German Crowns per mensem or 6,500 per annum to himself and heirs in perpetuity, to preserve peace between his tribe and the British at Aden, and "if there happen war against Abdallee or the territory of Lahej or Aden, the contracting parties will assist each other."

11th February, 1843. The former treaty with Sultan M'Hassen of Lahej having been broken, a second was entered into February 11th, 1843, with his successor, M'Hassen Foudthel. The Sultan agreed to allow British subjects to reside and hold property in Lahej, and to leave the continuance of the stipend to Captain Haines and the British Government. This engagement was not ratified, but on February 20th, 1844, the stipend was renewed on the Sultan's binding himself on oath to hold to former engagements, and to deliver up to the British any of his subjects who should infringe them, or should molest the roads leading to Aden from the interior. These provisions were confirmed by a formal treaty signed May 7th, 1849 and ratified by the Governor General in Council, October 30th, 1849. In January, February and March, 1839, Treaties of Peace were concluded with the Hazzabee, Waheel, Hagrabee, Abbadee, Maidee, Zaidee, Subees, Yaffaaes, and Sherzebee tribes, and in May, 1853, the Amulgavine, Ejman, Debaye, Beniyas and Joasmee Chiefs finally agreed to a complete cessation of hostilities a with the British, and to the punishment of all piracies.

Bahawulpore. *February 22d*, 1833. Treaty of "Eternal Friendship and Alliance" between the East India Company and Nuwab

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Mahomed Bahawul Khan, his heirs and successors. The Company never to interfere with the hereditary or other possessions of the Bahawulpore Government. The Nuwab to be uncontrolled in internal administration. The British Resident not to interfere in the internal affairs of the State. Merchants from the British dominions provided with passports to have free use of the Indus and Sutlej rivers and the Bahawulpore roads. The duties on such traffic to be fixed in concert with British Government, and never to be deviated from. The Tariff as above fixed to be published, and the Bahawulpore revenue farmers are not to detain the passing trade "on pretence of waiting for fresh orders from their Government or any other pretext." The Tariff is not to interfere with the inland transit dues levied by the State of Bahawulpore. There shall be river customs stations for the examination of boats at Bahawulpore and Hurrekee and nowhere else. All goods landed or embarked in the Bahawulpore territory are liable to the local transit dues. Protection will be given to all merchants showing their passports and demanding it.

Supplementary Treaty with Bahawulpore, 5th March, 1833. Instead of the Tariff on goods contemplated in the above treaty, substitutes a toll on boats however laden. A toll of Rs. 570 levied on all laden boats in transit between the Sea and Rooper without reference to size or weight or value of cargo, the toll to be divided proportionally among the States holding territory on the banks of the Indus and Sutlej. The share of the Bahawulpore State to be Rs. 106-12-2½ on each boat. In order to the realization of the toll a British officer to reside at Mittenkote and a British Native Agent at Hurrekee Patten. The said British officer is not to interfere in any way with the affairs of Bahawulpore.

October 5th, 1838. New treaty with Bahawulpore. British Government engages to protect principality and territory. Nuwab is to act in "subordinate co-operation" with British Government, to acknowledge its supremacy, and have no connection with other States, or to enter into negotiation with them without our sanction. All disputes to be submitted to British arbitration. Nuwab will furnish British Government with troops when required according to his means. Nuwab, his heirs and successors shall be absolute rulers of their country, and British jurisdiction shall not be introduced into that principality. Ratified, October 22d, 1838.

On 11th October, 1838, a detailed tariff of river tolls leviable in the Bahawulpore territory was approved by the Governor General. On 31st August, 1840, this tariff was revised. On 11th September, 1843, the duties on boats were reduced by one-

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half, a revised scale of inland duties on merchandize was agreed to, and the Government of Bahawulpore engaged to construct pukka wells and serais on the road from Bahawulpore to Sirsa towards Delhi.

CACHAR, UPPER. *October 13th*, 1834. An agreement with Toola Ram Seenaputtee. Limits the boundaries of Upper Cachar and fixes the tribute to be paid by Toola Ram. It secures to the British Government the right of placing troops in any part of Toola Ram's country, and of claiming carriage on paying for the same. All persons guilty of heinous crimes shall be made over to the nearest British Court. Toola Ram shall establish no customs' chowkies on any of the rivers bounding the country. He shall not make war on his neighbours, but if attacked shall apply to the British authorities who will protect him. He shall not prevent his ryots from emigrating, and if he fail to abide by these conditions the British Government may take possession of his country.

GUICKWAR. *13th April*, 1840. Suttee prohibited by proclamation throughout the dominions of the Guickwar, 31st October, 1844. Vessels trading between Bombay and Sind forced by stress of weather into any of the Guickwar's ports in Kattiywar exempted from duties.

HILL STATES. *Koomharsain, June 28th*, 1840. The Thakoor of Koomharsain agrees to pay the British Government Rs. 2,000 per annum—to maintain inviolate all Jagheers—to abolish all oppressive cesses, such as taxes on justice and fines on the slaughter of goats or musk deer,—to maintain truth and justice throughout the territory, and to suppress infanticide. A Schedule of Jagheers, &c., is attached to this agreement.

JHULLAWUR. *April 10th*, 1838. A Treaty of Perpetual Friendship and Alliance concluded with the Raj Rana of Jhullawur; on the formation of that State into a separate Principality out of the Kotah territory. The British Government is to protect the Raj Rana, who in his turn is not to negotiate with any Chief or State without the sanction of the British Government. The Rana's troops are to be furnished at the requisition of the British Government. The Rana and his heirs and successors shall remain absolute rulers of the country, and the British Government shall not be introduced into the Principality. The Rana agrees to pay all his debts as specified in Schedule. The tribute of the Rana to the British Government is fixed at Rs. 80,000 per annum.

JOHANNA. Treaty between Queen of England and Sultan of Johanna. Concluded November, 8th, 1844. Ratified December 10th, 1845. The Sultan abolishes his slave trade for ever. All slavers to be seized and their crews to be punished as pirates.

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The owners of slaving vessels, if consenting, to be also punished. Vessels provided with the implements of the slave trade to be treated as if actually carrying slaves. British cruisers authorized to seize slavers, and also to seize all vessels unprovided with the Sultan's Port Clearance. All vessels so seized to be adjudicated on by the nearest British Vice Admiralty Court. The slaves to be liberated and the property to be divided equally between the Sultan and the British Government.

June 3rd, 1850. Treaty of Perpetual Peace and Friendship between the Queen of Great Britain and the Sultan of Johanna. Reciprocal freedom of commerce between the two potentates, the subjects of one being entitled to reside in the dominions of the other, to trade on the same terms as the natives, and to enjoy all privileges which may be granted to other foreigners. Protection shall be given to all vessels and their crews, wrecked on the Coast of Johanna. Each contracting party may appoint consuls to reside in the ports of the other. With reference to the former treaty for the suppression of the slave trade the cruisers of the Honourable E. I. C. shall be entitled to act in all respects as the cruisers of Her Britannic Majesty.

KATTYWAR. *November 22nd*, 1834. A proclamation for the suppression of Infanticide in the Kattywar States.

JOONAGUR. *January 3rd*, 1838. The Nuwab engages to suppress Suttee within his dominions.

BHOWNUGGUR. *8th September*, 1840. The Thakoor in consideration of an annual payment of Rs. 6793-6-5, to himself and heirs abandons all claim to land or sea customs, or any other duties of any description at Gogo, and relinquishes the right of coinage. In 1846-49 the Chiefs of Bhownuggur, Joonagur, Nowanuggur, Parbunda, and Jafferabad agree to exempt from duties all vessels putting into their ports from stress of weather.

KELAT. *October 6th*, 1841. Meer Nusseer Khan acknowledges fealty to the throne of Cabul, concedes to British or to Cabul troops the right of occupying positions in the territory, the Khan will always be guided by the advice of the British Agent at the Durbar; will protect merchandize passing through his dominions, and charge no higher toll than the British Government may agree to, and will hold no political communication with foreign powers without consent of the British Government and of His Majesty Shah Soojah of Cabul. The trade of Kutchee and Moostung to be restored to the Khan, and the British Government engages to protect him against open enemies.

May 14th, 1854. A new treaty. The above treaty is annulled. Perpetual Friendship between the British Government and the Khan, his heirs, &c. The Khan, his heirs, &c. will oppose to the utmost all enemies of the British Government and will

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enter into no negotiations with foreign States without consent of the British Government. British troops may be stationed in any part of the Khan's territories. The Khan will protect all merchants passing through his territories between the British dominions and Affghanistan, whether by way of Scinde or by Sonmeanee or other seaports of Mekran, and will levy no duties beyond those agreed on by British Government. In consideration of these services the British Government binds itself to pay the Khan, his heirs and successors an annual subsidy of Rs. 50,000, to be withheld on the nonfulfilment of the conditions.

Ratified by Governor General in Council, June 2nd, 1854.

KOTHAPOOR. *March 11th*, 1841. Proclamation from the Rajah prohibitory of Suttee.

KOTAH. *April 10th*, 1838. Treaty with Rajah. The Maha Rao assents to repeal an article in treaty of Delhi of 26th December, 1817 which had secured to Raj Rana Mudun Singh the administration of the Kotah territory. He cedes certain pergunnahs to Raj Rana Mudun Singh, and agrees to fulfil the pecuniary obligations arising out of the present arrangements of separation and transfer. He agrees to pay the tribute hitherto paid by the Kotah state minus Rs. 80,000 per annum to be paid by Raj Rana Mudun Singh.

He agrees to maintain an auxiliary force to be commanded and paid by British officers, at a maximum cost of three lakhs per annum.* But the existence of this force shall not diminish the Maha Rao's right to the internal administration of his dominions.

KUTCH. *September 20th*, 1832. Former treaty of 21st May, 1822, modified. All arrears due to British Government under former treaty remitted. Annual payment of 88,000 Ahmedabad Siccas on account of Anjar also remitted. The Rao agrees to pay regularly the sum appropriated by treaty of 1819 for support of Kutch subsidiary force. Should the amount required for the British force fall below 88,000 Ahmedabad Siccas, the Rao will still keep his annual payments up to that sum. All former engagements unaffected by present treaty to remain.

July 5th, 1834. The minority of the Rao is to cease on the 8th July, 1854. The ex-Rao Bharmuljee is not to interfere in any way with the Kutch Government.

February 6th, 1836. A proclamation prohibitory of the Slave Trade in Kutch.

March 23rd, 1840. The Jhareeja Chiefs of Kutch enter into a renewed engagement, renouncing Female Infanticide.

Oct. 8th, 1851. The Rao of Kutch exempts vessels belonging to the ports of Bombay, of His Highness the Gaekwar and of the Chiefs of Kattywar from payment of duty on goods when

* In September, 1844, reduced to two lakhs.

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driven into Mandvee or any other of the ports of Kutch by stress of weather.

MAHEE AND REWA KANTA. *Ahmednuggur, 18th February,* 1836. The Maharajah on condition of the restoration of his throne and kingdom engages to abide by the former agreement of 1812, to renounce the ceremony of Suttee for himself, his children and his posterity, to appoint a minister to be approved of by the British Government, to pay the tribute due by him to the Gaekwar. To maintain no Arabs or other armed retainers, to refer all internal disputes to the British Political Agent, and to give no shelter to his late minister, Madhajee Soobahoot, guilty in the late affair of the Suttee.

LOONAWARA. *April and May,* 1840. The Chief of Loonawara, the Raja of Baria, the Chief of Bhadurwa, the Maharavul of Chota Oodeypoor and the Rajah of Rajpeepla all sign agreements to prohibit Suttee.

KUTCH. *August 18th,* 1842. The Rajah of Rajpeepla issues a proclamation prohibitory of Suttee.

SONTH. *12th May,* 1840. The Rajah promises to prohibit Suttee.

WANKANEER. *12th May,* 1846. The Thakoor makes similar promise.

LAHORE Treaty of 12th March, 1833 between Maharajah Runjeet Singh and Shah Soojah Ool Moolk. The Shah disclaims all title to the territories on either bank of the Indus in possession of the Maharajah. The Khyberees to be restrained from robberies, and all revenue defaulters on either side to be given up. No one to cross the Indus or the Sutlej without a passport from the Maharajah. The Shah will abide by any arrangements which the Maharajah may make with the British Government regarding Shikarpore. The Shah and the Maharajah to interchange presents and address one another on terms of equality. Each sovereign to give protection to traders subjects of the other. When the armies of the two States shall be assembled at the same place, there shall be no slaughter of kine. Should the Maharajah lend the Shah an auxiliary force, all booty to be equally divided. Should the Maharajah need an auxiliary force the Shah shall supply it. The friends and enemies of the one party shall be the friends and enemies of the other. The treaty to be binding for ever.

24th January, 1835. Supplementary treaty between British Government and Maharajah Runjeet Singh provides for a toll on goods and boats passing up and down the Indus and Sutlej.

26th June, 1838. Tripartite treaty of Lahore between British Government, Runjeet Singh and Shah Soojah. This treaty adds four Articles to the above noted treaty between Runjeet Singh and Shah Soojah of March 12th, 1833; viz. Shah Soojah

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engages after the attainment of his object to pay the Maharajah two lakhs of Nanuk Shahee Rupees in consideration of a force of 5,000 Mussulman Cavalry and Infantry to be stationed by the Maharajah in the Peshwa's territory for the support of the Shah, and to be sent to the Shah's aid whenever the British Government shall deem it necessary. The annual payment of this sum to be secured by the guarantee of the British Government. Shah Soojah relinquishes for self and heirs all claim to Scinde, on consideration of the payment to him by the Ameers of a sum to be determined by the British Government. Fifteen lakhs of such sum to be made over by the Shah to the Maharajah. When Shah Soojah is established in his Government he is not to molest his nephew, the ruler of Herat. Shah Soojah will enter into no engagements with foreign states without knowledge of British and Sikh Governments.

9th March, 1846. Treaty between British Government and State of Lahore. Perpetual peace between British Government and Maharajah Dhuleep Singh, his heirs and successors. The Maharajah renounces all claim to territories south of Sutlej. Cedes to British Government in perpetual sovereignty the territories between the Beas and Sutlej forming the Jullunder Doab, and between the Beas and Indus, including Cashmere and Hazarah. The Maharajah to pay to the British Government 50 lakhs of Rupees. The mutinous troops of the Lahore army to be disarmed and disbanded. The regular regiments to be reorganized according to Runjeet Singh's system. The army to be limited to 25 battalions of infantry of 800 men each and 12,000 cavalry. The 36 Guns used against the British troops and not captured at Sobraon to be surrendered. The control of the ferries on the Beeas, Sutlej and Lower Indus to rest with the British Government, but half the net profits of the ferries to be paid over to the Lahore Government. The troops of the British Government shall have right of way through any part of the Lahore territories and shall receive supplies of every sort on paying for the same. The Maharajah not to retain in his service any British subject or subjects of any European or American State without consent of the British Government. The Maharajah to recognize the sovereignty of Goolab Singh in such territories as may be assigned to him by the British Government, and the British Government in consideration of Goolab Singh's good conduct recognizes his independence in his own possessions, and admits him to the benefit of a separate treaty. All disputes between the Lahore State and Goolab Singh to be referred to the British Government for adjustment. The limits to the Lahore territories not to be changed without the concurrence of the British Government. The British Government will not interfere in the

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internal administration of the Lahore State, but will give its advice and good offices in all cases which may be referred to it. The subjects of either State shall, on visiting the territories of the other, be on the footing of the subjects of the most favoured nation.

11*th March*, 1856. Articles of agreement between British Government and Lahore Durbar. The Lahore Government having asked the Governor General to station a British force at Lahore for the protection of the Maharajah pending the reorganization of the Lahore army, and certain matters regarding the territories, ceded in the fore noted treaty, requiring further settlement, the British Government agrees to leave a British force at Lahore till the close of the current year and no longer—this force to be placed in full possession of the citadel of Lahore, and provided with convenient quarters at the expense of the Lahore Government, which Government shall also pay all other extra expenses incurred by the detention of the troops at Lahore. The Lahore Government is to apply itself at once to the reorganization of the army, and should it fail to do so the British Government is any time at liberty to withdraw the British troops. The British Government agrees to respect all bona fide jagheers belonging to the families of the late Maharajah Runjeet Singh, Kurruck Singh, and Shere Singh and lying in the territories ceded by the treaty. The British Government will aid the Lahore Government in recovering the arrears of revenue due from their Kardars and managers in these ceded territories. The Lahore Government may remove from the forts in the ceded territories all treasure and State property excepting guns, but the British Government may retain any part of such property on paying for it. Commissioners to be immediately appointed to lay down the boundaries between the British and Lahore States.

Treaty at Umritsur, March 16th, 1846, between the British Government and Maharajah Goolab Singh. The British Government in consideration of a payment of 75 lakhs "transfers and makes over for ever in independent possession to Maharajah Golab Singh and the heirs male of his body" the country east of the Indus and west of the Ravee including Chumba and excluding Lahoul. The eastern boundary of this territory to be laid down by special Commissioners. The limits of the Maharajah's territories not to be changed without the concurrence of the British Government. The whole military force of the Maharajah to join with the British troops when employed in the hills. The Maharajah never to employ any British subject or the subject of any European or American State without the consent of the British Government. The British Government will aid the Maharajah in protecting his territory from external enemies. The

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Maharajah acknowledges the supremacy of the British Government and will testify such recognition by annual presents.

December 16th, 1846. Agreement between British Government and the Lahore Durbar. The Durbar having solicited the British Government to give its aid in the administration of the Punjab during the minority of Dhuleep Singh, such aid is given under new articles of agreement. The treaty of March 9th remains binding except as to the Clause which prohibits the British Government from interfering in the internal administration of the Lahore State. A British officer with supreme power is to be stationed at Lahore. The administration shall be conducted according to the national feelings and customs. Changes in details of administration shall be avoided, except when necessary, and all details shall be conducted by native officers, under a native Council of Regency acting under the control of the British Resident. This Council of Regency shall conduct the administration of the country in consultation with the British Resident. A British force, of strength to be fixed by the Governor General, to remain at Lahore to protect the Maharajah and preserve peace. The British Government may occupy any fort or post in the Punjab deemed necessary for the security of the capital or the maintenance of peace. The Lahore State shall pay the British Government 22 lakhs of new Nanuck Shahee Rupees per annum for the maintenance of this force. A lakh and fifty thousand Rupees per annum placed at the disposal of the Maharanee, Dhuleep Singh's mother. These provisions to have effect until the 4th September, 1854, when Dhuleep Singh will attain the age of 16 and no longer ; and the arrangement to cease before that time if the Governor General and the Lahore Durbar shall be satisfied that British interference is no longer necessary.

March 29th, 1849. Terms granted by the East India Company to Maharajah Dhuleep Singh and accepted on his behalf by the Council of Regency. The Maharajah resigns for himself and heirs all claim to the sovereignty of the Punjab. All the property of the Lahore State is confiscated to the British Government. The Kohinoor diamond surrendered to the Queen of England. His Highness Dhuleep Sing to receive from the Honourable East India Company for the support of himself, his relatives and the servants of the State, a pension not exceeding four and not less than five lakhs of Company's Rupees per annum. He is to be treated with all respect and honor, to retain his title of Maharajah Bahadoor and to continue to receive for life such portion of the above named pension as may be allotted to him personally, provided he shall remain obedient to the British Government and reside at such places as the Governor General may select.

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MUSCAT. *May* 31*st*, 1839. A treaty of commerce between the Queen of England and the Sultan Imaum of Muscat. It provides for mutual freedom of residence and trade. The houses of British subjects in the Muscat territory shall not be entered or be searched, without the consent of the occupier, or the cognizance of the British Consul or Agent. Each nation may appoint consuls to reside in the other's dominions whenever the interests of commerce may require it. The subjects of the Sultan in the service of British residents shall enjoy the same immunities as British residents themselves, but if convicted of crime they shall be discharged from British service, and made over to the Muscat authorities. The Muscat authorities shall not interfere in disputes between British subjects, or between British subjects and the subjects of other Christian nations. In disputes between a subject of the Sultan and a British subject, if the former is the complainant the case shall be heard by the British Consul or Agent—if the latter, by an authority appointed by the Sultan; but in the presence of the British Consul or Agent or some one appointed by him. The evidence of a convicted perjurer is never to be received in any case. The property of a British subject dying in the Muscat dominions to be made over to the British Consul and *vice versa*. The property of a British subject become bankrupt in the Muscat dominions to be seized by the British Agent and paid to his creditors. Mutual aid to be given for the recovery of debts from the subjects of either country. Five per cent. to be the maximum of duty leviable on British goods imported into Muscat on British bottoms. This charge to cover all import, export and pilotage dues, and to secure the goods against all inland transit duties or additional imposts of any kind. There are to be no prohibitory duties on imports or exports, and no monopolies except in the articles of ivory and gum copal. In cases of dispute as to the value of the goods chargeable with duty the Sultan may claim a twentieth part of the goods themselves; or if that be impracticable the point shall be referred to an arbitrator on each side, who shall between them appoint an umpire whose decision shall be final. Should the Queen of England or the Sultan be at war with another country their subjects may pass to such country through the dominions of either power, with all merchandize except warlike stores. But they shall not enter any port or place actually blockaded or besieged. Mutual assistance shall be given to vessels in distress and in the restoration of wrecked property. The Sultan renews his former agreements for the suppression of the slave trade.

December 17*th*, 1839. A further agreement for the suppression of the slave trade.

July 22*d*, 1841. It was explained to the Imaum that in the

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limitation of all duties to five per cent., made in the convention of May 31st, 1839, the words precluding " any other charge by Government whatsoever, were understood by Her Majesty to mean, any other charge whatever made by the Government or by any local authority of the Government." This interpretation was accepted in a counter-declaration made on the part of the Imaum on the same day ; and on that day the ratifications of the treaty were exchanged accordingly.

October 2nd, 1845. A further agreement with the Imaum of Muscat was concluded at Zanzibar for the suppression from and after January 1st, 1847, of the export of slaves from His Highness's African Dominions. The Sultan Imaum prohibits the trade under the severest penalties, and authorizes the British Government to seize all Muscat slavers.

NEPAUL. *February 10th*, 1855. An extradition treaty based on a system of complete reciprocity. The persons to be surrendered by either Government are those charged with " murder, attempt to murder, rape, maiming, thuggee, dacoity, highway robbery, poisoning, burglary and arson." The expenses of extradition to be borne by the Government making the requisition. Persons attached to the Residency who may commit crimes in the Nepal territory and take refuge in the Residency are to be given up. The treaty to continue in force until one or other of the contracting parties signify a wish that it shall terminate.

NIZAM. *21st May*, 1853. The peace, union and friendship between the East India Company and the Nizam's Government to be perpetual and all the former treaties confirmed except as affected by this agreement. The subsidiary force hitherto furnished by the East India Company to His Highness the Nizam to be continued at its former strength and for the purpose of protecting the person of His Highness and suppressing rebellion, but not to be employed on trifling occasions or for the collection of Revenue. The Honourable East India Company agrees to maintain in lieu of His Highness's present contingent, an auxiliary force to be styled the Hydrabad contingent, to consist of not less than 5,000 infantry and 2,000 cavalry with four field batteries, to be commanded by British officers, and controlled by the British Government through the Resident at Hyderabad. The contingent shall be available when needed for the suppression of disturbances in the Company's territory and the Company's troops shall in return assist in quelling disturbances in His Highness's dominions. In the event of war the subsidiary force and contingent shall be employed as the British Government may determine, provided that 2 battalions shall always remain near the Capital of Hyderabad. And beyond the said subsidiary

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and contigent forces the Nizam shall not be called on to furnish any other troops.

The Nizam assigns to the exclusive management of the British Government territory yielding an annual gross revenue of about 50 lakhs for the payment of the contingent, of the interest on his debt, and other purposes. The British Government is annually to account to the Nizam for the management of this territory, and make over to the Nizam any surplus that may remain after the payment of the contingent and the other items. A schedule of the assigned districts is appended to the treaty.

PAHLUNPOOR. *June 18th and August 15th*, 1853. The Jhareja Chiefs of Santulpore and Charchut engage to suppress Infanticide in their districts.

PERSIA. *June 12th*, 1848. A firman addressed by the Shah, at the instance of the British Government, to the Governor of Fars and the Governor of Ispahan and Persian Arabia, prohibits the export or import of slaves by sea. The slave trade by land is not prohibited.

August 1851. Convention between British Government and Persia, concedes to Her Majesty's and the Honourable East India Company's cruisers the right to search Persian vessels for slaves. The convention to be in force for 11 years from January 1st, 1852, and no longer. Approved of by Her Majesty's Government in October, 1851.

RAMPORE. *August 21st*, 1850. The Nuwab in order to preserve the harmony of his family agrees to settle certain specified sums on each member.

SATTARA. *September 4th*, 1839. A treaty supplemental to the treaty of September 25th, 1819. The Rajah abandons his claim to certain territories, assigns others to be managed by the British Government, and binds himself to make a suitable allowance for the support of his brother.

September 23d, 1839. The Rajah prohibits Suttee and abolishes transit duties.

PUNT SUCHEO. *February 3d*, 1839. A treaty explanatory of the treaty between the Punt Sucheo and the British Government of April 22d, 1830. The Punt agrees to maintain an efficient Police and to aid in the extradition of criminal refugees, makes over the administration of certain villages to the British Government, abolishes transit dues, agrees to incur no debts without the sanction of the British Government, to provide for the family of the late Punt—and to adopt the Company's Rupee as the current coin of his dominions.

SAWUNT WARREE. *September 15th*, 1838. The Sirdesaee surrenders to the British Government all claim to land and sea cus-

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toms in consideration of an annual payment by the British Government.

SIND. Treaty with Government of Hyderabad, July 2d, 1834, regulates the tolls on the Indus.

Treaty with Ameers of Sind, April 20th, 1838. The British Government agrees to restore friendship between the Ameers and Runjeet Singh. A British Minister is to reside at Hyderabad, and the Ameers may send a Vakeel to reside at the Court of the British Government.

KHYRPOOR. Treaty between the British Government and Meer Roostum Khan, 24th December, 1838. Perpetual friendship between the Honourable East India Company and Meer Roostum and his heirs, &c. The British Government engages to protect the principality. The Meer acknowledges supremacy of British Government, will act in subordinate co-operation with it, and will have no connection, or negotiation with other States. He will commit no aggressions, but refer all disputes to the British Government. He will furnish troops according to his means at the requisition of the British Government, and the British Government will not covet a "dam or dirhum" of his territories. The Ameer shall be absolute ruler of the country; and the British jurisdiction shall not be introduced. The Ameer will do all in his power to promote trade on the Indus. A British Agent shall reside at Khyrpoor, and the Ameer may send an Agent to reside at the Court of the British Government. Ratified by the Governor General, January 10th, 1839.

Separate Article. The British Government in time of war may occupy the fort of Bukker as a depot for treasure and munitions.

HYDERABAD. Treaty with Ameers, March 11th, 1839. Lasting friendship. A British force not exceeding 5,000 men to be maintained in Sind. All the Meers, Sobdar Khan excepted, to pay each a lakh of Rupees annually for the maintenance of the British force. The British Government undertakes to protect the territory of the Ameers from all foreign aggression. The Ameers to remain absolute rulers in their principalities, and the British jurisdiction not to be introduced. The Ameers will refer all their disputes to the British Resident. They will not negotiate with foreign States without consent of the British Government. They will act in subordinate co-operation with the British Government, and furnish when required 3,000 troops, to be paid by the British Government when employed under British officers beyond the Sind Frontier. The Company's Rupee shall be current in the Sind territories. All tolls on the Indus are abolished, but goods when landed and sold to be subject to the usual duties of the country, except when sold in a British camp or can-

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tonment. Goods may be bonded at the mouths of the Indus till the proper time arrives for sending them up the river.

MEERPOOR. *18th June*, 1841. Lasting friendship and alliance between the Honourable East India Company and Sher Mahomed Khan, Meer of Meerpoor. The Ameer to pay Rs. 50,000 per annum towards support of British force in Sind. The British Government to protect the Meer from foreign aggression. The Ameer to remain sole ruler in his principality, and the British Government shall not be introduced. The Meer will refer to the British Government all his disputes with the other Ameers. The Meer will not treat with foreign States without consent of British Government. The Meer will act in subordinate co-operation with British Government for defensive purposes, and will furnish a quota of troops. The Company's Rupee to be current in the Meer's territory. Tolls on the Indus abolished. Goods landed and sold may be taxed except when sold in a British camp or cantonment. Goods may be bonded at the mouth of the Indus till the period arrives for sending them up the river.

Ratified by Governor General in Council, August 16th, 1841.

SINDIA. Treaty of 13th January, 1844, between British Government and Maharajah Jyajee Rao. Former treaties to remain in force except as now altered. Revenue of certain additional districts appropriated to support the contingent. Should the revenues now and heretofore assigned exceed 18 lakhs, the surplus to be paid to the Maharajah, but should the revenue fall short of 18 lakhs the deficit to be made good by His Highness. The Civil administration of the assigned districts to be conducted by the British Government. His Highness to pay to the British Government the sum of 26 lakhs within 14 days from date of this treaty, partly for arrears of charges of contingent, and partly as compensation to British Government for expenses of the late hostilities. As the British Government undertakes to defend the Maharajah and his dominions, the Maharajah's military force exclusive of the above contingent is never to exceed 9000 men, and all troops now entertained in excess to be paid up in full and disbanded, with a three months' gratuity. The minority of the Maharajah to end, January 19th, 1853. The Government to be administered in the interim by a Council of Regency according to the advice of the British Resident. Three lakhs per annum assigned to Her Highness Tara Baee. The British Government shall as heretofore exert its influence and good offices to maintain the territorial rights of the Maharajah, and the subjects of the State of Sindia at present residing in the neighbouring and other native States.

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HINDOSTAN AND THIBET ROADS.

India Records, No. XVI.

Report on the Operations connected with the Hindostan and Thibet Roads, from 1850 to 1855. *By Capt. D. Briggs, Superintendent, Hill Roads.*

In 1850, the attention of Lord Dalhousie was turned to the practice of *Begar* or forced labour, which had prevailed in the Protected Hill States from time immemorial. When the Hill Chiefs depended solely on their subjects for defence against outside aggression, the subject was always at liberty to transfer the allegiance to a new master, and oppression was thus restrained. But the British Government by protecting the Chiefs from danger from abroad has made them too powerful at home, the natural check on oppression has been removed, and Begar is enforced to an intolerable extent. In 1815, the Hill Chiefs engaged in return for the aid afforded them against the Goorkas to supply the British Government with labourers, whenever they should be required, and to construct such hill roads within their Chiefships as the British Government should desire. For many years this latter condition was a dead letter, but more recently the increase of Sanitaria in the hills around Simla occasioned an extraordinary demand for labour in the erection of buildings, the construction of roads, and the conveyance of burdens. The whole of this duty fell on the scanty population of the Hill States; there was no other labour to be had. The treaty of 1815 empowered us to demand the labour from the Chiefs, and though our Government always in spite of that treaty paid the labourers liberally, yet the wages so paid were always claimed by the Chief from his sept by virtue of the right to "Begar." But the system of depending on porterage for the conveyance of the enormous Government establishments, invalids and their servants, supplies for troops, merchandize, building materials, &c. was expensive as well as oppressive, and Lord Dalhousie resolved to construct carriage roads by which the necessity of employing human labour in the transport of baggage would be obviated. The first object was to construct a road from the plains to Simla with branch lines to the stations of Dugshaie, Kussowlie, and Subathoo. The line to Simla was to be extended towards Thibet so as to open the salubrious valley of Kunawur, and afford direct commercial intercourse with Western China, and so direct into our own provinces the trade at present monopolized by Russia. It was found impossible to incorporate in the new line any portion of the existing road from Kalka to Simla. The new road "leaves the

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plains in the neighbourhood of Kalka, and gradually ascends, for 14 miles, to a gorge in the extensive range of hills which border the plains and extend from the Sutledge to the Jumna. On the left lies Kussowlee, 6 miles distant, and nearer, and overlooking the gorge, stands the Lawrence Asylum. To the right is Dugshai, close under which the road winds to the low neck of land which connects the long outer range, above mentioned, with the main body of the Himalayas. Here an abrupt spur thrown off to the eastward, at right angles to the desired direction, renders a tunnel of 1,900 feet necessary. From this the line runs to the next obligatory point near the rich valley of Solon, which it enters at a spot eminently calculated for a large European Settlement; it then skirts the southern flank of the Krole Mountain, and running through the next obligatory point at Kundah, commences an ascent of 5 miles to Kearee Ghat, passing above the fine valley of Bhagurree. From this it runs nearly level, through the volcanic cliffs of Tara Devi, to an obligatory point within 4 miles of Simla, to which it ascends at a gradient of 1 in 25, steeper than any on the whole line, but rendered necessary by the elevated position of the Sanatarium. Two and a half miles beyond Simla, after emerging from the fifth obligatory neck, another rugged spur running to the South-East renders a tunnel of 550 feet necessary; from which the line runs at an imperceptible gradient, for 40 miles, to the Nagkundah Pass, 9,300 feet above the level of the sea. From this, skirting the Northern face of the massive Huttoo Mountain, it holds a level course to the obligatory point under Bagee; from which an easy ascent brings it to the highest point on the line at Kundrelah, which has an elevation of 9,660 feet. Descending to the obligatory Soongree Pass, it turns Northward to avoid the snow limit of the Himalayas, and seeks the valley of the Sutledge. Skirting this at a general elevation of 6,000 feet, (temporarily vitiated by the tremendous cliffs bordering the Noguree torrent,) it crosses the Sutledge River above the old bridge of Wangtoo, from which it ascends to the village of Chini, unrivalled for the beauty of its scenery and the salubrity of its climate. Gently descending in order to avoid the deep inflections of the snow-fed tributaries of the Sutledge, it runs through the rich vineyards of Rarung and Akpah, until it again meets the Sutledge under the towns of Soongum and Kanum, renowned no less in the ecclesiastical history than in the commercial estimation of Thibet and Western China. Under Sapooee the line again crosses to the left bank of the Sutledge, now flowing at an elevation of 8,300 feet, and taking advantage of an old bed of that most turbulent stream. 100 feet above its present level, it emerges on the Highlands of Thibet near the Chinese village of

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Shipke, from which roads as old as the people themselves run East, West, and North, traversed by baggage cattle of all descriptions."

Operations were commenced in July, 1850, in detached portions at a distance from each other. This plan was adopted in order that the *begarees* from each Hill State should be employed at that portion of the line which lay nearest their homes. It was soon found that no reliance could be placed on the engagements of the Hill Chiefs to supply labour. After various ineffectual attempts to keep them to their engagements, the Government abandoned its treaty rights, and adopted the system which has since been adhered to of paying every labourer two annas per diem; the full market rate of the North West Provinces.

The most difficult undertaking on the road from Kalka to Simla was the reduction of the cliffs which line the Western flank of the Tara Devi Mountain. One portion of 400 feet had to be cut down to a depth of 150 feet to obtain sufficient breadth of road way. The following is a statement of the work performed in opening the road from Simla to Dugshaie to a breadth of twelve feet:—

	Cubic feet.
"1*st.*—Of hard rock reduceable only by blasting,	57,34,663
2*nd.*—Of slate, shingle, stones, and earth, ...	1,41,70,417
3*rd.*—Of revetment walls, ...	8,23,893
Total Cubic Feet of work, ...	2,07,28,973"

The execution of this required 3,48,912 days' work at a cost for labourer's wages of Rs. 31,049, exclusive of the hire of artificers, &c. The expenditure per mile was Rs. 1,237. There is one viaduct of 260 feet across the face of a precipice, and there are eight American lattice Bridges of from 30 to 50 feet span. The whole was completed in 240 working days in 1850-51. Seventy-two miles of 12 feet road on the same scientific principles have been constructed between Dugshaie and Kussowlie, Dugshaie and Subathoo, and the widening of the road from Simla to the plains to 16 feet is now in progress, and masonry parapets are under erection on the crest of every precipice. Captain Briggs estimates the direct returns on the road (from tolls) at 15 per cent. on the outlay, exclusive of the indirect return from the saving to Government on the conveyance of stores and the marching of troops. Repairing expenses are estimated at Rs. 35-8 per mile per annum.

On the line between Simla and the frontiers of China 116 miles of 6 feet road are completed save two short breaks, and 60 miles of unfinished work will shortly remain between Simla and the frontier of China. The cost of these works, deducting Rs. 40,000 subscribed by four Native States, has been Rs. 77,685 or

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Rs. 706 per mile. Captain Briggs then discusses at length the timber yielding capacity of the hills. At Nachar in Kunawar is a forest of 2,000 sound trees at a distance of 20,000 yards from the bed of the Sutlej, into which the trees could easily be conveyed by a sliding trough. By this means Captain Briggs undertakes to lay down at Ferozepore three lakhs worth of Timber, annually at a cost of four annas per cubic foot. He proposes before cutting the timber to secure it against insect and decay by the infusion of some antiseptic into the growing tree. It is also necessary to arrange for the purchase and protection of the Deodur forests which the Hill Chiefs are rapidly destroying, and for the planting of the hill sides with timber trees.

At Shiel, nine miles east of Kundrelah in Kunawur and near the Pabur river occurs magnetic iron ore of great richness and abundance. Millions of tons of charcoal could be procured from the forests within a radius of ten miles, and judging from a series of experiments (yet incomplete) Captain Briggs is confident that the Shiel Iron can compete with Merthyr Tydvil and Glasgow in cheapness, and beat them both in quality. The iron might be brought down the Touse in flat bottomed barges. Captain Briggs concludes with an elaborate detail of the system of accounts employed. The Appendix to the Report contains tabular statements the results of which are, as follows. The total population of the 19 "Hill States" by the Census of 1855, was 5,12,000, Bussaher the most populous containing 1,50,000. The strength of Deodur beams as compared with those of British oak is as 228 to 350. That of *Pinus Longifolia* or "*Cheet*" as 304 to 350. In a Minute in Council, dated 6th July, 1852, Lord Dalhousie expresses the highest opinion of Captain (then Lieutenant) Briggs' services on the Hindostan and Thibet Roads.

MADRAS POLICE RETURNS FOR 1855.

Mr. T. G. Clarke, Magistrate and Deputy Superintendent of Police, on 4th June, submits to Lieutenant Col. J. C. Boulderson twelve tables containing Statistics of the Madras Town Police. Mr. Clarke gives a short analysis of these Returns, and of the more heinous cases of crime. The following is the abstract of cases summarily punished :—

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ABSTRACT STATEMENT *of Cases summarily disposed of at the General and Town Police Offices during the year* 1855.

Charges.	Number of Cases.	Number of persons convicted and sentenced to hard labour.	Number of persons convicted and sentenced to be flogged.	Number of persons fined.	Number of persons acquitted or discharged.	Total number of persons.
Aggravated Assaults, ...	4	...	...	4	...	4
Assaults, ...	2,735	...	7	1,048	3,860	4,915
Attempting to steal or suspected of stealing, ...	104	8	...	...	132	140
Breach of the Peace, ...	2,166	...	...	3,342	1,154	4,496
—— of Police Regulation, No. 4, viz.. vending Liquor or Toddy without License and smuggling under Act XIX. of 1852, ...	24	...	...	21	12	33
—— of Police Regulation, No. 6, viz. using false weights and measures, ...	16	...	...	4	18	22
—— of Police Regulation, No. 10, viz. furious and careless riding and driving, &c., ...	103	...	...	97	50	147
—— of Trust, ...	37	2	...	...	33	35
Crimping, ...	5	8	...	...	1	9
Desertion, ...	99	20	8	...	84	112
Drawing Lotteries not authorized by Government in contravention of Act V. of 1844, Section 2, ...	5	...	...	9	1	10
Gambling, ...	17	...	...	22	7	29
Having in possession, purchasing or receiving stolen property, ...	115	2	1	8	160	171
Injuring trees, public property, &c.,	22	3	...	22	27	52
Misdemeanors, ...	853	4	9	780	642	1,435
Nuisances, ...	1,758	...	...	2,647	666	3,313
Refusing to work, neglect of duty and disobedience of order, ...	46	20	10	...	25	55
—— to maintain wife and children, ...	37	...	...	...	40	40
Snatching away by force, or taking forcible possession, ...	26	...	...	4	32	36
Swindling, cheating, and fraud, ...	2	1	...	...	2	3
Taking away or obtaining by false pretences or undue means, ...	225	130	28	3	148	309
Threatening to assault or using threatening language, ...	36	...	...	2	26	28
Trespasses, ...	174	...	...	90	124	214
Vagrants, ...	154	145	6	...	79	230
Total, ...	8,763	343	69	8,103	7,323	15,838

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There were 986 cases of simple larceny in which 1,213 persons were arrested, 580 convicted, and 633 aquitted. The amount of property alleged to have been stolen was Rs. 1,155-3-8, of which Rs. 1,004 was recovered. Under the General Merchant Seamen's Act, and the Mercantile Marine Act, 46 cases were brought up, involving 142 defendants. Of these 113 were imprisoned, 5 fined, and 24 acquitted. Under the Boat Act there were 38 cases involving 104 defendants, of whom 31 were flogged, 17 fined, and 56 acquitted.

There were 1038 cases of offence among the Police, of which 897 were for neglect of duty, and 23 for corruption. Of the whole, 7 were sent to the roads, 7 flogged, 907 fined, 18 dismissed the service, 185 acquitted or 1124 in all. Of the 74 cases involving 99 persons, there were

For Murder, ...	2
Shooting, &c. with intent to murder, ...	3
Carnal knowledge of a girl under 10, ...	1
Uttering forged documents, ...	3
———false coin, ...	1
Kidnapping children, ...	2
Burglary, ...	3
Larceny, ...	45
Receiving stolen goods, ...	0
Stealing from person, ...	1
Embezzlement, ...	3
Breach of Trust, ...	3
Poisoning Cattle, ...	1
Aggravated Assault, ...	1
Obtaining on false pretences, ...	3
Concealing Truth, ...	1
Trespass and carrying away married woman by force,	1
	74

Of the prisoners 73 were convicted. Rs. 7,476-13-3 was alleged to have been stolen, and Rs. 3,570-6-5 was recovered.

Comparative Abstract.

	1854.	1855.
Cases, ...	12,136	10,895
Prisoners, ...	20,633	18,520
Convicted, ...	11,702	10,295
Acquitted, ...	8,931	8,245

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Comparative Statement of Cases disposed of by Magistrates.

	1854.	1855.
Cases, ...	10,997	9700
Prisoners, ...	19,022	17,049
Convicted, ...	10,423	9096
Acquitted, ...	8599	7953

Comparative Statement of Seamens' Cases.

	1854.	1855.
Cases, ...	59	46
Prisoners, ...	203	142
Convicted, ...	165	118
Acquitted, ...	38	24

Comparative Statement of Boatmen's Cases.

	1854.	1855.
Cases, ...	22	38
Prisoners, ...	79	104
Convicted, ...	18	48
Acquitted, ...	61	56

Comparative Statement of Policeman's Offences.

	1854.	1855.
Cases, ...	1073	1038
Prisoners, ...	1177	1124
Convicted, ...	908	939
Acquitted, ...	179	185

Comparative Statement of Cases committed to the Supreme Court.

	1854.	1855.
Cases, ...	80	74
Prisoners, ...	147	99
Convicted, ...	97	73
Acquitted, ...	50	26
Property stolen,	Rs. 22,946	Rs. 7476
——— recovered,	16,516	3570

BOMBAY POLICE RETURNS FOR 1855.

On 28th May, 1856, Mr. W. Crawford, Senior Magistrate of Bombay, submits the Returns of Crime for the year. He reviews the cases, and notices with satisfaction the absence of gang or highway robberies from the Returns. In the previous year it appeared from the Returns that crime had increased faster than population, or 200 per cent, in ten years. The present Returns

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shew a diminution in the amount of crime. The decrease in cases before the Magistrates is 11 per cent., and of persons arrested also eleven per cent. The amount of property stolen however has increased, but this is entirely the result of one great robbery of pearls.

	1855.	1854.
Number of cases reported, ..	7986	8,009
Persons apprehended, ...	13,347	15,016
Cases left undisposed of in 1854,..	12	———
Persons untried, ...	21	———
Convictions, ...	7,681	9,091
Acquittals, ...	5,668	5,938
Persons remaining untried, ..	42	45
Amount reported as stolen,	Rs. 1,45,435	Rs. 1,26,666
Believed to be stolen, ...	„ 1,41,237	„ 1,22,998
Recovered, ...	„ 35,234	„ 36,561

Comparative Statement of Heavy Offences.

	1855.	1854.
Murders, ...	6	8
Manslaughters, ...	5	3
Burglaries, ...	11	10
Robberies above Rs. 50, ..	253	253
——— below Rs. 50, ...	1566	1495
Attempts to poison, ...	14	11
Shooting, &c. with intent, ...	7	7
Receiving stolen goods, ...	83	57
Embezzlement, ...	7	11
Fraud, ...	32	39
Forgeries, ...	2	11
Misbehaviour at Police,... ..	13	2

Coroner's Inquests.

There were 193 inquests in 1855, against 201 in 1854. Of these :—

Murders, ...	8
Manslaughters, ...	1
Infants burned or exposed, ...	10
——— still-born, ...	2
Suicides, ...	33
Justifiable Homicide,...	1
Lunatic Homicide, ...	1
Accidental Deaths, ...	84
Died from drinking, ...	5
Found drowned, ...	12
——— dead, ...	5
Natural deaths, ...	39

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Cases disposed of by Petty Court.

	1855.	1854.
Cases, ...	1,186	1,054
Persons, ...	1,970	1,912
Convicted, ...	1,529	1,446
Acquitted, ...	441	466

Inoffences for which persons of less than 14 were brought before the Magistrates, 244 were apprehended, of whom 129 were committed and 115 discharged. Of those committed 77 were charged with robbery, 1 with possession of implements of housebreaking, and the remainder with trifling offences. Mr. Crawford gives a mortuary return, useless in presence of Dr. Leith.

PURLA KIMEDY.

Madras Records.

This book contains a Report on Goomsoor, dated 12th August, 1836, by Mr. G. E. Russell, despatched as Special Commissioner into that territory. It contains a sketch of the Province, an abstract of its former history, a minute account of the rebellion of 1835, and Mr. Russell's opinion as to the measures it was necessary to have recourse to for the future. On the same date the Governor in Council reviews the correspondence, but as the Zemindaree was already declared forfeited only notices matters of detail. On 3rd March, 1837, Mr. Russell submits a Report continuing the former one, detailing events in the hilly tracts of the Province, and recounting the local changes introduced. On 4th March, the Government proposed publicly to thank Mr. Russell and the troops. On 11th May, Mr. Russell once more recapitulates the facts of the rebellion, describes the country, and proposes measures calculated to secure its permanent tranquillity. He also furnishes accounts of his expenditure as Commissioner, and lists of establishments existing and proposed. On the 21st November, 1837, the final orders are passed, in accordance with Mr. Russell's Reports.

MORTUARY REPORT OF BOMBAY.

On 30th June, 1856, Dr. A. H. Leith submits Returns of the mortality of the Island of Bombay during 1855. He observes that of the Returns one. eighth only are written, the remainder

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being received orally. The Return of the Causes of Death is unsatisfactory, the people declining to afford aid, and even the Grant Medical College graduates displaying apathy. "The deaths registered were 14,928, which is 3,082 less than in the preceding year, and 295 above the average of the preceding seven years. The reported still-births were 281, or in the ratio of 1.88 to the whole. Of the 14,647 deaths that occurred after birth, 8,064 were males, and 6,583 females, or in the ratio of 1225 males to 100 females, the mean proportion for the previous years being about 124. There was a slight preponderance of female deaths among the Parsees and among the Jews, but the latter race is here so few in number, that great fluctuations are to be expected in it: the male deaths were in excess in every other ethnological class of the population." The ages recorded are only approximative. "Of the 14,647 deaths, exclusive of still-born, that were registered, 2,753 were from epidemic causes, which number is in the ratio 18·8 per cent. and falls short of the annual mean by 458. The Cholera deaths were 1,739,or 677 less than the average of the preceding seven years. The months in which they chiefly occurred were April, May, June, and July." As to the latter disease the sections with houses closely built in dry streets, though closely peopled, are as usual freer from the disease than where there is much water, or there are irrigated gardens. The number of deaths from fever is equal to 46½ per cent. of the total mortality. The entries however are somewhat more numerous than they ought to be, disease attended with fever being recorded as fever. The probable sources of fever are the salt marshes between Trombay and the north end of Bombay, and the marshy soil of the flats. Dr. Leith proceeds to notice the deaths, but without further reflections.

Causes of Death.

From Cholera, ...	1739
Small-pox, ...	1014
Measles, ...	....
Fever, ...	6685
Nervous System, ...	570
Vascular System, ...	16
Respiratory System, ...	1265
Alimentary System, ...	1924
Urinary System, ...	10
Sexual System, and Child-bearing, ...	77
Locomotive and Tegumentary Systems, ..	85
Cachexy and Debility, ...	976
Leprosy, ...	40
Dropsy, ...	19

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Accident and Violence, ...	151
Other and unknown Cause, ...	14

Causes of Death among Europeans.

Cholera, ...	11
Small-pox, ...	3
Measles, ...	...
Fever, ...	10
Disease of Nervous System, ...	37
„ Vascular System, ...	1
„ Respiratory System, ...	26
„ Alimentary System, ...	65
„ Urinary System, ...	2
„ Sexual System and Child-bearing,	4
„ Locomotive and Tegumentary Systems, ...	1
„ Cachexy and Debility, ...	10
„ Leprosy, ...	..
„ Dropsy, ...	2
„ Accident, ...	9

Dr. Leith proceeds to detail the causes of death in each caste in different months and quarters of the year, the number and proportions of deaths from different causes, excluding epidemics, and including epidemics, and the proportion of male to female deaths. The proportion is 122·50 males to 100 females. Of epidemics alone 139.39 males die to 100 females. Dr. Leith enters into some minute details as to the months at which mortality is most prevalent, and gives the following as to the age of deaths :—

All Causes.		Ages.
No.	*Prop.*	
1147	7·83	0 to 15 days.
73	·49	16 to 30 „
871	5·94	1 to 6 months.
1526	10·42	7 to 23 „
1704	11·63	2 to 6 years.
778	5·31	7 to 13 „
1529	10·44	14 to 24 „
2436	16·63	25 to 34 „
1663	11·35	35 to 44 „
1060	7·23	45 to 54 „
956	6·52	55 to 64 „
377	2·57	65 to 74 „
533	3·64	75 and above.
14,647	100.	All Ages.

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He also describes the mortality of the different quarters of Bombay, and gives a table of the mortality among castes and employments. .

Occupation, or that of Family.	*Total, Exclusive of Still-born.*
Annuitant, Independent, ...	5
Auctioneer, ...	...
Baker, Grain-parcher, Cook, Confectioner, ...	198
Beggar, Vagrant, Pauper, ...	832
Bracelet-maker, dealer, ...	14
Bullock-driver, Dairy-man, ...	411
Butcher, ...	91
Cane-worker, Palm-leaf-worker, ...	46
Charcoal-dealer, ...	7
Clothier, Draper, Mercer, ...	500
Coppersmith, Brazier, ...	57
Cotten-worker or Retailer, ...	10
Crockery, Glass-dealer, ...	3
Domestic Servant, Barber, ...	1413
Druggist, Perfumer, ...	9
Dyer, ...	103
Engineer (Civil), ...	8
Engine-driver, Stoker-maker, ...	18
Fisherman, Fishmonger, ...	277
Gardener, Greengrocer, Agriculturist, Hay and Straw-dealer, ...	586
Gold-Silver-Smith, Jeweller, Watch-maker, ..	208
Grain dealer, or Grinder, ...	104
Grocer, ...	159
Gunpowder, Fireworks-maker, dealer, ...	8
Hawker, ...	98
Hemp-Coir-worker, or dealer, ...	49
Hooka-Pipe-maker, dealer, ...	1
Horse-driver, dealer, Farrier, Groom, ...	266
Iron-worker, or dealer, ...	116
Labourer, ...	2719
Lawyer, and Coven. Civil Servant of Govt., ...	6
Leather-maker, worker or dealer, ...	231
Leechman, ...	1
Liquor-sellor, Distiller, Palm-wine-drawer, ...	322
Marine-stores dealer, ...	...
Maritime-man, Boatman, ...	562
Mason, Quarry-man, Lime-stone-worker, or dealer,	363
Medical man, ...	.38
Merchant, Banker, Broker, ...	677
Carried forward, ..	10,516

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Occupation, or that of Family.	*Total, Exclusive of Still-born.*
Brought forward, ..	10,516
Military man or Pensioner, ...	428
Money-changer, Assayer, ...	64
Musician, ...	48
Oil-drawer or dealer, Soap-maker, Candle-maker,	46
Painter, ...	26
Pitch,-Tar,-Rosin-dealer, ...	...
Plumber, ...	...
Policeman, Watchman, Messenger, Tax-gatherer, .	384
Porter, Palkee-bearer, ...	531
Potter, Brick, Tile maker, or dealer, ...	51
Poulterer, ...	21
Priest, ...	191
Printer, Stationer, Book-binder, dealer, ...	67
Prostitute, ...	122
Salt-maker, dealer, ...	12
Scavenger, Sweeper, ...	109
School-master, Teacher, ...	11
Silk-worker, dealer, ...	36
Tailor, Sempster, Embroiderer, Tent-maker, ..	365
Tavern-, Coffee-, Boarding-house-keeper, ..	8
Tin-, Tin-plate-worker, Glazier, ...	33
Tobacco-, Betel-, Opium-, Gunja-dealer, ...	45
Toy-maker, dealer, ...	1
Washerman, ...	190
Water-carrier, ...	109
Wood-worker, dealer, ...	771
Wool-worker, dealer, ...	2
Writer, Accountant, ...	431
Unknown Occupation, ...	79
Total, ...	14,647

The number of still-born is 281. Dr. Leith concludes with a meteorological table. The quantity of rain which fell in the year was 41·80 inches on 91 days. On 5th July, 1856, Government approves the Report, and directs the publication of an order censuring the negligence of Medical Practitioners as to these Returns.

REPORT ON THE PUBLIC WORKS OF MEERUT COMPLETED IN 1854-55.

North West Provinces Records, No. XXVII.

On 7th August, 1855, Mr. E. M. Wylly, Magistrate of Meerut, reports to the Commissioner of the Division, and ex-

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plains the Nuzzool Fund. This fund is derived from the sale of Government property in land buildings, &c. within the Zillah. The fund thus realized amounts to Rs. 31,217 devoted to public works. Mr. Wylly describes the drainage capabilities of Meerut, and the improvements introduced. The drainage has now been made efficient at a cost of Rs. 17,059. The principle of the improvements is the excavation of two deep drains which carry off the surface water of the tanks. The water is carried rapidly and freely into the neighbouring Nuddee. Half the money has been paid from Cantonment Funds. The drainage of the city has been commenced, and several roads repaired. The large grain mundee has been metalled throughout, and the people have at once undertaken to suit their shops to the improved condition of the mundee. New shop fronts have been built, and all chuppers are being removed. The official expense of these works has been Rs. 7,478. Mr. Wylly enters into some further details, and proceeds to notice the Dispensary. Rs. 6,210 for this building were subscribed in the town, which is proceeding, as are houses for the Sub-Assistant Surgeon and the servants. The daily attendance is from fifty to ninety. A gunge has been erected at Bhagput, on land sold in lots. The shops are of brick and upper storied. A serai at Moradnugger has been erected. F. Read, Esq., Superintendent of the Upper Division, Ganges Canal, on 3rd August, describes the system of drainage, and gives detailed accounts of the work done.

HULKABUNDEE SCHOOLS.

N. W. P. Records, No. XXVII.

On 5th January, 1856, Mr. H. S. Reid reports on the Hulkabundee Schools of Pergunnah Kosee, Zillah Muttra. "They are 14 in number. They are attended by 790 boys, of whom 492 are the sons or relatives of land-holders, 157 of cultivators, 12 of putwarees, and 129 of non-agriculturalists.

"It is, however, satisfactory to observe that not less than 248 boys, resident in other villages than those in which the Schools are held, attend, being on the average 18 per School. The ordinary attendance at indigenous Schools does not exceed 10.

"The average attendance per School amounts to 56, and the average salary of the Teachers to Rs. 550-11-9. The average cost of each boy's education is somewhat less than one Rupee a year; in other words, the annual salaries of the Teachers amount to Rs. 780, while the number of Scholars is 790.

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"The day His Honor inspected the Schools in the compound of the Kosee Tehseeldaree, upwards of 700 boys were present. I believe that not less than 200 or 250 of that number could solve Questions in Rule of Three; that a still larger number could calculate the area of fields.

"The boys are instructed in reading and writing the Nagree character. They learn the History and Geography of India. In several Schools they are reading Algebra and Geometry. They learn the use of the Plane-table, and can in some instances survey and measure land with considerable readiness.

"The Hulkabundee system has been introduced also into the Areeng and Sahar pergunnahs. They contain 35 Schools attended by 1,048 boys, of whom 316 are the children of landholders, 400 of cultivators, 27 of putwarees, and 305 of the non-agricultural classes. The Scholars are not so far advanced as those in Kosee, nor are the Schools so largely attended, the average number of boys per School being 23 in Areeng, and 36.5 in Sahar."

ROADS IN NIMAR.

N. W. P. Records, No. XXVII.

On 3rd January, 1856, R. H. Keatinge, Esq., Political Agent in Nimar, reports to the Agent for Central India, on the Nimar Roads. The receipts amount to 1,47,382. Of this sum 19,644 is derived from the one per cent. on the Settlement, Rs. 45,852 from road and ferry tolls, Rs. 25,767 from "Chittawun," and the remainder from State Grants and sources not detailed. "Chittawun" was the fee paid for writing the pass. It is now an ordinary toll. The people approve the tolls. The greater proportion of the money, Rs. 1,12,794, is spent on the great or Indore and Boorhanpore road.

On 10th January, 1856, Sir R. Hamilton submitting this Report observes that this road is ninety-seven miles long and has cost, including the ascent of two ghauts, Rs. 1,100 a mile. It is the direct line of communication between Upper India and the Deccan. Repairs will cost Rs. 60 a mile per annum.

On 12th February, Mr. W. Muir, Secretary, North Western Provinces, acknowledges the Report, and hints that three toll stations on ninety-seven miles of road is too many.

On 24th March, 1856, Sir R. Hamilton explains that no

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other arrangement would protect the rights of those who levied the old transit dues, and that the people are satisfied. He encloses a letter from Lieutenant P. H. Keatinge explaining farther. The tax on a two bullock cart of grain is only seven annas, including the crossing of the Nerbudda. The Government on the 10th April, replies that the tolls ought to be simplified.

THE SETTLEMENT OF PERGUNNAH BARRAH, ZILLAH ALLAHABAD.

N. W. P. Records, No. XXVII.

On 9th December, 1850, R. Temple, Officiating Collector, Allahabad, reports on this Settlement. This Pergunnah once formed part of Rewah, a principality exempted, probably by Humayoon, from the land tax. Subsequently it was disunited from Rewah, and became part of Oude. All this time the Talookdaree remained in one family. A Rajpoot, named Prithee Chánd, obtained two villages, gradually seized the whole pergunnah, and founded a great family. The process appears to have been carried on in this wise :—

"First eleven other villages in the neighbourhood of Emilia were allowed him, in order that he might sustain his State. Then he obtained eleven more villages subordinate to Deora, in acknowledgment of services he rendered in collecting the Rajah's revenues in other parts of the pergunnah. A footing having been thus established, he and his descendants addressed themselves to the task of reducing the resident proprietors throughout the pergunnah, and raising up for themselves a zemindaree position independent of the Rewah Rajah. First they would stand security for some proprietors, and when default occurred would possess themselves of the estates. With the same view they would grant loans. Then they began to use force. Sharp resistance was, however, met with in several conflicts, which are still remembered by the villagers. The Bunapurs of Tikree fought the usurper to the last, and the 'chourah' (funeral pyre) which they raised to the memory of their slain is still to be seen. At length, however, these Bunapurs yielded when their leader Duljeet was seized and put to death in the invader's stronghold at Nowrheya. The Bais of Chilla Gowhanee were at feud with the Chowdrees of Birwul. So fair an opportunity was not to be neglected by the Lal. He fomented the dispute, interposed between the disputants under pretence of aiding one of them, (the Chillah Gowhanee people,) and thus possessed himself of the estates of both, including a circle of subordinate villages."

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The family still grew, and dispossessed almost all the ancient Zemindars. They subsequently fell into arrears of revenue with the Lucknow authorities and in 1801-02, when the territory was ceded to the British Government the Talookdar was sold up. The Rajah of Benares purchased the pergunnah, improved it, and increased its revenue from Rs. 1,10,000 to Rs. 2,32,000. In 1821, a son of the Talookdar contested the sale, and it was upset. The Rajah appealed to England, and the pergunnah was placed under the Court of Wards. It remains there. In 1832-33, Mr. Speirs made a farming settlement, "a careful field measurement was made, rent rates and cultivators' holdings fixed, and all heritable rights possessed by the tenants were investigated."

In 1848, Mr. Alexander conferred a moquddamee biswahdaree title on many of the farmers. To the remainder farming leases were granted. It was held by Mr. Alexander that all rights sprung from the Talookdar either by gifts, service grants, "direct allocation" mere sanctions, and blood relationship. "Whenever occupation arising from any of the above causes was found to have been continuous or nearly so since the accession of the Company's rule, and the names of claimant's ancestors had been recorded as Raees in the moazinah anterior to that period, a biswahdaree settlement was made."

Mr. Temple proceeds to detail some anomalies in the Settlement, and his own proceedings. They involve no material change in Mr. Alexander's plan. The number of khan estates is considerable.

TENURES IN PERGUNNAH BUDOHEE.

N. W. P. Records, No. XXVII.

On 25th October, 1855, Mr. W. R. Moore, Ex-Joint Magistrate of Mirzapore, reports on the tenures of this pergunnah. Their peculiarity is that the Zemindars are called Munzooreedars, and the Non-proprietors Namunzooreedars and that the ryots have a prescriptive, proprietary right in the soil. Mr. Moore briefly explains the historical origin of this anomaly.

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PUBLIC WORKS IN THE PUNJAB.

Punjab Records, No. II.

On 14th December, 1854, R. Temple, Esq. Secretary to Chief Commissioner, Punjab, writes to R. Montgomery, Esq. Judicial Commissioner, and offers suggestions on the preparation of the Annual Improvement Reports. The Chief Commissioner desires that these reports should embrace all improvements effected by the district officer, and the state of all local funds. The official year should be followed. Mr. Temple proceeds to detail the information required under the heads of roads, buildings, ferries, conservancy, Government buildings, and miscellaneous improvements. The reports should be brief. On 31st January, Mr. Montgomery forwards a Report drawn up in accordance with these instructions for 1854-55. "The first statement will show that the amount at the credit of the local funds at the close of the previous year's accounts, was Rupees 9,26,499-15-5, and that the income during the year 1854-55, amounted to Rupees 5,10,696-15-3, making a total of Rupees 14,37,196-14-8, which had to be debited with expenditure to the extent of Rupees 6,77,903-4-8½, leaving at the close of the past year an available balance of Rupees 7,64,222-3-8¾." The character of the expenditure is thus shown:—

	From Local Funds.			*From General Revenues.*			*Total.*		
	Rs. 2,88,722	3	0	2,34,633	12	9	5,23,355	15	9
Ditto on account of Buildings, Nuzool or otherwise,	1,08,284	14	9½	2,60,031	2	4	3,68,316	1	1½
Ditto on account of Wells,	19,764	7	5	4,040	12	9	23,805	4	2
Ditto on account of Tanks,	1,700	0	0	0	0	0	1,700	0	0
Ditto on account of Bridges and Bunds, ...	54,604	4	5	43,284	9	11	97,888	14	4
Ditto do. Establishment, appertaining to the Local Funds only, ...	45,555	0	11½	0	0	0	45,555	0	11½
Miscellaneous Charges, ...	1,59,272	6	2	1,061	6	2	1,60,333	12	4
Total, ...	6,77,903	4	8½	5,43,051	11	11	12,20,955	0	7½

The word establishment includes a River Police, and some gardeners, besides the regular establishment. The miscellaneous charges are principally for ferries, and boat-bridges. The following are the buildings and other public works constructed during the year:—

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Description of Work.	*No.*	*Cost.*
Revenue Record Office, ...	1	500 0 0
English Office, ...	1	400 0 0
Kutcherries, ...	4	71,932 12 2
Additions to ditto, ...	1	3,791 7 0
Jails, ...	4	41,603 9 10
Treasuries, ...	5	28,782 4 5
Treasury Office, ...	1	219 15 0
Jail Worksheds, ...	5	1,065 9 5
Jail Hospital and Barracks for Guard, ...	3	1,088 15 8
Tehseels, ...	4	27,956 15 4
Additions to old ditto, ...	2	3,876 0 0
Kotwalee, ...	1	339 6 0
Hawalat, ...	1	932 10 9
Thanahs, ...	12	19,578 0 4
Additions to old ditto, ...	1	300 0 0
Tehseel and Thanah united, ...	3	8,689 2 4
1st Class Chowkees, ...	19	9,719 9 11
2nd Class ditto, ...	46	8,572 1 4
Police Lines,...	1	86 4 0
Supply Depots, ...	27	31,774 2 9
Godown for Ferry Stores including Travellers' rest, ...	1	479 0 3
Seraies, ...	21	31,070 0 0
Improvements to old ditto, ...	1	111 2 9
Buneeahs' Shops, ...	35	2,332 7 3
Wells constructed, ...	71	21,822 3 4
Ditto repaired, ...	29	1,580 3 0
Cisterns and Water Troughs for ditto, ...	3	146 7 3
Encamping Ground Pillars, ...	18	682 5 2
Ditto grounds cleared, ..	17	705 10 9
Tanks, ...	1	1,259 11 3
Dispensaries, ...	8	8,902 3 4
Bridges, ...	251	64,645 8 1
Ditto repaired, ...	1	19 14 0
Dawk Bungalows, ...	2	2,720 0 0
School House, ...	0	0 0 0
Leper Asylum, ...	1	500 0 0
Bund,..	1	2,783 11 5
Sowars' Lines, ...	1	1,377 6 5
Post Office, ...	1	100 0 0
Grand total for the Punjab,	605	4,02,446 12 6

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The No. of trees planted is 22,21,560 in the different districts. This Return is not very accurate. Mr. Montgomery proceeds to remark that the money raised by cess on the town population is cheerfully paid. No objection has ever been made by the inhabitants. Mr. Montgomery proceeds to analyse the district reports of which the following tables are summaries :—

	Cis-Sutlej States.	*Trans-Sutlej.*	*Lahore Division.*	*Jhelum Division.*	*Leia.*
Local fund income, Rs.	1,29,245	1,18,667	1,26,757	51,442	46,134
Plus balances, „	4,09,266	2,27,580	2,89,613	1,65,342	1,77,408
Expenditure from Local funds, „	2,41,344	1,62,788	1,22,753	52,171	70,473
Expenditure on					
Roads, ... „	78,641	54,637	35,096	35,721	64,960
Buildings, ...	22,445	40,887	42,327	2,500	—
Wells, ...	15,818	254	587	1,411	386
Tanks, ...	1,700	—	—	—	—
Bridges, ...	19,062	22,517	15,919	2,530	1,304
Establishment, ...	14,416	10,673	16,797	2,249	613
Miscellaneous, ...	89,261	33,818	22,022	7,758	3,209

	Mooltan.	*Peshawur.*
Local fund income, ...	16,542	21,907
Plus balances, ...	59,186	1,08,797
Expenditure from Local funds, ..	24,543	3,917
Expenditure on Roads, ...	18,919	744
Buildings, ...	28	95
Wells, ...	1,307	—
Bridges, ...	2,007	1,263
Establishment, ...	735	68
Miscellaneous, ..	1,456	1,745

CLEANSING THE DRAINS OF BLACK TOWN.

Madras Records, No. XXXII.

On 25th November, 1851, a Committee was appointed to examine and report upon a plan submitted by Captain Boulderson for cleansing the drains of Black Town by sea water pumped up by a steam engine. The Members were Major J. T. Smith, Major F. C. C. Cotton, and Captain G. C. Collyer, Engineers. The Committee on 9th February, 1852, report that they have considered Captain Boulderson's plan and unanimously disapprove it. Black Town is built on two ridges between which the main sewer lies. The street drains run parallel with it, the secondary drains run down the ridges. The evils to be removed

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are connected entirely with the main sewer. There is a want of inclination in its bed, and of free outfall at its mouth. No amount of pumping will even palliate these defects. They also believe that the plan would involve evils in the way of the increased decomposition of fetid matter greater than those which at present exist. Those evils would not be removed by arching over the drain. The true mode to improve the sewer is to improve its slopes and outfall, and at the outfall if necessary use a pump to discharge the contents. A new water supply is also required, and the Committee conceive that both water supply and drainage should be studied in all their details. They conceive that at least one officer's entire time should be devoted to this purpose. They decline to offer a broad scheme, but allude to the following facts as established :—"It appears that a scheme for improving the drainage of Black Town will not benefit more than one-third of Madras, and that, as Mr. Elliot, the Chief Magistrate states, the portion at present best provided for already. That the pipe drainage so strongly recommended by H. M. Sanftory Commissioners seems peculiarly well suited to the chief portion of Black Town, and also to the other low lying districts of Madras. That the discharge from pipe drainage would be less impeded by the action of the surf than that from large sewers. That an additional supply of good water in all parts of Madras is a great desideratum. That some additional supply may be had from the present wells on the north side of Black Town. That a large further supply of the same excellent water might be had from wells sunk at a spot three miles north of the present wells. That a liberal supply of water brought into convenient positions for the benefit of the inhabitants of Madras, would lead to its use by the people in such quantity as to render the sewage sufficiently fluid for pipe drains, if it be not so already. That fresh water to a considerable extent might be collected in a tank formed in the valley of the Adayar, the ground being peculiarly favourable. That the tract of ground south of the Adayar would probably supply the adjacent section of Madras with water of the same quality as is now procured from the wells in the north of Black Town. That nothing would so effectually secure Madras against the risk of an insufficient supply of water as a tank in the neighbourhood supplied by a river. That the most certain river is the Palar, whose waters already come to Madras in small quantities, by indirect channels. That the Adayar river has never been a year, the Committee believe, without water sufficient to fill such a tank as is required, and there is reason to think that either in its bed, or elsewhere in the neighbourhood of Madras, there would be no difficulty in forming a tank of capacity sufficient to supply

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Madras for two years if necessary." The Committee also doubt the expediency of permitting the land North of the Monegar Choultry, from which water is at present brought, to be covered with habitations. They are also of opinion that the offensive odour caused by the main sewer might be remedied at once by raising the slope of the sewer. They conclude with an account of Captain Boulderson's plan.

On 26th April, 1853, the Military Board report to Sir H. Pottinger stating that the Court of Directors had sanctioned an expenditure of Rs. 73,925 on the reconstruction of a portion of the Main Sewer, and constructing a masonry channel in place of the ditch as a surface drain for the part of the Esplanade. The Board invited tenders for the work, but meanwhile discussed the disposal of the sewerage during the time which the tunnel would occupy in construction. The Board considered it dangerous to permit the sewerage to flow into the Coum. To build the new tunnel by the side of the old one would be expensive, and they therefore determined to await the arrival of the new Chief Engineer, Colonel A. Cotton. That officer assumed his seat in June, 1852, and made a Memorandum on the subject, the purport of which is briefly this.

Colonel Cotton considers that the scheme proposed by the Committee for cleansing Madras by a reservoir formed by damming up the Adayar above St. Thomas' Mount was feasible and satisfactory. This work would secure a full and wholesome supply of water for the whole of the Presidency town, suburbs, and out villages included. It would clean it also, keep the rivers pure, irrigate the gardens, render Cochrane's Canal always navigable, and facilitate the distribution of commodities in every corner of the Presidency Town. Granite could be brought from the Mount into Madras at a cheap rate. The sources of income would be payment for water used for irrigation, a toll on the canal, a rate for the use of water power, and perhaps a payment for water for domestic use.

The Board agreed with Colonel Cotton as to the necessity of considering all these questions together, and with the view of obtaining further reformation applied to the Medical Board. That Board sent in six Reports. In one Mr. Cole calls attentions to the nullah north of Mount Thome, the stench from which is so offensive that the road at times is barely passable. Dr. Cleghorn speaking of Triplicane, and Mr. Kellie of Vepery condemn the drainage as imperfect, the smells as most injurious, and the tanks as receptacles for filth. Dr. Hunter believes the drains the cause of much fever, and observes that disease is more prevalent in the dry than the rainy season, be-

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cause in the latter the drains are flushed. The quantity of water is insufficient, and the quality usually bad.

Subsequently the Board received another Memorandum from Colonel Cotton, and on all this evidence they proceed to remark that a new supply of water and more complete drainage for Madras are urgently required. They observe that the internal navigation will be improved, and the supply of water rendered ample. Granite would be readily procurable and troops instead of being located in unhealthy situations in the town could be located outside, and brought down daily by the canal to change guards, &c.

As to the financial aspect of the question Colonel Cotton estimates the cost of his scheme at three lakhs of rupees. If it costs six the improvement will, in the Board's opinion, be worth the outlay. Of this sum the amount sanctioned for the new sewer, or Rs. 74,000, and for the purchase land for a Regiment at Vepery, or Rs. 80,000, together make one lakh and a half. Supposing the works to cost 5 lakhs, the interests on that sum would be Rs. 25,000 and repairs and superintendence as much more. The following would be one Return :—

Saving at the Gun Powder Manufactory by the use of water power, ...	Rs.	7,600
Irrigation for 3,000 acres of land at 5 Rs. an acre, ...	,,	15,000
House water rate, ...	,,	17,500
Carriage of 200 tons of goods and passengers 12 miles on the Canal daily for 300 days, at 3 Pice per ton per mile, ...	,,	11,250
Total	Rs.	51,350

Then there are 1,40,000 houses in Madras. Of them 23,500 bear a rental exceeding Rs. 20 a year. Supposing all houses below that rent exempted, there would remain, at rates graduated from 4 to 12 annas per house according to rent, Rs. 20,193. Houses in Madras now pay 5 per cent. on the rental for the maintenance of roads, amounting to Rs. 1,28,610 a year. The use of granite would cheapen these roads. The canal toll would produce something, and the saving on the repairs of the Government roads from the use of granite a great deal more.

Madras it must be remembered contains 7,00,000 persons, packed as only London, Paris and perhaps Constantinople are packed. The outlay of 20, 30, or even 100 thousand pounds is therefore insignificant, when compared with the advantage of drainage and good water, for such a mass of human beings.

The Appendices to this paper contain Colonel Cotton's Memorandum with his own description of the works. "I would then propose, that a Tank should be made by damming up the Adayar near the Mount, where there is an extensive plain almost un-

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occupied, and on a level that would command all Madras; it should contain from 20 to 50 Millions of cubic yards of water, and be of such a depth as to ensure a full supply for *drinking* purposes through the second dry season; from thence the water should be led, a small part down the Adayar to improve the state of that River, and the principal part by a Channel into the long Tank, thence into the Nungumbaukum Tank, and then by a cut into the Cooum; a portion for the supply of Black Town should be carried by the line of the Spur Tank and across the Black Town Esplanade to the centre of Black Town, being carried across the hollows in pipes so as to be delivered at the level required; the whole of this line of water from the Mount to the Cooum and by the Black Town ditch, and a new Channel along the North face of Black Town, to the Beach near Clive's Battery, should be made navigable, the total fall of about 40 feet being provided for by about 6 locks.

The cost of this would be about :—

Tank to hold 30 Millions cubic yards, ..	1	Lac.
Six locks at 12,000 Rupees, ...	¼	„
Anicuts across the Cooum, ...	¼	„
New cuts cleaning Black Town ditch, &c.,	½	„
Water pipes and sundries, ...	½	„
	3	Lacs."

The selection also comprises the reports, all the facts of which are summarized above, and also the result of a careful examination of the Adayar basin. It proved satisfactory.

EDUCATION IN BENGAL.

Report of the Director of Public Instruction for the year 1855-56. *It deals with the year beginning May 1st,* 1855.

The Director, Mr. Gordon Young, reports to the Secretary to the Government of Bengal, on *September 13th,* 1856.

There has been unavoidable delay in carrying out the provisions of the Great Educational Despatch of *July,* 1854. To this day the University scheme has not been finally approved. And the machinery for the improvement of General Education has not been completely organized. In many parts of the country the new system has yet to be commenced upon. Still a full Report on the University scheme was submitted to Government on 7th of August, containing a scheme which if sanctioned can

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at once be acted on. The Presidency College is already placed on the improved footing sanctioned by the Despatch, and is a model for the imitation of the Mofussil Colleges, whose course of instruction is undergoing assimilation to the standard involved in the University test for the degree of B. A. for which degree it is hoped that not only the students of Government but of private Colleges will compete. The examinations of the past session have been conducted by examiners unconnected with the Colleges or the lads to be examined. The standard was higher than in past years, and with regard to candidates for Senior Scholarships the result as tested by this standard was not very satisfactory, but the answers of the students leaving College were with one exception admirable. A general failure in Chemistry was attributed to the novelty of the subject. The Law Department in the Presidency College has been placed on a more satisfactory footing. The Medical College has surpassed the results of former years, and when the Civil Engineering College is opened there will be the means open to all of obtaining a degree in any of the four faculties of the University. The Sanscrit College continues to work successfully; the reduction of the fees at the Calcutta Mudrissa has in two months increased the number of students from 67 to 107. The Zillah Schools have worked well, but a Committee has been appointed to report on the requirements for their improvement. A uniform standard of examination tests has been introduced. For the Junior Scholarships' examinations have been held annually at these Schools, and though the test was high the Schools have stood it well. The Patna School has been raised to the station of a High School or quasi College. 60 Out Scholarships have been established in connection with the Government Colleges to be competed for by boys educated at private Schools. The Head Masters of the Zillah Schools are generally well qualified and zealous, but this is not so true of the inferior masters, and a training School may perhaps be necessary for English as well as for Vernacular Teachers. It is also most desirable that European Educational officers should qualify in the Vernaculars. Normal Schools for native Vernacular Teachers have been established at Calcutta, Hooghly, Dacca and Gowhatty, and travelling Normal Teachers are employed in each district of Behar. But little can be done in Vernacular Education until good Teachers are available. All that has been done has been based on the principle "that the people are to be if possible induced and assisted to educate themselves; not to look to Government to do every thing for them." The principal measures to this end have been the establishment of two Model Schools at Government expense in each district of Behar, eight Schools in each of the three districts of Dinagepore, Rungpore and Bograh,

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and five Schools of a superior kind in each of the districts of Nuddeah, Burdwan, Hooghly and Midnapore. The old Government Vernacular Schools have also been preserved where it was possible. In many districts the indigenous Schools are periodically examined, and stimulated to efficiency by loans of books and money rewards. The most promising Schools in the 24-Pergunnahs, Baraset, Jessore, and Dacca have been formed into circles each under an itinerant Normal Teacher; in 17 districts a Scholarship of 4 Rs. a month has been offered to the best pupils of Vernacular Schools; Grants in Aid amounting to 6,265 Rs. have been given to 79 English and 140 Vernacular Schools, chiefly situated in the districts near Calcutta and supported almost exclusively by natives, one of whom, Baboo Joykissen Mookerjea has with his brother established 24 English and Vernacular Schools on their estates in Hooghly and Burdwan. In districts distant from the capital private aid to Education is obtained with such difficulty that it may be needful to relax in their favour the conditions of the Grant in Aid Rules. The notification of July 9th, 1855, prohibiting persons who cannot read and write from receiving Government appointments worth more than Rs. 6 per mensem, is considered an important auxiliary to education.

In the publication of Educational Works, the department has done little, this field being now nearly occupied by private individuals, and by the School Book and Vernacular Literature Societies; all aided indirectly by the Department. The statistical returns of the Department are hereafter to be drawn up on an improved form. The sum expended on English Schools and Colleges in 1855-56 was Rs. 3,23,246 and on Vernacular Schools Rs. 17,590. In conclusion Mr. Young says of the officers of the Department:—

"It would not have been easy to find more able and enthusiastic Inspectors of Schools, than those who have held these appointments during the year, *viz.* Messrs. Pratt, Chapman, Woodrow, and Robinson. To work with such men is both an honor and a pleasure. The Principals of Colleges have discharged their duties with the ability and unostentatious industry for which, in former years, they have earned the acknowledgments of Government, and of the Professors and School Teachers, with but few exceptions, nearly the same may be said. The great majority of the Local Committee have also rendered willing and valuable aid to the Department, aid which is the more desiring of acknowledgment, inasmuch as it entails upon persons whose time is already well-occupied additional labour without additional emolument."

Appendix A. contains Extracts from the Reports of Inspectors

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of Schools, Principals of Colleges, and Local Committees of Public Instruction.

Mr. Woodrow, Inspector of East Bengal, in his Report for the quarter ending July, 1855, says that whereas the number of boys at School in Bengal, ought to be 3,80,000 in order to equal the English proportion of seven per cent. on the whole population, the actual number is only 2,065. "Education for the masses has therefore to be commenced in Bengal." Mr. Woodrow after describing in detail his arrangements for the Sub-Inspectorships, bears witness to the efficiency of the numerous private Schools near Calcutta, and to the general progress of Education in Baraset. Mr. Woodrow remarks that the Boarding School at Baraset receives but a fluctuating and limited support, and that the attendance in the Agricultural Class has fallen off. "The respectable castes of Hindus consider manual labour disreputable, work in the garden is not popular among the students, but it might be different if Agricultural knowledge were made to "pay" in the marks for Junior Scholarships." Without such pecuniary reward the success of the garden is impossible. The Baraset Female School "is in existence and that is all." The English Zillah Schools throughout Mr. Woodrow's District are "all steadily increasing in number and influence.

Mr. Chapman, Inspector in Behar, in his Report for the same quarter says that from 1835 to 1845, the English School at Patna with an annual average of 96 boys was the only one in all Behar. There are now nine Government and three Private and Missionary Schools with a total of 1,350 boys learning English. This progress mainly is attributed to the impression which is abroad that a knowledge of English is necessary to Government employ, but there are other causes which Mr. Chapman specifies. The condition of the Schools is satisfactory, though the education is but elementary. Mr. Chapman attaches great importance to English instruction, but considers it only the accessary of the more important Mission of Vernacular Education. But to the spread of Education of this kind there are great obstacles in Behar, arising chiefly from the bigotry of the Mussulman Moulavies and a general fear of proselytism exasperated at the moment by the excitement caused by the attempt to deprive jail convicts of their *lotas*. The Sonthal Insurrection also impeded educational efforts throughout two entire districts. The difficulties have been increased by the fact that the School Books are printed in the *Dev Nagri* character instead of the *Kyasthi* which is in general use. Mr. Chapman thinks however that the introduction of *Dev Nagri* should be insisted on, and that this difficulty will gradually vanish. The principal feature of the vernacular

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operations has lain in the recognition of the indigenous teachers. The Sub-Inspectors have visited 498 Hindu and 334 Mussulman Schools. Their reception has not been generally satisfactory as the native teachers are jealous, and alarmed. Something has been done in the sale of School Books, and Model Schools are in course of establishment.

Mr. Hodgson Pratt, Inspector in South Bengal in his Report for the same quarter describes in detail the system on which his Sub-Inspectors have worked, the difficulties which they have met with, chiefly owing to the jealousy of the proprietors and teachers of indigenous Schools and to the ambition of the parents to give their children a smattering of English in the hope of qualifying them for public employ; he states what has been done towards the preparation of school-books. Mr. Pratt thinks that "the multiplication of English elementary Schools is an evil to be avoided."

Mr. Chapman in the second Quarterly Report reports that a private English School just established at Dinapore should be adopted by Government. He reports a falling off in the attendance at the public English Schools generally, and attributes it partly to the determination of Government to dispense with a knowledge of English as a requirement for candidates for Government employ, and partly to the establishment of the private Schools; the above mentioned total number of English scholars in the district has increased to 1440. With regard to vernacular Schools the jealousy of the teachers and the religious suspicion of the people are still impediments. The Local Committees as Committees show little zeal or energy, but the contrary is true of their members acting individually.

Mr. Robinson, Inspector in Assam and North Bengal in his Report for the quarter ending *October*, 1855, finds the people rather indifferent to education, but by no means absolutely opposed to it. Efforts, to be hereafter extended, have been made for the encouragement of indigenous Schools, fourteen of which have been visited by the Sub-Inspectors and very favourably reported of. The Government Vernacular Schools will it is expected benefit greatly by the Sub-Inspection system. The English Schools continue to be well attended, and the Missionary Schools among the Khassia and Cachar hillmen are efficient and promising.

Mr. Woodrow, in his second Quarterly Report discusses at length the state of the indigenous Gooroomohashoy Schools and the means demanded for their improvement. At these Schools the boys though taught to read and pronounce fluently do not understand what they read. The Gooroomohashoys or teachers themselves are frequently no wiser. But Mr. Woodrow would

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still retain these men as reading and writing masters. "The Gooroomohashoy should still keep his School, collect the fees and teach what he calls reading, writing, and arithmetic but should leave to others the duties which he is himself unable to discharge." This plan has already been successfully adopted by the Krishnaghur Missionaries. The Gooroomohashoys should receive a small fee for each boy attaining a certain proficiency, and the best boys in each School should receive a trifle to induce them to continue their studies. "The Gooroomohashoy system can be maintained at one-fourth of the cost of the Government vernacular Schools."

Pundit Eshur Chunder Surma reports on the Normal School from its commencement to the 30th of November. The School was opened on July 5th, 1855, to retain teachers for the model vernacular Schools. It has a Head Master (native) on Rs. 150, and a 2nd Master on Rs. 50. The ages of admission are from 17 to 45 years. The School opened with 71 pupils of whom the most deserving 60 received stipends. There are monthly examinations at which those who pass are held qualified for teacherships in model Schools, and those who are found lazy are dismissed. 38 students have already passed. Low caste students are for the present excluded. The test for admission is a familiar acquaintance with "Nitibodha, Sacontalah, Bital Panchabinsati, Introduction to Sanscrit Grammar."

Mr. Pratt's third Quarterly Report simply records general progress. Mr. Chapman in his third Report speaks of having previously visited a large portion of the district, he is able to confirm from a strict observation all that he had formerly asserted of the existence of a deep rooted prejudice against the educational measures of Government. The people are persuaded that their conversion is aimed at. They believe that the Missionaries are in the pay of the Government and it is almost impossible to convince them of the contrary.

The consequence is that while a *command* to send their children to School "would be obeyed if not with intelligent assent, at any rate as a decree of fate, our *advice* is despised and rarely followed." Mr. Chapman therefore finds it most effectual "to take for his starting point and to allow his subordinates to do the same, that it is *the order* of Government that people should now educate their children, and that the people ought to be satisfied that Government would not command that which is not good for them. Having laid down this principle we then proceed to prove by every argument at our command, that in so doing Government has no intention whatever to interfere with the religion of its subjects." This is the mode of proceeding which Mr. H. S. Reid has adopted in the North West Provinces.

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In spite of the existing prejudices the Sub-Inspectors in Mr. Chapman's division have made some progress in introducing improved school books and modes of tuition, and in promoting the establishment of new vernacular Schools. One Native Rajah has shown much zeal in the cause of new Schools but the sale of improved school-books has seriously fallen off. Especial measures have been adopted for the improvement of the teachers of the model Schools.

Mr. Woodrow in his third Quarterly Report complains that the teachers of Zillah Schools show little interest in their duty, do not keep up their own reading, and show great ignorance of passing events. "Their idea of Europe is generally derived from Addison and Goldsmith." To remedy this defect the *Illustrated London News* has been ordered out. Several Vernacular Libraries have been established by private exertion, but the sale of school-books has been slow. The Sub-Inspectors have been employed with some success in promoting the establishment of Schools.

Mr. Robinson in his Report for the quarter ending January, 1856, (which submits several applications for Grants in Aid) reports that village Schools in Assam are on the increase, and that the English Schools are making progress. He reports at some length on the Missionary Schools at Sylhet and Cherra Poonjee.

Pundit Eshur Chunder Surma in his Report for the same quarter announces that there are 2,738 pupils in the 20 model Schools authorized for the districts of Nuddea, Burdwan, Hooghly and Midnapore. Their efficiency is creditable, that of the School at Mohespore in Nuddea especially so. The boys in all the Schools display great zeal, and those at Jowgong objected to a holiday when it was offered them. The people take the greatest interest in the Schools and the village elders visit them frequently. One old gentleman at Gopalnuggur in Midnapore actually shed tears of joy on hearing a boy read. The Normal School has made good progress.

Mr. Pratt in his Report for the quarter ending April, 1856, during which he visited the Berhampore and Kishnaghur Colleges, and the most important English and Anglo Vernacular Schools, finds that the boys generally resort to "superhuman efforts at cramming at the end of the term" to make up for the want of continuous exertion. He would also recommend measures by which success at the examinations should be made to depend upon the exercise of the thinking and reasoning faculties, as well upon that of mere memory. This object is attained at the Jonye Training School but nowhere else. The pupils of all the Schools are seldom able to talk good or intelligible English. Gymnastic

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exercises and games are recommended. In some of the Schools the progress of the classes was impeded by big boys who had entered too late and studied too long. There are 51 Vernacular and 19 Anglo-Vernacular Schools receiving Grants in Aid, and much interest is shewn in the extension of *aided Schools*. Three measures from which important results are expected have been sanctioned by the Government, namely the establishment of a superior Normal School, the assignment of Scholarships to Vernacular Schools, and the establishment of a popular Vernacular newspaper. Inefficient Vernacular teachers have been replaced. The Sub-Inspectors have given general satisfaction. Attempts are on foot to establish Public Libraries at Soory and Bancoorah.

Mr. Woodrow, in his Report for the same quarter after premising that his district embracing an area of 33,607 square miles with a population of 76,53,178, is larger and more populous than Ireland, and that it is rendered ten times more vast by the difficulties of transit, especially during and immediately after the rains, says he has been compelled to confine his attention during the quarter chiefly to the 24-Pergunnahs and Baraset. He considers the establishment of Bengalee Schools to be his great business, although where Mussulmans reside in great numbers Bengalee is in disrepute. "A Mussulman gentleman performs his religious services in Arabic, writes in Persian, converses with his equals in Urdu, and speaks to servants and women in Bengalee." He speaks favourably of the Government Anglo-Vernacular Schools, and unfavourably of those supported by private persons. He complains that games and physical training are not attended to. Head Masters are above encouraging them, and the system of Education stamps a sedentary impress on the character of the boys. Mr. Woodrow conducted the Teachership examination at the Presidency College. The result was not satisfactory. The instruction in "common things" is neglected. At the late Senior Scholarship examination for all the Colleges of Bengal there was not a student who could tell why the Punkah produced the sensation of cold. In short the system of education represses the love of enquiry, and dulls the observant faculties. Mr. Woodrow urges the importance of improved training Schools on the "Pupil Teacher" system. He also points out abuses to which the Grant in Aid system is liable.

"A son of a family, of a respectable caste, is fairly educated in a Government or Missionary School. He cannot readily get a situation, and as the expression is 'he sits at home without work' and is supported by his friends. Not feeling comfortable in this dependent state, he prevails on his friends to make an application for a Grant-in-Aid for an Anglo-Vernacular

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School. They agree to subscribe Rupees 25, Government gives an equal amount—and the fees are about Rupees 15. Thus an income of Rupees 65 is raised. He gets himself appointed as Head-master on Rupees 40; and some other dependent of the family as Second-master on Rupees 20, and leaves the rest for contingencies. The family give Rupees 25, but receive back Rupees 60. If these small Schools are carefully watched and none but qualified Teachers are admitted, this private advantage will tend to public good, and Schools will be established where otherwise there would be none. If however the Teacher thus appointed be inefficient, then he must be dismissed or the grant stopped."

The aided Schools are all flourishing. Female education has made some progress.

Mr. Robinson's Report for the quarter ending April, 1856, goes into minute details regarding English and mixed and Vernacular Schools both Government and private, but gives no new facts of moment.

The remainder of Appendix A. consists of the separate Reports by the Principals of Colleges and Schools on their respective charges. They contain nothing calling for permanent record. Appendix B. gives a selection of the more important Circulars, &c. issued during the year. Appendix C. contains reports and papers connected with the Scholarship and Honor examinations and is incapable of abridgment. Appendix D. among other miscellaneous Tabular Statements, gives a detailed Return of students in the Government Colleges and English Schools on the 30th April, 1856, and detailed statements of the Receipts and charges of the Department.

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TO THE

ANNALS OF

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THE Government of India publish on an average a volume every three days. From Reports affecting the entire Empire to accounts of local drainage, from the opinions of the ablest officers to the cost of a cutcha bye-road in a frontier province, every thing finds a place in these publications. There is scarcely a subject connected with Indian Administration on which they do not exhaust official knowledge. There is no officer in the country who may not obtain from them, in reference to his special task, all the advantages of experience. The information thus vast is, however, widely scattered. The Records of one Presidency are scarcely known in another. The books are not very readily procurable, and above all they are like all other blue books dry, ill-digested, and overlaid with detail. It costs an hour to find a fact, and in India men who care about facts cannot spare hours.

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THE

ANNALS

OF

INDIAN ADMINISTRATION.

PAYMENT OF VILLAGE POLICE.

N. W. P. Records, Part XXVIII.

On the 23rd February, 1855, Mr. C. P. Carmichael, Assistant Secretary, North-Western Provinces, submits a Note on the remuneration of the Rural Police. The first correspondence on record is a letter from the Board of Revenue of the 9th April, 1839. In it the Board direct the Settlement Officers to allow to each village policeman 5 beeghas in jaghire. Subsequently, at a conference presided over by Lord Auckland, an opinion was expressed in favour of a fixed money payment. It was held that a salary made the policeman more independent, while the jaghire compelled him to work, and devote his time to cultivation instead of his proper duties. In time of drought the land might yield nothing, and the policeman would be driven to illegitimate sources of gain. It happened thus in 1837-38. Lord Auckland therefore resolved that one rupee per mensem should be the remuneration of a Gorait, but a Chowkeedar should have enough to give him three seers of wheat a day. Where land had been assigned no machinery was required to fix the Police dues. Where money was to be paid the amount should be included by the Collector in the jumma, and paid by the Magistrate half-yearly. This resolution was carried out.

Subsequently the Board re-opened the question in connection with some correspondence between the Magistrate of Delhi and the Settlement Officer of Furruckabad. Mr. Grant, Magistrate of Delhi, held that there should be a Chowkeedar to every thirty houses, that he and the Bullahur should be paid in money, that the Chowkeedar should receive Rs. 4 per mensem, and that the Magistrate should have power to return the money collected to villages which from good conduct or other cause needed less

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than the complement of Police. Mr. Tayler, Settlement Officer answered by quoting an order of the Board of 21st February, 1840, directing that Chowkeedars should receive Rs. 3 and Bullahurs 1 Re. per mensem. Immediately after, Mr. Tayler told Mr. Grant there was no uniformity in the Delhi division, and he did not see how to introduce the new system. Mr. Carmichael remarks it was his express business to see. "In fact Mr. Tayler just did nothing." Mr. Grant exposed Mr. Tayler, who however was backed up by the Sudder Board, and Government sided with the Board. The transaction was curious because the orders of the Board and Government were opposed to Lord Auckland's Resolution, in which both Board and Government had concurred.

In Furruckabad, Mr. Robinson fixed the number of Chowkeedars according to the heavy or light assessment of the villages. The principle was peculiar to himself. In Futtehpore, Mr. J. Thornton held that one Chowkeedar could guard sixty houses, and that every separate hamlet exceeding ten houses should have a Chowkeedar. Payment he thought should be made in money. The Zemindars were unwilling to give up land, particularly land of good quality, and the Chowkeedars' jaghires did not exceed Rs. 20 a year. The Chowkeedars were generally Pasees, and given to robbery. Without at least Rs. 2-8 a month respectable men would not take the office. A dismissal even if accompanied by imprisonment was not much dreaded. Mr. Thornton therefore proposed that the jaghires should be commuted for Rs. 2 a month. Mr. Lowther, the Commissioner supported these views. The Government however held to the Board's letter of 14th August, 1840. This letter, given in the Appendix, lays down the principle that by an assignment of land all parties contribute a fair share to the Police, Government giving up revenue, the Zemindar giving up rent, the people giving certain perquisites. A commutation may be fair, but if additional policemen are added the people cannot in settled districts be forced to pay, and in new districts the Chowkeedar will practically be paid out of the jumma. To pay village policemen out of the revenue seems a doubtful mode of raising a State Police. Mr. Muir carried out these ideas, and he increased the watchmen from 215 to 370. The average number of houses to a watchman was then 58. The Chowkeedars were paid in land.

In Goruckpore, the Commissioner in 1844 reported that Mr. Reade's system which was peculiar chiefly from the establishment of supervising village police officers called Zillahdars, had broken down. It was soon after abolished. The number of houses to a Chowkeedar was 50.

In Agra, Mr. Mansel enforced money payments, and in

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Humeerpore, and Mozuffernugger and Muttra, money payments were enforced. In Budaon, the Settlement Officer granted jaghires. In the Dehra Dhoon a compromise was effected, and the payments made in grain, &c.

In Delhi, Mr. John Lawrence enforced money payments Rs. 3 to the Chowkeedar and Rupee 1 to the Bullahur. In this district there was an odd system of keeping watch by lot, the names of the villagers being written on bits of potsherd, and drawn out at random by the Putwaree.

In Allahabad jaghires were allowed by Mr. Montgomery who however protested against the system. In Banda money payments were made, and latterly the Lieut. Governor ordered that in all future settlements a money allowance should be provided. Thus it is evident that the wise and judicious principles laid down by Lord Auckland were upset within a month of their promulgation. Two-thirds of the Chowkeedaree jaghires exist only on the face of the settlement records, but the Chowkeedars cannot complain because they cannot reach the central station. Payments in money would introduce a more efficient class of men. The Appendices contain the letters summarized above.

THIRD PUNJAB REPORT.

India Records, No. XVIII.

This is the Third Punjab Report. It includes a period from 1st May, 1853 to 30th April, 1856. The information is brought up to date in all branches except the judicial. Sir John Lawrence describes the country:—

British territories, ...	sq. miles,	81,000
Area of Dependant territories, ...	,, ,,	1,00,000
Total area, ...	,, ,,	1,81,000
Population of British territories, ...		1,80,00,000
———— dependant, ...		70,00,000
Total population, ...		2,00,00,000
Revenue of British territories, ...		£ 20,00,000
———— dependant, ...		15,00,000
Total revenue, ...		£ 35,00,000

The border district stretches for 800 miles, is occupied by 30 warlike tribes, and is controlled by a powerful military force. The forces under the direct control of the Chief Commissioner

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comprise an Irregular force of 13,700 men, and a Military Police of 9765 men.

The head of the Administration is the Chief Commissioner. He is assisted by a Judicial and a Financial Commissioner. The head quarters of all are at Lahore, the political capital. There are seven divisions, each with a Commissioner, and there is a Chief Engineer for Public Works, Civil and Military.

Judicial. It has been shewn in former reports that in the Punjab there is a short and clear code, a system of procedure which provides for the attendance of the parties and a summary decision. There are Small Cause Courts scattered all over the country. Every month the reports of every Court are transmitted to head quarters. At the close of the year the figures are made up, averages struck, and a brief critique from superior authority warns officers of the defects apparent, or the ends to be next attained. Every district is parcelled off into Tehsildarees. Every Tehsildar is a Judge of Causes not exceeding Rs. 300. There are 104 of these Courts. Each Court has on an average jurisdiction over 784 square miles, and 1,22,286 souls. No suitor can be more than 14 miles from one of these Courts. About two-thirds of the business of the country is performed in these Courts. There are 111 Regular Courts presided over by Deputy Assistant and Extra Assistant Commissioners. The procedure in both is the same. In 1854, 59,848 suits were tried for property valued at Rs. 43,36,203. In 1855, 61,829 suits were tried for Rs. 45,05,797. The average value of a suit was in 1854, Rs. 72, and in 1855, Rs. 73. About two-thirds of the suits are for sums less than £5. The suits are generally on bond debts, ceremonial dues, and mortgages. Almost all litigation about land is decided by the Revenue Courts.

In 1854, the average duration of a suit was 28 days. In 1855, it was five days less. The cost in 1855 was only Rs. 4-13-3 per cent. Arbitration is employed in about one-third of the cases. In 1855 there were 33,366 executions to 61,829 suits. Only 8 per cent. of decrees were appealed against. Only 20 per cent. of appealed cases were modified or reversed. The privilege of appeal is much valued.

Criminal Justice. The ratio of crime to population stands as follows:—

Year.	Total Crimes and Miscellaneous Offences.	Total Population.	Crimes and Offences to Population.
1854,..	45,715	1,27,17,821	1 to 278
1855,..	41,268	1,27,17,821	1 „ 308

The ratio exclusive of minor offences is:—

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Year.	Total of crimes, exclusive of Miscellaneous Offences.	Total Population.	Proportion of Crime to Population.
1854,..	27,276	1,27,17,821	1 to 466
1855,..	22,002	1,27,17,821	1 „ 578

"The last-named proportion of one crime to 578 persons does appear to indicate a general peacefulness and obedience to the Laws. It is obvious that in such Territories as these, with races so varying, the ratio must fluctuate considerably. The tracts most free from crime are the prosperous States lying East and West of the Sutlej River. The country round Lahore, and also round Jhelum, is about ordinary in this respect. On the Trans-Indus Frontier, the quantity of crime is comparatively light, but its quality is severe. In the Southern regions of the Punjab, that is, round Mooltan and Leia, the numerical amount of crime is great; but more than half consists of cattle-lifting, which, though of course a crime, does not, under the usual circumstances of its commission, indicate any great depravity, and in some respects partakes of the character of a nuisance."

The increase in the amount of crime continued from the annexation to 1855. Crime then decreased. It seems probable that the increase was owing to the improvement of the means of detection, which at last in 1855 began to operate on crime. Heinous crimes such as murder, murderous assault, and robbery with violence are decreasing year by year. Many of the murders reported are in fact mountain raids. Dacoity has never re-appeared. Thuggee is perhaps extinct and certainly dormant. Highway robbery is only prevalent in Native States. Female Infanticide if not extinguished verges on extinction. Even in the lighter crimes a decrease is perceptible :—

	Theft.	Burglary.	Cattle-lifting.
1854,...	11,537	4,213	8,177
1855,..	9,874	3,493	5,351

Cattle-lifting will be further decreased, but it is a difficult crime to suppress. There is an increase in the number of miscellaneous cases. These cases however are personal grievances, and their increase shews an increasing tendency to seek the protection of the laws.

The per-centage of acquittals to trials stands as follows :—

	1853.	1854.	1855.
Per-centage of acquittals on total number tried, ...	45·58	42·60	37·67
Per-centage of acquittals on convictions, ...	93·98	77·72	63·96

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The average duration of cases before the Magistrate is 9 days, and of cases in which Police are employed 14 days. Nearly 99 per cent. of the witnesses are detained only one day. Less than 6 per cent. of the cases instituted during the year are pending at the end of it. The following is the account of punishments inflicted by Magistrates :—

Year.	3 Years.	From 6 Months to 2 Years.	6 Months.	Fined.	Flogged.	Total.
1854,	1,714	5,598	4,294	13,500	2,059	27,165
1855,	1,158	4,610	3,826	16,532	2,078	28,204

It has been an object in the Punjab to substitute fines and stripes for imprisonments. The proportion of stolen property recovered by the Police is about one-third. The estimated value stolen during 1855 was 6½ lakhs. This estimate moreover is the owner's own. Of the serious cases committed to the Sessions about three-fourths result in convictions. Of the appeals from Magistrate's decisions preferred to these tribunals about one-fourth are successful. On the whole criminal justice is improving yearly. "There are few well-informed persons, Native or European, who would not admit that crime is mild and rare, and on its occurrence is vigorously prosecuted and condignly punished."

Police. The Police force consists of "two Corps of Irregular Infantry, seven Battalions of Foot, one Regiment Punjab Cavalry, and twenty-seven Troops of Horse. Their aggregate strength stands at 12,853 men, and their annual cost amounts to Rupees 18,61,572 or £1,86,157, on a population of twelve and three quarter millions. There is one such Military Policeman to 989 people. The Civil Police number 9,123 men, and cost Rupees 8,73,300 or £87,330 per annum. To a population as above given, and to a Territory of 81,625 square miles, there is one such Policeman to 1,395 inhabitants and to 9 square miles. The Civil Police is distributed over 281 Thannahs or subordinate jurisdictions. These jurisdictions contain on an average 102 villages, 290 square miles, and 45,279 persons. The average strength of Civil Police to each jurisdiction will be one head Police Officer, and 32 Policemen. In the larger Towns there is one Watchman to about 520 citizens—these, it will be remembered, are paid by the towns' people. As regards the rural constabulary paid by the villagers, there are 28,879 villages in these Territories, to each there is at least one Constable, so that their strength is not less than 30,000. The agricultural population numbers seven millions of souls, so there is one Constable to every 242 of agriculturists, and to every 2·32 square miles." The Police charges amount to Rs. 24,77,442 per annum. The Military force is thoroughly disciplined and hardly inferior to

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Irregular troops. The Civil Police are all dressed and armed alike. "The dress is plain, of a drab colour; the arms are a sword and carbine for the Regular Police and a staff and spear for the Watchmen. The State is put to no expense thereby, for every man finds his own uniform." The import duty levied at the town gates now provides the Town Police. All towns in the Punjab are thus taxed, and many large villages have at their own request been placed under the same system. The people will tolerate no other form of tax. The largest amount thus levied is at Umritsur, where the tax in 1855 produced £5326. The disarming edict remains in full force. There are no arms to be found any where except in Kohat, where arms are necessary for defence against the surrounding tribes. Not a murmur has been heard. The exportation of saltpetre across the frontier has also been prohibited. The independent tribes used it to make gunpowder.

The Thuggee Department is maintained. About 400 Thugs are still at large, but their "devices are utterly confounded." An Industrial School for the employment of Thug approvers has been established at Lahore, and the members of the Muzabee caste to which they belong are under surveillance. The other criminal classes also are forbidden to move abroad without passports. Torture is punished by long terms of imprisonment.

Jails. The total number of prisoners is 11,802. The total cost is 4,03,324-7 or 30-9-1½ per head. This is about 25 per cent. less than the average cost three years ago. "The general conduct and condition of the prisoners has been satisfactory. Their rations and clothing are notoriously good, especially as compared with the food and dress of the lower classes. Their wards are clean and fairly ventilated. Their general health is excellent. During 1854 the mortality was only 6·21 per cent. And during 1855, 5·07 per cent. on the aggregate of prisoners. In two Jails on the Frontier there have been epidemics, which equally afflicted the neighbourhood. In two Jails also (Rawul Pindee and Dhurmsala) the prisoners suffered in health while constructing the prison buildings. The abolition of out-door labour generally, and the substitution of intramural occupation effected in 1853, have had the best effect, both on the *physique* and the *morale* of the prisoners. The interior of the Jail now resembles an Industrial Institution. There has been no *emeute* or attempt at disturbance within the years under report. Escapes from Jail have been rare. In 1854, only 60 prisoners broke Jail, of whom 48 were recaptured, and 38 during 1855, of whom again 33 were recaptured. Recommitments on second convictions are becoming less fre-

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quent." About half the prisoners are employed on manufactures. The value of the work done of all sorts in 1855 was Rs. 1,61,541. The Jails turn out floor-cloths, rope, country paper and blankets. Lithographic Printing Presses are also at work. "At the close of 1854, only 745 prisoners in all the Jails could read and write; by the end of 1855 the number had risen to 1,350." The following table shews the comparative results of Jail management in different Presidencies:—

	Bengal.	N. W. Provinces.	Punjab.
	1854-55.	1854.	1855.
Average annual cost of each Prisoner, ...	Rs. 37-10-4	Rs. 33-4-11	Rs. 31-8-7
Average per-centage of Mortality on total number of Prisoners, ...	7·04	4·52	5·07
Per-centage of Escapes on total number of Prisoners, ...	0·70	0·66	0·29

Revenue: Land Tax. The land tax comprises three-fourths of the State's resources. "The cultivation, though considerable and increasing, is far from being fully developed; not more than one-fourth of the total area is cultivated. This cultivation, though greatly dependent upon rain, is yet for the most part maintained by irrigation from wells or canals. The great staples are cereals. Three-fourths of the crops consist of wheat, barley, Indian corn and maize of all sorts, and rice. In various parts, sugar (of excellent quality), gram, cotton, indigo, linseed, turnips, pepper, tobacco, turmeric, poppy, hemp, vegetables, are grown; and in all places, some or other of the above products are to be found. But all the miscellaneous products last named united do not cover more than one-fourth of the cultivated area, the rest being occupied by cereals. There is vast pasturage, and there are enormous numbers of sheep, goats, camels and bovine-cattle, the latter of stunted breed. The cultivators are essentially 'peasant proprietors.' There are no farmers or middlemen, and generally no great land-lords. As a rule, each man owns and tills his own glebe, upon which he pays the Revenue and pockets *all* the profits." The proprietors engage with the State by villages, every ryot being liable for every other. The reduction of taxation caused by the summary settlements is estimated at 50 lakhs of rupees a year. The settlement has been fixed in the Cis and Trans

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Sutlej States for 20 or 30 years. In the Punjab Proper the term is ten years, with a proviso that it may be further prolonged. "These assessments have now been completed in the Cis and Trans-Sutlej States, in the upper portions of the Baree Doab (comprising the Sikh Manjah,) and of the Rechna and Chuch Doabs, that is, all the Northern region between the Rivers Beas and Jhelum. Enquiry preliminary to such assessments is progressing in all remaining parts of the Punjab, except the Trans-Indus Frontier and the Mountainous Huzara. The portion already settled is the richest in the whole Territory, and the Revenue regularly, and for the present finally, assessed, amounts to ninety-five lakhs, or nearly two-thirds of the whole Land Tax. The remaining one-third or thirty lakhs will be shortly assessed, and within the next five years, the entire Land Tax of these Territories will have been placed upon a definite and satisfactory footing." A further reduction of Rs. 23,40,675 has been caused by these surveys, and the total decrease is not less than twenty-five per cent. "The rate of assessment per acre per annum in the Cis-Sutlej States is Rupee 1-2-4 or 2*s*. 3½*d*.; in the Trans-Sutlej States Rupee 1-15-7 or 8*s*. 11⅝*d*.; in the Upper Baree and Rechna Doabs Rupee 1-6-5 or 2*s*. 9⅝*d*.; in the Upper Chuch Doab Rupee 1-2-7 or 2*s*. 3½*d*. It will be observed that the rate diminishes as the settlement progresses Westward, the country being poorer; the same result will occur in the Southern Districts. It is estimated that a peasant proprietor cultivates on an average 8 acres, and at a mean rate of assessment (say Rupees 1-4 per acre) would pay Rupees 12 or £1-4-0 per annum to the State. From this point of view the amount would not seem heavy. Again, from searching and accurate enquiry in the Settlement Department, showing the exact yield and value per acre of every kind of crop, it has been ascertained that the Government demand does not exceed one-fifth of the gross value of the produce in rich tracts, and one-sixth, or one-eighth, or even less, in poor tracts." In 1848, the rebel Sikh Chiefs declared in their proclamation that the British Government with their low assessment had sacrificed the State Revenue. The jaghiredars complain that our low rates reduce their revenues one-half. "But since Annexation the lapses and resumptions have balanced the reductions of assessment; for, as regards actual realization, the tax yielded Rupees 1,59,40,722 or £15,94,072, for 1850-51, the highest year, and during the last year, 1855-56, it has still yielded Rupees 1,50,00,650 or £15,00,065." There was substantial reason for these reductions. The classes deprived of bread by Annexation turned to agriculture. A series of good harvests occurred, and prices fell nearly 50 per cent.

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The great remedies for this fall of prices are the introduction of new cultivations and the creation of facilities for exporting. The Punjabees cannot export to the north or west for the countries in that direction are poor. They cannot export to the East for there is abundance already. They can only export to the South, that is to Kurrachee. Sind and Punjab wheat is already exported at a profit to the Mauritius. Some 1,50,000 maunds of produce now with difficulty find their way down the Indus. "That the Punjab must be producing more than it can consume is easily calculated. The cultivated area has been returned at 1,27,51,151 acres. Some three-fourths of this area are certainly grown with articles of daily food, namely, wheat, barley and Indian corn, maize and rice. At an ordinary average of production per acre, namely 6¼ maunds, some 8,01,64,616 maunds or 28,63,022 tons may be produced annually. There are thirteen millions of souls; at an ordinary rate of consumption per annum of about 4½ maunds or 360 lbs. to each person, they would consume 5,90,00,000 maunds or 21,07,143 tons in a year, which deducted from the aggregate produced leaves a surplus of 7,77,481 tons, which surplus, though attained by a rough calculation, will give some idea of the actual state of the case."

For the last three years the uncollected balances have been an inappreciable fraction. In only 16 instances were coercive measures adopted during 1855.

The collection of revenue costs Rs. 4,67,850 per annum or 3 per cent. on the receipts. The suits relating to rent or proceeds or possession have averaged 21,352 per annum for 3 years.

Customs. There are now no customs levied in the Punjab, except on some drugs passing the Kangra frontier.

Excise. Spirits, Drugs and Salts are subjected to an excise. The monopoly of drugs is made over to farmers. The system diminishes the culture of opium, which might be profitably increased. Sir John Lawrence discusses this point, and remarks that the revenue from the Excise amounted in 1855-56 to Rs. 6,07,578.

Salt. The Salt is held by Government as a monopoly. It is excavated from the mines of the Salt Range and sold at Rs. 2 per maund. In the Kohat district the price is only 2 or 4 annas a maund. The sale of Salt in 1855-56 amounted to 9,65,860 maunds, and the receipts to Rs. 19,31,720. There never was so much Salt eaten in the Punjab as now. The working of the mines has been improved. The cost of collection is Rs. 2,54,000 or 13.75 per cent. per annum.

Stamps. The rate for stamps in the Punjab is only half that which prevails in the remainder of the Bengal Presidency. The Stamp revenue amounted to Rs. 3,07,865, the Post Office Reve-

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nue to Rs. 31,58,115, the canal water rent to Rs. 1,82,476. All these except the revenue from the Post Office gradually increase. The Tribute paid by feudatories in the Cis-Sutlej States amounted to Rs. 4,87,205, the miscellaneous ordinary revenue to 7,16,787, and the extraordinary to 8,73,570. "To conclude this important Section, it may be safely urged that the Punjab Revenue is in a sound and satisfactory state. It has been seen that the Land Revenue, in spite of many vicissitudes, is still buoyant, and through the accession of lapses and resumptions still maintains its proper figure. On the other hand the Revenue for Excise on Salt, Spirits, Drugs and from Stamps is annually rising and has become *nearly double* since Annexation. This increase is the more satisfactory in that it results *not* from direct collections, but *indirectly from enhanced consumption of* the dutiable articles."

Education. In 1856, Mr. W. D. Arnold, son of the late Dr. Arnold was appointed Director of Public Instruction. A scheme drawn up by him has been submitted to the Supreme Government. The existing statistics of education are as follows :—

Divisions.	Indigenous Schools.	Scholars.	Population.	Proportion of Schools to Popula tion	Proportion of Scholars to Popula tion.
Cis-Sutlej States, ...	332	8,506	22,82,111	1 to 6,873	1 to 650
Trans Sutlej States, ...	586	6,237	22,73,037	1 387	364
Lahore,..	1,270	12,753	21,17,894	1,667	166
Jhelum,.....	774	5,782	17,62,488	2,277	304
Leia,.....	No regular Schools.				
Mooltan, ...	212	2,186	9,71,175	4,581	404
Peshawur,.....	198	1,128	2,96,364	1,496	262
Total,.....	3,372	31,592	91,10,341	2,701	288

Besides the above, there are Schools of a superior kind, established either by Government, or under Government auspices, at Umballa, Ferozepore, Simla, Jullunder, Hoshyarpore, Kangra, Umritsur, Sealkote, Guzerat, Jhelum, Rawul Pindee, Shahpore. There are also some thirty-five Schools scattered about in the interior of Districts. There are good Missionary Schools at Lahore, Umritsur, Peshawur, Loodianah, Umballa, Jullunder, Kangra, and Kotegurh in the Hills. The Indigenous or Village Schools, are as yet of the rudest description." The teachers are paid by fees. It is proposed to found 30 Schools at the head quarters of districts, 100 Schools in the interior of districts, 4 Normal Schools, and 1 Central College at Lahore. The cost of all, Director and 2 Inspectors included would be 3 lakhs of rupees a year. £1500 per annum should be allotted to Grants in Aid. It is expected that the people will pay 1 per cent. cess on their jumma for education. In the towns part of the municipal revenue

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may be devoted to education. The people will probably contribute £25,000 a year, and with the State grants and this sum education may be set on foot. Provisional sanction has been obtained for this plan, and the educational Staff has been already nearly organized. "At the Head-Quarters or Central Station of almost every District a School has either been founded or taken under management; one Normal School has been commenced; some 11,000 small text and school-books have been distributed." Vernacular education will be the main object of the department, Oordoo being the language principally employed.

Public Works. In May, 1854, the control of all Public Works was made over to the Chief Engineer. At the same time a Director of Canals was appointed; up to May, 1854, there had been 5,229 miles of road constructed at a cost of Rs. 54,50,000. Since that time 3,520 miles have been constructed. The great line is the one from Kurnal to Peshawur, the works on the latter half of which are of the most important character. Between Kurnal and Ferozepore the road is open except in the valley of the Murkunda. From the Sutlej to Lahore the road is only partly made, the space between the Sutlej and the Beeas being only planned. From Lahore to Peshawur the road is open, but a great number of bridges have to be constructed, and none of the road is metalled. Bridges generally speaking, have yet to be made in the Punjab, but some 1500 of sizes have been constructed. No Railroads have been constructed in the Punjab. Sir John Lawrence however describes one projected from Umritsur to Mooltan. This line will connect the Punjab and the North West with Kurrachee via the Indus and its tributaries. From Kurrachee to Hyderabad a line of 123 miles is already advancing. From thence to Mooltan a distance of 302 miles steamers can be employed. From thence the Railroad would extend to Umritsur. That city is already the emporium for the trade of Thibet, Cashmere, Affghanistan and Central Asia. Its trade amounts to 8½ millions sterling a year. Almost all this trade would be devoted to the new line. The traffic with Kurrachee by the five rivers already amounts to 35,000 tons per annum. The surplus production, even now amounting to between a quarter and half a million of tons per annum, would thus find an outlet. Sugar is already grown. Indigo of inferior quality is exported; good linseed can be raised. The soil offers unusual facilities for the manufacture of saltpetre. Wool is already exported, and manufactured articles, shawls, stuffs, silks and carpets may be. The passenger traffic between Lahore and Umritsur is 1,000 a day and about 250 ekkas run daily. The Railway might at once realize £10,000 per annum on this

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first section 35 miles long. Between Mooltan and Lahore or 250 miles the country is a dead level, hard, and waste. There will therefore be no cultivated ground to buy. The configuration of the country is favourable to Railways. The Doab of the Sutlej and Ravee rises in the centre. From this backbone run all the streams. On the backbone therefore no streams are to be met with, and there would be no expense for bridges. It is however essential to the success of the Railway that the rates should be excessively low.

Canals and Irrigation. The old Canals in the Punjab are not permanent but Inundation Canals. That is they are empty in winter, but carry off the surplus created by the melting of the snows, and remain full all the spring and summer. They are most common in the South West. Those around Mooltan are maintained at an annual cost of Rs. 25,700 per annum. Many old Canals remain however to be cleared out. The new Baree Doab Canal is a permanent Canal. It runs from the Ravee down the Doab between that river and the Sutlej from North to South. This work will cost probably a hundred lakhs of rupees, of the main branch, 265 miles long, 135 miles have been excavated. Of the Western Branch, 74 miles long, 60 have been excavated. The Eastern branch is but begun. Sir John Lawrence proceeds to describe the works and observes that Rs. 50,93,660 have been expended The old Huslee Canal, 110 miles long is efficiently maintained. It costs Rs. 25,205, and brings in Rs. 87,315. Other Canals have been proposed, but ought to wait for means of exportation.

Military. "Since May, 1854, important works have been carried on at Peshawur, Nowshera, Rawul Pindee, Mooltan, the Hill Stations of Kussowlie and Dugshaie, and the Sanataria of Murree and Dhurmsala. At Peshawur Barracks for two Regiments of European Infantry, and for two Troops and five Companies of European Artillery, have been under construction. At Nowshera (on the bank of the Cabul River about 30 miles from Peshawur) the station has been altogether formed. At Rawul Pindee Barracks for one European Infantry Regiment have been constructed. At Kussowlie Barracks for one Regiment of European Infantry, are now nearly ready. At Dugshaie Barracks have been built for 200 convalescents. At Murree excellent accommodation has been nearly completed permanently for 200 men (European Invalids) and at Dhurmsala for 30 men. At Mooltan Barracks have been built for one Company of Artillery. At Ferozepore a first class Arsenal, has been advanced to a forward state. A smaller building of a similar kind has been erected at Jhelum." The Military expenditure in 1854-55 was Rs. 26,00,000 and in 1855-56, Rs. 80,00,000.

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The barracks are unusually large each man having from 2000 to 2,500 cubic feet of air. It now costs £1,00,000 to house an European Regiment, and a first class cantonment costs thirty lakhs of rupees. The Civil works completed have been :—

	Number of Buildings.	*Cost.* Rs.
Kutcherries, ...	4	71,933
Jails, ...	5	1,30,336
Revenue and Police Stations combined,	4	24,603
——— Stations, ...	19	1,13,481
Head Police Stations, ...	41	71,810
Minor Police Stations, ...	146	43,666
Supply Depots, ...	52	53,129
Caravanseraes, ...	53	91,127
Wells and Tanks,..	159	62,093
Petty Works, ...	488	1,15,636
Total, ...	971	7,77,954 Rs.
	or £	77,795

The total expenditure has been :—

		1854-55.	1855-56.	Previous Expenditure.	Grand Total.
1. Roads,.....	£	3,70,000	1,60,000	5,92,460	11,22,460
	Rs.	37,00,000	16,00,000	59,24,600	1,12,24,600
2. Canals,.....	£	2,54,000	1,82,500	2,78,800	7,15,300
	Rs.	25,40,000	18,25,000	27,88,000	71,53,000
3. Civil and Miscellaneous, ...	£	90,000	5,500	1,70,000	2,55,500
	Rs.	9,00,000	55,000	17,00,000	26,55,000
4. Military,.....	£	2,60,000	3,00,000	5,82,100	11,42,100
	Rs.	26,00,000	30,00,000	58,21,000	1,14,21,000
Total,.....	£	9,74,000	6,48,000	16,23,360	32,45,360
	Rs.	97,40,000	64,80,000	1,62,33,600	3,24,53,600

Post Office. Sir John Lawrence proceeds to describe the postal arrangements. On the main lines the post bags are carried in good weather by carts, in bad weather by horsemen. There is a Government bullock train from Kurnal to Peshawur. On the line from Lahore to the South West however the bags are carried by runners. There is an effectual district post, from all police posts to head quarters.

Electric Telegraph. The Electric Telegraph connects Kurnal and Peshawur a distance of 520 miles. There is nothing peculiar to the province in its history, construction, or use.

Marine. "The exports of the Punjab by water carriage down the Five Rivers at present consist of cereals, indigo, sugar, cotton, linseed, rice, saltpetre, wool, oil-seed, spices, silks. The

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return traffic consists of piece-goods, spices, dye-wood, Europe stores, and bullion." The native boats which convey most of this produce are very primitive, holding from 400 to 600 maunds. They draw 4 or 5 feet. In the winter they are more lightly loaded and draw only 2½ feet. The freightage from Lahore to Kurrachee is about £2-16s. a ton. The voyage occupies at least 35 days. The last return on these boats taken below the junction of the 5 rivers "for the third quarter of 1855-56 showed 668 boats, passing down with cargo of 2,41,185 maunds or 8,613 tons, and 159 boats passing up with cargo of 23,376 maunds or 835 tons—in all 827 boats, with cargoes of 2,64,561 maunds or 9,447 tons." The steamers of the Indus flotilla ply between Mooltan and Kurrachee. Their charge for freight is 10 or 12 As. a maund. The time consumed is 12 days down and 25 days up. In 1855 they earned Rs. 11,95,931. Steamers of 2½ feet draught could navigate all the rivers of the Punjab.

Finance. The following is the financial abstract of the three years included in the Report :—

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	1853-54.			1854-55.			1855-56.		
	Punjab Proper.	Cis and T. S. Sates.	Total.	Punjab Proper.	Cis and T. S. States.	Total.	Punjab Proper.	Cis and T. S. States.	Total.
Revenue, Ordinary, ...	1,29,29,332	60,54,536	1,89,83,868	1,32,56,067	61,41,322	1,93,97,389	1,31,48,820	61,04,544	1,92,53,364
„ Extraordinary, ...	5,02,150	1,57,147	6,59,297	4,07,883	1,79,066	5,86,949	6,01,999	2,71,572	8,73,571
Total Rs. ..	1,34,31,482	62,11,683	1,96,43,165	1,36,63,950	63,20,388	1,99,84,338	1,37,50,819	63,76,116	2,01,26,935
or £ ...	13,43,148	6,21,168	19,64,316	13,66,395	6,32,038	19,98,433	13,75,081	6,37,611	20,42,548
Expenditure, Ordinary, including all Establishments, ...	90,51,749	20,46,684	1,10,98,433	88,74,789	19,75,073	1,08,49,862	89,67,725	19,62,059	1,09,29,785
Ditto, Extraordinary, including Public Works, ...	29,42,019	6,14,873	35,56,892	54,04,125	5,15,147	59,19,272	43,33,790	10,66,165	53,99,955
Total Rs. ...	1,19,93,768	26,61,557	1,46,55,325	1,42,78,914	24,90,220	1,67,69,134	1,33,01,515	30,28,224	1,63,29,739
or £ ...	11,99,376	2,66,155	14,65,532	14,27,891	2,49,022	16,76,913	13,30,151	3,02,822	16,32,973
Grand Total of Income, ...			1,96,43,165			1,99,84,338			2,01,26,935
„ „ of Expenditure,			1,46,55,325			1,67,69,134			1,63,29,739
Surplus Rs. ...			49,87,840			32,15,204	4,49,304		37,97,196
or £ ...			4,98,784			3,21,520	44,930		3,79,719
Deficit Rs. ...				6,14,964					

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It must be remembered that since annexation £1,45,32,495 has been expended on public works, 37,30,749 having been spent in the past year. Exclusive of that source of expenditure, the annual statement stands as follows :—

		Punjab Proper.	Cis & Trans-Sutlej States.	Total.
Ordinary Revenue of 1855-56, ...	Rs.	1,31,48,820	61,04,544	1,92,53,364
Deduct Expenditure, Ordinary, ...	,,	77,37,818	14,23,635	91,61,453
Remains surplus, ...	Rs.	54,11,002	46,80,909	1,00,91,911
or	£	5,41,100	4,68,090	10,09,191

None of the establishments have increased. Sir John Lawrence calculates the clear profit already received from the Punjab at Rs. 5,55,55,851 figures in support of which statement are supplied.

Ecclesiastical. "From May, 1854 to May, 1856, creditable progress has been made with the Umballa Church; the Peshawur Church has been half constructed; the Meean-Meer Church is far advanced towards completion; the Rawul Pindee Church has been successfully finished. Churches have been commenced at Dhurmsala and at Jhelum. A Church has been planned at Mooltan. Progress has been made with the Murree Church. The Kussowlie, Jullunder, and Anarkullee Churches have been improved. A small Church has been erected at Goojranwallah from private subscriptions and the Church Building Society's Funds." There are 17 Chaplains in the Punjab.

Political. In January, 1854, the Sikh Sirdars were released from imprisonment, and their pensions increased, and in March of the same year the Goorchanees and Kusranees of Dhera Ismael Khan submitted. In February, 1855, the Bussee Khail Afreedies were embargoed and surrendered. In March the Boree Afreedies submitted. In April, 1854, Nazir Khairoollah, a merchant who had assisted Colonel Stoddart and Capt. Conolly received compensation for his losses, and a pension of £600 a year. In September the Michnee Momunds were defeated. In the autumn an Envoy from Kokan arrived, entreating aid against the Russians. He carried back friendly letters. On 30th March, 1855, a treaty was concluded between the British Government, and the Ameer of Cabul. The treaty binds the British Government not to interfere with Dost Mahomed's possessions, and binds the Ameer to regard the friends and enemies of the British Government as his own friends and enemies. In 1855, Mumdote, a Cis-Sutlej State was sequestrated. The country was relapsing into barbarism. The Nuwab

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was therefore deprived of his seignorial jurisdiction. Sir J. Lawrence describes other proceedings of no importance, and proceeds to mention a quarrel between Golab Singh, and his nephew. The Maharajah seized his nephew's fiefs. This man was found wanting at the critical moment. On the other hand the Maharajah was unfaithful to his engagements. The British Government refused to interfere, but remonstrated with Golab Singh. The Rajah was defeated. The Chief Commissioner records some other facts of no importance.

Military. Little has occurred worthy of especial notice. The Irregular Force consists of "ten Regiments of Infantry, five of Cavalry, one Corps of mixed Cavalry and Infantry (the Guides), two Companies of Sappers and Miners, and four Batteries of 30 guns." Their entire cost amounts to Rs. 44,51,137 a year.

Population. On the 31st December, 1854, the census of the entire people was taken in a single night. The people actively co-operated. The general result may be thus epitomized :—

Punjab Territories.	Area.	Population.	Revenue per annum. Rs. or £		Persons to square miles.
British Possessions, ...	81,625·24	1,27,17,821	Rs.	1,96,43,165	155·80
			£	19,64,316	
Political Dependencies,	1,02,884·95	67,50,606	Rs.	1,40,56,534	65·71
			£	14,05,653	
Grand Total, ...	1,84,510·19	1,94,68,427	Rs.	3,36,99,699	105·51
			£	33,69,969	

The average per square mile is less than that of any other Presidency. It is 155.80 while that of Bengal is 311.

"There are 26,210 villages in the Punjab, with an average of about 450 persons to each; 2,124 small towns, containing from 1,000 to 5,000 inhabitants; 76 containing from 5,000 to 10,000: 31 cities containing from 10,000 to 50,000; and four first class cities containing more than 50,000 inhabitants, *i. e.* Umritsur with 1,22,184 souls, Lahore with 94,153, Peshawur with 53,294, Mooltan (including suburbs) with 55,999 souls."

There are 7½ millions of Mahomedans to 5½ millions of Hindoos. The number of Sikhs is believed to be decreasing. The census gives half the people as agricultural, but it is probable that two-thirds are agricultural.

Agriculture. The Commissioner notices several methods in which the cultivation might be improved, and mentions that 25,000 acres were sown in 1855 with linseed. The return was ample, and the profit good. The seed can be sown even on in-

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ferior lands. Further experiments are still necessary to improve the fibre.

Forests. The Punjab is bare of trees, but there are forests on the surrounding hills. The Government has established Agencies at Sealkote, Jh elum, Shahpore and Panjee. At present there is but one Agency the head quarters of which are at Sealkote. Rules have been published for protecting the trees, and the copsewood, but it has been found impossible to prevent the firing of the jungle for cultivation. 28,99,365 trees have been planted, and the peasantry have been encouraged to plant trees along the water-courses. No less than 50 millions of trees will however be needed. Sir J. Lawrence subsequently mentions that tea flourishes in the Kangra Hills, and sells at an average of 2*s.* 8½ per lb. The experiments to introduce the silk-worm have failed, but efforts have been made to improve the breed of cattle and sheep by importing bulls, stallions and rams from England, Arabia and Australia.

Mining. "The Geological Surveyor, M. Marcadieu has examined many localities among the Kangra Hills. In 1855 some iron ore was discovered in the Chumba Hills, near the new Sanatarium of Dalhousie, and a sum of money was placed at the disposal of the Executive Officer of that station. During the present year, 1856, a Committee was deputed to investigate the mineral resources of Kooloo, the North Eastern extremity of the Kangra District. During the last winter, 1855-56, the Geological Surveyor was deputed to visit the Kenana Hills, near the apex of the Doab, between the Jhelum and the Chenab." Iron ore worked by natives exists in the Himalaya. Fuel however is scarce. Coal has not been discovered, and the native ore costs at the mines as much as English sheer iron.

Surveys. "The area surveyed within the past two years has amounted to square miles 17,935, and the cost to Rupees 3,04,667 or £30,466, being at the rate of Rupees 16-15-1 or £1-13-10½ per square mile. There now only remain for this Survey the lower extremity of the country near Mooltan and the lower half of the Doab between the Jhelum and the Indus."

There are 33 Dispensaries in the Punjab, which in 1855 relieved 79,973 persons. The annual cost to the State is Rs. 51,780. A Lunatic Asylum has been established and a Leper Asylum is contemplated. Vaccination extends but slowly, but in 1855, 70,580 cases were reported of which 53,195 proved successful. Sir John Lawrence analyses the system of examinations, summarises the results of the year, and names the officers deserving of commendation.

The Appendix contains financial details, the text of a treaty

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of 1855 with Dost Mahomed, and some official correspondence in answer to a charge of misrepresentation brought by Col. Jacob against the First Report from the Punjab.

COMMUNICATION BETWEEN CALCUTTA AND DACCA.

India Records, No. XIX.

On 11th April, 1855, Col. H. Goodwyn, Chief Engineer, Lower Provinces, submits papers on this subject, and especially Lieut. Greathed's Report. The distance from Calcutta to Dhunkalee at present is about 300 miles. By the route proposed it would not exceed eighty miles. Colonel Goodwyn considers a special and qualified Engineer necessary, with staff sufficient to survey the proposed water channel, or to trace the line of Railway. On 30th May, the Secretary, Mr. W. Grey submits the correspondence, and remarks that "the question of an improved communication with Dacca and the Eastern Districts was taken up by this Government in the early part of last year in connection with the line of road which is being opened up beyond Dacca, through Chittagong to Akyab." Lieutenant Greathed was deputed to survey, and the result of his enquiries may be thus stated. A road leaving the ten principal rivers unbridged would cost 18¼ lakhs. To place steam ferries over the Ganges, Boreegunga, and Dulaseree would cost 5½ lakhs more. To bridge the seven rivers would cost 35 lakhs. But if it is to be done at all, the road should be made fit for conversion into a Railway. This would bring the expense up to 68 lakhs. It thus appears that the road even without bridges or ferries would cost 18½ lakhs, and would not attract traffic from the water route. The Lieutenant Governor does not therefore recommend it.

Lieutenant Greathed suggests a direct canal for steamers from Calcutta to Dacca. The Lieutenant Governor considers this prima facie a startling project. He prefers Major Abercrombie's plan, and would propose that a competent officer be deputed to "conduct a complete and careful enquiry as to the practicability of opening a route for river steamers direct from Calcutta to some point in the Sunderbuns, at an expense not disproportionate to the advantages that would be obtained." The Lieutenant Governor encloses a prospectus of the Eastern Bengal Railway Company, and believes that a railway would not be unremunera-

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tive. Mr. Grey subjoins a communication from the Calcutta Chamber of Commerce advocating a branch Railway on the Calcutta side of the river.

Lieut. W. H. Greathed on 4th January reports that the present line of road from Calcutta to Dacca, a distance of 177 miles divides itself into three Sections. The first from Calcutta to Jessore is 71 miles long, and is metalled and in order to Baraset. From Baraset to Jessore it is unmetalled, but above the reach of inundation. The cultivators however cut through the road to let off any excess of moisture, and this practice together with the stiff character of the mud renders the road very bad in wet weather. It has two unbridged rivers of 180 and 251 feet width. The second sometimes becomes three times as deep and wide as in ordinary seasons. From Jessore to Furreedpore the road is raised and in places metalled to Pookerea. From thence for 34 miles there is no road at all. The flood waters cover it to a minimum depth of 9¾ feet. A line of road to be safe must have 13½ feet of embankment. There are six rivers two of which in flood are 200 feet wide, one 300, one 400, one 1200, and one 844. The last is 60 feet deep. There are minor streams. There is a low ridge which runs east and west across the line of drainage, but from local circumstances described by Lieut. Greathed the road cannot be carried along that. From the end of this 34 miles to the Ganges the road is raised, but insufficient in breadth. There are 3 unbridged rivers in this bit. From the bank to Hureerampore is a mere track. From thence the road is sometimes a raised road, sometimes a mere track, always too low, and always deficient in bridges.

Lieut. Greathed observes that the post is now 70 hours' proceeding from Calcutta to Dacca, or 2½ miles an hour. The transit of troops is so slow as to cause loss and inconvenience to the State, but the general traffic is carried on via the Sunderbunds at the following rates :—

Description.	Value per Ton.			Cost of transit per Ton
	Rs.	*As.*	*P.*	*Pie per mile.*
Rice, ...	31	8	7	4.59
Indigo, ...	4,201	9	7	9.35
Safflower, ..	560	3	2	12.43

This is greatly increased by the cost of insurance, estimated at from 5 to 10 per cent. The rates are thus increased to :—

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Articles.	Actual cost of Transit.
	Per mile.
Rice, ...	6.35
Indigo, ...	130.62
Safflower, ...	43.81

The rates must be considered high, and mercantile communication is therefore imperfect. Lieut. Greathed discusses and condemns the proposal to make a fair weather road. The road to be of real use must be metalled and maintained above the flood levels and " in the construction of such a road from Jessore to Furreedpore expense is the only serious difficulty." Lieut. Greathed proves this statement in detail, defines the line it should take, and estimates the expenditure at 18½ lakhs for the road and 5½ lakhs for three steam ferries, with Rs. 400 a mile for maintenance, and proceeds to discuss a Railway and a Canal. The country " is practically on a dead level (the extreme difference on the 130 miles sectioned being but 13.72 feet.") The export to Calcutta of goods amounts to :—

	Maunds.	*Value Rs.*
From Dacca, ...	... 15,59,125	27,81,070
„ Naraingunge,	... 19,01,000	40,27,875
Maunds, ...	... 34,60,125	Rs. 68,08,945

Fifty per cent. may be added to this for the export of smaller places. The import of salt only into Dacca was 2,79,986 maunds in 1851-52, and though this has decreased it would rise again with a Railway. The total of imports is perhaps 2,89,645 maunds a year. The Serajgunge trade is

Exports, ...	...Mds. 36,30,000
Imports, ...	„ 8,27,600

The Exports are worth nearly a million sterling. Lieutenant Greathed enters into further calculations, and arrives at the conclusion that "we then have 1,12,575 tons as the average quarterly trade *in one direction* or an annual amount of 4,50,300 (four hundred and fifty thousand three hundred) tons, which might profitably be conveyed by a Railway established between Calcutta and Dacca at a lower freight than that which obtains at present. This would, indeed, appear enough to do, being more than is conveyed in a year by any Railway in the United Kingdom, with four exceptions." Lieutenant Greathed believes a canal of 100 feet wide and 10 deep would allow long narrow

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screw steamers to attain a velocity of 15 miles an hour. There would be no difficulty in attaining such a depth. Lieutenant Greathed describes the work, and observes "from the Burraseeah River there is a continuous and nearly direct line of creeks to Furreedpore, open in the rains, and in part during the whole year. From the Ganges to Dacca the case is similar, and with the exception of the creek across the tongue of land between the Dulaserree and Boreegunga the direction is almost continuously straight. If these could be converted into Canals, it would establish 74 miles out of the whole distance, 177, at a very small cost." He considers it impossible to estimate the cost. The Superintending Engineer, Major W. Abercrombie, on 30th March, reviews Lieutenant Greathed's Report, concurs as to the inutility of a road, agrees that a Railway would pay, and gives the following opinion as to the line to be adopted. "As respects the line or direction of the Rail, it ought, in my opinion, to pass through Jessore and through or near Furreedpore; it ought also, if carried through Dacca to be continued to Naraingunge so as to intercept the traffic from Mymensing, Sylhet, and Assam; Feringee Bazar might be made the eastern terminus in lieu of Naraingunge, but this is a matter for consideration and report; if determined on, a common road might connect Dacca, and perhaps Naraingunge, with the Rail. At the western end, I think that the line through Dum-Dum and Baraset should be abandoned; the Rail should be carried from Calcutta to Barrackpore and thence across to Bongong and Jessore." He considers Lieutenant Greathed's estimates generally too low, and does not recommend the Canal. Admitting a speed of 12 miles an hour, the steamers could only run 14 hours a day, and "there are several other objections scarcely necessary to enumerate in the great vigilance required to protect the high embankment across the low country from burrowing animals during the dry weather, the expense of constructing and maintaining communication across the great rivers; the doubtful expediency of entirely damming the inundation across the spaces between the rivers, &c. &c."

The true remedy for existing evils he conceives will be found in a Canal from Calcutta to the Mutlah, which Major Abercrombie does not doubt, "might be connected with an upper route to that point from Khoolna." This question should be thoroughly examined and reported on by a qualified person with sufficient staff. On 28th March, Mr. W. F. Fergusson submits the prospectus above mentioned. On 24th August, Lieutenant Col. W. E. Baker, Secretary, Department Public Works, reports the decision of the Government of India. That Government concurs with "His Honor the Lieutenant Governor of Bengal, in considering that Lieutenant Greathed's survey

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demonstrates the impracticability of forming a metalled road from Calcutta to Dacca at any reasonable cost." They desire to complete the road from Calcutta to Jessore. They have recommended this proposal to the Court of Directors. They believe that the road from Jessore to Khoolna, where all steamers passing through the Sunderbunds touch, may also require to be raised into a second class metalled road. They disapprove the Canal, but with regard to the Eastern Bengal Railway observe "should the projectors of this important measure be disposed to pursue the investigation, and should they hereafter be able to bring forward calculations of cost and returns based on reliable data and exhibiting a fair prospect of success, the Government of India, I am directed to state, will be prepared to submit the project to the Honorable Court of Directors, with their recommendation that the Line be conceded to the Company represented by Mr. Fergusson, on the same terms that have been mutually agreed upon between the Government and the existing Railway Companies."

On 15th January, 1856, the Under-Secretary reports that the Government of Bengal has appointed Mr. Smith, Civil Engineer, to make the investigations suggested by Major Abercrombie. Mr. Smith's report bears date 10th May, and on 22nd May, the Lieut. Governor submits it, with certain suggestions of detail. Mr. Smith discusses the level reached by the great flood of the Ishamuttee in 1824, analyses the information obtained from native officials, and decides that "the present line of road, extending as far as the west bank of the Juboonah river has not been flooded by the highest inundation ever known." The road between the Juboonah and the Ishamuttee was however covered. "The flood line of 1824 being thus shown to be 20.22 under datum, it follows by the concurrent testimony given at Gyaghatta, Kalipore and Bongong, that the flood line of 1839 (which was 4 feet lower) must have been 24.22 under the same, and this level would have sufficed to lay 4 miles of the road between the two rivers under water."

Mr. Smith describes the existing state of the line, analyses different lines suggested, and recommends a route by old Bongong as crossing the Ishamuttee at the easiest point. On 11th July, the Govt. of India orders estimates to be prepared for the road, including the road from Jessore to Khoolna. The route to be adopted, if the Lieut. Governor approves, is that recommended by Mr. Smith. The Appendix contains estimates for all the improvements, and roads and works suggested or discussed by Lieut. Greathed. It contains also various returns of the trade between Calcutta and Dacca condensed above. Of

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these the most important are the returns from Dacca, Naraingunge and Serajgunge :—

Return of Exports and Imports between Calcutta and Dacca furnished by Mr. Forbes, Secretary, Dacca Bank.

	Local Value per 100 Mds.	Annual Amount of Mds. of Export.	Boat hire per 100 Mds.
2. Jute, (loose), ...	Rs. 200	Mds. 1,80,000	Rs. 18
Sun, Hemp, (loose), ...	,, 400	,, 13,000	,, 30
Gunny Bags, ...	,, 432	,, 15,625	,, 31-4
Hides, ...	,, 1,028	,, 9,000	,, 16-4
Muslins and Kussida, ...	,, ...	... ...	... ...
Safflower, ...	,, 2,000	,, 20,000	,, 37-8
Rape Seed, ...	,, 225	,, 80,000	,, 13-4
Linseed, ...	,, 200	,, 50,000	,, 13-4
Kulai, ...	,, 62-8	,, 20,000	,, 12-8
Teel, (Sesamun), ...	,, 125	,, 10,000	,, 13
Rice, ...	,, 112-8	... ...	,, 12-8
Dhan, ...	,, 50	... ...	,, 12-8
Moong, ...	,, 87-8	,, 7,000	,, 12-8
Khessaree, ...	,, 62-8	,, 5,000	,, 12-8
Gram, ...	,, 175	,, 5,000	,, 12-8
Indigo, ...	,, 15,000	,, 3,500	,, 25
Ghee, ...	,, 1,600	,, 20,000	,, 22
Lime, ...	,, 30	... ...	,, 14
Sugar, ...	,, 300	,, 10,000	,, 14
Tamarinds, ...	,, 31-4	,, 8,000	,, 16
Cheese, ...	,, 80	,, 1,000	,, 19
Soap, ...	,, 700	,, 2,000	,, 18-12
Oranges, ...	... ...	{ 1,00,000 / 200 lacs	,, 110 ...
Tea, ...	... ...	,, 15,59,125	...
Railway Sleepers, ...	... ...	,, 15,59,125	...
	... ...	Imports,	...
English Cotton Thread,	,, 3,750	,, 8,000	,, 17-3
—— Piece Goods, ...	... ...	... ...	,, 18-12
Moonga Silk, ...	,, 15,000	,, 300	,, 25

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Messrs. Foley Brothers' Return of Exports and Imports—Naraingunge.

1	2	3	4	5
Nature of Exports.	Local value per 100 Maunds.	Annual amount in Maunds.	Rate of Carriage per 100 Mds. to Calcutta.	Rate of Insurance or transit, or allowance made by Merchants in their calculations to cover loss or damage arising from present means of transport.
Gunny Bags, large and small, per 100,	9 0 0	5,00,000	Fourteen Rupees on average goods.	Ten per cent.
2 Jute, ...	200 0 0	2,00,000		
2 Safflower, ...	2,500 0 0	30,000		
1 Linseed, ...	200 0 0	40,000		
1 Sesamun or Teel Seed,	175 0 0	50,000		
1 Coriander Seed, ...	50 0 0	30,000		
2 Mustard Seed, ...	200 0 0	1,00,000		
2 Anise seed, ...	150 0 0	7,000		
1 Rice, ...	100 0 0	5,000		
1 Paddy, ...	37 8 0	2,00,000		
2 Chillies, ...	300 0 0	5,000		
2 Onions, ...	50 0 0	20,000		
2 Mascally, ...	50 0 0	90,000		
2 Khasaree, ...	40 0 0	80,000		
1 Kalijeera, ...	200 0 0	5,000		
2 Potatoes, ...	100 0 0	10,000		
2 Mustard Oil, ...	700 0 0	30,000		
2 Kuth, ...	600 0 0	12,000		
1 Mathee, ...	100 0 0	15,000		
2 Sun, (Hemp),... ...	300 0 0	35,000		
1 Cotton, ...	900 0 0	10,000		
2 Soap, ...	700 0 0	8,000		
3 Indigo, ...	15,000 0 0	4,000		
1 Lime, ...	40 0 0	1,00,000		
2 Moong, ...	75 0 0	20,000		
3 Deer Horns, ...	300 0 0	10,000		
2 Buffaloe Ditto, per 100,	40 0 0	25,000		
3 Hides, ... per 100,	70 0 0	1,30,000		
3 Oranges, per 100,	0 6 0	1,00,000		
2 Tamarinds, ...	31 4 0	10,000		
2 Turmeric, ...	150 0 0	20,000		

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Estimated Statement of Annual Exports and Imports of the Serajgunge Market, prepared by Messrs Mackey, Barry and Co.

Description of Merchandise.	No. of Maunds.	Price.	Value. Rupees.	Boat hire to Calcutta. Rupees.		Insurance. Rupees.		Total cost of Transit including Insurance.
Exports.								
Jute, ...	10,00,000	Rs. 2	20,00,000	25	2,50,000	1,00,000	5 per 100	3,50,000
Rice, ...	16,00,000	1-4	20,00,000	25	4,00,000	1,00,000	,,	5,00,000
Mustard seed, ...	2,50,000	2	5,00,000	24-12-9	62,000	25,000	,,	87,000
Linseed, ...	1,60,000	2-8	4,00,000	25	40,000	20,000	,,	60,000
Dhall, Kaley, &c., ...	1,20,000	1-8	1,80,000	25	30,000	9,000	,,	39,000
Sugar, ...	80,000	6-8	5,20,000	25	20,000	26,000	,,	46,000
Kar Dolloos, ...	1,20,000	4	4,80,000	25	30,000	24,000	,,	54,000
Turmeric, ...	25,000	2	50,000	25	6,250	2,500	,,	8,750
Ginger, ...	16,000	4	64,000	25	4,000	3,200	,,	7,200
Tobacco, ...	1,20,000	5	6,00,000	25	30,000	30,000	,,	60,000
Indigo, ...	7,000	150	10,50,000	50	3,500	26,250½	per 100	29,750
Sun, (Hemp), 2,000 mds.	50,000	3	1,50,000	25	12,500	7,500	5 per 100	20,000
Hides, 80,000 maunds, ...	1,000 corge	15	15,000	25 (800 corge)	500	750	,,	1,250
Gunny Bags, ...	10,00,000 pcs.	12 per 100	12,00,000	25	20,000	60,000	,,	80,000
Total, ...	36,30,000		91,09,000	25	9,08,750	4,34,200		13,42,950 Rs.
Imports.				Boat hire from Calcutta				
Salt, ...	8,00,000	Rs. 4	32,00,000	25	2,00,000	1,60,000	5 per 100	3,60,000
Mule Twist, 2,400 maunds,	400 bales	4,000	1,60,000	25	600	8,000	,,	8,600
Piece Goods, 8,000 maunds,	80,000	.....	1,60,000	25	2,000	8,000	,,	10,000
Iron, ...	15,000	4	60,000	25	3,750	3,000	,,	6,750
Brass Pots and Pans,—	1,200	40	48,000	25	300	2,400	,,	2,700
Spelter, ...	1,000	9	9,000	25	250	450	,,	700
Total, ...	8,27,600	.. ..	36,37,000		2,06,900	1,81,850		3,88,750
Total of Exports and Imports,	44,57,600	.....	1,27,46,000		11,15,650	6,16,050		17,31,700

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THE DACCA AND ARRACAN ROAD.

India Records, No. XIX.

On 28th August, Lieut. G. Sims reports on this road. He explains the delays which had occurred in preparing the report and proceeds to notice the First Division. "The line commences at Daoodcandy on the River Megna, and passing through the Civil Station of Commillah, ends at Chittagong, a distance of nearly 127 miles." This road is an old one about 5 feet in height and 12 in breadth, with 105 brick drains and bridges. Its conversion into a Grand Trunk Road was commenced in February, 1854, and in the following two seasons :—

"56½ miles well advanced towards completion,
17 „ in progress but not much advanced,
22½ „ but little, or not yet commenced.

Total, 96 miles from Chittagong to Commillah in progress."

The labourers are engaged on the petty contract system. They are however unwilling to work at a distance from their homes, and "it results that many contracts in succession (even in the portion from Chittagong to the Fenny, first commenced,) have not been completed." The 31 miles from Commillah to Daoodcandy on the Megna have not been begun, for labourers are not procurable in Tipperah, and the supply from a distance is drained off to Arracan and Akyab. In Akyab, coolies were actually receiving Rs. 35 a month. 46 new brick bridges and drains are required between Commillah and Chittagong to replace the wooden bridges of the old line. Lieut. Sims observes that most of the old bridges between Daoodcandy and Commillah must be broken up, but these 31 miles are for the present passable for troops. European assistance is much required, particularly in brick making. The expenditure incurred in earth-work for this division amounts to Rs. 79,689-7-1 and the total expenditure in round numbers to one lakh of rupees. The remaining earth-work will cost Rs. 1,55,371, and the bridges about two lakhs of rupees. This is exclusive of the bridges between Commillah and Daoodcandy. The Executive Engineer thinks it advisable to adopt monthly payments for labourers, regard being lead to the diminishing number, and the temptations offered in Arracan. The road in the 1st Division will be fully practicable for troops in the ensuing cold season. "The Second Division extends from the left bank of the River Kurnofoolee opposite to the town of Chittagong as far as the Saleedoung Hill Range, which is said to be the border between the Arracan and Chittagong Districts. It is about 85

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miles in length, and is in charge of Lieutenant Jervis, of the Engineers, as its Executive Engineer." Lieut. Sims describes the old road, and observes that Captain White's track was never completed, and has been devoured by jungle. Even the trace was found for a considerable extent of country quite useless, and was abandoned. Mr. Sims describes the work required, and observes that "at the close of the first season, or in May, 1854, the greater part of the 35 miles in the plains had received renewals, and a road 12 feet broad, raised to a height (varying from 6 to 12 feet in many parts) sufficient to prevent flooding was made passable for troops. Also in the hilly parts cutting down the jungle, clearing the line to 180 feet width, and grubbing up the roots of the jungle in 30 feet, occupied most of the season, but by its close a 12 feet road in the 30 feet breadth was actually prepared. Also from the point commencing White's trace, to Gurjuneeah, on the Baghkhalee, or about 18 miles, the jungle, which was denser and with larger timber than in the preceding part, was opened and cleared to a less width of about 50 feet; and in some parts a passable road, 12 feet broad, raised while the whole was practicable. In the season 1854-55, the Executive Engineer completed the renewal of the 12 feet road in the plains, and then endeavoured to increase the line in the hilly and jungle country from the 35th to the 85th mile from the 12 feet breadth of last season to the 30 feet required for the future Trunk Road." Nearly all the temporary bridges of jungle wood that are required have been constructed, being 154 bridges and 160 drains; the broad streams however remain unbridged, and must be crossed by ferry boats. The expenditure in two seasons has been with establishments about Rs. 1,33,000. The line in the 2nd division will be ready for the march of Regiments in January, 1856. No carts however can travel on it, and the period of its conversion into a metalled Trunk Road must be uncertain.

The Third division commences from the south base of the Saleedoung Hill Range. "It traverses in a southerly direction through the dense forest jungles as lying between the eastern shore of the Naff, and the Hill Ranges, which, at a few miles' distance, run in a course somewhat parallel to the south-east coast of the Bay of Bengal. Through a distance of at least 45 miles of this forest and hilly country the line passes, after leaving Saleedoung until it has turned the River Naaf and emerged into the open and cultivated country about 3 miles to the east of Mungdoo. Thence it continues at no great interval from low hill ranges, for about 16 miles up to the village of Mraugholia, situated about half a mile or so from the sea beach. So far the new line is opened and practicable. Beyond Mraughoha the line will keep

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near to the hills for a few miles, until running south they approach the beach near a peculiarly shaped rock called Kyouk Pundoo. Here the road, after passing between two detached hills on the margin of the beach, will be taken in an easterly direction through a dense forest jungle, frequented by wild elephants, to the foot of the loftier range which separates the River Myoo and its valley from the low country and jungles on the sea coast. Thence the ascent to the pass of Mynowtoung will be commenced," a work of immense labour from the peculiar shape of the Range. The line will then cross the Myo at Rutheedoung, and the Moungyne Creek to Akyab. Mr. Sims describes the work, and observes that the road is practicable for troops to Mraughoha. Thence by the coast line they can reach Akyab. It is impossible in the present position of the labour market to state when the good road will be finished. No estimates moreover have been furnished on account of Lieutenant Mead's illness. Mr. Sims speaks highly of the assiduity and success of Mr. Nield, Assistant-Executive Officer, 3rd Division. On 1st October, Lieutenant Col. H. Goodwyn solicits further orders, and remarks that European Overseers are almost unprocurable.

CREEK NAVIGATION FROM AKYAB TO TOUNGOOP.

India Records, No. XIX.

On 7th January, Capt. W. Dicey, 1st Assistant Master Attendant, reports that "this route is by a series of creeks and small rivers, varying in breadth from 60 yards to 3 miles, perfectly sheltered from the sea, which is only seen at two openings, where the extensive sands and large islands form a complete protection, rendering the communication safe for boats and steamers of a light draft at every season of the year, the least water being 6 feet; and the tides not exceeding three knots per hour on the springs, and two on the neaps. In the dry season the water is brackish throughout." The banks of the creeks have a few small villages. "Boats, without the aid of the steam, would move with great uncertainty as to time, being dependent on tides, which, although favourable in one creek, would be adverse in another. After passing through the Woing-pyke, on the downward passage, and entering the bay formed by Ramree Island and the main land." A large creek at the base of Mount Surma appears the one best adapted for communi-

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cation with Toungoop, being sheltered from all sides. Mount Surma too would afford a good depot for stores and troops. "The least water at the entrance of this creek is 9 feet, and a rise of 6 feet on the neaps would admit vessels of 250 to 300 tons drawing about 13 or 14 feet. When inside, a commodious anchorage is found in 4 or 5 fathoms within a few yards of the nullah already described, as leading up to the village. Vessels of a larger draft should anchor about two miles outside the entrance of the creek in 8 to 10 fathoms, where they may lie with perfect safety at all seasons of the year, and discharge their cargo into boats." From the entrance of the creek to Toungoop is only 8 miles. Capt. Dicey therefore recommends that two small steamers with flats should be attached to this coast. Their draft should not exceed 3 feet. They would carry 500 troops with their baggage, and accomplish the distance between Akyab and Toungoop in three days.

TOUNGOOP MOUNTAIN ROAD.

India Records, No. XIX.

On 3rd July, 1855, Lieut. T. G. R. Forlong reports on this road. It has cost

"The Arracan Section at Rs. 2,088 per mile.
The Pegu Section at „ 3,262 „ „
The Meaday Section at „ 957 „ „

At the end of May, 27 miles had been opened out to a width of "from 15 to 20 feet on each side of the range, being a total of 54 miles out of 80." The gradients are so light that they appear almost intended for a cart road. The great obstacle to work is the shortness of the season, only three months in 1854 and 4 in 1855. This is owing to the fevers which follow the cessation of the rain. It would therefore in Lieut. Forlong's opinion be expedient always to commence with the hill work, some other work which can be carried on in the unhealthy season. Such a practice enables the department to keep its servants instead of depending on chance labour and moreover diminish the comparative cost of superintendence. This might also be reduced in Lieut. Forlong's opinion by substituting officers of the line for Overseers. They cost little more. They make fewer blunders, they control their men better, and they need no spurring. In March, the expenditure

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on superintendence was only 6¾ per cent. on the total outlay. In the unemployed months it rises as high as 25 or 30 per cent. From the commencement in Sept. 1853 to May, 1855 the expenditure on establishment was 12 per cent. on total outlay. The cost of the mountain sections from past experience is £500 to £700 a mile bridged and metalled. Lieut. Forlong mentions and praises his Assistants, particularly Overseer Magrath, who is recommended for promotion as an Assistant Executive Officer. On 27th June, Lieut. Forlong submits a second report on his labourers and their organization.

The labourers are Burmese from Pegu. They are better than Bengalees or Madrasees, and receive usually.

	Men.	*Women.*	*If paid in sets of a Man and Woman.*
Plains, ...	0-3-8 to 0-4-0	0-1-7 to 0-2-0	0-4-0 to 0-5-4
Mountains, ..	0-5-4 to 0-8-0	0-4-0 to 0-5-4	none.

No advances are made, but rice is sold in the camp to them, or an allowance of Rs. 8 to 12 a month is granted to shopkeepers to secure fair rates. The Burmese require kind treatment, personal attention to the men, approval where it is possible to approve, but above all a laugh or a joke. The workmen are organized in gangs under Goungs. These men are paid by the month, and draw a per-centage on the number of their men. At first men of hereditary influence were selected. Now the officers select the ablest. Good Goungs sometimes gain as much as Rs. 50 a month, while indifferent men only earn about Rs. 20. When work is slack or stopped by order the Goung gets from 8 to Rs. 20 a month. From November to May, 2,000 labourers and 1 or 200 carpenters can be kept up, but once Mr. Forlong had 2,300 sets or 4,600 people. In the Arracan Section of the mountain line, 2,000 seems the highest number that can be kept up. Indian workmen do not do well in Burmah. They are too fond of liquor, sickly, and difficult to manage. The Burmese work with a spirit, and the blasting parties are very clever indeed. They want better tools. The Indian labourers become very rapidly demoralized. Of 150 Coringa labourers who were imported in November and who were well looked after and well treated, not 50 are alive, or capable of work from drunkenness and debauchery. The only way to import them is by whole villages, with a promise to employ them for six months in each year. These villages as caste communities would restrain the extreme vice that prevails. Lieut. Forlong adds a memorandum drawn up by him for the guidance of young Overseers. There should be 2 intelligent men who can write to every 100 men. These men

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should act as foremen come for orders every evening, and give the orders the next morning. They must shew no anger at non-fulfilment, but simply require the Goung to get the work done, and put down the men who have not done their tasks in the day book. If a task is really too difficult, and the man who has failed is as diligent as the rest, he should be let off. The Government of India on 21st December praises Lieut. Forlong's report, announces the publication of his memorandum on labourers, and promotes Overseer Magrath as proposed.

JAILS OF BENGAL.

In 1855-56.

On 25th November, 1856, Dr. F. Mouat, Inspector of Jails, reports that in March, 1856, the Jails in Assam, Arracan, and the S. W. Frontier were added to his charge, and that he hopes before the close of next year to have visited every Jail under his control. His chief object has been not to furnish crude theories, but to collect information. Dr. Mouat describes the plan of his report, and proceeds to state that on 30th April there were 18,788 male and 568 female prisoners in the Jails. This calculation however, for reasons given, is imperfect. The number of criminals to population is extremely small. In the Jails exclusive of the lock-ups, there is space for 21,165½ males and 1571 females at 24 superficial feet for each. The amount of 500 cubic-feet ordered by the Court of Directors is seldom available, and many Jails last year were overcrowded. In Rajshahye each prisoner had only 394 cubic-feet, and the mortality was 17.843 per cent. At Dacca it was 330 feet in the less crowded and 300 feet in the crowded wards. It is probable that at the full rate ordered by the Court there is not room for the prisoners. 3,222 males and 365 females were employed in manufactures, the most important being

	Males.	*Females.*
Brick making, ...	752	0
Pounding Soorkee, ...	154	50
Pottery, ...	73	0
Gunny weaving, ...	1558	16
Cloth, ...	759	23
Carpets, ...	373	0
Paper making, ...	1091	26
Basket making, ...	421	0

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"The jails which are most distinguished for the quality and variety of their manufactures are Alipore, Patna, Hooghly, Monghyr, Jessore, Nuddea, and Sylhet." The gross receipts of the year from this source amounted to Rs. 2,00,143 and the net receipts to 90,859-2-1. The following shows the annual amount produced by each prisoner in the four best Jails :—

"Hooghly, ...	Rs.	53-13	3·3
Alipore, ...	...	27-0	2·2
Jessore, ...	...	26-6	2·5
Nuddea, ...	...	22-3	1·2"

6737 persons are employed on the roads, as jail servants and in miscellaneous occupations. The cost of the prisoners amounts to Rs. 8,14,938-12-2, or per head exclusive of establishments to Rs. 256-8-9 a year. Dr. Mouat notices some details in the increase of the average cost, and proceeds to say that the subject of reorganizing the guards is under the consideration of Government. The average of deaths, taking the above imperfect average of the jail population as the basis of the statement, has been 10·307 against 10·075 in 1854-55. As regards caste and classes this mortality showed itself thus :—

	Average Number.	*Deaths.*	*Mean Mortality.*
Hindu Prisoners, ..	11,743·55	1,352	11·513
Mussulman „ ..	6,882·75	469	6·814
Other classes, „ ..	962·92	198	20·562
			10·307

And as regards occupation thus :—

	Average Strength.	*Per-centage.*
Working on roads, ...	3,367·83	17·400
Engaged in manufactures, ..	6,076·17	10·253
Otherwise employed, ...	3,595·34	7·056
Inefficient from age and infirmities,	3,005·29	7·420
Total, ...	16,048·63	10·506

Women were less than half as liable to disease as men, and there is little difference between the mortality of prisoners, in their own districts, and in any other. The healthiest jail was that of Cachar, and next that of Nuddea. The least healthy was that of Bhaugulpore. It is Dr. Mouat's opinion, derived from statistics of the North Western Provinces spread over a very long period, that the great cause of death is disease of the digestive organs, that is, imperfect or unhealthy diet. The escapes have been numerous. During the year the Inspector has been armed with the powers of a Magistrate and the prohibition

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of tobacco has been more rigidly enforced. The first Appendix contains a separate report on the condition of each prison visited by Dr. Mouat. The second contains the number of prisoners in every Jail, the third, the number of prisoners employed in manufactures, the fourth, the outturn of those manufactures, the fifth, an abstract of each prisoner's earnings, the sixth, a detail of his cost, the seventh, detailed statements of mortality, the eighth, the number of escapes. All the results are summarized in the body of the report. The ninth and tenth enter further into the question of mortality, and the eleventh describes the diet. The twelfth contains a correspondence on the suppression of tobacco. The result is that the great body of the Medical Service consider that no ill effects have resulted from the prohibition, and the few who hold it injurious, base their ideas on the assertion that smoking diminishes the influence of malaria.

JAILS OF THE N. W. PROVINCES.

In 1855.

On 27th October, 1856, Mr. Fleetwood Williams reports that there has been an increase in the daily average of prisoners of Rs. 206, but the expenditure has decreased Rs. 43,887-0-11, though Rs. 10,005-2-2 have been granted to Magistrates in compensation for convict labour. Deducting this increased charge the decrease of expenditure is Rs. 53,892. Mr. Williams mentions some details of increase and decrease, and observes that the mortality amounted to 7·14 against 4.52 in 1854, but the increase was caused by an outburst of mortality in Benares and some other jails. At Benares the mortality was 24.59 per cent. from cholera and a very fatal kind of dysentery. The mortality was wholly among the out-gangs the season being unusually sickly. "In the Allahabad Jail the mortality, owing to cholera, was 11.88 per cent. At Mirzapoor it was 10.67. At Azimgurh 10.60. In both these Jails the same disease appeared which was so fatal at Benares."

The number of prisoners employed in manufactures is 3,422 against 2,824 in 1856. The net profits of their labour amount to Rs. 34,872-4-1; 2,384 prisoners are employed in the jails in lieu of hired servants. "The principal and most profitable manufactures in the Agra and Bareilly Central Prisons and Allahabad and Benares Jails, are paper making, blanket weaving, carpet making, manufacture of pottery, ditto of sut-

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runjees, *i. e.* cotton carpets, woollen carpets and rugs. Tape of different sorts, towels, dusters, table-linen and shirting. The printing presses yield large returns, book-binding has been most profitably executed. The dyeing shop and basket manufactory pay well. The iron and brass turning lathe at Bareilly turns out very neat and good work and brings considerable profit." The number of escapes and recaptures has increased. "Attention has been paid to the education of the prisoners to the prescribed extent: 1,339 have been taught in Jail both to read and write, 302 to write, and 3,513 to read." Mr. Williams compares statistics with the Punjab and Bengal remarking that the average of prisoners in the North Western Provinces has been 22,366, and their average cost Rs. 30-9-5¼. The cost is less than that of the Punjab by Rs. 0-15-1¾ and that of Bengal by Rs. 6-14-2½. He proceeds further in the comparison, which is usually favourable to the North Western Provinces, and estimates the net value of convict labour in the Provinces at Rs. 3,95,247-13-0. The Appendix contains the Tables from which the above results are summarized.

THE FORD WAH.

Bombay Records, No. XXXVI.

The Ford Wah is the junction of the Western Narra branch with the Ghorr Canal in the Shikarpore Collectorate. On 15th November, 1854, the Deputy Collector of Larkanah writes that the drain of water from the Ghorr is too great. It is therefore necessary to join it to the Narra. That river has too much water, and by the junction about 8,000 beegas of land now uncultivated will become culturable. The boat traffic between various points will also be accelerated four-fifths. On 24th November, 1854, Lieut. Col. H. B. Turner, Superintending Engineer in Sind, observes that the flood level of the two streams must be ascertained. On 2nd December, the Deputy Collector reports that the levels are favourable. On 12th January, Col. Turner again calls attention to the levels, and on 13th January, Mr. W. Hardy, Surveyor, thinks the Ghorr is the higher, and directs the work to be stopped. Major Stewart, Collector, in Upper Sind on 18th January replies that the zemindars are doing the work for themselves, they are spending Rs. 18,000 on it, and if they place confidence in their own notions of levels Government officials have no right to stop

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them. On 20th February, 1855, the Deputy Collector of Larkanah reports that the Superintending Engineer has taken the levels and pronounced them favourable. The total cost will be Rs. 23,466. Of this amount they are bound to give Rs. 12,375 in labour for canal clearances. The rest is their own, and the Deputy Collector suggests that Government should pay half. On 17th April, 1855, the work is completed, and on 25th September, the Deputy Collector records his opinion that it will increase the revenue by Rs. 80,000. On 21st March, 1855, the Rs. 4,600 remaining to be sanctioned are sanctioned. The sagacity of Lieut. Ford, the Deputy Collector in comencing the work is highly commended. The Canal is 5½ miles long, 10 feet in depth, 30 feet wide at bottom, and cost altogether Rs. 28,560.

THE GEOGRAPHY OF PEGU.

India Records, No. XX.

On 26th June, 1856, Lieut. E. C. S. Williams, Superintendent of the Pegu Survey, reports on the Geography of Pegu. Pegu contains Pegu Proper, and the portion of Arracan, south of the Keintalee Khyoung. The total area is 32,250 square miles. It is bounded "on the North, by a line running East and West 6 miles north of Meaday, and along which pillars have been erected at intervals. On the West, by the Arracan Mountains, and below the Keintalee Khyoung, by the Bay of Bengal, which latter also forms the *Southern* boundary. On the East, by the Sittoung River, as far North as the Youkthwa Khyoung, one of its affluents from the East, in Lat. 18° 33′ N., and above that the boundary is as yet undetermined; all its parts lie within the tropics and are embraced between the parallels of N. Lat. 15° 44′ and 19° 27′ and the meridians of E. Long. 94° 13′ and 96° 52′." The fiscal divisions of the Province are :—

	Sq. Miles.
Rangoon,	9,800
Bassein,	8,900
Prome,	5,500
Henzada,	2,200
Tharawaddy,	1,950
Tounghoo,	3,900

The frontier line is 140 miles long and has two mountain cains for its extremities, the Arracan Mountains on the West,

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and the mountains beyond the Sitang on the East. The Yoma Range midway between these two is of brown or grey slate-clay; with layers of bituminous lime-stone. Overlying these is a bed of laterite covered with trees or bamboos. The Arracan Range abounds in lime-stone, and has some free-stone to the South. In Henzada, granite, green-stone and horn-blende are to be met with, and granite is found in Prome, while there are small patches of coal near Thyatmyo.

The Yoma Range is the backbone of Pegu, running within the Province 5° E. of S. Its maximum elevation is about 2000 feet, but the slopes are steep and difficult. The whole is densely wooded, and three passes have been explored in the Northern part. "Of the mountains east of the Sittoung River, little is known. The main water-shed is said to attain a height of 7 or 8,000 feet, and to be a considerable distance beyond the Koonoung Range, which runs parallel to the river at a distance of 14 or 15 miles, until turned by the Youkthwa Khyoung. It divides the valleys of the Sittoung and Salween and extends on the South to Martaban. For 60 miles south of the Frontier on the East of the Irrawaddy, and for 90 miles on its West", the valley has a rugged appearance, and cultivation can only be carried on in patches. Below these limits the hills subside into alluvial plains, until the valley is lost in the Delta. Its breadth is about 80 miles equally divided by the river. The valley of the Hleing is identical with that of the Irrawaddy. The Puzendoung and Pegu Valleys are alike, and 20 miles north of Rangoon they unite with the valley of the Sittoung, and are lost in the alluvial plain. The breadth of the Puzendoung valley is from 10 to 15 and of the Pegu valley 15 to 20 miles. "In the Valley of the Sittoung, the country to the west of the River, and near the Frontier, resembles the North-eastern portion of the Irrawaddy Valley." The Valley has large plains, but the sea of hills on the West is all but impenetrable, and the Valley is very thinly inhabited.

The plains are either densely wooded or covered with cane and tall grass. Sometimes they undulate, but usually stretch into a boundless expanse of light coloured soil. These plains furnish the wealth of Pegu. "From the Gulf of Martaban, on the East, to Baragué Point, the most Southern extremity of the Province, the direction of the Coast is South-west. Thence to Pagoda Point, about 5° N. of W. being the boundary of the Delta of the Irrawaddy, it is necessarily low, flat, and difficult to make. The Gulf of Martaban is unnavigable on account of its numerous sand-banks, many of which are dry at low tide, and the whole Coast is unapproachable, within 9 or 10 miles, by ves-

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sels of large size, from the same reason, except in a few places, where channels are kept open by the streams of the rivers." At the Bassein River the Coast runs N. by E. Along this Coast spurs of the Arracan Range shoot into the Sea surrounded by dangerous rocks. Between them lie pleasant sandy bays. Most of the rivers are very wide-mouthed, but the coast is very dangerous.

The great tidal wave of the Indian Ocean strikes the coast between Pagoda and Baragne Points, and then runs at 4 miles an hour towards the Gulf of Martaban. The speed then increases, and on meeting the Sittoung it sweeps up that river in a bore 9 feet in height and of extreme fury. No steamers can ascend the Sittoung. This river runs about 350 miles, and drains some 22,000 square miles.

The Pegu and Puzendoung Rivers rise close to each other in the Yoma Range. The Pegu runs S. S. E. for 50 miles to Pegu, where it is 105 yards broad, and then 60 miles to Rangoon. The mouth of the river is vey wide, but it contracts very rapidly and there is consequently a small bore.

The Puzendoung runs usually S. by E. It is discharged into the Pegu river near its mouth. The Hleing rises near the Prome Hills, and falls into the Rangoon River at Kemendine. It is connected with the Irrawaddy at Hteindanuby, a stream as large as itself. It is navigable in the dry season to Tsan-yuay having a breadth of 180 yards, a tidal rise of 2½ feet, and 4 feet of water.

The Irrawaddy rises in Lat. 28° N. and Long. 97° 30′ E. It has a course of about 900 miles, of which 240 are in the Province. Pegu is drained chiefly by it and its tributaries. The waters rise in March, and attain a height of 40 feet above the lowest level. In October, the river subsides sometimes a foot and a half a day. in the northern part the river is clear in the cold season. No rocks exist in the bed below Myoung. Above this the bed is irregular, broken, and full of rocks. Sand-banks and islands are numerous, but are submerged when the river is at its highest. The velocity of the stream ranges between 1½ and 5 miles an hour. Its width at the frontier is ⅔ of a mile. Steamers drawing 6 feet can reach Ava in the rains. The tide is felt as far as Henzada. At the embouchure of the Bassein river there is a sand-bank 10 or 15 feet high, so that no water enters till the river in its annual rise has topped this bank. It receives the drainage of the Arracan Range. It is navigable for ships as far as Bassein, but in the rains steamers drawing 10 feet can pass through it to the Irrawaddy. The Irrawaddy has nine principal mouths, and the branches are

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connected by innumerable creeks. The Rangoon is the most frequented, and the Bassein mouth the deepest and most distant. The other mouths, the China-Bukeer river excepted, are never attempted. The banks of all except the Bassein are muddy and full of alligators. The soil of the Delta is extremely rich, but covered with grass and forest. There are four lakes or lagoons, the water in which is good. The only mineral springs are saline. The climate is good, the nights being seldom sultry, and there is always a breeze. The rains last from 20th May to the middle of October. The fall is greatest near the coast, but is much lighter in the N. W. of the Province. The Province is generally visited by one severe storm a year after the vernal equinox.

Lieut. Williams describes the zoology of the Province. It has monkeys, elephants, bears, jackals, tigers, leopards, oxen, buffaloes and most of the smaller animals in the tropics. Sheep have been introduced and thriven well in the North. The birds are like those of Bengal. Tortoises, turtles, alligators, cobras, vipers and frogs are found everywhere. The waters teem with fish. The jungles abound with trees, of which teak, iron-wood, ebony, jack, wood-oil tree, acacia catechu, gum kino, and cocoanut, are the most valuable. The Province yields "strichnon" senna, castor and croton oil. Rice, maize, cucumbers, pumpkins, brinjals, radishes, sweet potatoes, capsicums, tomatoes, onions, garlic all flourish. The principal fruits are plantains, mangos, tamarinds, jacks, pines, oranges, limes, cocoanuts, melons, bread-fruit, cashewnuts, figs, custard apples, and indigo, safflower, neepasee, arnotto, cotton, mulberries, tobacco, paun, betel, teel, mustard, and sesamum are all cultivated.

The people, a sub-variety of the Malay race average 5-4½ inches in weight 8 stone 2 lbs. inches in weight, and are 32-5 inches round the chest. Lieut. Williams proceeds to describe the ordinary qualities of Burmese, and remarks that the most dense population dwell round Rangoon, in the Henzada District, in the upper portion of Bassein, and about Poungday. The races are located :—

Races and their Localities.

Burmese, ...	The bulk of Inhabitants.	Generally distributed.
Talaings or Moans or Peguans, ...		In the Delta, principally in the South and East.
Pwo, Sho, or Talaing Karens,...		Ditto ditto in Towns.
Sgau or Burmese Karens, ...		Ditto and sparsely towards the North, living apart and often in the wildest spots.

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Karen-nee, or Red Karens, In the Hills, East of Tounghoo.
Khyins, ... In the wildest parts of the Arracan Mountains. The faces of the women are tattoed.
Yeh-baings,... ... ... In the secluded parts of the Yoma Range. They cultivate the mulberry for silk.
Shans, ... In distinct communities, here and there.

THE PEGU SURVEY DEPARTMENT.

India Records, No. XX.

On 20th June, 1856, Lieut. E. C. S. Williams reports on the Survey Department. The Topographical Survey was commenced in December, 1853, but the department was found inadequate and in 1854 was increased. Native Surveyors were made out of Karen lads from the Missionary school at Kemmendine. Lieut. Williams recounts various charges among his officers and observes "up to the 30th April, 1856, about 14,000 square miles of the most populous parts of the Province have been surveyed, at an expense of about 96,000 Rupees, or very nearly Rupees 7 per mile. Judging from the results of Surveys executed in India, the Superintendent was at the outset, under the impression that the Province might be mapped at the rate of Rupees 5 per mile. The Survey ought to be completed in two more seasons, *i. e.* by the close of 1858."

REPORT ON THE TOUNGHOO DISTRICT OF THE SURVEY.

India Records, No. XX.

On 8th May, 1856, Captain R. Stewart reports on this district. "The North-eastern or Tounghoo District of the Pegu Survey is situated between the parallels of Latitude of the Frontier and Pegu. The Yomah Range of Hills, forming the Western boundary, and the limit of the Provinces of Pegu and Martaban the Eastern. The average length and breadth are about 145 and 50 miles, and the approximate area about 7,250 square miles." The Sittoung runs nearly N. and S. to the East of the centre down the district. "For an average of 15 or 20 miles the country to the West of the Sittoung River is almost a dead flat; small hills then appear, which continue increasing in height till

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they join with the Yomah Range." From thence to the Yomah Range the country is impracticable, has few footpaths, few villages, and those small. East of the Sittoung the country is rugged, some of the hills rising to 7,000 feet. Nothing is known of this part of the country. The whole of the Tounghoo district is covered with jungle, either of cane or wood, and bamboos. In the South the soil is clayey changing towards the North into laterite. To the West of the Sittoung there are no stones or rocks "excepting on that ocean of small hills already described. There, there is some slate, some sand-stone, and large blocks of rocks." To the East of the Sittoung large masses of lime-stone are found. To the west of the Sittoung are seven large creeks, and a few to the East, but the latter have not been examined. There are no roads. There was once a brick road from Tounghoo to Pegu, but it is obliterated. Troops can march between these two points via Shwaygeen. The population is very small, about 4,053 of both sexes. For the rest the district is like all other parts of Pegu wanting only population.

JOURNAL OF A TOUR FROM TOUNGHOO TO THE SALWEEN.

India Records, No. XX.

Mr. E. O'Riley, Assistant Commissioner, left Tounghoo on January 16th, 1855, by boat. By the 19th he reached Moo Ban where the country is covered with betel-nut plantations. They are grown on the hill sides. The trees are good, but too close. The nuts are exported to the North, and with a better method of planting these might supply the Rangoon market. The Karens too cut down a portion of the trees when a Chief dies, that he may not lack nuts in another world. On January 21st, Mr. O'Riley had reached Yai Boo and proceeded to examine the hot springs. It was found impossible to reach the larger springs, but "those accessible from the halting place, bubble up from beneath the large granite boulders through a sand of quartz crystals deposited by the disintegration of the granite, the water having a temperature of 129° possessing no smell and leaving no deposit similar to those of a calcarious nature, nor does the taste exhibit any chalybeate property." It is Mr. O'Riley's opinion that the water becomes hot from mechanical causes, not from any chemical combination. Two springs seen next day were 138° and 135° Farh. respectively. On January 23rd, Mr. O'Riley examined the country near Swaieenig Tsakan for gold. A few spangles of gold were obtained, but a deeper

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shaft was required, which he had not the means of sinking. Mr. O'Riley proceeds to describe the hills, remarking on the wide spread cultivation of the Karens. He mentions also the incident of his being visited by a Karen Chief and his tribe, all very drunk, and disposed to be turbulent. Next day two children stolen were given up, the Chief promised to abandon child stealing, and asked for a Karen Teacher. The route all along was most difficult, the elephants in one place refusing to move till their loads were taken off. On 31st January, on the Mookyee Khyoung, the Karens objected to Mr. O'Riley proceeding further, the real reason of the opposition being a blood feud between two tribes. The Karens of the space between this halting place and Nat-Toung were jealous of his approach, fearing they should be seized and sold into slavery. They however were disabused of this idea, and promised assistance. They refused it, however, and aid was at last brought in from the villages previously passed through. The Karens of the place are wretchedly debased, but cut down trees thus. "After the morning's meal, the whole of the men and youths proceed to the place of clearing and, taking a line from the base of the hill, commence operations by making only a slight incision into the wood of the largest trees, the smaller ones being left untouched, ascending higher up the trees of largest growth receive a deeper incision on the side of the ascent, and so on in proportion as they reach the highest point for the day's work, and when the line has been completed the trees at the top, which are selected for their height and fulness of head, are severed through falling upon those below; an impetus is created which increases as it moves steadily down the hill side, and with one lengthened crash prostrates the whole of the forest vegetation; the noise of the falling trees, accompanied by the shrieks and yells of the operators, forms a combination of sounds truly demoniacal." They also make suspension bridges of bamboo of 60 and 80 feet span. The people never wash themselves, but bear cold wonderfully. On February 9th, Mr. O'Riley after pushing through the pine forest for some days begun the ascent of the 'Nat-Toung,' and by noon reached an altitude of 7,800 feet. "From this point the whole of the mountain systems were traceable so far as the haze would admit of their outlines being followed, those in the far distance to the Westward, forming the Valley of the Pung-Loung of the lowest height ranging from 2,000 to 3,500 feet; more Easterly the higher ranges passed on the line of route, with their tops covered with pine forests having an altitude of 4 to 6,000 feet, with a bold outline and exceedingly steep flanks; and high above all the range upon

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which I stood, some portions more to the Northward being fully 500 feet higher than the summit of the 'Nat-Toung,' or probably 8,500 feet." A range was visible to the Eastward some 10, or 12,000 feet high. Mr. O'Riley resolved to return, fearing to embroil himself with the Karen-nee Chiefs. Mr. O'Riley records the particulars of his return journey, of no interest except the fact that many of the trees on his road were true "gamboge."

MAJOR JACOB *VERSUS* PUNJAB ADMINISTRATION.

India Records, No. XX.

On 28th May, 1855, Mr. Frere, Commissioner in Sind, forwards a letter of Major Jacob to the Supreme Government, and observes that the peculiarities of Major Jacob's frontier management are that his men never wait to be attacked, that marauders are checked whatever the odds, and that no private person is permitted to plunder or kill even an enemy. The plea of blood feud in such cases is considered an aggravation, as proving malice aforethought. Such is Major Jacob's influence over the frontier tribes that rapine, once an honorable occupation, is now looked on as disreputable, and the troops look down on the marauders as malefactors rather than enemies, and the plunderers in their turn are afraid to meet the troops. In short to quote Major Jacob's own words "'the essence of the whole business is first to put down all violence with a strong hand; then your force being known, felt, and respected, endeavour to excite men's better natures, till all men seeing that your subject is good and of the greatest general benefit to the community, join heart and hand to aid in putting down or preventing violence.'" This, proceeds Major Jacob, was done, and the tribes submitted. Their character has been changed. Twenty thousand souls have taken to peaceable pursuits, and the men of the Sind Irregular Horse are looked on as friends all over the country side.

In the letter enclosed from Major Jacob he complains that at page 40, para. 133 of the Punjab Report, it is said, "the Sind Horse 1,400 strong (of which each man receives 30 Rupees per mensem) guard a Frontier only 70 miles long, and that distant generally 30 miles from the hills. The Eusufzye Frontier, from Toongyee on the Swat River down to Pehoor on the Indus, is of the same length as the Sind Line from Kusmore to Khangur, and yet the former is patrolled and defended by the Guide Corps, 800 strong, including both Cavalry and Infantry. In neither case are the supports taken into considera-

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tion. Our Derajat Line is supported by the Cavalry of Dera Ismail Khan, Asnee, Dera Gazee Khan, and Bunnoo, and the Sind Line by those of Sukkur and Shikarpoor." The Sind frontier is 185 miles long and the Sind Horse is the only body which since 1847 has been on the frontier. Major Jacob calculates that in Sind there are 2 men to the mile as guards while there are 4 men per mile in the Derajat. The nearness to the hills of the Punjab men is an advantage, as the cavalry have no distance to go. No man on the Sind border is allowed to carry arms, and thousands have become quiet cultivators. "The paragraph quoted above from the Punjab Report being founded on imperfect information, is then evidently incorrect as to fact, and unjust as to conclusion; and I beg respectfully to claim, as I think that I have a right to do, the protection of the head of the Province in which we have so long served, from these injurious remarks made and published, regarding our proceedings, by the Board of Administration of the Punjab, who have evidently been misinformed as to the state of things and to whom we are not responsible." This letter was transmitted to the Chief Commissioner of the Punjab who on 8th October, 1855, replies that the remarks complained of were written from notes compiled by Sir Henry Lawrence. He is sure that the Board had no intention of misrepresenting Major Jacob. "The Chief Commissioner has no personal knowledge himself of the exact circumstances of the Sind border. He has always understood, however, that there existed a wide extent of desert between the cultivated and inhabited portions of Sind, which Major Jacob's Force guarded, and the hills from which the robber tribes issued to plunder." That would be an advantage, as Cavalry could get between them and the hills. The Board did not state as Major Jacob seems to think "that 400 Cavalry and 800 Infantry guarded the 300 miles of the Southern Derajat, but that 800 men in all guarded the 300 miles of the Southern Derajat." The Chief Commissioner cannot think the proximity of the hills an advantage, as the villages are liable to be plundered, before the troops can be collected to afford aid. The tribes in the broken ground at the foot of the hills are very formidable. The Chief Commissioner "cannot believe that small Detachments of Cavalry, however excellent, could hold open posts close under the hills with impunity It is not merely the Chief Commissioner's opinion, but it is that of some of the best Officers of Her Majesty's and the Hon'ble Company's Service, that the Guide Corps and Punjab Infantry are not to be surpassed by any Native Troops in India. But even a small Detachment of these men could not safely be posted in the open plain in the vicinity of the hills."

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FLAX IN THE PUNJAB.

India Records, No. XX.

On 23rd September, the Secretary to the Chief Commissioner for the Punjab submits certain proceedings with respect to the cultivation of flax and rearing of silk-worms in the Punjab. With regard to flax the Committee desire to rent 30 or 40 beegahs of ground at Rs. 20 per beegah, on account of Government. They feel confident that the profit will not be less than Rs. 2,000, and the Chief Commissioner therefore requests sanction for the expenditure. As regards silk the Committee recommend the offer of graduated rewards such as were given for tea in Kangra. The prizes proposed are Rs. 250 for the largest quantity of dried merchantable cocoons, Rs. 200 for a quantity not less than 75 seers, and Rs. 150 for any quantity not less than 50 seers. Moreover Rs. 250 worth of eggs should be forwarded from Moorshedabad. For the cultivation of the mulberry the Society recommend a prize of Rs. 500 for the largest piece of land devoted to it not being less than 100 beegahs, Rs. 350 for the next largest not being less than 75 beegahs, and 200 for the third largest not being less than 50 beegahs. Moreover they advise the appropriation of some beegahs of land near the Gardens to the cultivation, all which recommendations are favourably submitted by the Chief Commissioner. The Memorandum from the Society follows, detailing the recommendations summarized above. On 13th October the Government sanctions all these proposals except the renting of 100 beegahs of land for the cultivation of the mulberry. In reply on 30th January the Chief Commissioner assents to the propriety of abandoning the mulberry portion of the scheme, states that the expenditure on silk has already been Rs. 16,867, and observes that the returns will not cover the expenditure. The Chief Commissioner recommends that the experiment should be carried on for two years more at a cost not exceeding Rs. 17,000. There were signs of progress. On 27th February Government sanctions Rs. 11,588 in addition to the sum previously sanctioned, upon the distinct understanding that no further assistance will be granted. On 16th July the Secretary to the Chief Commissioner again reports that during 1855 the experiment was vigorously prosecuted. It was then decided to proceed with Cashmere worms, but they died as readily as those of Bengal. The silk experiment has therefore failed in toto, after an expense of Rs. 10,569-9-8. The value of the silk produced was only Rs. 1100. "The conclusion, therefore, I am to state, appears to be that the climate in this part of the Punjab is ini-

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mical to the production of raw silk." The Northern parts of the Punjab have a different climate, but the Government has not the means of trying the experiments there.

On 12th February, 1856, Mr. D. F. McLeod, Member of the Council of the Agri-Horticultural Society submits his views on the silk experiments. The Bengal worm has failed. He thinks the Cashmere insect on the other hand, which is identical with that of the South of Europe, has not had a fair trial. He therefore considers it expedient that the experiments should be continued. For it is found "that all the operations of the season can be closed by the end of April, and last but for two or three months in all. The silk produced from this worm in its present state, and as at present reared and fed, is greatly perferred by the Native consumer to the Bengal or other kinds, being much stouter and stronger." That the insect thrives admirably on the indigenous mulberry, that the insect is much more hardy than that of Bengal, that its yield is larger than that of the Bengal worm, and that the worms hatching from the eggs of last year are so strong and vigorous, as to shew that there is no progressive deterioration. Therefore Mr. McLeod is of opinion that the experiments should be persevered in. Major J. M. Drake thinks the Bengal worm a failure, but that the Cashmere worm should have a further trial. Major Burnett sees little prospect of success, but would continue the experiments. Mr. Temple thinks the Bengal worm a failure, and has no hope from that of Cashmere. The Society generally resolve on 16th May, 1856 that the experiment was a decided failure. On 31st May the Secretary to the Society recapitulates the facts.

20 seers of eggs were collected in Cashmere, 7 seers more were forwarded by the Maharajah, and Rs. 25 worth were sent up from Moorshedabad. For the first three weeks the worms looked promising, then the supply of food fell off, and then the hot winds commencing the leaves arrived in a very unhealthy state. The earlier cocoons were fine, but soon after they fell of. "Ten maunds of cocoons have been produced which have yielded 79¾ lbs. of clean silk. About 40 lbs. of cocoons have been disposed of in supplying eggs for next year, of which there are available, for distribution, about ¾ seer." The months of April and May are in fact at Lahore too dry. The total expenditure on the experiment as before stated was Rs. 10,569-9-8.

WET AND DRY DOCKS.

Bombay Records, No. XXXIII.

On 31st October, 1854, Col. C. Waddington, Chief Engineer, submits a plan for the distribution of the space to be recovered

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from the Sea at Moody Bay. A project for the construction of Wet Docks by a company of merchants had been submitted to Government by Mr. Heycock. It was thought very desirable "to combine this project with the arrangements for the Custom-house at Boree Bunder, so long as the present fortifications of Bombay shall be retained, and no building of durable construction could be permitted on the Esplanade of Fort George, and so close to it."

The scheme was to construct Docks between Boree Bunder and the Carnac Bunder or half a mile from the new Custom-house. Col. Waddington objects to the removal of the Custom-house to Boree Bunder. There are other objections, and weighing every reason for and against Col. Waddington submits a plan for two Wet Docks at Moody Bay each capable of accommodating from eleven to thirteen vessels of moderate size. The ground allotted for the Railway will thus be diminished by 40 feet, but to this there will be no objection. A plan is given, as is also that of Mr. Heycock. On 17th March, 1855, the Government resolve that Mr. Heycock's proposition and the Chief Engineer's letter be submitted to a Committee. The Committee consisted of the Chief Engineer, Mr. Heycock, Commander Daniell, R. Strong, Esq., R. Spooner, Esq., Acting Commander of Customs, J. J. Berkley, Esq., and Major Estridge, Executive Engineer named by Government, and two gentlemen named by the Chamber of Commerce. On 25th April, 1855, the Committee through their President, Major General Waddington requests Government to furnish an Engineer to examine the sites at Boree Bunder, Moody Bay, and the space between Bummalow Island and the Apollo Pier. Subsequently Lieut. Selby of the I. N. is named as an officer well qualified for the task, and on 5th May Lieut. Selby is directed to commence the work. The Committee was slightly changed, and on 10th October, Major General Waddington reports the final resolution of the Committee. That resolution is that the "advantages which the site proposed by Mr. Heycock presents are overbalanced by the probable difficulties and expense of construction on that site." That the site at Moody Bay is not large enough, and the works would be expensive; that the site between Apollo Bunder and Arthur Bunder appears the best. "It has the paramount advantage of ample space, is easy of access by sea, possesses commercial conveniences little inferior to those of the Moody Bay site, and, with reference to the accommodation to be obtained, may probably be built on at a lower cost." The proceedings of the Committee follow, but the result has been summarized above, and the only new fact is the following estimate:—

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	Mr. Gerrard's Estimate.	Corrected Estimate.
Docks between the Carnac and Boree Bunders (Mr. Heycock's site,).... Rs.	11,01,149	17,79,925
Docks at Moody Bay, ... ,,	7,86,615	12,71,504
Docks between Apollo and Arthur Bunders, ... ,,	9,68,079	15,64,826
Docks south of Arthur Bunder, ... ,,	8,80,954	14,23,996

On 19th October, the Governor records in a minute his opinion that Mr. Heycock's plan was in some respects the best, and that it was only the proposal to construct the Docks by a Joint Stock Company which prevented Government constructing them itself. Mr. Lumsden on 23rd October records his opinion, that no site should be arbitrarily fixed by Government. As a matter of individual opinion he thinks the Docks between the Apollo and Boree Bunders would as respects depth of water and saving of expense be most eligibly situated; but he considers the commercial advantages of Mr. Heycock's plan so great, that had not Mr. Heycock given it up in deference to Capt. Selby's Chart he would inform Mr. Heycock that Government would support his plan. Mr. Lumsden annexes a Memorandum from Mr. Heycock which he thinks valuable. In this Memorandum Mr. Heycock observes that a Company would require from Government, 1st, a grant of a site; 2nd, an Act empowering the Company to levy Dock dues. The site at Boree Bunder is between the Fort and Town, the position is well sheltered; "*3rd*, the entrance to the docks would be in the direction of the ebb and flow of the tides, and is not obstructed with rocks; *4th*, the docks would furnish more space than the trade at present requires; *5th*, the railway runs close by the intended docks; *6th*, by a removal of the soldiers' lines, and keeping the railway off the shore, as at present, extensive accommodation for ground-floor godowns or sheds, besides those along the quays surrounding the docks, can be erected, sufficient to store a very large portion of the goods brought to Bombay." To obtain these results the railway terminus should either remain where it is, or be continued to the back of the Mint. "It is not necessary that the Custom-house should be close to the docks, but rather that it should be near to the offices of the merchants, and, at the same time, in the direction of the docks, so that a communication is easily kept up with the docks, and with the offices where nearly all the entries are filled up." The site at Moody Bay is too confined.

On 24th October, Mr. A. Malet records his opinion that if the Railway terminus is removed from Moody Bay there will be room for wet docks there. "It seems to me that by this plan

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all the necessities for wet docks will be provided ; the Railway terminus will be in a better situation than at present contemplated ; and for the public, ample access to the harbour between the two premises will be maintained." He also suggests that Government might undertake the works itself.

On October 29th, the Governor records in a further minute his opinion that making the use of the Wet Docks compulsory would be ridiculous. The time of large ships is valuable. It will be economized by using the docks. Therefore the docks will be used. He cannot agree that the choice of site is to be left to the Company. As Government gives the site it has a right to a voice in the matter. The reasons which induce him to prefer Boree Bunder or Moody Bay are that neither would interfere with the Esplanade, the only space left open for recreation and exercise, nor would either render it necessary to carry the Railway through populous thoroughfares on the same level. On 5th November, Mr. Lumsden considers Mr. Malet's plan, if practicable, very good, but still thinks if a Commercial Company is to execute the work, it is not for Government to interfere in the selection of a site. Moreover he fears that no Commercial Company will undertake the work, unless the use of the docks is made compulsory, to which he entertains a decided objection. On 13th November, the Government informs the Committee, that it may be possible by removing the Railway terminus to the space between the Carnac and Boree Bunders to construct the docks at Moody Bay. The opinion of the Committee is requested on that point. As to the space between the Apollo and Arthur Bunders it must be noticed that "should it be necessary to connect the docks by a tram or railroad with the Railway terminus, and the commercial town, not only would some of the principal thoroughfares in Bombay be intersected, but the Esplanade, which is now almost the only space left for recreation and exercise in this populous island, would be seriously interfered with." The Committee on 3rd December reject the Government proposal as the removal of the terminus is objectionable. It would be further from the fort and Colaba ; it would be difficult of access ; it would not be in contact with the wet docks. As to the danger from the Railway passing over the Esplanade that may be obviated. Mr. Heycock and Mr. Kerr dissent. On 13th December the Acting Collector of Customs, Mr. Spooner in reply to a question from Government states that the expense of loading and unloading by boats is 4 annas per ton in the fair season, and 6 to 7 annas in the monsoon. A contractor "would undertake to bring goods all the year round from a dock, situated about where the Custom-house now is, to his office, for 6½ annas per ton less than from a ship in the har-

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bour to the Custom-house, and thence to his office." The length of time required to unload a ship of 500 tons is from twenty to twenty-five days. One-half the time would be saved. It is impossible to form an opinion as to the return to be expected from the docks, but the extreme of benefit to be derived would be Rs. 1,11,530 per annum. The tax on trade therefore should not be greater than that.

On 20th December, Mr. Lumsden records his opinion that the site between the Apollo and Arthur Bunders is the best. Moody Bay will scarcely hold the Railway terminus, and the expense of excavation will be great. There is "one most important advantage in working between the Apollo and Arthur Bunders, that is possessed by no other site, and for which no other advantages which other sites may possess can in my opinion compensate,—I mean a natural basin of deep water, and a natural reef or ramp of rock outside of it, admirably suited for forming the base, and supporting the foundations of quays and piers to seaward."

On 27th December, Mr. A. Malet is unable to acquiesce in this opinion. The objection to Moody Bay is its smallness. It is only about five acres smaller than the space between Apollo and Arthur Bunders. The space for the terminus from Carnac Bunder to the beginning of the Docks would be fifty acres. On 2nd January, the Governor adheres to Moody Bay as the best site. The objections of the Committee refer only to the site for the terminus. The greater distance of the terminus from the Fort, alleged by the Committee as an objection, seems of little weight. As to the terminus not touching the docks it can be made to touch them. As to the space required no site affords so much space as that between Carnac and Boree Bunders. On 13th January, 1856, Mr. Lumsden again observes that to make the curve necessary to lead the Rail to Carnac Bunder the bunder must be cut through, at an enormous expense. He objects also to the site because, "if you take more ground from the harbour in that neighbourhood, you destroy the main access to Carnac Bunder. The ground required for a railway terminus should be an oblong; as as I am informed breadth, without length of area, is of little use here. A terminus so placed would be at once the most difficult, expensive, and dangerous to work." He adheres to his opinion that wherever the terminus is placed, the site for Docks is between Apollo and Arthur Bunders. The Government on 13th February ordered a plan to be prepared which was done. On 23rd May, 1856, the Government decide that Moody Bay is the preferable site for Custom-house, warehouse and Docks, and the spaces south of Carnac Bunder for the Railway terminus. The Go-

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vernment announce that if no Company is formed, it will propose to do the work itself.

THE MINERAL DEPOSITS OF KUMAON.

India Records, No. XVII.

On 26th December, 1855, the Government of the North West Provinces transmits Mr. Sowerby's report on the Survey of the Iron deposits in the Bhabur. The mines of Nutowa Khan Agur yield micaceous specular iron ore, very rich. The mines have the advantage of the Ramghur stream which never dries. The surrounding hills are covered with oak. The mines at Oojoulee, near the Loha Kot produce a rich red ore of specular appearance. The beds are 3,000 feet above the Kossilla river, and the ore could be brought down a mountain stream half way down the hill. "The iron ore near the Khyrna Bridge is a rich red hœmatite, like the ores in Cumberland and Lancashire." The deposit is very considerable and timber plentiful. The Agur and Bhabur mines might be connected by a pass behind Chenur. In Dechouree a bed in situ exposed to a thickness of about 20 feet has been found. The works at Dechouree are proceeding. Mr. Sowerby has selected sites for an experimental furnace on the Boer river, but water must be artificially raised. There is ore at Bhuggur, near Dereealkara, and at Bhoonka. A bed has been discovered between Loha Bhur Bhur and Bhoonka. It is a rich brown ore of a metallic appearance when fractured. "A bed of clay iron ore has been discovered at Beejapoor, near Huldwanee, of 30 feet in thickness. There are indications of the bed being continuous longitudinally." There is lime-stone within 3 miles, a stream 2 miles off, and abundant fuel. The ore is of good quality. At Chownsilla Mr. Sowerby found small rolled blocks of iron-stone, white clay and a seam of coal. Mines are being dug to ascertain the character of the ore near Umraihee. Iron-stone is found in block near Ghora Kot. The ore is a red and brown clay iron ore. There is lime-stone and fuel near.

Mr. Sowerby has examined the plumbago deposits near Almorah. This ground should be more thoroughly explored. The openings as yet made are superficial.

The report summarized above follows, but contains no new facts except the following account of the Khyrna bridge. "I next visited a deposit of iron ore near the Khyrna Bridge: this is at the confluence of the Ramghur and Kossilla Rivers. The ore is

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a rich red hœmatite, precisely similar to the same ores found in Cumberland and Lancashire: it is not found in regular beds, but large caverns. The ore has been worked slightly by the native miners, as seen in several irregular openings made by them close to the bridge. The enclosing rock is clayey-slate, exceedingly hard and compact; the ore is seen in several places in a high scar facing the river; and from the extent to which it is seen, I have no doubt whatever, but that the deposit is very considerable, and there is a good 'back' (hill) to work upon. This mine has been the subject of notoriety from the circumstance that the materials for the iron bridge were brought from England, and one end of it is built into a rich mine of iron. Timber is abundant in the neighbourhood of the mines, and the Kossilla River will supply water to any required extent, being a very large stream."

On 17th December Mr. Sowerby reports that "the District from Munsainee to the banks of the Kossilla has been again gone over, and the result is a most complete proof of the existence of an immense abundance of iron-stone." The Ookulkee Doong Hills are on their Southern slopes literally full of iron-stone. Lime-stone has also been found. In the Dungar Nuddee there is a bed of ore like that of Beejapore, and there is lime-stone in the neighbourhood. A bed of iron-stone is seen on the Ramgunga about 2 feet 6 inches in thickness. It is not rich. 300 yards from Ghurar on the banks of the Ramgunga is a poor yellow Hydrabad iron-stone of some thickness, while a mile below the village a bed of very rich brown iron ore has been discovered. "It is seen in large blocks on the hill-side for a distance measured down the slope of the Hill of 50 yards, and of considerable width, and the bed *in situ* is clearly seen, sticking up out of the surfaces."

On 30th January, 1856, Mr. Sowerby reports the general result of "the preliminary survey of the iron deposits in the lower hills of Kumaon and Gurhwal from the Golah River to the Ganges. The survey commenced at Beejapoor, about 2 miles to the East of the Golah River, where an excavation was made into the bed of iron ore, which exposed it to a thickness of about 50 feet, the ore being a red clay iron ore rather friable, and slightly metallic in appearance when fractured." Lime-stone is obtainable within a short distance. At several places near Chownsilla—narrow beds of inferior silicious looking ore were found. There are beds of rich brown iron-stone between Loha Bhur Bhur and Dechouree. Many of the masses are several tons in weight. "A shaft has been sunk at Dechouree in the broad open ravine to a depth of about 18 feet. The first 12 feet below the surface is a very com-

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pact and rich bed of iron-stone; afterwards the bed becomes like that at Beejapoor, with flakes of white clay interspersed, and the white clay becomes more frequent, and the ore poorer as the shaft continues downward." Ore is found also very high up the Hill. Mr. Sowerby continues to notice different localities where iron-stone is found and proceeds. "At Lahee Buleon there was found large masses of highly ferruginous quartz, with bits of rich iron-stone, sometimes of a bright red colour, resembling cinnabar, for which mineral it might easily be mistaken. The quantity obtainable is very considerable, but it would be found refractory in the blast furnace." The Ookulkee Doong Hills are very rich in iron-stone, and the ore though not rich is a good workable ore. "On the East side of the Ramgunga, and near a Ford in the river, 2 miles below Ghurrai there is a bed of rich reddish brown iron-stone, similar to that of Loha Bhur Bhur. Large blocks are visible on the hill-side, nearly down to the water's edge, over a distance of about 200 feet, and the bed *in situ* is seen sticking up at the surface." Lime-stone is obtainable near Simulkurree, on the new road from the Ramgunga to Simulkurree the brown iron-stone is seen, and about two miles further on there is a bed of compact brown iron-stone. In fact throughout this road to Kotree on the Sona Nuddee blocks of iron-stone are seen. The Hills around Kotree are full of iron-stone. So are the Hills west of the Sona Nuddee. Iron-stone is seen round Kotdwara, Lol Dak, the hills round the Mittewallee Nuddee, near Mundil and on a small stream which empties itself into the Ganges a little above Ghorree Ghat. "In a dry ravine running up the hill-side, on the Northern bank of the stream, masses of very heavy rich red iron-stone were found for a distance of about 300 feet measured up the Hill slope. One mass amongst many was found, weighing about 200 lbs. and containing about 70 per cent. of metallic iron: it was forwarded to the Roorkee Works." Mining here would be expensive, and the ore is refractory. Lime-stone in masses exists in the same stream. "Returning to the Eastward from Kotdwara to Khalagurh, the lower Hills adjacent to the Plains were found full of iron-stone, chiefly of a good workable description." Near Khalagurh, and from Ramgunga up to Berana and along the Road to Lal Jhung iron-stone is found. The ores of all these places belong to the class called limonite. "The ores from the upper beds are frequently cellular, and the narrower beds are chiefly formed of nodules of iron, mixed up clay a small proportion of lime and silicious matter—they also sometimes contain small flakes of mica. The lower beds of red ore frequently are found to have flakes of the adjacent white clay interspersed through them." The lower beds

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are unexceptionable, and the upper will be found valuable for reducing the Lower, while mining will be found exceedingly easy. "These ores are precisely similar to the valuable deposits so expensively worked in many parts of Europe and in the United States of America, and they are also of the same character as the ores found in the extensive mineral fields of South Africa recently investigated by myself, where they are found overlying a valuable coal deposit." Mr. Sowerby speculates on the geological formation of the beds, and observes that the whole of the deposits are accessible by waggons, and the only limit to the production of iron is the supply of fuel. The forests are as dense as possible, and would be sufficient to keep 200 blast furnaces at work each producing 3 tons a day. The annual supply would be upwards of 2,00,000 tons a year. Mr. Sowerby supplies a valuable list of the localities of the ore :—

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BHABUR IRON ORES.

List of Specimens, with Remarks.

	No.	Locality.	Remarks.
Golah.	1	Beejapoor, ...	Heavy and rich.
	2	Ditto, ...	Tufaceous lime-stone.
	3	Pepul Pokree, ...	Workable, 2 feet bed.
	4	Muchear, ...	3 feet bed, clayey and poor, good for mixing.
	5	Punealee, ...	Micaceous, sandy and poor.
	6	Ditto, ...	Bog ore, workable.
	7	Chownsilla, ...	Narrow bed, poor, but workable.
Boee.	8	Bhoonka, ...	Good ore, very serviceable.
	9	Ditto, ...	Poor, but serviceable.
	10	Dechouree, ...	Bottom of shaft 20 feet deep.
	10 A	Ditto, ...	12 feet below surface green clay.
	11	Ditto, ...	From blocks on surface very rich.
	12	Ditto, ...	Ditto ditto, rich.
	13	Ditto, ...	Ditto, calcined.
	14	Ditto, ...	White sand-stone.
	15	Ditto, ...	Red ferruginous clay, useful for reducing.
	16	Ditto, ...	White fire-clay, requires well preparing.
	17	Ditto, ...	High up in the hill, good ore.
	18	Ditto, ...	Ditto ditto, hydrated ditto.
	19	Ditto, ...	Ditto, poor bog ore.
	20	Ditto, ...	Clayey slate, with stains of iron.
	21	Ditto, ...	Lime-stone from Dechouree, good.
Dubka.	22	Shait, ...	Surface, specimen poor.
	23	Gugaree, ...	Ditto, ditto very poor.
	24	Ghutoorah, ...	Workable ore, very fair.
	25	Ditto, ...	Clayey, workable.
Kitchreh.	26	Umraihae, ...	Good workable ore.
	27	Ditto, ...	Ditto ditto.
	28	Ditto, ...	Ditto ditto.
	29	Ditto, ...	Poor, but workable.
	30	Pat Kot, ...	Ferruginous quartz, refractory.
	31	Ditto, ...	Refractory.
	32	Bhora Kot, ...	Ditto, } Quartz.
	33	Ditto, ...	Ditto, }
Kossilla.	34	Ghaitee Pahar, ...	Poor, but workable.
	35	Choopra, ...	Ditto, ditto ditto.
	36	Moola Gharee, ...	Ditto, ditto, much on surface.
	37	Dungar Nuddee, ...	Heavy rich red iron ore.
	38	Ditto, ...	White clay interspersed.
	39	Panoad, ...	Poor, much on surface.
	40	Chookam, ...	Workable small bed.
	41	Choopra, ...	Lime-stone, tufaceous.
	42	Kossilla, ...	Ditto Ditto.
Ramgunga.	43	Ghurra, ...	4 feet bed, poor but workable.
	44	Ramgunga, ...	Small bed, poor.
	45	Ditto, ...	Ditto ditto.
	46	Ditto, ...	Below Ghurra good workable ore.
	47	Ditto, ...	Lime-stone tufaceous—M. Ghurrar.
	48	Boxsur, ...	Fair, workable, much on surface.

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	No.	Locality.	Remarks.
Ramgunga.	49	Patlee Doon, ...	Workable.
	50	Ditto, ...	Poor, workable.
	51	Ditto, ...	Very ditto.
	52	Ditto, ...	Poor, workable.
	53	Ditto, ...	Ditto ditto,
	54	Ditto, ...	Ditto ditto,
			Road to Choulcherree.
Palain.	55	Choulcherree, ...	A kind of bog ore, poor.
	56	Ditto, ...	Heavy, rich.
Sona.	57	Karee, ...	Much on surface, good, workable.
	58	Ditto, ...	Ditto heavy, workable.
	59	Kotree, ...	Refractory, but workable.
	60	Ditto, ...	Workable.
Koh.	61	Kotdwara, ...	Very serviceable iron-stone.
Rowson Kot.	62	Kotdwara, ...	Very excellent, serviceable ore.
	63	Ditto, ...	White fire-clay, good.
	64	Ditto, ...	Workable, but poor.
	65	Lol Dak, ...	3 feet bed, poor.
	66	Ditto, ...	2 feet ditto, ditto.
	67	Ditto, ...	Ditto ditto.
	68	Ditto, ...	Poor, 2 feet 6 inches.
Ganges.	69	Mundil, ...	Poor, small bed, contains lime.
	70	Ditto, ...	Ditto ditto ditto.
	71	Jumnee Bagh, ...	A kind of bog ore, rich specimen.
	72	Ditto, ...	Heavy and rich, but refractory.
	73	Ditto, ...	Ditto, but not rich.
	74	Tal Nuddee, ...	Poor and refractory.
	75	Ditto, ...	Ditto ditto.
	76	Ditto, ...	Rich, heavy and refractory, broken from the large mass sent to Roorkee.
	77	Ditto, ...	Rich, but refractory.
	78	Ditto, ...	Killas, poor.
	79	Ditto, ...	Carbonaceous shale impure.
	80	Ditto, ...	Ditto very impure.
	81	Ditto, ...	Lime-stone tufaceous.
	82	Kotdwara, ...	Lignitic coal.
Ramgunga.	83	Dohulcund, ...	Good workable ore.
	84	Ditto, ...	Workable ore.
	85	Khalagurh, ...	Poor.
	86	Lol Jhung, ...	Workable iron-stone.
	87	Dehla, ...	Ditto ditto.

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On 12th February, Mr. Sowerby reports that "the work about the water-wheel at Dechouree is now nearly completed: the blast pipes, which are of wood, have been made, and are ready for fixing. The blowing cylinders, also of wood, are now being fixed in their place." The charcoal is nearly ready, and the bunding of the river is complete, while experiments are making to ascertain the direction, thickness, and extent of the beds.

On the 29th February, Mr. H. Ramsay, Commissioner of Kumaon submits a report by Mr. Barratt on the mineral deposits of Kumaon. He observes that the iron mines are useless as too far from the plains. The copper mines could only be improved to the advantage of the native lessee, and the lead mines would produce no profit. He recommends that Messrs. Barratt and Gray be sent back to England. On the 29th March the Lieut. Governor assents. Mr. Barratt's report bears date 20th February, 1856. He says there was an old copper mine worked by the Rajahs about 3 miles west of Pepulee. There is another mine "about a mile North of Biergunga Bridge, on the western bank of the Aluknunda River, in Mullah Nagpore." The lode is wide but not rich or promising, and the wood is sufficient only for native smelting. The "metalliferous formation is situated about a quarter of a mile North-East from Murbuggettee village, and about two miles up the Nundaknee or Nundgunga River from Nundprag, in Puttee Barhasee, (pergunnah Desolee.)" The lode is promising and accessible; water and fuel are abundant. Old copper mines were examined at "Kerraye, Belar, Raie, Seera, Tomacotee, Dobree, and Dhunpore" but all would require more money than they are worth to re-open them. The Dobree mine is rich, but so badly ventilated that a candle will not burn, and unless new galleries are opened it must be abandoned. The lessee in that case might pay a higher rent. Copper on the spot is sold at £224 per ton. Tomacotee might also be opened, but Mr. Barratt is not of opinion that Government could realize much for a few years.

Mr. Barratt visited old iron mines at "Badersaie, Bomaotha Cherry Khan, Hartjasal, Harthakhan and Bejouragurd, Danda, Davee Khan, Rajah Khan, Mokka Khan, and Calabun." They are all far back in the mountains, and the native lessees pay scarcely any rent.

Lead mines were examined at "Raie, Chendak, Kerraye, Patal, Dhunpore and Jak." Of these the Patal lead mine might be tried, and the Dhunpore lead mine would in Cornwall be worth much. The Jak mine would in Mr. Barratt's opinion be found rich and remunerative, and might be tried at a very small expense. Gold washings were found in many of the rivers. The expense of the experiments was Rs. 1402-4-9.

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On 3rd May, 1856, the Government of the North West Provinces submits a Memorandum from Lieut. Col. Drummond explaining the failure of the iron operations at Dechouree for this year. The Lieut. Governor recommends that Lieut. Col. Drummond should be permitted to engage the services of two founders to assist Mr. Davies. The experiment should be fully tried, for the pig iron produced at this furnace will supply the Roorkee Workshops. The work has been stopped simply for want of trained hands. The natives could not keep the hearth clean of ashes, and consequently the liquid metal could not be drawn from the furnace. The iron turned out is of the very best quality of cast iron.

On April 25, Mr. Sowerby reports on the experimental blast furnace at Dechouree. It was begun in November, 1855, under great disadvantages from the want of workmen and tools. The furnace was commenced in the middle of November. The foundations are of undressed rubble masonry, the adjacent "boulders being split and laid in mud and grouted with the white clay made into a semi-liquid state, and poured into the spaces between the stones; this made a tolerable solid foundation." The upper walls are built of the same material laid in mud and lime. The fire-bricks were burnt when in place in the furnace. They were very good. The clay however requires to be carefully selected. "As soon as dug it should be first calcined, small charcoal being the best for calcining it; it should then be ground in a good mill into a fine powder like soorkee, and afterwards mixed with a small portion of the clay and water sufficient to make it plastic. In moulding this would be best done on a good flagged pavement of sufficient area, being allowed to remain there till dry; the bricks if placed on the ground get twisted and spoiled, and frequently crack when drying; they require also to be turned over and scraped, the loose earth adhering to them, this causes additional labour; when thoroughly dried they should be burnt in properly constructed kilns with small charcoal. Fire bricks thus carefully prepared would be found equal to the best made in England, which are frequently not prepared with so much care. The proper colour of the bricks is a slight flesh colour, and they are rather tender. The water-wheel that has been constructed for supplying the blast is eighteen feet in diameter and four feet abreast. It has thirty-two buckets, the axle and arms are of saul wood; the buckets and surrounding is of schymul; the bearings and beams are also of the latter timber; the cranks, connecting rods and piston rods are of saul." Such a wheel moving at ten revolutions per minute is equal to thirty horse power. It was almost too large for the present machinery. Mr. Sowerby proceeds to

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describe the machinery of which he gives a plan, and also the bunds of the river. He then describes the process of making charcoal, which cost Rs. 808 for fifty tons, or about 5 annas a maund. Tramways are required to bring the fuel from the forest, which ought not to cost more than Rs. 500 a mile. Limestone is cheap and plentiful.

At the first trial of the furnace the air chamber leaked, and the cylinders were connected directly with the blast pipes. The iron taken out when remelted in a small cupola ran out in small pigs of the quality known as No. 1 grey metal pigs, 1st quality. In the second trial the hearth could not be kept clear. The work was too fierce for untrained natives, and European smelters should at first be brought out. The iron taken out was as good as at first, and the furnace had sustained no damage.

Mr. Sowerby thinks that sixty furnaces might be judiciously erected, and suggests machines by which the water power available might be rendered sufficient. Branch works should be established a little way in the hills, say at Agur or Ramgurh; "any thing like a failure of the works as a commercial speculation will most certainly be the result of mismanagement or misapplication of capital, from an erroneous conception of the proper mode of carrying out the works." The expenses incurred in the experiment amount to Rs. 10,478, every thing having "cost at least 25 per cent. more than they should have done for want of good tools, good workmen and previous preparations." Two founders have been ordered out from England.

REVENUE REPORT OF THE N. W. PROVINCES.

For 1855-56.

On 29th November, 1856, the Sudder Board of Revenue, North Western Provinces submits a report on its operations for 1855-56. The year has upon the whole been unfavourable, generally from heavy and untimely rain. The land revenue has nevertheless been realized with little coercion. The gross balances at the end of the year amounted to Rs. 8,19,650 nearly three times those of the previous year. Of this sum Rs. 1,51,353 is doubtful and Rs. 1,39,594 irrecoverable, and Rs. 3,16,650 nominal. The latter arise chiefly from reductions of jumma pending settlement. 1,85,378 dustucks were issued against 2,08,191 last year. The following Table shews the number of coercive measures:—

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Years.	*Sales.*	*Farms.*	*Transfers Muhals.*	*Transfers Puttees.*	*Sequestrations.*
1854-55, ..	32	66	59	95	12
1855-56, ..	27	96	58	135	41

There has been a marked increase in summary suits. The proprietory mutations have decreased, except in the Saugor Division which is over-assessed. Partition suits have decreased. There has been an increase of resumptions chiefly in Jaloun and Jhansee. "During the year under report 41,768 acres of rent-free land have lapsed to Government by demise of incumbents, and 18,746 acres have been resumed, giving a total of 60,514 acres against 24,502 in 1854-55. The settlement of these lands proceeds satisfactorily; 5,468 lapsed tenures, aggregating 37,016 acres have been assessed at Rs. 35,837, and 405 resumed tenures, aggregating 15,054 acres, at a jumma of Rs. 5,737." A general improvement is observable in all districts in the condition of the village papers. The exception is the Saugor division, where the survey is going on. The Abkaree demand has risen Rs. 99,332. The stamp revenue shews a decrease of Rs. 53,828. The decrease is observable in every district, but the Board do not understand the cause. Much attention is paid to the instruction of Putwarees and the Tehseelee Amlahs are examined. The Appendix contains statistics which may be thus summarized :—

Revenue demand, ...	Rs.	4,55,57,442
Collections, ...	..	4,47,37,792
Balances, ...	..	8,19,650
Per-centage of balances on demand, ..	..	68
Dustucks issued, ...	..	1,85,378
Estates sold for arrears, ...	..	27
Their Jumma, ...	Rs.	20,198
No. of estates farmed, ...	..	96
Their Jumma, ...	Rs.	49,226
No. of estates transferred, ...	..	58
Their Jumma, ...	Rs.	83,345
No. of puttees transferred, ..	..	135
Their Jumma, ...	Rs.	23,529
No. of estates made Kham, ..	..	41
Their Jumma, ...	Rs.	4,17,029
No. of summary suits, ...	..	34,689
Of these decided, ...	..	25,557
Adjusted or withdrawn, ...	..	8,012
Mutations of property under decrees,	..	2,485
" by private transfer, ..	..	22,711

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Partitions effected,		192
Lapses,		328
Acres included in them,		41,768
Resumptions,		3,370
Acres included in them,		18,746
No. of villages in which papers have been filed,		89,214
No. in which papers have not been filed,		13,114½
Demands for Abkaree,	Rs.	22,99,734
Collections,	Rs.	21,79,980
Balances,	Rs.	1,19,754
Profit on stamps,	Rs.	14,70,666
Miscellaneous net Collections,	Rs.	1,97,941
Fall of rain in 1854-55,	inches,	35.53
Previous mean,	inches,	28.97

On 22nd December, Government approves the report, orders that the decrease in the Stamp Revenue should be investigated, and recapitulates certain improvements in the details of revenue administration introduced during the year. Of these the most important are "the course to be followed in the Revenue Department upon references from the Civil Courts in suits brought for the enhancement of the rents of Tenants, has been fully prescribed, and a great practical benefit has, through the ready co-operation of the Sudder Court, been gained for the people. Powers have been given to Collectors under clearly defined rules, for the prompt determination of all claims for ejectment, and all complaints of illegal dispossession, between Landlord and Tenant. The principles have been declared under which the tenure of cultivators, with fixed rights of occupancy, may, without violence to any legal title, become gradually improved, and made more certain, by means of the voluntary admission of a recognized power of alienation. In a like spirit, the liberty of Tenants to construct wells on their lands has been declared, under conditions which maintain, at the same time, the just interests of proprietors. Drafts of Bills for an amended Dustuck Process; for a more appropriate and effective Law of Partition; for the more easy and satisfactory settlement of accounts between Co-Parceners, and for the collection of dues payable to assignees, in whatever character, of the Government *Revenue* as distinct from the owners of *Rent* have been prepared, and circulated for the opinions of all Revenue Officers. Suggestions have also been invited on important points connected with alleged defects in the present Law regarding summary suits for rent and exaction."

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HISTORY OF SIND, A. D. 710 TO 1590.

TRANSLATED FROM THE PERSIAN BY CAPTAIN G. G. MALET.

Bombay Records, No. XIII.

THIS book is divided into IV. Chapters.

The I. Chapter contains the Conquest of Sind with its Government under the Khaliphs, Bunee Oomaiyuh and Bunee Abbas.

The II. Chapter, the rule of the kings of Hindostan.

The III. Chapter, the rule of the Urghooneeyuhs.

The IV. Chapter shew how Akbar Shah acquired the country and what Ameers were appointed to and came to govern Sind.

In the year Hijree 92 (A. D. 710) Mahomed, the son of Kasim invaded Sind, seeking to revenge the indignity offered to certain Mussulman merchants in the time of Abdool Mulik. The reigning monarch was Rais Daher, whose father had acquired the throne through the love borne to him by the wife of the then reigning monarch, Rais Sahsee. No effectual opposition was made to Mahomed Kasim who invading the province of Sehwistan took the towns of Tatta, above Mooltan, and was on his road to Delhalpore whence an order came from the Khaliph Wulleed that Mahomed Kasim having wrapped himself in the raw hide of an ox should be present at Darul Khaliphat. It appears that Kasim met with his death from the misrepresentations of the daughters of Rais Daher, who thus revenged themselves upon two of their enemies, the Khaliph Wulleed, who lost a faithful servant and Kasim who lost his life. The country remained in the hands of the Bunee Oomaiyuh Khaliphs up to the year of the Hijree 410 (A. D. 1019) when Sooltan Mahomed Gazee left Ghuznee, took Mooltan and Ooch, and deputed the Wuzeer, Abdoor Ruzay, to finish the conquest which was finally accomplished in the Hijree 417 (A. D. 1026). In the year 422 (A. D. 1050) Sooltan Musnood succeeded his father to him succeeded in 433 (A. D. 1041) Sooltan Mondood, in 441 (A. D. 1049) Sooltan Mujdood ascended the throne, after him the turn of sovereignty came to Khoosruwi Moolk who after being deposed in 583 (A. D. 1187) by Sooltan Ghuyas-ood-deen Ghoree was confined at Ghuznee. From that time until the year of the Hijree 800 (A. D. 1397) the country was governed by 17 kings of the Ghorain and Mogul Dynasties. Under their rule Sind seems to have prospered. Some of the sayings of these monarchs were very apt such as that of Nasir-ood-deen Mahomed.

"The world is a dream in front of open eyes; with such a

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dream the hearts of the good will not mingle" and again that of Sikunder Shah. "In this world if there is a king's throne what is it, Oh my friend, for no one can eat of the food except his own portion." At this time, *viz.* Hijree 800 (A. D. 1397) the Ameers despising the character of Ubdoor Rusheed, the son of Sultan Mahomed, entered into a compact by which it was arranged that the real sovereignty of the country should pass into their hands, they from time to time electing a king. Their first four kings were elected from the tribes of Soomrah and Summah. The first was Soomrah, the son of Chundur he "cleared away from the borders of the country all the thorns, and refuse, the breeders of dissension and the disobedient." He was succeeded by his son Doda. To Doda with the consent of the Ameers succeeded Khufeef, to whom it appears the Jut Beloochees paid tribute. Then reigned Doda the son of Oomur, Oomur, Chunur, Doda and Urrah Mehl; this last monarch was so incapable of governing that he was rebelled against, and slain by Jam Oonnur who succeeded to the throne; he in his turn was killed by his vakeel. From the death of Jam Oonnur, to the commencement of the reign of the Urghooneeyuhs we have 10 kings, Joonuh, the son of Babuniyah Jam Babuniyah, the son of Jam Khair-ood-deen, Jam Nizam-ood-deen, Jam Ali Sher who "gave strength to the rules of justice." He invited the principal Ameers to a banquet and treacherously murdered them. Jam Tughlug Shah, Jam Sekunder, Jam Roydhun, Jam Sunjor succeeded, in whose time such customs and habits as were never known before in Sind were introduced, the sepoys and ryots lived in great happiness. Then came Jam Nizam-ood-deen, Jam Pheroz who spending his time in pleasure the nobles turned their heads to ruining their country; he ruled in Sind until 926 (A. D. 1520) when Sind was invaded by Shah Beg Urghoon. Shah Beg was the son of Meer Zoonoon, who was appointed to the office of Meerza of Kandahar, by the son of Sultan Hoosain Shah, the Meerza Budeen-ooz-Zuman with whom Meer Zoonoon continued in close connection until his death when fighting with the Oozbuks before Herat. Shah Beg having been compelled by Babur Badshaw to surrender Kandahar, he proceeded to Shawul where he remained for two years, but the scarcity of provisions, his sepoys during one season having nothing to eat but carrots and turnips, compelled him to make an incursion into Sind, this as we have before mentioned took place in the reign of Jam Pheroz, The reputation of Shah Beg secured him a numerous army, which he marched upon Tatta, this town he gave up to plunder. Shah Beg with entire success in his expedition, called a consultation of his Chiefs who feeling that their forces were not at present sufficient

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for the military occupation of the whole of Sind wisely concluded a treaty with Jam Pheroz, to the effect that the country from Sukkur to Tatta should belong to Jam Pheroz and that the country above Sukkur should be ceded to Shah Beg. The further progress of Shah Beg in the settlement of his newly acquired territory is described with an account of his death. When Shah Beg was with his father at Herat, he always attended the assemblies of the learned and he was in the habit of calling them to his house twice a week. The results of this plan were "An Explanation of Kaffeeyuh"; "Marginal Notes to the Commentary of Mutalim" also "Marginal Notes to the Commentary of the Furayuz of Meer Syud Shureef." To the north of Seebee is seen a cupola which is called in Sindee tongue Maree or Gurhee, when any one goes there it disappears from sight. It is said to be a talisman made by former people and that beneath it there is a treasure.

In Kandahar there is a village called Bekhnahee near which there is a hill in which is a cavern with running water on all sides, a talisman is here, and a revolving wheel round which there are bricks of gold. The history of certain Syuds and holy men of Kandahar is detailed at length.

Shah Hoosain, having ascended the throne of his father Jam Pheroz, at the head of 50,000 men advanced against Tatta, but was by Shah Hoosain signally defeated, he went to Guzerat there remaining until he "took his life to paradise." Shah Hoosain subdued the Duhurs and Machees. He by the treachery of the Chief Minister of Sultan Mahomed, who administered poison to his master, was elected sovereign by the Beloochees and Lungahs. After these successes Shah Hoosain stormed the Fort of Dilawur which is described as having its walls equal in height to Alexander's wall, and as being built in such a desert that the eyes of the birds always look towards the clouds of heaven, there not being one drop of water on the ground. He captured Mooltan and massacred the inhabitants. He defeated Khungar, a Chief in the neighbourhood of Kutch.

In the latter days of his life Meerza Shah Hoosain was struck with palsy. Whilst on a military expedition on the 11th Rubeeool-Awul at the village of Nalee Potruh the bird of his life heard the sound of "Do you come to your God with much pleasure?" His body was buried at Tatta, two years afterwards his remains were removed from thence and conveyed to Mecca, where they were placed near those of his father Shah Beg. The poets and learned men who flourished in the time of Meer Shah Hoosain were Meerza Mahomed (known by the name of Shaikh Meeruk), Shaikh Abdool Wuhab and Shaikh Meer Mahomed,

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who were brothers, Shaikh Kootb-ood-deen Mahomed, Mukhdoom Rookhn-ood-deen, commonly called Mukhdoom Mutoo, Kazee Kazin, Kazee Abdoolla, Musluh-ood-deen Laree, Syud Taj-ood-deen, and the most perfect the most eloquent of poets, Shah Jahangheer Hashimee, who was descended from Tuyub Hurwee (of Herat). He came to Sind from Khorasan in the beginning of the reign of Meerza Shah Hoosain. His tomb is at Puttur. The new ruler over the Urghoons and Turkhans was Meerza Eesa who ascended the throne 962 (A. D. 1554); he was a good man in every sense of the word always being indulgent to the ryuts and sepoys; he died 974 (A. D. 1566) and was succeeded by Mahomed Bagee. In this reign the Urghoons rebelled, but being subdued he in his latter days shewed kindness by taking them under his shadow. In 979 (A. D. 1571) he destroyed himself.

To Meerza Mahomed Bagee succeeded Meerza Janee Beg, all the people found much comfort under his rule and slept in the swinging cradle of ease. Sultan Mahomed Khan was the next in order who acquired supreme power in Sind, he was a ruler with many excellent qualities. He was brave and charitable. From the days of his youth until his death he lived in plenty; but his temper was so passionate that he could not restrain himself. He shed blood without care. He was born in 898 (A. D. 1492) living 84 years. He was so strong that many times having put irons on his legs he threw himself from the bastion of Meerza Shah Hoosain's receiving room into the waters below, where was a deep and dangerous whirlpool, from whence he came out with the irons broken.

After the death of Sultan Mahomed, Sind fell into the hands of the agents of Julal-ood-deen Ukbar Shah. The chain of events by which this was brought about is given in the History. Mahomed Ukbar Shah gave Tatta to the Meerza Janee Beg, and nominated them to the command of 5000 men. Meerza Janee Beg died from inflammation of the brain and his son Meerza Ghazee Beg received the country of Tatta at the representation of Nuwab Ullamee.

UNIVERSITIES IN INDIA.

A Committee was appointed on the 26th of January, 1855, to prepare a scheme for the establishment of Universities in the Presidency Towns of Calcutta, Madras, and Bombay. The Committee have not dealt with the governing bodies of the Uni-

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versities or their constitution, but exclusively with the examinations for entrance, degrees and honors in the several branches of Arts, Medicine, Law, and Civil Engineering. The Committee having on these subjects stated their convictions, His Lordship in Council is of opinion that an entrance examination should be required. The mode in which it is proposed to be held is most convenient. The Committee have wisely adopted the titles of Bachelor of Arts, and of Master of Arts making the higher degree the mark of awarded honors. The Governor General in Council considers that perfect knowledge of some kind should be required, that the wide range of subjects seems to call for some counteracting tendency. The Committee having suggested that the Senates should be subject to some central authority, the Governor General in Council is pleased to declare that the Governor General of India shall be Chancellor of the University of Calcutta and that the Governors of Madras and Bombay shall be the Chancellors of their respective Universities.* The Senate, is authorised by the Chancellor to appoint as many examiners as may be required for the University, the award to each being not greater than 1200 Rs. a year. As the Governor General in Council considers that the three Universities should be in their main features alike, the same body to whom is entrusted the scheme of the Calcutta University will likewise frame schemes for the Madras and Bombay Universities. The Hon'ble Sir James Colvile is further appointed President of the Committee, which will choose its own Secretary. Professorships will if required, be founded. As the object of the Universities is to encourage a regular and liberal course of education, the form, government, and functions of the Indian Universities should, in their grand features, be coincident with those of the London University; whilst the detailed regulations for the examinations must be framed, with due regard to the affiliated Institutions so as to include the best portions of their curriculum. Broadly stated the plan of the University is as follows.

In Arts, an entrance examination to which all candidates of good moral character, and sixteen years of age and upwards, may on the payment of a fee be admitted. An Examination for the B. A. degree to which all candidates may be admitted on the payment of a fee and on certificate of four, or in special cases of three years' study and of good moral conduct in an affiliated Institution. An examination for Honors to be held immediately after the examination for the degree. The degree to be conferred upon those who pass the Honor examination.

* Here are given the names of the Fellows of the University of Calcutta.

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