Public Works (1897.) Department.

CONCERNS BOTH BRITISH INDIA
AND INDIAN STATES.

G.O., No. 3215 W

DATED 17. Novr 1897

19/11/97

[Despatch Abstract.]

Christ's Church at Trevandrum; Sanctioning
le proposed improvements to — in the Tra-
ancore State at an estimated Cost
Rs. 4240 (Sircar) the work being Carried
ut from the funds collected by the Church
Committee

80/2

17/11/97

Indexed 18/11

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

BUILDINGS AND ROADS.
CIVIL WORKS.

Government (1897) of Madras.

PUBLIC WORKS.

Recd. } 1897. *Enclosures*

Regd. *Spare copies*

G.O., No. 3215 W., 17th November 1897.

NOVEMBER.

Christ's Church at Trevandrum

Sanctioning the proposed improvements to — in the Travancore State at an estimated cost of Rs. 4,240 (Sircar), the work being carried out from the funds collected by the church committee.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following papers :—

From Venerable W. WESTON ELWES, M.A., Archdeacon of Madras, to the Chief Secretary to Government, dated Nungumbaukum, 24th February 1897, No. 3433.

I have the honour to forward enclosed a letter, dated 4th February 1897, from the Chaplain and Lay Trustees of the Government church at Trevandrum, requesting permission to add to that church a chancel, organ chamber and a side vestry.

2. I enclose plan and estimate prepared by the Chief Engineer, Travancore State.

3. The cost will be Rs. 4,200, and the church committee have in hand more than enough to meet this.

4. The plans have been approved by the Right Reverend Bishop Hodges, Bishop of the Church of England, in Travancore and Cochin.

5. I have the honour to request that, under these circumstances, Government will be pleased to grant the necessary permission. The church committee are very anxious to commence work immediately.

Enclosure.

From the Chaplain and Lay Trustees of the Christ Church, Trevandrum, to the Venerable the Archdeacon of Madras, dated 4th February 1897.

We have the honour to forward, for your inspection and for the approval of the Madras Government, plans of the proposed addition to Christ Church, Trevandrum.

The addition consists of a chancel, organ chamber and a side vestry, which may be used for Bible classes, Confirmation classes, &c., and will thus prove very useful.

2. We have the honour to inform you that the plan with the estimate has been submitted by us to the Bishop in Travancore and Cochin, and has met with his approval and sanction.

3. We have more than enough to cover the estimate as we have a sum amounting to Rs. 4,300 (four thousand three hundred) with Messrs. Parry & Co., Trevandrum, and we have promises of over two thousand which will be paid in when asked for.

4. We have the honour to request that you will be good enough to obtain the sanction of Government, if necessary, with as little delay as possible, in order that the work may be proceeded with as now is the time of the year to build.

5. We enclose the estimates for your perusal and sanction.

No. 514, Ecclesiastical.

Referred to the Public Works Department for favour of remarks.

(Signed) J. F. PRICE,
Chief Secretary.

1st March 1897.

Memorandum from the Public Works Department, dated Ootacamund, 27th April 1897, No. 32 D.

In returning the papers received with Ecclesiastical Department endorsement, No. 514, dated 1st March 1897, the undersigned has the honour to state that, in the absence of a statement showing the nature of the surface soil and sub-soil at site of the proposed additions to Christ Church, Trevandrum, he is unable to express an opinion on the plan and estimate. The information should, apparently, be obtained by the Chaplain and Lay Trustees from the Chief Engineer, Travancore.

2. The plan should be countersigned by either the Right Reverend Bishop Hodges or the Venerable the Archdeacon of Madras

(Signed) D. M NEIL CAMPBELL, Colonel, R.E.,
Secretary to Government.

From Venerable W. WESTON ELWES, M.A., Archdeacon of Madras, to the Chief Secretary to Government, dated Coonoor, 10th September 1897, No. 3866.

I have the honour to forward a letter from the Lay Trustee, Trevandrum, giving from the Chief Engineer the further information required by Government, concerning improvements to the Trevandrum church.

From Venerable W. WESTO ELWES, M.A., Archdeacon of Madras, to the Chief Secretary to Government, dated Coonoor, 7th October 1897, No. 3944.

With reference to endorsement, No. 1929, dated 16th September 1897, on Current No. 229, Ecclesiastical Department, I have the honour to return the papers therewith sent with plan countersigned.

Memo. No. 2148, Ecclesiastical.

Transferred to the Public Works Department with reference to its memo. No. 32 D., dated 27th April 1897.

(By order.)

Ootacamund,
15th October 1897.

(Signed) A. R. KNAPP,
Ag. Under Secretary.

Order—No. 3215 W., dated 17th November 1897.

His Excellency the Governor in Council sanctions the proposed improvements to Christ's Church at Trevandrum in the Travancore State, at an estimated cost of Rs. 4,240 (Sircar), the work being carried out from the funds collected by the church committee.

(True Extract.)

Under Secretary to Government.

To the Ecclesiastical Department, with plans and estimates.

Exd. T. K. Narayana Aiyangar.

No.

~~Governor~~

The Hon. Mr. Grose C.I.E.

[4 / 500-14-10-97.]

DEPARTMENT.

Papers to be read in proceedings :— Christs' Church Trevandrum

, 189 , No.

Again G.O., dated 189 , No.

Again G.O., dated

Current No. 2232 of 1897, dated 1. 3. 97, from the Eccles: Dept.

Memo " 1897, " 27. 4. 97, " the P. W. D.

" 10492 " 1897, " 15. 10. 97, " The Eccles Dept.

No. 3215 W. 17. 11. 97.

ORDER.

His Excellency the Governor in Council sanctions the proposed improvements to Christs' Church at Trevandrum in the Travancore State, at an estimated cost of Rs 4240 (Sircar), [illegible] work being carried on [illegible] the funds collected by [illegible] Church Committee.

~~2. It is understood that a Sircar rupee is equivalent to 56/57ths of a British rupee, in which case Rs 4240 Sircar rupees are equal to Rs 4166 British rupees.~~

A.S.H. 9.11.97

J.G. 15/11/97

The Eccles: dept with plans & Estimates

CHOS 5-11-97

C No.

DW

Draft order submitted for approval.

I am told by one of the clerks in office that

1 Sirkar Re = 28 drachms &
1 British Re = 28½ "
so that 1 Sirkar Re is equivalent to $\frac{56}{57}$ of a British Re.
∴ 4240 Sirkar Rs = 4166 British Rupees

Yes
carry

Inquire whether your remark re the relation between British & Sirkar Rupees is necessary to be embodied in the draft order.

4/11/87

Now done

carry
5-11-87

H.E. The Governor ✓
The Hon'ble Mr Grose C.I.E.

FOR ORDERS.

"Flag" I — In endorsement No. 514 dated 1st March 1897, Ecclesiastical, a plan and estimate for proposed alterations in the Government Church at Trivandrum were forwarded to the P.W.D for remarks with an intimation that the sum required had been provided. But the papers were returned with memo

"Flag" B — No. 32D of 27th April 1897 in which it was replied that, in the absence of information regarding the nature of the soil, no opinion could be given. This information has now been received with

"Flag" D — memo No. 2148 of 15th ÷

1897, Ecclesiastical, and it is considered that the foundations as provided may be accepted, and the estimate approved. A sanctioning order is submitted accordingly.

5.11.97

C.H.B.S.
5/11/97

A.G.K.
9.11.97

Rs 4240 Sircar rupees as per estimate is the correct amount. vide pencil rescript on T's note of 29-10-97 & T's reply dated 3.11.97.

The estimate may be approved in P.W.D., though it is not clear how Rs 4240 Sircar rupees are computed to be equivalent to Rs 4166 British rupees.

4-11-97.

Draft order submitted for approval.

P. W. 60
250—25-4-97.

Public Works Department.

Current No. 10492
Letter No. 2148
Dated 15th Oct. 1897
From the Ecclesiastical Dept.

NOTE BY TECHNICAL SECTION.

Name of work Improvements to Christ Church at Trivandrum, Travancore Territory amount of Estimate Rs 4,480.

With reference to this Office Memo No. 32 D dated 27th April 1897, the following information is given regarding the nature of surface & sub soil at site of proposed extension to the Church.

The surface soil is reported to be loamy laterite 2 feet in depth & below this loamy laterite gravel.

The foundations have now been altered to a depth of 4 feet, made up of 1½ ft. concrete and 2½ ft. of brick masonry instead of 2½ ft. of solid concrete to ground level, as originally proposed.

The copy of the plan has been countersigned by the Venerable the Archdeacon of Madras but not the estimate.

The total of the estimate is given in British rupees as 4,166 which is not clear. It should be Rs 4,240 [illegible]

[illegible] at 14 chuckrams equal 8 annas (British).

Please see T's note dated 13th April 1897 regarding the plan being not in sufficient detail to examine the estimate carefully.

29.10-97

T.

You seem to be wrong in increasing the amount from Rs 4240 to Rs 4480 owing to errors in calculations. I do not follow your corrections of items 21, 22 & 23. 14 chuckrams = 8 annas ∴ 28 chuckrams = R 1.

Item 21 510 at 14 chuckrams = 510 at 8 annas = Rs 255 and not Rs 446 as stated and as corrected by you.

" 22 120 at 7 chuckrams = 120 at 4 annas = Rs 30 and not Rs 63 as stated and corrected.

" 23 - 240 at 6 chuckrams = 240 at R $\frac{4}{28}$ or R $\frac{1}{7}$ = Rs 34 as stated - not Rs 40 as corrected by you.

Please explain your corrections. ~~Besides~~ Besides there is a mistake of Rs 20 in your total.

3-11-97

P. W. 60
250—28-4-97.

P. T. O. (Forwarded to above remarks)

Public Works Department.

Current No. 10492

Letter No 2148

Dated 15th October 1897

From the Ecclesiastical Dept.

NOTE BY TECHNICAL SECTION.

Name of work Improvements to Christ Church at Trivandrum, Travancore territory, Amount of estimate Rs 4,480.

With reference to this office Memo. No. 32 D dated 29th April 1897, the following information is given regarding the nature of surface and sub soil at site of proposed extension to the church.

The surface soil is reported to be loamy laterite 2 feet in depth and below this loamy laterite gravel.

The foundations have now been altered to a depth of 4 feet, made up of 1½ feet concrete and 2½ ft. of brick masonry instead of 2½ feet of solid concrete to ground level as originally proposed.

One of the plans have been countersigned by the Venerable the Archdeacon of Madras but not the estimate, the other plan is a copy of the countersigned plan.

The amount of the estimate has been increased from Rs 4240 to Rs 4480 owing to errors in calculations.

The total of the estimate is given in

British rupees as 4,166 which is not clear; a foot note has been made on the estimate that 14 chuckrams is equal to 8 annas, but the rates are entered in whole rupees & it is not understood how 4240 Sircar rupees could equal 4,166 British rupees.

29-10-97.

P.S. Please see T's note dated 13th Ap 1897. regarding the plan being not in sufficient detail to examine the estimate carefully.

DW

I much regret the error, I did not notice that the column signified other than Rs. As. P. — I have, however, revised my note.

Regarding the mistake in addition probably you and any altered figure Rs 60 for item 23, as Rs 40. as it was not clearly formed.

3-11-97.

3215W

327
27.4.97

where is plan

This estimate cannot be approved in the absence of a statement regarding the nature of the surface-soil and sub-soil, and of the Venerable the Archdeacon's signature to the plan.

14/4 97

Call for the information, it may only [illegible] in that the [illegible] [illegible] I think a [illegible] is [illegible]

14/4/97

P. W. 60
200—2-9-96.

Public Works Department.

Current No. 3732
Letter No. 514.
Dated 1st March 1897
From the Public Dept.

NOTE BY TECHNICAL SECTION.

Name of work Additions to Christ Church at Trivandrum.

Amount of Estimate Rs 4,450.

The plan & estimate under review amounting to Rs 4200 provide for additions to Christ Church at Trivandrum.

The additions consist of a Chancel 30'×20', an organ chamber to the north 12'×11' and a side vestry 18'×15½, as shown in yellow on plan.

The nature of surface and sub soil has not been reported on.

The foundations are proposed to be laid to a depth of 2½ feet in concrete to ground level, the basement is to be raised 2 feet and the superstructure walls of the chancel and side vestry raised 17½ feet and that of the organ chamber 15 feet and built of brick in chunam, with Gothic arches over doors & windows.

The interior and exterior surfaces of walls are to be plastered with 2 coats of chunam and the roof covered with tiles laid over teak rafters upon, rafters &c. complete.

The floor of the side vestry, organ chamber and under choir seats are to be of Portland cement & that
18c of the Sanctuary and passage between choir seats of School of Arts
6 tiles set in Portland cement.

Lump sum provisions have been made for wooden ornamental rails, x 51 hammer beam pattern brackets, 2 Priest's stalls, 1 stone pulpit, scaffolding, unforeseen works &c. &c.

The plan shewing the extensions proposed is not in sufficient detail to examine the estimate carefully.

The rates cannot be checked, they, however, appear to be fair when compared with the West Coast Divn. rates.

The plan & estimate have not been countersigned by the Venerable the Archdeacon of Madras, they have, however, been forwarded to Govt. by that Officer who states that the Rt. Revd. Bishop of the Church of England in Travancore & Cochin has approved of the plan and requests the permission of Govt. to carry out the additions from funds available with the Church Committee.

The amount of the estimate has been increased from Rs 4200 to Rs 4450 owing to clerical errors in calculations.

13.X.97

x not shown on plan

Public Works (1897) Department.

3454

CURRENT No. 10492

From The Ecclesiastical off

No. 2148

Dated 15th October 1897
Received } 21-10-97
Registered }
Enclosures 13 (x 2 plans)
Spare copies

SUBJECT.

Trevandrum Church: Transferring papers to the P.W. dept regg improvements to the —.

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

No 2080

Chief Engineer's office
Camp:- 24/27 July 1897

pd
28-7-97

To

W. A. Cosby Esquire
Lay Trustee
Christ Church
Trivandram

Sir

With refce to your letter dated 22nd June 1897 I have the honor to return herewith the plan & estimate of additions to Christ Church Trivandram.

The surface soil is loamy laterite 2' thick & below this loamy laterite gravel.

I have allowed 4 feet depth of foundation which I think enough for this site

The additional cost is but small

I have the honor to be
Sir
Your most obt Servt

24.7.97

Chief Engineer

BACK PAPERS.

P.W.E. 10 / 1049 2/97

1897
Eccl Dept
Enclos. No 2
To
C. 229

Trevandrum
5th August 1897

To

The Venerable the Archdeacon
of Madras

Venble & Rev. Sir,

As requested in your Letter No. 3652 dated the 15th June Last I beg to return herewith all the papers regarding improvements to the Trevandrum Church and the Chief Engineers Reply to the information called for therein.

I am
Venble & Rev. Sir
Your Obdt. Servant
W.S. Ferguson
Lay Trustee

P.W.R.U
10442/97

1897
Eccl. Dept.
Enclos. No.
To
C. No. 229

CURRENT NO.

ECCLESIASTICAL DEPARTMENT,

Coonoor, 10th September 1897

No. 3866. Pila. 5

From

THE VENERABLE W. WESTON ELWES, M.A.,

Archdeacon of Madras.

To

The Honorable
The Chief Secretary
to Government.

Sir,

I have the honor to forward a letter from the Lay Trustee, Trevandrum, giving from the Chief Engineer the further information required by Government, concerning improvements to the Trevandrum Church.

Endt. no 966 below.

I have the honor to be,
Sir,
Your most obedient servant,
W. Weston Elwes
Archdeacon of Madras.

P.W.&12
10492 (2)

Enclos. ...
To
C. No. 229

CURRENT No. 261

ECCLESIASTICAL DEPARTMENT,

Coonoor, 7th October

Recd 6

No. 3944.

From

THE VENERABLE W. WESTON ELWES, M.A.,
Archdeacon of Madras.

To

The Honorable
The Chief Secretary
to Government

Sir,

A With reference to Endorsement No. 1929, 16th September 1897, on Current No. 229, Ecclesiastical Department, I have the honor to return the papers therewith sent with plan countersigned.

I have the honor to be,
Sir,
Your most obedient servant,
W. Weston Elwes
Archdeacon of Madras

P.W. 313
10492/97

[G/69]
1,000—15-11-95.

Ecclesiastical DEPARTMENT.

CHIEF SECRETARIAT
MADRAS.

Memorandum. No. 2148 dated 15.10

READ the following pa

From the Public Works Departmen

No. 32 D, dated 27th April 1897.

From the Venerable the Archdeac of Madras, Nos. 3866 and 3944, dated 10th Septem ber ~~1897~~ and 7th October 1897 respec tivel

---

Read 1

Transferred to the Public Works Department with reference to its memorandum No. 32 D dated 27th April 1897.

(By order)

Ootacamund }
October 1897 }

A.W.Knapp.

Ag. Under Secretary.

RC
15.10.97

To
The Public Works Department.

pp

from the Public Works department No 32 D, dated 27th April 1897.

from the Venerable the Archdeacon of Madras, Nos 3866 and 3944, dated 10th September ~~1897~~ and 7th October 1897 respectively

---

Transferred to the Public Works department with reference to memorandum No 32 D dated 27th April 1897

(By order)

Public works
~~Ecclesiastical~~ (1897/3) Department.

Endt No. 514 d/ 1st March 1897 Dec 3

CURRENT No. ~~4~~ 2232

Referred to the Public works dept for favour of remarks.

Frederick Price
Chief Secretary

From The Ven. W. H. Elliot, M.A. Archdeacon of Madras

24 FEB 1897

~~**Order**~~ F.D.B. 1/3/97.

No. 3433

TO BE RETURNED WITH REPLY.

Dated 24 February

Received ~~24~~ Do

Registered ~~25~~ 2.3.97

Enclosures ~~4~~ 5 (1 Plan)

Spare copies

I/ For early [illegible]

CH. MS to [illegible] 6/3/97

SUBJECT.

Forwarding a request from the Chaplain & Lay Trustees, Trivandrum (with plan & estimate) for permission to make certain additions to the Govt. Church at Trivandrum: stating that the amount required has been provided & recommending the granting of the request

G R form copy of GO 141 Ecel of 85 and any orders re the Trivandrum Church
25/3/97

O.L.S. 14

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date

AP2

No

Trevandrum
Christ Church
4th February 1897

From

The Revd C. J. Breay M.A. Chaplain
H. S. Ferguson Esq } Lay Trustees
W. F. A. Cosby Esq }

To

The Venble W. Weston Elwes M.A.
Archdeacon of Madras

Venble and Reverend Sir.

We have the honour to forward for your inspection, and for the approval of the Madras Government plans of the proposed addition to Christ Church Trevandrum.

The Addition consists of a chancel, organ Chamber, and a side vestry, which may be used for Bible Classes, Confirmation classes &c and will thus prove very useful.

(2.) We have the honour to inform you that the plan with the Estimate has been submitted by us to the Bishop in Travancore & Cochin, and has met with his approval and sanction

(3) We have more than enough to cover the Estimate as ~~the~~ have a sum amounting to 4'300 Rs (four thousand three hundred) with Messrs Parry & Co

Trevandrum

Memorandum, and we have promises of over two thousand which will be paid in when asked for.

(4) We have the honour to request that you will be good enough to obtain the sanction of Government, if necessary, with as little delay as possible in order that the work may be proceeded with as now is the time of the year to build.

(5) We enclose the estimates for your perusal and sanction.

We are
Venble & Revd Sir
Your Obedient Servants

E J Bray M.A. Chaplain
H.S. Ferguson
Wm Cobley } Lay Trustees

1897
Eccl Dept
Enclos. No 2
To
C. No 229

Pws.ee
~~2234~~ 1897
10492

1897
Ecclesiastical
4
41

CURREN 41

ECCLESIASTICAL DEPARTMENT,
NUNGUMBAUKUM,
Madras, 24th February 1897.

Recd

No. 3433

From

THE VENERABLE W. WESTON ELWES, M.A.,
Archdeacon of Madras,

To

The Honorable
The Chief Secretary to Governmen
Fort St. George.

Sir,

I have the honor to forward enclosed a letter dated 4th Feby 1897 from the Chaplai & Lay Trustees of the Government Church at Trivandrum – requesting permission to add to that Church a Chancel, Organ Chamber and a side Vestry.

2. I enclose plan & Estimate prepare by the Chief Engineer Travancore State.

3. The cost will be Rs 4209 & the Church Committee have in hand more than enough to meet this.

4. The plans have been approved by the Rt. Revd Bishop Hodges, Bishop of the Church of England in Travancore & Cochin.

5. I have the honor to request that under these circumstances Governme will be pleased to grant the necessary permission – The Church Committee are very anxious to commence work immedia

I have the honor to be
Sir
Your Most Obedt Servant,
W. Weston Elwes

ARCHDEACON OF MADRAS.

1897
Ecc. Dept.
Enclos. No 8
To
C. No 2289

~~Ou 5.5~~
2232/57 D
10492

No. 32 D

P4

Gobernment of Madras.

PUBLIC WORKS DEPARTMENT.

CURRENT No 88

MEMORANDUM.

Dated ~~Madras,~~ Ootacamund 27 April 1897.

In returning the papers received with Ecclesiastical department endorsement No. 514 dated 1st March 1897, the undersigned has the honour to state that, in the absence of a statement showing the nature of the surface soil and subsoil at site of the proposed additions to Christ Church, Trivandrum, he is unable to express an opinion on the plan and estimate. The information should apparently be obtained by the Chaplain and Lay Trustees from the Chief Engineer, Travancore.

riginal retained by the P.W.D.

2. The plan should be countersigned by either the Rt. Rev: Bishop Hodges or the Venerable the Archdeacon of Madras.

Colonel R.E.
Secretary to Govt.

To
The Ecclesiastical department
with original papers.

27-4-97

Rw.

P. W. 41.
500—13-3-97.

Trevandm

1897
Eccl. Dept
Enclos. No. 9
C. 222

P.W.E.6
10492(9)

P. W. D.

No 322 D/ 27 April 1897

Memo

In returning the papers received with Eccl. Dept. endorsement No 514 dated 1st March 1897, the undersigned has the honour to state that, in the absence of a statement showing the nature of the surface soil & subsoil at site of the proposed additions to Christ Church, Trivandrum, he is unable to express an opinion on the plan & estimate. Such information should apparently be obtained by the Chaplain & Lay Trustees from the Chief Engr.

ordinance.

2. The plans should be countersigned by either the Rt. Rev. Bishop Hodges or the Venble the Archdeacon of Madras.

26/4/97

Cs

CWM
26/10 97

To the Secy. Dept
with orig. papers.

D[illegible] 27/10/97

Public Works (1897) Departmen

Government (1897) of Madras.

JUDICIAL.

Recd. } 1897. Enclosures
Regd. Spare copies

G.O., No. 1472, 9th October 1897.

No. 3216 W. 17-11-97
Communicated to officers of
the P.W. Dept. for information
in continuation of G.O. No.
dated 16th October 1896
(Sd) W.B. de W

OCTOBER.

To
Ch. Engrs
C. Engr Rys
Supty Engrs
C. A. to Govt
Exe. Engrs
Exe. Dy. Accts.

Identification by finger impressions.

Communicating to the Hon'ble the Judges of the High Court and to certain heads of departments letter from the Government of India forwarding copy of report on the working of the anthropometric system for the identification of old offenders and on the progress made in elaborating a system of classifying finger impressions in the Lower Provinces of Bengal; as also one from the Committee appointed to inquire into the system of — with an expression of opinion on the advisability of adopting the latter system all through British India.

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

READ—the following papers :—

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Police), to the Chief Secretary to the Government of Madras, dated Simla, 12th June 1897, No. 328.

In continuation of the endorsement from this department, No. 3—447, dated the 20th August 1896, I am directed to forward a copy of a letter * from the Government of Bengal, submitting a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal during 1896 of the anthropometric system for the identification of old offenders and on the progress that has been made in elaborating a system of classifying finger impressions. I am also to forward a copy of a report by a Committee appointed to inquire into the latter system, and to say that, in view of the favourable opinion expressed by the Members † of the Committee, the Governor-General in Council is of opinion that the system of identification by finger impressions should be adopted generally in British India.

* No. 1673-J., dated the 20th March 1897, and enclosure.

† Major-General C. Strahan, R.E., Surveyor-General of India.
A. Pedler, Esq., F.R.S., Principal, Presidency College, Calcutta.

ENCLOSURES.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Calcutta, 20th March 1897, No. 1673-J.

In continuation of the letter from this office, No. 4-J. T., dated the 13th July 1896, I am directed to submit, for the information of the Government of India, a copy of a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal, during 1896, of the anthropometric system for the identification of old offenders, and on the progress that has been made in elaborating a system of classifying finger impressions with a view to substituting this means of identification for anthropometry.

2. I am to enquire, with reference to paragraph VI of the report, whether the Government of India would be willing to appoint a Committee, as suggested by the Inspector-General of Police, to enquire into and report upon the system.

From E. R. HENRY, Esq., C.S., Inspector-General of Police, Lower Provinces, to the Chief Secretary to the Government of Bengal, dated Calcutta, 13th March 1897, No. 2471.

In continuation of previous reports (the numbers and dates of which are given in the margin), I have the honour to submit information regarding the working in this Province, during 1896, of the anthropometric system, and also regarding the progress made in elaborating a system of classifying impressions with a view to substituting identification by finger prints for anthropometry.

Letter No. 25229 of 22nd December 1891; No. 1732 of 25th February 1893; No. 6553 of 1st May 1894; No. 10552-A of 26th June 1895; and No. 10600-T of 24th June 1896, from the Inspector-General of Police, Lower Provinces, to the Chief Secretary to the Government of Bengal.

II. During the year, 2,101 persons were on arrest, treated as unidentified. By sustained enquiry, the local police succeeded subsequently in recognising 1,270 of them, leaving a balance of 831 persons unidentified, with whom anthropometry had to deal.

The following table, which gives statistics for three years, shows that the success achieved has been progressive, and that the figures compare favourably with those submitted for Provincial France by Mons. A. Bertillon, to the Fourth International Congress of Criminal Anthropology held at Geneva in August 1896 :—

Year. 1	Total number of cases in which identity established by anthropometry. 2	Number in column 2 referred by Bengal districts. 3	Total number of persons in Bengal districts whose identity local Police failed to ascertain. 4	Percentage of success from Bengal districts (column 4 to column 3). 5	Percentage of success, with females, juveniles, and non-British subjects excluded from total of column 4. 6	Number of cases identified by the Paris Bureau on reference from French Provinces. 7	Remarks. 8
1894	143	112	536	21	27	133	
1895	207	162	641	25	31·6	151	
1896	334	252	831	28	42·3	..	

The figures in column 2 for 1896 include 69 cases identified for the Calcutta police, 27 for Assam, 1 for Burma, and 1 for the North-Western Provinces.

The figures of column 6 are arrived at by deducting females and juveniles who are not liable to measurement, and non-British subjects belonging to States where anthropometry has not been introduced, from the totals of column 4 for the purpose of calculating the percentage. In 1896, there were 14 females, 53 juveniles, and 103 non-British subjects.

III. These statistics may be relied upon, as much care is taken at the Central Office to guard against bogus identifications. In three cases—one from Mymensingh and two from Nadia—references were made to the Central Office regarding men actually residents of these districts, the explanation offered being that, although the identity of the suspects was known, it was thought, as they were of wandering habits, that they might have been convicted in distant places, intimation not having been sent to their native districts. Of the 334 persons identified, 109 were ascertained to have given correct names and addresses. As pointed out last year, such information, until tested, is of no value, as criminals, to defeat enquiries, occasionally give the names and addresses of persons other than themselves. This information might have been verified by calling witnesses, a tedious and expensive process, which was rendered unnecessary by the testimony afforded by the anthropometric data. When the cases came to trial, the evidence required by law as to the fact of previous criminality and identity had of course to be produced by the local Police, who, from the information supplied by the Central office, knew where to seek for it.

IV. This outturn justifies the opinion that the anthropometric system is being worked on sound lines and effectively, since, by means of it, four out of every possible ten cases were identified, some of the identifications being from areas not in any way under the departmental control of the Bengal Police office, as Assam, the North-Western Provinces, Burma, the Calcutta Police.

V. Satisfactory as are these results, longer experience has convinced me that it is possible to substitute, with gain of power and saving of expense, labour and time, a system of identification by finger impressions only, not supplemented by measurements. The difficulties experienced during the last two years in devising an effective system of classifying have at length been overcome. A statement in parallel columns of the strong and weak points of either system will illustrate the advantages claimed.

Anthropometry.	*Identification by finger prints.*
1*st.*—Instruments are costly, liable to get out of order, and not easily replaced.	1*st.*—Accessories needed, a piece of tin and some printer's ink, are inexpensive and procurable everywhere.
2*nd.*—Measurers have to be put through a somewhat lengthy course of instruction and must be possessed of sufficient education to understand the significance of the figures of the decimal scale.	2*nd.*—Any person, whether educated or not, after half an hour's practice, can take legible finger impressions.
3*rd.*—The "Personal Equation" error, due to negligence or want of skill on the part of the measurer in taking, reading or transcribing figured results, must always remain a probable source of failure.	3*rd.*—As impressions are self-signatures free from all possible errors of observation and transcription, the "Personal Equation" error may be wholly left out of account.

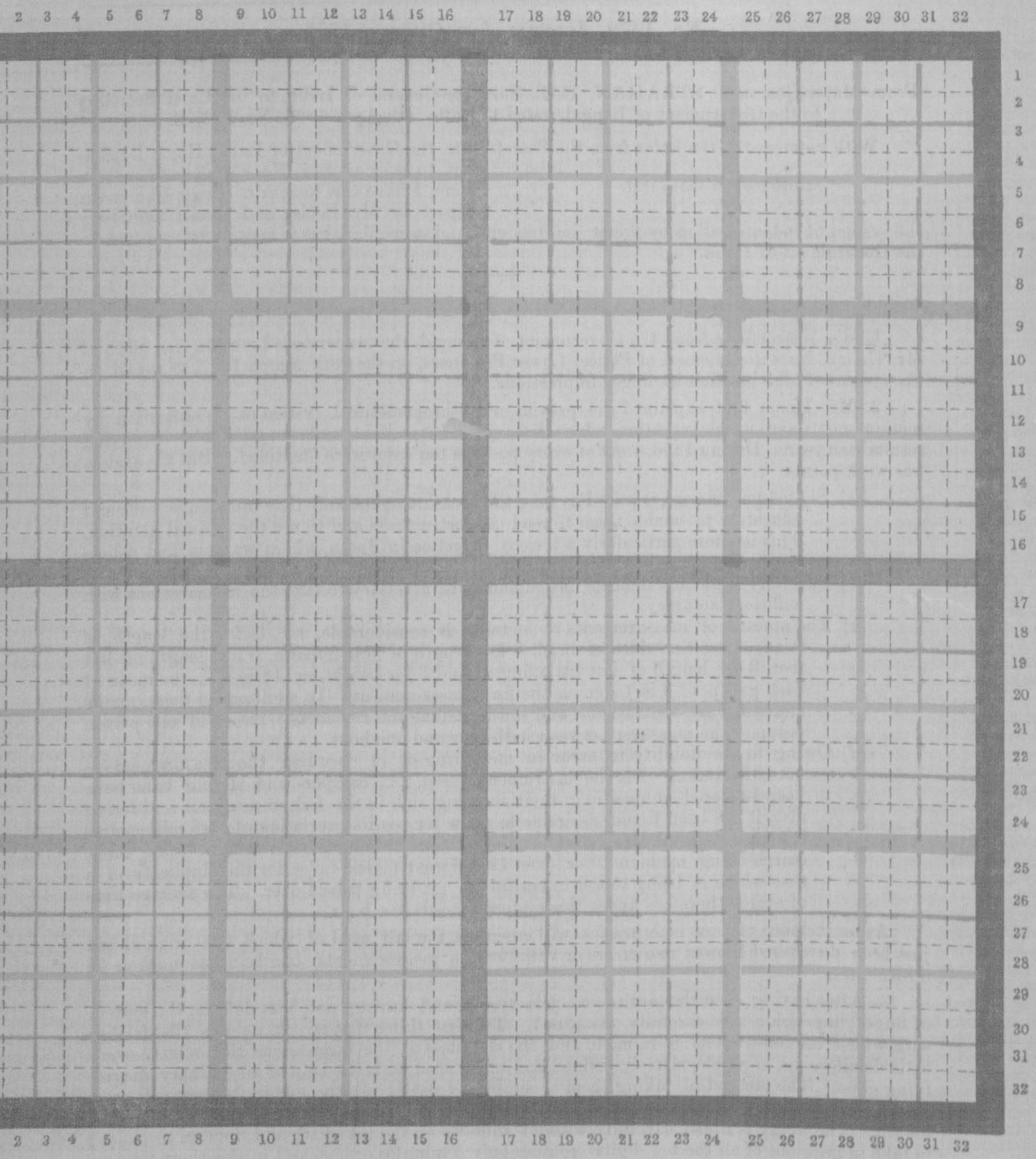
Anthropometry.	*Identification by finger prints.*
4th.—Recording measurements occupies much time, as each measurement is taken three several times and the mean only accepted. Marks and scars are noted, and this necessitates the body being exposed. High caste measurers express repugnance at having to touch the feet of low caste men, and the persons measured object to the uncomfortable positions into which they are forced.	*4th.*—The impressions of the ten digits can be taken in one quarter of the time needed for measuring. No record of marks and scars is needed, consequently the subject has not to divest himself of his clothes. High caste men do not object to taking finger impressions; even *purdanishin* ladies now give a thumb impression when admitting before a Registrar the execution of deeds.
5th.—Search in the almirahs is particularly onerous, because allowance must be made for the "Personal Equation" error. For instance, when a card with length of head 18·4 is received, it is necessary to assume that the measurer may have gone wrong within 2 millemetres either in excess or defect, and search accordingly is made between 18·6 and 18·2, but the former comes under limit "Long" and the latter under limit "Medium"; *i.e.*, different pigeon-holes have to be examined. Similar allowance has to be made in respect of the other five measurements, with the result that on an average nine pigeon-holes must be searched, the process, now that our criminal record consists of about 30,000 cards, occupying over one hour.	*5th.*—Search is comparatively rapid. By the aid of rigid definitions transitional cases have been wholly eliminated, and search consequently has to be made under one classification number only, and not under several. With criminal records of similar volume, search amongst finger impressions would be manyfold more rapid and, according to my experience, more certain.
6th.—The strongest feature is the excellence of the system of primary classification, whereby roll-cards are distributed amongst 729 pigeon-holes. In this country, owing to there being little variation in the pigmentation of the iris of the eye, or in the colour of the hair, secondary classification upon the data we possess presents many difficulties.	*6th.*—An arrangement similar in principle to the Bertillon system, only more exhaustive, has been devised, whereby finger impressions are, in primary classification, rapidly subdivided amongst 1,024 pigeon-holes, and wherever there is accumulation, effective means of secondary classification have been worked out.
7th.—It has been claimed that the probability of all six measurements of two different persons agreeing is so small, that a fraction with a denominator of five figures would be required to express it arithmetically. The assertion would be correct if no allowance had to be made for the "Personal Equation" error, but in practice such allowance (*i.e.*, from 4 to 6 millemetres) is and must be made, and, as coincidences in measurement have occurred, no positive deductions from measurements as to identity can be deemed safe.	*7th.*—Each of the ten impressions taken has its own individual "minute peculiarities," which can be observed and described. If, for purposes of establishing identity, a couple of minute peculiarities in each impression on a card under search are selected, sought for, and found in a duplicate, the probability that the impressions on the card under search, and on the duplicate, are those of the same person, is of a higher degree than that which, to most minds, ordinarily represents certainty.

VI. We have already classified over 8,000 sets of finger impressions with about 600 duplicates, so the materials for subjecting the system to severe tests are ample. If it answers these tests, there will remain no room for doubt that identification by finger impressions must, owing to its inherent advantages, supersede anthropometry everywhere in this country, and also in Europe, and the subject consequently is of more than provincial interest. I venture therefore to ask that the Government of India be moved to appoint a small independent Committee to inquire into and report upon the system. Since the beginning of the present year, anthropometric data are no longer taken for permanent record in Bengal. Unidentified persons are being measured as before, so that the existing anthropometric criminal record may be utilised, but the finger impressions only, and not the measurements of new convicts, are being taken.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Darjeeling, 19th April 1897, No. 2-J.D.

In reference to the correspondence ending with your letter, No. 177, dated the 26th March 1897, I am directed to submit to the Government of India the accompanying copy of a letter, No. 1127-S., dated the 6th April 1897, from Major-General C. Strahan, R.E., Surveyor-General of India, and of its enclosed report of the Committee appointed to examine into the system of identification by finger impressions.

CLASSIFICATION BUREAU.



o. 3960.

. 158

Litho. Survey Office, Madras.
1897.

EXPLANATION.

The impressions of the ten digits are taken in pairs in the following order :—

(1) Right Thumb and Right Index; (2) Right Middle and Right Ring; (3) Right Little and Left Thumb; (4) Left Index and Left Middle; (5) Left Ring and Left Little. All impressions are held to be divisible into 2 types, Loops (which include Arches) and Whorls. Given ten impressions in the above order, they can be expressed by some such formula as the following :— LW-WL-LL-WW-LW where L = Loop; W = Whorl. The Key indicates the one pigeon-hole out of the 1024 of the Bureau where a card with the above formula will be found. Referring to the Key, LW is in top right hand square, therefore we proceed to square defined by the broad black and blue lines, and by the horizontal numbers 17 to 32 and vertical 1 to 16. Taking the next pair WL we see from the Key that it is in bottom left square of $\frac{17-32}{1-16}$ i.e., in the square defined by red and blue lines and by horizontal figures 17—24 and vertical 9—16. The next pair LL is in left top corner of this $\frac{17-24}{9-16}$ square, i.e., in the square defined by one red, one blue, and two yellow lines, and by horizontal figures 17—20 and vertical 9—12. The next pair WW is in right hand botto[illegible] orner of this $\frac{17-20}{9-12}$ square, i.e., in squa[illegible] marked by two [illegible] two yellow lines and by horizontal figures 19—20 a[illegible] of this 19-20 square, i.e. [illegible] on-hole [illegible]

Key.

No. 1472, Judicial, 9th October 1897.

From Major-General C. STRAHAN, R.E., Surveyor-General of India, to the Chief Secretary to the Government of Bengal, dated Calcutta, 6th April 1897, No. 1127-S.

With reference to the letter from the Secretary to the Government of India, Home Department, to your address, No. 177, dated the 26th ultimo, I have the honour to forward herewith a report by Mr. Pedler and myself regarding the system of indentification by finger impressions, and to request that it may be transmitted to the Government of India.

Dated the 31st March 1897.

Report of Committee to examine into the system of identification by finger impressions.

Under instructions from the Government of Bengal, the undersigned met in the office of Mr. Henry, Inspector-General of Police, Lower Provinces, on the 29th March 1897, to report on his system of identification by finger impressions.

2. Mr. Henry first explained the present or anthropometrical system of identification by measurements and its classification which has yielded excellent and progressively improving results each year. During 1896, 4 out of every possible ten cases were identified. But the system has weak points.

(a) Skilled persons are required to take the measurements, and they must have sufficient education to enable them to read the instruments and to use the decimal notation. This is more particularly a serious objection in India, where warders and policemen are frequently far from well-educated men.

(b) Carefully made and delicate instruments are necessary to take the measurement with sufficient accuracy.

(c) The number of measurements to be taken is considerable, *viz.*, 3 for the length of head, 3 for the width of head, 3 for length of left forearm, 3 for length of left foot, 3 for length of left little finger, and 3 for height, or 18 in all; the mean of each group of 3 is taken as the final measurement. In addition to these, marks and scars are searched for and so the actual anthropometric record of one person occupies the measurer between half-hour and one hour.

(d) Owing to the liability to error in measuring or in recording the measurements—notwithstanding that the instruments used, *i.e.*, callipers and sliding bars, have been rendered automatic in their working and, in the former case, self-registering also, it has been found desirable to allow for possible variation of two millemetres in excess and in defect of the measurements. This necessitates, in some cases, search being made in 10 or even 12 different pigeon-holes for the duplicate of a case which is being tested to ensure its not being passed over. The average time of search therefore under this system exceeds one hour.

As an instance of how inaccuracies will creep in, the last card of which the original had just been discovered showed two errors or variations in measurements, one being as much as 3½ millemetres.

3. After having seen the anthropometric system and having noted its defects, the system of finger impression was carefully examined. The first thing that struck us was the facility with which the impressions were made and the clearness of the impressions themselves, every little detail being, as a rule, sharply defined and easily seen with the help of an ordinary magnifying glass. The method of taking them is simplicity itself; all the materials required are a flat piece of tin, a bottle of ordinary printer's ink and a small rubber roller to spread the ink on the tin. The finger is rolled carefully without rubbing on the inked tin and then on to paper; to take impressions of all the ten digits occupies only 5 minutes or less, and in this short time an absolutely accurate record without any possibility of accidental error is obtained without skilled labour and without instruments.

4. The method of classification devised by Mr. Henry was then explained to us. The first classification divides all the different kinds of impressions into two classes only, which can be recognised at a glance; by taking the combinations of these two classes as exhibited in the ten different digits, taken in pairs, all descriptive cards can be divided into 1,024 classes, and to each class is allotted a separate pigeon-hole. By means of the key, a copy of which is attached, any one pigeon-hole can be at once found with the greatest ease and certainty even by a person who has never seen the system before. We were both enabled to do this at once without any difficulty. Having thus located the card in one particular pigeon-hole, a further classification is necessary to assist in the search through all the different cards in that pigeon-hole; this further classification depends on the details in the impressions, which it is unnecessary to enter into here; but it is so simple that we were both able to find the originals of two of the most intricate cards that could be produced, with ease and certainty. The men whose duty it is to look up for the originals in no case took more than 5 minutes to produce the original, the duplicate of which we had handed to them out of a file of some 600 records, and the originals of which were part of a file of finger print cards exceeding eight thousand in number. One case which was selected as being apparently an especially difficult one, as it was very indistinct, was found in two minutes

only. The principles of the sub-classification are such that should minute distribution be needed in consequence of any great accumulation in any one pigeon-hole, it can easily be made by extending the same principles. The system of search is therefore much more rapid and more certain than that for the anthropometric data.

5. The greatest sceptic would be at once convinced of identity, on being shown the original and duplicate impressions. The exact repetition of most minute details is quite astonishing. There is no possible margin of error and there are no doubtful cases.

6. Thus the three main conditions laid down by the Committee appointed by the Secretary of State to enquire into the best means available for identifying habitual criminals are fully satisfied, viz.:—

(1) The descriptions, measurements, or marks which are the basis of the system must be such as can be taken readily and with sufficient accuracy by prison warders or police officers of ordinary intelligence.

(2) The classification of the descriptions must be such that on the arrest of an old offender who gives a false name his record may be found readily and with certainty.

(3) When the case has been found among the classified descriptions it is desirable that convincing evidence of identity should be afforded In that same report it is acknowledged that Mr. Galton's finger print method completely met the first and third conditions, but they disapproved of his method of classification. Mr. Henry's method of classification and sub-classification has, we consider, effectually got over the objections raised by them, for, out of 8,000 cards, no sub-class contained more than from 10 to 20 originals, and the system is capable of almost endless amplification if necessary.

7. In conclusion, therefore, we are of opinion that the method of identification of habitual criminals by means of finger prints as worked on the system of recording impressions and of classification devised by Mr. Henry may be safely adopted as being superior to the anthropometric method, (1) in simplicity of working, (2) in the cost of apparatus, (3) in the fact that all the skilled work required is transferred to the central classification Bureau, (4) in the rapidity with which the process can be worked, and (5) in the certainty of the results.

CALCUTTA,
31st *March* 1897.

(Signed) CHAS. STRAHAN, Major-General, R.E.,
Surveyor-General.

(Signed) ALEX. PEDLER, F.R.S.,
Principal, Presidency College.

From the Government of India, dated 23rd July 1897, No. 428.

ORDER—No. 1472, Judicial, dated 9th October 1897.

The foregoing letter from the Government of India, with its enclosures, will be communicated to the Hon'ble the Judges of the High Court, to all departments of the Secretariat, and to the Inspectors-General of Police, Prisons and Registration.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To all Departments of the Secretariat.
" the Hon'ble the Chief Justice (with C.L.).
" the Inspector-General of Police.
" the Inspector-General of Prisons.
" the Inspector-General of Registration.

Proceedings of t

Public Works (1897) Department

Government (1897) of Madras.

JUDICIAL.

Recd. } 1897.
Regd.

Enclosures
Spare copies

G.O., No. 1472, 9th October 1897.

No. 3216 W 17-11-9

Communicated to office
the P. W. Dept. for inform
in continuation of G. O. No
dated 16th October 1896
(27) WBS

OCTOBER.

To
Ch. E. for I
C. E. for Rys
C. A. to Govt
Suptg Engrs
Exr PWA
Acr Ry accts.

Identification by finger impressions.

Communicating to the Hon'ble the Judges of the High Court and to certain heads of departments letter from the Government of India forwarding copy of report on the working of tric system for the identification of old offenders and on the progress made in finger impressions in the Lower Provinces of Bengal; as also of — with an expression of opinion

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

Read—the following papers :—

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Police), to the Chief Secretary to the Government of Madras, dated Simla, 12th June 1897, No. 328.

In continuation of the endorsement from this department, No. 3—447, dated the 20th August 1896, I am directed to forward a copy of a letter * from the Government of Bengal, submitting a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal during 1896 of the anthropometric system for the identification of old offenders and on the progress that has been made in elaborating a system of classifying finger impressions. I am also to forward a copy of a report by a Committee appointed to inquire into the latter system, and to say that, in view of the favourable opinion expressed by the Members † of the Committee, the Governor-General in Council is of opinion that the system of identification by finger impressions should be adopted generally in British India.

* No. 1673-J., dated the 20th March 1897, and enclosure.

† Major-General C. Strahan, R.E., Surveyor-General of India.
A. Pedler, Esq., F.R.S., Principal, Presidency College, Calcutta.

Enclosures.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Calcutta, 20th March 1897, No. 1673-J.

In continuation of the letter from this office, No. 4-J. T., dated the 13th July 1896, I am directed to submit, for the information of the Government of India, a copy of a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal, during 1896, of the anthropometric system for the identification of old offenders, and on the progress that has been made in elaborating a system of classifying finger impressions with a view to substituting this means of identification for anthropometry.

2. I am to enquire, with reference to paragraph VI of the report, whether the Government of India would be willing to appoint a Committee, as suggested by the Inspector-General of Police, to enquire into and report upon the system.

From E. R. HENRY, Esq., C.S., Inspector-General of Police, Lower Provinces, to the Chief Secretary to the Government of Bengal, dated Calcutta, 13th March 1897, No. 2471.

In continuation of previous reports (the numbers and dates of which are given in the margin), I have the honour to submit information regarding the working in this Province, during 1896, of the anthropometric system, and also regarding the progress made in elab
a system of class gures 17—20
to sub in square marked by two

Letter No. 25229 of 22nd December 1891; No. 1732 of 25th February 1893; No. 6553 of 1st May 1894; No. 10552-A of 26th June 1895; and No. 10560-T of 24th June 1896, from the Inspector-General of Police, Lower Provinces, to the C ef Secretary to the Government of Bengal.

II. During the year, 2,101 persons were on arrest, treated as unidentified. By sustained enquiry, the local police succeeded subsequently in recognising 1,270 of them, leaving a balance of 831 persons unidentified, with whom anthropometry had to deal.

The following table, which gives statistics for three years, shows that the success achieved has been progressive, and that the figures compare favourably with those submitted for Provincial France by Mons. A. Bertillon, to the Fourth International Congress of Criminal Anthropology held at Geneva in August 1896 :—

Year.	Total number of cases in which identity established by anthropometry.	Number in column 2 referred by Bengal districts.	Total number of persons in Bengal districts whose identity local Police failed to ascertain.	Percentage of success from Bengal districts (column 4 to column 3).	Percentage of success, with females, juveniles, and non-British subjects excluded from total of column 4.	Number of cases identified by the Paris Bureau on reference from French Provinces.	Remarks.
1	2	3	4	5	6	7	8
1894	143	112	536	21	27	133	
1895	207	162	641	25	31·6	151	
1896	334	252	831	28	42·3	..	

The figures in column 2 for 1896 include 69 cases identified for the Calcutta police, 27 for Assam, 1 for Burma, and 1 for the North-Western Provinces.

The figures of column 6 are arrived at by deducting females and juveniles who are not liable to measurement, and non-British subjects belonging to States where anthropometry has not been introduced, from the totals of column 4 for the purpose of calculating the percentage. In 1896, there were 14 females, 53 juveniles, and 103 non-British subjects.

III. These statistics may be relied upon, as much care is taken at the Central Office to guard against bogus identifications. In three cases—one from Mymensingh and two from Nadia—references were made to the Central Office regarding men actually residents of these districts, the explanation offered being that, although the identity of the suspects was known, it was thought, as they were of wandering habits, that they might have been convicted in distant places, intimation not having been sent to their native districts. Of the 334 persons identified, 109 were ascertained to have given correct names and addresses. As pointed out last year, such information, until tested, is of no value, as criminals, to defeat enquiries, occasionally give the names and addresses of persons other than themselves. This information might have been verified by calling witnesses, a tedious and expensive process, which was rendered unnecessary by the testimony afforded by the anthropometric data. When the cases came to trial, the evidence required by law as to the fact of previous criminality and identity had of course to be produced by the local Police, who, from the information supplied by the Central office, knew where to seek for it.

IV. This outturn justifies the opinion that the anthropometric system is being worked on sound lines and effectively, since, by means of it, four out of every possible ten cases were identified, some of the identifications being from areas not in any way under the departmental control of the Bengal Police office, as Assam, the North-Western Provinces, Burma, the Calcutta Police.

V. Satisfactory as are these results, longer experience has convinced me that it is possible to substitute, with gain of power and saving of expense, labour and time, a system of identification by finger impressions only, not supplemented by measurements. The difficulties experienced during the last two years in devising an effective system of classifying have at length been overcome. A statement in parallel columns of the strong and weak points of either system will illustrate the advantages claimed.

Anthropometry.	*Identification by finger ints.*
1st.—Instruments are costly, liable to get o of order, and not easily replaced.	1st.—Accessories needed, a piece of tin and some printer's ink, are inexpensive and procurable everywhere.
2nd.—Measurers have to be put through a somewhat lengthy course of instruction and must be possessed of sufficient education to understand the significance of the figures of the decimal scale.	2nd.—Any person, whether educated or not, after half an hour's practice, can take legible finger impressions.
3rd.—The "Personal Equation" error, due to negligence or want of skill on the part of taking, reading or transcribing n a probable	3rd.—As impressions are self-signatures free from all possible errors of observation and transcription, the "Person ion" error may be wholly left out

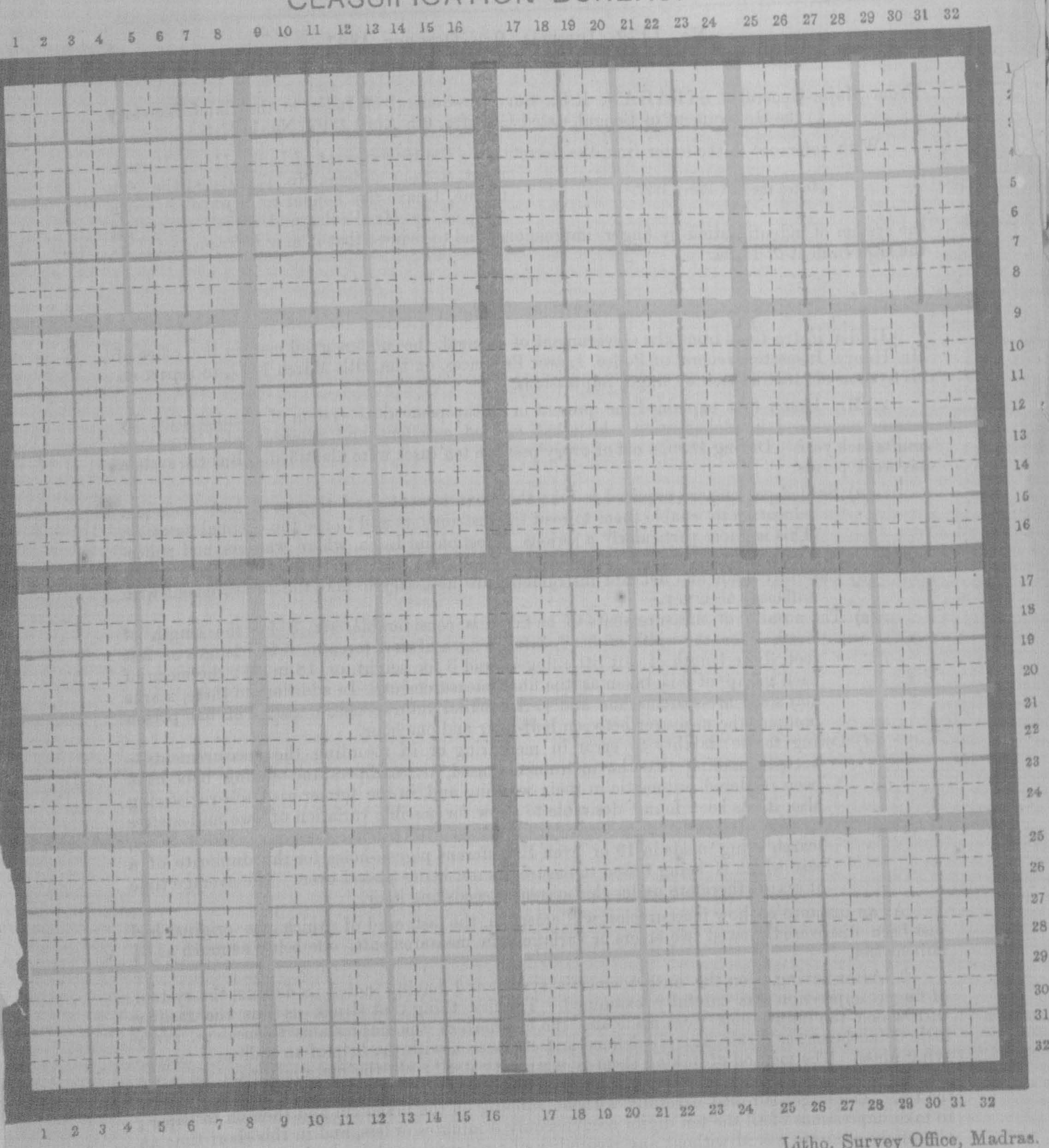
Anthropometry.	*Identification by finger prints.*
4th.—Recording measurements occupies much time, as each measurement is taken three several times and the mean only accepted. Marks and scars are noted, and this necessitates the body being exposed. High caste measurers express repugnance at having to touch the feet of low caste men, and the persons measured object to the uncomfortable positions into which they are forced.	*4th.*—The impressions of the ten digits can be taken in one quarter of the time needed for measuring. No record of marks and scars is needed, consequently the subject has not to divest himself of his clothes. High caste men do not object to taking finger impressions; even *purdanishin* ladies now give a thumb impression when admitting before a Registrar the execution of deeds.
5th.—Search in the almirahs is particularly onerous, because allowance must be made for the "Personal Equation" error. For instance, when a card with length of head 18·4 is received, it is necessary to assume that the measurer may have gone wrong within 2 millemetres either in excess or defect, and search accordingly is made between 18·6 and 18·2, but the former comes under limit "Long" and the latter under limit "Medium"; *i.e.*, different pigeon-holes have to be examined. Similar allowance has to be made in respect of the other five measurements, with the result that on an average nine pigeon-holes must be searched, the process, now that our criminal record consists of about 30,000 cards, occupying over one hour.	*5th.*—Search is comparatively rapid. By the aid of rigid definitions transitional cases have been wholly eliminated, and search consequently has to be made under one classification number only, and not under several. With criminal records of similar volume, search amongst finger impressions would be manyfold more rapid and, according to my experience, more certain.
6th.—The strongest feature is the excellence of the system of primary classification, whereby roll-cards are distributed amongst 729 pigeon-holes. In this country, owing to there being little variation in the pigmentation of the iris of the eye, or in the colour of the hair, secondary classification upon the data we possess presents many difficulties.	*6th.*—An arrangement similar in principle to the Bertillon system, only more exhaustive, has been devised, whereby finger impressions are, in primary classification, rapidly subdivided amongst 1,024 pigeon-holes, and wherever there is accumulation, effective means of secondary classification have been worked out.
7th.—It has been claimed that the probability of all six measurements of two different persons agreeing is so small, that a fraction with a denominator of five figures would be required to express it arithmetically. The assertion would be correct if no allowance had to be made for the "Personal Equation" error, but in practice such allowance (*i.e.*, from 4 to 6 millemetres) is and must be made, and, as coincidences in measurement have occurred, no positive deductions from measurements as to identity can be deemed safe.	*7th.*—Each of the ten impressions taken has its own individual "minute peculiarities," which can be observed and described. If, for purposes of establishing identity, a couple of minute peculiarities in each impression on a card under search are selected, sought for, and found in a duplicate, the probability that the impressions on the card under search, and on the duplicate, are those of the same person, is of a higher degree than that which, to most minds, ordinarily represents certainty.

VI. We have already classified over 8,000 sets of finger impressions with about 600 duplicates, so the materials for subjecting the system to severe tests are ample. If it answers these tests, there will remain no room for doubt that identification by finger impressions must, owing to its inherent advantages, supersede anthropometry everywhere in this country, and also in Europe, and the subject consequently is of more than provincial interest. I venture therefore to ask that the Government of India be moved to appoint a small independent Committee to inquire into and report upon the system. Since the beginning of the present year, anthropometric data are no longer taken for permanent record in Bengal. Unidentified persons are being measured as before, so that the existing anthropometric criminal record may be utilised, but the finger impressions only, and not the measurements of new convicts, are being taken.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Darjeeling, 19th April 1897, No. 2-J.D.

In reference to the correspondence ending with your letter, No. 177, dated the 26th March 1897, I am directed to submit to the Government of India the accompanying copy of a letter No. 1127-S., dated the 6th April 1897, from Major-General C. Strahan, R.E., Surveyor-General of India, and of its enclosed report of the Committee appointed [illegible] in [illegible] marked by two identification by finger impressions.

CLASSIFICATION BUREAU.



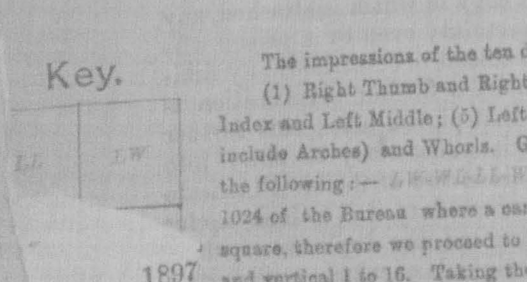
Litho, Survey Office, Madras.
1897.

Reg. No. 3960.
Copies. 158

EXPLANATION.

The impressions of the ten digits are taken in pairs in the following order:— (1) Right Thumb and Right Index; (2) Right Middle and Right Ring; (3) Right Little and Left Thumb; (4) Left Index and Left Middle; (5) Left Ring and Left Little. All impressions are held to be divisible into 2 types, Loops (which include Arches) and Whorls. Given ten impressions in the above order, they can be expressed by some such formula as the following:— LW-WL-LL-WW-LW where L = Loop; W = Whorl. The Key indicates the one pigeon-hole out of the 1024 of the Bureau where a card wi bove formula will be found. Referring to the Key, LW is in top right hand square, therefore we proceed to squa by the broad black and blue lines, and by the horizontal —20 and vertical 1 to 16. Taking the next pair WL we see from the Key that it arked by two defined by red and blue lines and by horizontal figures 17—

Key.



1897
No.
of In
identification by finger imp

Proceedings of the Madras Gov

No. 1472, Judicial, 9th October 1897.

From Major-General C. STRAHAN, R.E., Surveyor-General of India, to the Chief Secretary to the Government of Bengal, dated Calcutta, 6th April 1897, No. 1127-S.

With reference to the letter from the Secretary to the Government of India, Home Department, to your address, No. 177, dated the 26th ultimo, I have the honour to forward herewith a report by Mr. Pedler and myself regarding the system of indentification by finger impressions, and to request that it may be transmitted to the Government of India.

Dated the 31st March 1897.

Report of Committee to examine into the system of identification by finger impressions.

Under instructions from the Government of Bengal, the undersigned met in the office of Mr. Henry, Inspector-General of Police, Lower Provinces, on the 29th March 1897, to report on his system of identification by finger impressions.

2. Mr. Henry first explained the present or anthropometrical system of identification by measurements and its classification which has yielded excellent and progressively improving results each year. During 1896, 4 out of every possible ten cases were identified. But the system has weak points.

(*a*) Skilled persons are required to take the measurements, and they must have sufficient education to enable them to read the instruments and to use the decimal notation. This is more particularly a serious objection in India, where warders and policemen are frequently far from well-educated men.

(*b*) Carefully made and delicate instruments are necessary to take the measurement with sufficient accuracy.

(*c*) The number of measurements to be taken is considerable, *viz.*, 3 for the length of head, 3 for the width of head, 3 for length of left forearm, 3 for length of left foot, 3 for length of left little finger, and 3 for height, or 18 in all; the mean of each group of 3 is taken as the final measurement. In addition to these, marks and scars are searched for and so the actual anthropometric record of one person occupies the measurer between half-hour and one hour.

(*d*) Owing to the liability to error in measuring or in recording the measurements—notwithstanding that the instruments used, *i.e.*, callipers and sliding bars, have been rendered automatic in their working and, in the former case, self-registering also, it has been found desirable to allow for possible variation of two millemetres in excess and in defect of the measurements. This necessitates, in some cases, search being made in 10 or even 12 different pigeon-holes for the duplicate of a case which is being tested to ensure its not being passed over. The average time of search therefore under this system exceeds one hour.

As an instance of how inaccuracies will creep in, the last card of which the original had just been discovered showed two errors or variations in measurements, one being as much as 3½ millemetres.

3. After having seen the anthropometric system and having noted its defects, the system of finger impression was carefully examined. The first thing that struck us was the facility with which the impressions were made and the clearness of the impressions themselves, every little detail being, as a rule, sharply defined and easily seen with the help of an ordinary magnifying glass. The method of taking them is simplicity itself; all the materials required are a flat piece of tin, a bottle of ordinary printer's ink and a small rubber roller to spread the ink on the tin. The finger is rolled carefully without rubbing on the inked tin and then on to paper; to take impressions of all the ten digit occupies only 5 minutes or less, and in this short time an absolutely accurate record without a possibility of accidental error is obtained without skilled labour and without instruments.

4. The method of classification devised by Mr. Henry was then explained to us. The first classification divides all the different kinds of impressions into two classes only, which can be recognised at a glance; by taking the combinations of these two classes as exhibited in the ten different digits, taken in pairs, all descriptive cards can be divided into 1,024 classes, and to each class is allotted a separate pigeon-hole. By means of the key, a copy of which is attached, any one pigeon-hole can be at once found with the greatest ease and certainty even by a person who has never seen the system before. We were both enabled to do this at once without any difficulty. Having thus located the card in one particular pigeon-hole, a further classification is necessary to assist in the search through all the different cards in that pigeon-hole; this further classification depends on the details in the impressions, which it is unnecessary to enter into here; but it is so simple that we were both able to find the originals of two of the most intricate cards that could be produced, with ease and certainty. The men whose duty it is to look up case took more than 5 minutes to produce the original, the duplicate of w of a file of some 600 records, and the originals of which were thousand in number. One case which was sel found in two

only. The principles of the sub-classification are such that should minute distribution be needed in consequence of any great accumulation in any one pigeon-hole, it can easily be made by extending the same principles. The system of search is therefore much more rapid and more certain than that for the anthropometric data.

5. The greatest sceptic would be at once convinced of identity, on being shown the original and duplicate impressions. The exact repetition of most minute details is quite astonishing. There is no possible margin of error and there are no doubtful cases.

6. Thus the three main conditions laid down by the Committee appointed by the Secretary of State to enquire into the best means available for identifying habitual criminals are fully satisfied, viz. :—

(1) The descriptions, measurements, or marks which are the basis of the system must be such as can be taken readily and with sufficient accuracy by prison warders or police officers of ordinary intelligence.

(2) The classification of the descriptions must be such that on the arrest of an old offender who gives a false name his record may be found readily and with certainty.

(3) When the case has been found among the classified descriptions it is desirable that convincing evidence of identity should be afforded. In that same report it is acknowledged that Mr. Galton's finger print method completely met the first and third conditions, but they disapproved of his method of classification. Mr. Henry's method of classification and sub-classification has, we consider, effectually got over the objections raised by them, for, out of 8,000 cards, no sub-class contained more than from 10 to 20 originals, and the system is capable of almost endless amplification if necessary.

7. In conclusion, therefore, we are of opinion that the method of identification of habitual criminals by means of finger prints as worked on the system of recording impressions and of classification devised by Mr. Henry may be safely adopted as being superior to the anthropometric method, (1) in simplicity of working, (2) in the cost of apparatus, (3) in the fact that all the skilled work required is transferred to the central classification Bureau, (4) in the rapidity with which the process can be worked, and (5) in the certainty of the results.

Calcutta,
31st March 1897.

(Signed) CHAS. STRAHAN, Major-General, R.E.,
Surveyor-General.

(Signed) ALEX. PEDLER, F.R.S.,
Principal, Presidency College.

From the Government of India, dated 23rd July 1897, No. 428.

Order—No. 1472, Judicial, dated 9th October 1897.

The foregoing letter from the Government of India, with its enclosures, will be communicated to the Hon'ble the Judges of the High Court, to all departments of the Secretariat, and to the Inspectors-General of Police, Prisons and Registration.

(True Extract.)

J. F. PRICE,
Chief Secretary.

. 458
To ments of the Secretariat.
" the Chief Justice (with C.L.).
" General of Police.
" General of Prisons.
General of Registration.

Key.

by the horizontal figures 17—20
Strahan, R.E., Surveyor marked by two
No. 1 of India, and of its enclosed report of the Committee appointed
identification by finger impressions

Proceedings of the Madras Government
Read the following—

Government (1897) of Madras.

JUDICIAL.

Recd.	1897.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 1472, 9th October 1897.

OCTOBER.

Identification by finger impressions.

Communicating to the Hon'ble the High Court and to certain heads of departments letter from the Governmen ing copy of report on the working of the anthropometric system for the identi offenders and on the progress mad in elaborating a system of classifying finger in the Lower Provinces of Bengal; as also one from the Committee appointed to inquire system of — with an expression of opinion on the advisability of adopting the latter syst all through British India.

GOVERNMENT OF MADRAS.

JUDICIAL DEPARTMENT.

READ—the following papers :—

From J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department (Police), to the Chief Secretary to the Government of Madras, dated Simla, 12th June 1897, No. 328.

In continuation of the endorsement from this department, No. 3—447, dated the 20th August 1896, I am directed to forward a copy of a letter * from the Government of Bengal, submitting a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal during 1896 of the anthropometric system for the identification of old offenders and on the progress that has been made in elaborating a system of classifying finger impressions. I am also to forward a copy of a report by a Committee appointed to inquire into the latter system, and to say that, in view of the favourable opinion expressed by the Members † of the Committee, the Governor-General in Council is of opinion that the system of identification by finger impressions should be adopted generally in British India.

* No. 1673-J., dated the 20th March 1897, and enclosure.

† Major-General C. Strahan, R.E., Surveyor-General of India.
A. Pedler, Esq., F.R.S., Principal, Presidency College, Calcutta.

ENCLOSURES.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Calcutta, 20th March 1897, No. 1673-J.

In continuation of the letter from this office, No. 4-J. T., dated the 13th July 1896, I am directed to submit, for the information of the Government of India, a copy of a report from the Inspector-General of Police, Lower Provinces, on the subject of the working in Bengal, during 1896, of the anthropometric system for the identification of old offenders, and on the progress that has been made in elaborating a system of classifying finger impressions with a view to substituting this means of identification for anthropometry.

2. I am to enquire, with reference to paragraph VI of the report, whether the Government of India would be willing to appoint a Committee, as suggested by the Inspector-General of Police, to enquire into and report upon the system.

From E. R. HENRY, Esq., C.S., Inspector-General of Police, Lower Provinces, to the Chief Secretary to the Government of Bengal, dated Calcutta, 13th March 1897, No. 2471.

In continuation of previous reports (the numbers and dates of which are given in the margin), I have the honour to submit information regarding the working in this Province, during 1896, of the anthropometric system, and also regarding the progress made in elaborating a system of classifying impressions with a view to substituting identification by finger prints for anthropometry.

Letter No. 25229 of 22nd December 1891; No. 1732 of 25th February 1893; No. 6553 of 1st May 1894; No. 10552-A of 26th June 1895; and No. 10500-T of 24th June 1896, from the Inspector-General of Police, Lower Provinces, to the Chief Secretary to the Government of Bengal.

II. During the year, 2,101 persons were on arrest, treated as unidentified. By sustained enquiry, the local police succeeded subsequently in recognising 1,270 of them, leaving a balance of 831 persons unidentified, with whom anthropometry had to deal.

The following table, which gives statistics for three years, shows that the success achieved has been progressive, and that the figures compare favourably with those submitted for Provincial France by Mons. A. Bertillon, to the Fourth International Congress of Criminal Anthropology held at Geneva in August 1896 :—

Year.	Total number of cases in which identity established by anthropometry.	Number in column 2 referred by Bengal districts.	Total number of persons in Bengal districts whose identity local Police failed to ascertain.	Percentage of success from Bengal districts (column 4 to column 3).	Percentage of success, with females, juveniles, and non-British subjects excluded from total of column 4.	Number of cases identified by the Paris Bureau on reference from French Provinces.	Remarks.
1	2	3	4	5	6	7	8
1894	143	112	536	21	27	133	
1895	207	162	641	25	31·6	151	
1896	334	252	831	28	42·3	..	

The figures in column 2 for 1896 include 69 cases identified for the Calcutta police, 27 for Assam, 1 for Burma, and 1 for the North-Western Provinces.

The figures of column 6 are arrived at by deducting females and juveniles who are not liable to measurement, and non-British subjects belonging to States where anthropometry has not been introduced, from the totals of column 4 for the purpose of calculating the percentage. In 1896, there were 14 females, 53 juveniles, and 103 non-British subjects.

III. These statistics may be relied upon, as much care is taken at the Central Office to guard against bogus identifications. In three cases—one from Mymensingh and two from Nadia—references were made to the Central Office regarding men actually residents of these districts, the explanation offered being that, although the identity of the suspects was known, it was thought, as they were of wandering habits, that they might have been convicted in distant places, intimation not having been sent to their native districts. Of the 334 persons identified, 109 were ascertained to have given correct names and addresses. As pointed out last year, such information, until tested, is of no value, as criminals, to defeat enquiries, occasionally give the names and addresses of persons other than themselves. This information might have been verified by calling witnesses, a tedious and expensive process, which was rendered unnecessary by the testimony afforded by the anthropometric data. When the cases came to trial, the evidence required by law as to the fact of previous criminality and identity had of course to be produced by the local Police, who, from the information supplied by the Central office, knew where to seek for it.

IV. This outturn justifies the opinion that the anthropometric system is being worked on sound lines and effectively, since, by means of it, four out of every possible ten cases were identified, some of the identifications being from areas not in any way under the departmental control of the Bengal Police office, as Assam, the North-Western Provinces, Burma, the Calcutta Police.

V. Satisfactory as are these results, longer experience has convinced me that it is possible to substitute, with gain of power and saving of expense, labour and time, a system of identification by finger impressions only, not supplemented by measurements. The difficulties experienced during the last two years in devising an effective system of classifying have at length been overcome. A statement in parallel columns of the strong and weak points of either system will illustrate the advantages claimed.

Anthropometry.	*Identification by finger prints.*
1*st.*—Instruments are costly, liable to get out of order, and not easily replaced.	1*st.*—Accessories needed, a piece of tin and some printer's ink, are inexpensive and procurable everywhere.
2*nd.*—Measurers have to be put through a somewhat lengthy course of instruction and must be possessed of sufficient education to understand the significance of the figures of the decimal scale.	2*nd.*—Any person, whether educated or not, after half an hour's practice, can take legible finger impressions.
3*rd.*—The "Personal Equation" error, due to negligence or want of skill on the part of the measurer in taking, reading or transcribing figured results, must always remain a probable source of failure.	3*rd.*—As impressions are self-signatures free from all possible errors of observation and transcription, the "Personal Equation" error may be wholly left out of account.

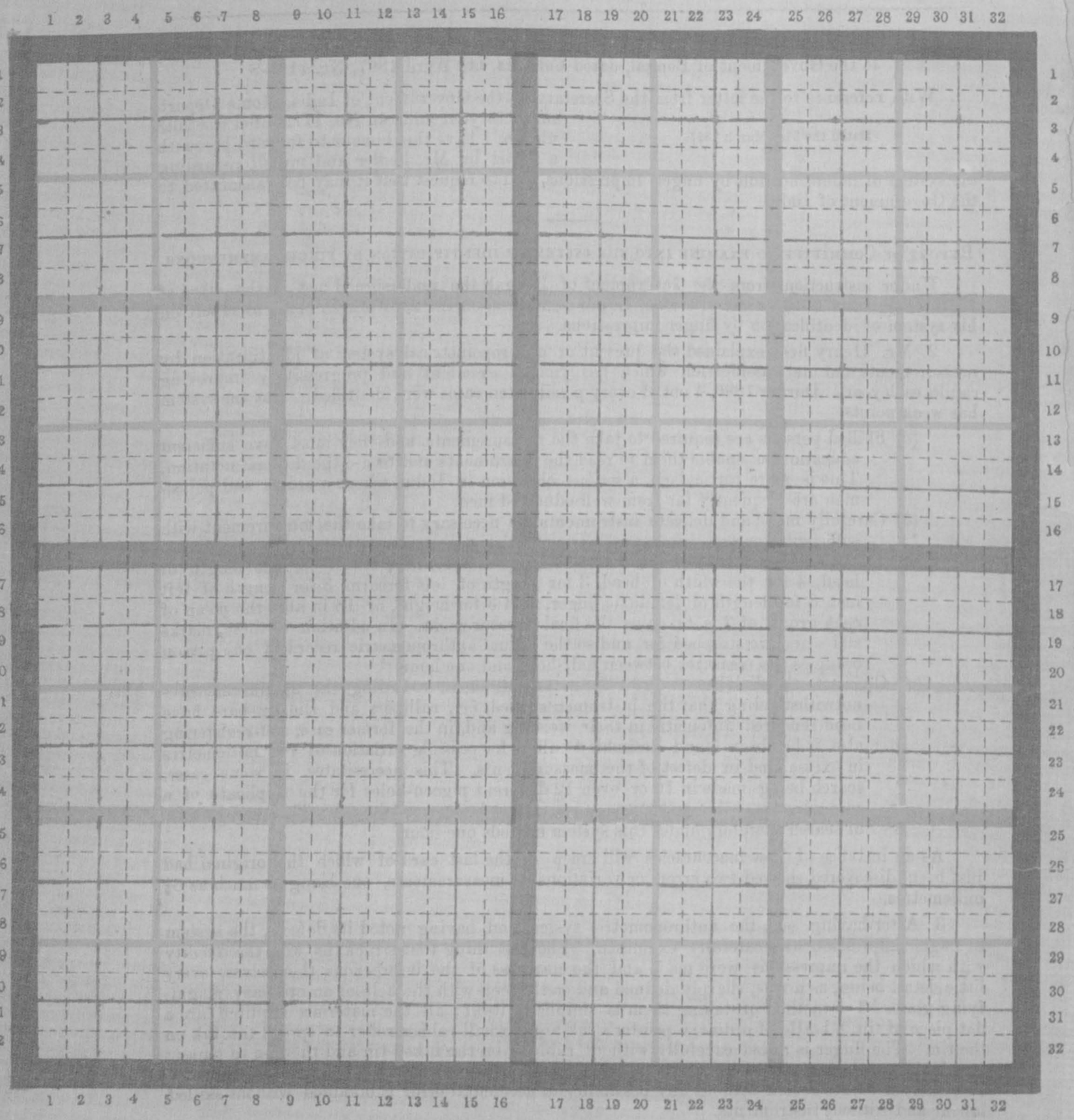
Anthropometry.	*Identification by finger prints.*
4th.—Recording measurements occupies much time, as each measurement is taken three several times and the mean only accepted. Marks and scars are noted, and this necessitates the body being exposed. High caste measurers express repugnance at having to touch the feet of low caste men, and the persons measured object to the uncomfortable positions into which they are forced.	*4th.*—The impressions of the ten digits can be taken in one quarter of the time needed for measuring. No record of marks and scars is needed, consequently the subject has not to divest himself of his clothes. High caste men do not object to taking finger impressions; even *purdanishin* ladies now give a thumb impression when admitting before a Registrar the execution of deeds.
5th.—Search in the almirahs is particularly onerous, because allowance must be made for the "Personal Equation" error. For instance, when a card with length of head 18·4 is received, it is necessary to assume that the measurer may have gone wrong within 2 millemetres either in excess or defect, and search accordingly is made between 18·6 and 18·2, but the former comes under limit "Long" and the latter under limit "Medium"; *i.e.*, different pigeon-holes have to be examined. Similar allowance has to be made in respect of the other five measurements, with the result that on an average nine pigeon holes must be searched, the process, now that our criminal record consists of about 30,000 cards, occupying over one hour.	*5th.*—Search is comparatively rapid. By the aid of rigid definitions transitional cases have been wholly eliminated, and search consequently has to be made under one classification number only, and not under several. With criminal records of similar volume, search amongst finger impressions would be manyfold more rapid and, according to my experience, more certain.
6th.—The strongest feature is the excellence of the system of primary classification, whereby roll-cards are distributed amongst 729 pigeon-holes. In this country, owing to there being little variation in the pigmentation of the iris of the eye, or in the colour of the hair, secondary classification upon the data we possess presents many difficulties.	*6th.*—An arrangement similar in principle to the Bertillon system, only more exhaustive, has been devised, whereby finger impressions are, in primary classification, rapidly subdivided amongst 1,024 pigeon-holes, and wherever there is accumulation, effective means of secondary classification have been worked out.
7th.—It has been claimed that the probability of all six measurements of two different persons agreeing is so small, that a fraction with a denominator of five figures would be required to express it arithmetically. The assertion would be correct if no allowance had to be made for the "Personal Equation" error, but in practice such allowance (*i.e.*, from 4 to 6 millemetres) is and must be made, and, as coincidences in measurement have occurred, no positive deductions from measurements as to identity can be deemed safe.	*7th.*—Each of the ten impressions taken has its own individual "minute peculiarities," which can be observed and described. If, for purposes of establishing identity, a couple of minute peculiarities in each impression on a card under search are selected, sought for, and found in a duplicate, the probability that the impressions on the card under search, and on the duplicate, are those of the same person, is of a higher degree than that which, to most minds, ordinarily represents certainty.

VI. We have already classified over 8,000 sets of finger impressions with about 600 duplicates, so the materials for subjecting the system to severe tests are ample. If it answers these tests, there will remain no room for doubt that identification by finger impressions must, owing to its inherent advantages, supersede anthropometry everywhere in this country, and also in Europe, and the subject consequently is of more than provincial interest. I venture therefore to ask that the Government of India be moved to appoint a small independent Committee to inquire into and report upon the system. Since the beginning of the present year, anthropometric data are no longer taken for permanent record in Bengal. Unidentified persons are being measured as before, so that the existing anthropometric criminal record may be utilised, but the finger impressions only, and not the measurements of new convicts, are being taken.

From C. W. BOLTON, Esq., Chief Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, dated Darjeeling, 19th April 1897, No. 2-J.D.

In reference to the correspondence ending with your letter, No. 177, dated the 26th March 1897, I am directed to submit to the Government of India the accompanying copy of a letter, No. 1127-S., dated the 6th April 1897, from Major-General C. Strahan, R.E., Surveyor-General of India, and of its enclosed report of the Committee appointed to examine into the system of identification by finger impressions.

CLASSIFICATION BUREAU.



Reg. No. 3960.
Copies. 158

Litho. Survey Office, Madras.
1897.

EXPLANATION.

Key.

LL	LW
WL	WW

The impressions of the ten digits are taken in pairs in the following order:—

(1) Right Thumb and Right Index; (2) Right Middle and Right Ring; (3) Right Little and Left Thumb; (4) Left Index and Left Middle; (5) Left Ring and Left Little. All impressions are held to be divisible into 2 types, Loops (which include Arches) and Whorls. Given ten impressions in the above order, they can be expressed by some such formula as the following:— LW-WL-LL-WW-LW where L = Loop; W = Whorl. The Key indicates the one pigeon-hole out of the 1024 of the Bureau where a card with the above formula will be found. Referring to the Key, LW is in top right hand square, therefore we proceed to square defined by the broad black and blue lines, and by the horizontal numbers 17 to 32 and vertical 1 to 16. Taking the next pair WL we see from the Key that it is in bottom left square of $\frac{17-32}{1-16}$ i.e., in the square defined by red and blue lines and by horizontal figures 17—24 and vertical 9—16. The next pair LL is in left top corner of this $\frac{17-24}{9-16}$ square, i.e., in the square defined by one red, one blue, and two yellow lines, and by horizontal figures 17—20 and vertical 9—12. The next pair WW is in right hand bottom corner of this $\frac{17-20}{9-12}$ square, i.e., in square marked by two green and two yellow lines and by horizontal figures 19—20 and vertical 11—12. Finally, the last pair LW is in top right hand corner of this $\frac{19-20}{11-12}$ square, i.e., is in pigeon-hole $\frac{20}{11}$. Any other combination of impressions can be similarly located.

No. 1472, Judicial, 9th October 1897.

From Major-General C. STRAHAN, R.E., Surveyor-General of India, to the Chief Secretary to the Government of Bengal, dated Calcutta, 6th April 1897, No. 1127-S.

With reference to the letter from the Secretary to the Government of India, Home Department, to your address, No. 177, dated the 26th ultimo, I have the honour to forward herewith a report by Mr. Pedler and myself regarding the system of indentification by finger impressions, and to request that it may be transmitted to the Government of India.

Dated the 31st March 1897.

Report of Committee to examine into the system of identification by finger impressions.

Under instructions from the Government of Bengal, the undersigned met in the office of Mr. Henry, Inspector-General of Police, Lower Provinces, on the 29th March 1897, to report on his system of identification by finger impressions.

2. Mr. Henry first explained the present or anthropometrical system of identification by measurements and its classification which has yielded excellent and progressively improving results each year. During 1896, 4 out of every possible ten cases were identified. But the system has weak points.

(*a*) Skilled persons are required to take the measurements, and they must have sufficient education to enable them to read the instruments and to use the decimal notation. This is more particularly a serious objection in India, where warders and policemen are frequently far from well-educated men.

(*b*) Carefully made and delicate instruments are necessary to take the measurement with sufficient accuracy.

(*c*) The number of measurements to be taken is considerable, *viz.*, 3 for the length of head, 3 for the width of head, 3 for length of left forearm, 3 for length of left foot, 3 for length of left little finger, and 3 for height, or 18 in all; the mean of each group of 3 is taken as the final measurement. In addition to these, marks and scars are searched for and so the actual anthropometric record of one person occupies the measurer between half-hour and one hour.

(*d*) Owing to the liability to error in measuring or in recording the measurements—notwithstanding that the instruments used, *i.e.*, callipers and sliding bars, have been rendered automatic in their working and, in the former case, self-registering also, it has been found desirable to allow for possible variation of two millemetres in excess and in defect of the measurements. This necessitates, in some cases, search being made in 10 or even 12 different pigeon-holes for the duplicate of a case which is being tested to ensure its not being passed over. The average time of search therefore under this system exceeds one hour.

As an instance of how inaccuracies will creep in, the last card of which the original had just been discovered showed two errors or variations in measurements, one being as much as 3½ millemetres.

3. After having seen the anthropometric system and having noted its defects, the system of finger impression was carefully examined. The first thing that struck us was the facility with which the impressions were made and the clearness of the impressions themselves, every little detail being, as a rule, sharply defined and easily seen with the help of an ordinary magnifying glass. The method of taking them is simplicity itself; all the materials required are a flat piece of tin, a bottle of ordinary printer's ink and a small rubber roller to spread the ink on the tin. The finger is rolled carefully without rubbing on the inked tin and then on to paper; to take impressions of all the ten digits occupies only 5 minutes or less, and in this short time an absolutely accurate record without any possibility of accidental error is obtained without skilled labour and without instruments.

4. The method of classification devised by Mr. Henry was then explained to us. The first classification divides all the different kinds of impressions into two classes only, which can be recognised at a glance; by taking the combinations of these two classes as exhibited in the ten different digits, taken in pairs, all descriptive cards can be divided into 1,024 classes, and to each class is allotted a separate pigeon-hole. By means of the key, a copy of which is attached, any one pigeon-hole can be at once found with the greatest ease and certainty even by a person who has never seen the system before. We were both enabled to do this at once without any difficulty. Having thus located the card in one particular pigeon-hole, a further classification is necessary to assist in the search through all the different cards in that pigeon-hole; this further classification depends on the details in the impressions, which it is unnecessary to enter into here; but it is so simple that we were both able to find the originals of two of the most intricate cards that could be produced, with ease and certainty. The men whose duty it is to look up for the originals in no case took more than 5 minutes to produce the original, the duplicate of which we had handed to them out of a file of some 600 records, and the originals of which were part of a file of finger print cards exceeding eight thousand in number. One case which was selected as being apparently an especially difficult one, as it was very indistinct, was found in two minutes

only. The principles of the sub-classification are such that should minute distribution be needed in consequence of any great accumulation in any one pigeon-hole, it can easily be made by extending the same principles. The system of search is therefore much more rapid and more certain than that for the anthropometric data.

5. The greatest sceptic would be at once convinced of identity, on being shown the original and duplicate impressions. The exact repetition of most minute details is quite astonishing. There is no possible margin of error and there are no doubtful cases.

6. Thus the three main conditions laid down by the Committee appointed by the Secretary of State to enquire into the best means available for identifying habitual criminals are fully satisfied, viz. :—

(1) The descriptions, measurements, or marks which are the basis of the system must be such as can be taken readily and with sufficient accuracy by prison warders or police officers of ordinary intelligence.

(2) The classification of the descriptions must be such that on the arrest of an old offender who gives a false name his record may be found readily and with certainty.

(3) When the case has been found among the classified descriptions it is desirable that convincing evidence of identity should be afforded. In that same report it is acknowledged that Mr. Galton's finger print method completely met the first and third conditions, but they disapproved of his method of classification. Mr. Henry's method of classification and sub-classification has, we consider, effectually got over the objections raised by them, for, out of 8,000 cards, no sub-class contained more than from 10 to 20 originals, and the system is capable of almost endless amplification if necessary.

7. In conclusion, therefore, we are of opinion that the method of identification of habitual criminals by means of finger prints as worked on the system of recording impressions and of classification devised by Mr. Henry may be safely adopted as being superior to the anthropometric method, (1) in simplicity of working, (2) in the cost of apparatus, (3) in the fact that all the skilled work required is transferred to the central classification Bureau, (4) in the rapidity with which the process can be worked, and (5) in the certainty of the results.

CALCUTTA,
31st *March* 1897.

(Signed) CHAS. STRAHAN, Major-General, R.E.,
Surveyor-General.

(Signed) ALEX. PEDLER, F.R.S.,
Principal, Presidency College.

From the Government of India, dated 23rd July 1897, No. 428.

ORDER—No. 1472, Judicial, dated 9th October 1897.

The foregoing letter from the Government of India, with its enclosures, will be communicated to the Hon'ble the Judges of the High Court, to all departments of the Secretariat, and to the Inspectors-General of Police, Prisons and Registration.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To all Departments of the Secretariat.
„ the Hon'ble the Chief Justice (with C.L.).
„ the Inspector-General of Police.
„ the Inspector-General of Prisons.
„ the Inspector-General of Registration.

Order thereon :—

Communicated to officers of the Public Works Department for information in continuation of G.O. No 2944W dated 16th October 1896

Exd. P. Seetharam.

(True Extract)

Sd/
Under Secretary

To
The Superintending Engineer
II Circle.

P.W.D. DEPARTMENT.

C.F. 73.

Paper taken out of the Records from the charge of the Refereneer.

Press / ~~Miscellaneous~~ / Routine No. 3215, dated 17-11-~~193~~ 1897

Date taken out.	For what purpose.			Initials of clerk taking the paper or of attender.	Date returned.	Initials of attender.
	Department.	C. No.	Year.			
	Placed in the Common Bundle of Indian States & British India					19-7-98
					12/XI/63	