

P.W.C.N 5960/96

Govt. of {1896} Madras.
PUBLIC.

Issued

Recd.

Encl.

G.O., &c., Nos. 668, 669,
25th June 1896.

Br 2120 w 21-7-96

JUNE.

Madras Observatory.

Forwarding to the Government of India report
on the — for 1895-96.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper :—

From C. MICHIE SMITH, Esq., Government Astronomer, Madras, to the Chief Secretary to Government, dated Nungumbaukum, 19th June 1896, No. 120.

I have the honour to enclose the report on the Madras Observatory for the year May 1895 to April 1896 for the Indian Observatories Committee.

ENCLOSURE.

REPORT ON MADRAS OBSERVATORY FOR THE YEAR MAY 1895 TO
APRIL 1896 FOR THE INDIAN OBSERVATORIES COMMITTEE.

I have the honour to submit the following report on the working of the Madras Observatory for the year from 1st April 1895 to 31st March 1896.

2. *Staff.*—The Government Astronomer was absent from Madras on privilege leave and deputation connected with the Kodaikānal Observatory from May 17th to October 9th. During his absence, Professor R. Ll. Jones, F.R.A.S., acted as Government Astronomer. Mr. P. N. Varadachari, the sixth Assistant, died on the 21st June 1895 and his place was filled temporarily by N. Subramaniya Aiyar, and in March P. Sambasiva Pattar was appointed permanently.

3. *Buildings and Instruments.*—The buildings and instruments were maintained in good order throughout the year. The screws of the micrometers of the transit instrument having been found, as mentioned in last report, to be so much worn that it was impossible to obtain accurate values for the circle errors, the micrometers were dismantled and sent home to the makers, Messrs. Troughton and Simms, for repairs. The old gun-metal screws were replaced by new steel screws and the microscopes were returned to Madras in good order in November. They were at once re-erected and found to give excellent results. There is no means in the Observatory for rigidly testing the accuracy of the screws, but such tests as were possible have been applied with satisfactory results. Both the transit clock and the mean time clock have been cleaned during the year and their rates have since then been very satisfactory. The mean time chronometer, Kullberg, No. 5394, continues to maintain an exceedingly uniform rate. A Kew-pattern photoheliograph intended for the Kodaikānal Observatory was received from Greenwich Observatory in April. In view of the long time that will elapse before the new buildings are ready, it has been thought best to have it erected and tested here before taking it to Kodaikānal, and sanction was obtained to put up a corrugated-iron hut for its reception. The hut measures $13\frac{1}{2}$ feet by $13\frac{1}{2}$ feet and has a roof which is carried on six wheels running on two rails which project some fourteen feet beyond the building. This hut was nearly completed at the close of the year. It is put together with screw bolts, so that it can readily be taken to pieces. It is intended ultimately to take it to Kodaikānal, so that work can be begun there before the Observatory buildings are completed.

4. *Time Service.*—The time service was maintained as in former years. The time-gun at Fort St. George failed on fifteen occasions out of 726, giving a percentage of success of ninety-eight. The causes of the failures may be classified thus :—

	NO.
Due to the earthplate at the Fort having been stolen	3
„ connexion with the new earthplate not having been properly soldered	4
„ broken telegraphic line	3
„ miss-fires	3
„ clock failing to make contact	1
Cause unknown	1
Total	15

The semaphore at the Port Office failed to drop on two days, and on five other days it failed at 1 o'clock but was dropped at 2 o'clock. On all other days throughout the year it was dropped correctly at 1 o'clock. The failures of the semaphore were, with one exception, due to interruptions on the line, the remaining failure was due to the marine signaller having lost the key of the signal room. The 4 P.M. time-signal was sent from the Observatory on every day throughout the year, but on two occasions it was not received at the Telegraph Office. The fault on both occasions lay in the switch-board at the Telegraph Office. During October the noon gun was not fired on Sundays. This was due to an order of the Commander-in-Chief, which was rescinded on representations made by the Government Astronomer.

5. *Observations.*—These have been practically confined to time observations and readings for the determination of circle errors. When the new micrometer screws were obtained, it was thought best to begin the work afresh. The errors of the four quadrants were first determined by three complete series of readings made by the Government Astronomer and the 1st and 2nd Assistants. In all 6,656 readings were made and the three series agreed very well with each other, as will be seen from the following table :—

Corrections to the four Quadrants of the Meridian Circle.

Observer.	180° to 90°	90° to 360°	360° to 270°	270° to 180°	Wt.
C.M.S.	— 1".86	+ 4".52	— 1".66	— 1".00	2
P.R.	— 1".87	+ 4".58	— 1".57	— 1".14	2
K.V.S.	— 1".73	+ 4".36	— 1".83	— 0".81	1
Accepted mean	— 1".84	+ 4".51	— 1".66	— 1".02	..

The quadrants were next trisected and the errors obtained for each arc of 30°. Three series of observations were made in this case also by the same observers. The agreement is not quite so good as in the former case, as some of the divisions are unsatisfactory and different observers estimate the centre differently. Still, the difference from the mean amounts to as much as two-tenths of a second in only one case. The work had not progressed beyond this point at the close of the year.

6. *Reduction and Publication.*—The preparation of the catalogue has been pressed on as rapidly as possible, and at the close of the year the mean places for 1875.0 had been deduced for the first 6 hours of R.A. These positions are subject to slight corrections for the adopted right ascensions of the nautical almanac stars and for the circle errors. It is not intended to apply any correction for latitude, since the application of a constant correction is a matter of no difficulty and it is unlikely that the divergence between the various latitude determinations can be accounted for without an entirely new determination; and this cannot be undertaken at present. So far as the reductions have been carried, it appears that the determinations of R.A. are, on the whole, very satisfactory. The polar distances are less satisfactory, but they cannot be fairly judged till the corrections due to division errors have been applied. Still, one very unsatisfactory feature has become prominent, viz., that either the

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper:—

From C. MICHIE SMITH, Esq., Government Astronomer, Madras, to the Chief Secretary to Government, dated Nungumbaukum, 19th June 1896, No. 120.

I have the honour to enclose the report on the Madras Observatory for the year May 1895 to April 1896 for the Indian Observatories Committee.

ENCLOSURE.

REPORT ON MADRAS OBSERVATORY FOR THE YEAR MAY 1895 TO APRIL 1896 FOR THE INDIAN OBSERVATORIES COMMITTEE.

I have the honour to submit the following report on the working of the Madras Observatory for the year from 1st April 1895 to 31st March 1896.

2. *Staff.*—The Government Astronomer was absent from Madras on privilege leave and deputation connected with the Kodaikānal Observatory from May 17th to October 9th. During his absence, Professor R. Ll. Jones, F.R.A.S., acted as Government Astronomer. Mr. P. N. Varadachari, the sixth Assistant, died on the 21st June 1895 and his place was filled temporarily by N. Subramaniya Aiyar, and in March P. Sambasiva Pattar was appointed permanently.

3. *Buildings and Instruments.*—The buildings and instruments were maintained in good order throughout the year. The screws of the micrometers of the transit instrument having been found, as mentioned in last report, to be so much worn that it was impossible to obtain accurate values for the circle errors, the micrometers were dismantled and sent home to the makers, Messrs. Troughton and Simms, for repairs. The old gun-metal screws were replaced by new steel screws and the microscopes were returned to Madras in good order in November. They were at once re-erected and found to give excellent results. There is no means in the Observatory for rigidly testing the accuracy of the screws, but such tests as were possible have been applied with satisfactory results. Both the transit clock and the mean time clock have been cleaned during the year and their rates have since then been very satisfactory. The mean time chronometer, Kullberg, No. 5394, continues to maintain an exceedingly uniform rate. A Kew-pattern photoheliograph intended for the Kodaikānal Observatory was received from Greenwich Observatory in April. In view of the long time that will elapse before the new buildings are ready, it has been thought best to have it erected and tested here before taking it to Kodaikānal, and sanction was obtained to put up a corrugated-iron hut for its reception. The hut measures $13\frac{1}{2}$ feet by $13\frac{1}{2}$ feet and has a roof which is carried on six wheels running on two rails which project some fourteen feet beyond the building. This hut was nearly completed at the close of the year. It is put together with screw bolts, so that it can readily be taken to pieces. It is intended ultimately to take it to Kodaikānal, so that work can be begun there before the Observatory buildings are completed.

4. *Time Service.*—The time service was maintained as in former years. The time-gun at Fort St. George failed on fifteen occasions out of 726, giving a percentage of success of ninety-eight. The causes of the failures may be classified thus:—

	NO.
Due to the earthplate at the Fort having been stolen	3
„ connexion with the new earthplate not having been properly soldered	4
„ broken telegraphic line	3
„ miss-fires	3
„ clock failing to make contact	1
Cause unknown	1
Total ..	15

The semaphore at the Port Office failed to drop on two days, and on five other days it failed at 1 o'clock but was dropped at 2 o'clock. On all other days throughout the year it was dropped correctly at 1 o'clock. The failures of the semaphore were, with one exception, due to interruptions on the line, the remaining failure was due to the marine signaller having lost the key of the signal room. The 4 P.M. time-signal was sent from the Observatory on every day throughout the year, but on two occasions it was not received at the Telegraph Office. The fault on both occasions lay in the switch-board at the Telegraph Office. During October the noon gun was not fired on Sundays. This was due to an order of the Commander-in-Chief, which was rescinded on representations made by the Government Astronomer.

5. *Observations.*—These have been practically confined to time observations and readings for the determination of circle errors. When the new micrometer screws were obtained, it was thought best to begin the work afresh. The errors of the four quadrants were first determined by three complete series of readings made by the Government Astronomer and the 1st and 2nd Assistants. In all 6,656 readings were made and the three series agreed very well with each other, as will be seen from the following table:—

Corrections to the four Quadrants of the Meridian Circle.

Observer.	180° to 90°	90° to 360°	360° to 270°	270° to 180°	Wt.
C.M.S.	— 1".86	+ 4".52	— 1".66	— 1.00	2
P.R.	— 1.87	+ 4.58	— 1.57	— 1.14	2
K.V.S.	— 1.73	+ 4.36	— 1.83	— 0.81	1
Accepted mean	— 1.84	+ 4.51	— 1.66	— 1.02	..

The quadrants were next trisected and the errors obtained for each arc of 30°. Three series of observations were made in this case also by the same observers. The agreement is not quite so good as in the former case, as some of the divisions are unsatisfactory and different observers estimate the centre differently. Still, the difference from the mean amounts to as much as two-tenths of a second in only one case. The work had not progressed beyond this point at the close of the year.

6. *Reduction and Publication.*—The preparation of the catalogue has been pressed on as rapidly as possible, and at the close of the year the mean places for 1875.0 had been deduced for the first 6 hours of R.A. These positions are subject to slight corrections for the adopted right ascensions of the nautical almanac stars and for the circle errors. It is not intended to apply any correction for latitude, since the application of a constant correction is a matter of no difficulty and it is unlikely that the divergence between the various latitude determinations can be accounted for without an entirely new determination; and this cannot be undertaken at present. So far as the reductions have been carried, it appears that the determinations of R.A. are, on the whole, very satisfactory. The polar distances are less satisfactory, but they cannot be fairly judged till the corrections due to division errors have been applied. Still, one very unsatisfactory feature has become prominent, viz., that either the

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper:—

From C. MICHIE SMITH, Esq., Government Astronomer, Madras, to the Chief Secretary to Government, dated Nungumbaukum, 19th June 1896, No. 120.

I have the honour to enclose the report on the Madras Observatory for the year May 1895 to April 1896 for the Indian Observatories Committee.

ENCLOSURE.

REPORT ON MADRAS OBSERVATORY FOR THE YEAR MAY 1895 TO APRIL 1896 FOR THE INDIAN OBSERVATORIES COMMITTEE.

I have the honour to submit the following report on the working of the Madras Observatory for the year from 1st April 1895 to 31st March 1896.

2. *Staff.*—The Government Astronomer was absent from Madras on privilege leave and deputation connected with the Kodaikānal Observatory from May 17th to October 9th. During his absence, Professor R. Ll. Jones, F.R.A.S., acted as Government Astronomer. Mr. P. N. Varadachari, the sixth Assistant, died on the 21st June 1895 and his place was filled temporarily by N. Subramaniya Aiyar, and in March P. Sambasiva Pattar was appointed permanently.

3. *Buildings and Instruments.*—The buildings and instruments were maintained in good order throughout the year. The screws of the micrometers of the transit instrument having been found, as mentioned in last report, to be so much worn that it was impossible to obtain accurate values for the circle errors, the micrometers were dismantled and sent home to the makers, Messrs. Troughton and Simms, for repairs. The old gun-metal screws were replaced by new steel screws and the microscopes were returned to Madras in good order in November. They were at once re-erected and found to give excellent results. There is no means in the Observatory for rigidly testing the accuracy of the screws, but such tests as were possible have been applied with satisfactory results. Both the transit clock and the mean time clock have been cleaned during the year and their rates have since then been very satisfactory. The mean time chronometer, Kullberg, No. 5394, continues to maintain an exceedingly uniform rate. A Kew-pattern photoheliograph intended for the Kodaikānal Observatory was received from Greenwich Observatory in April. In view of the long time that will elapse before the new buildings are ready, it has been thought best to have it erected and tested here before taking it to Kodaikānal, and sanction was obtained to put up a corrugated-iron hut for its reception. The hut measures $13\frac{1}{2}$ feet by $13\frac{1}{2}$ feet and has a roof which is carried on six wheels running on two rails which project some fourteen feet beyond the building. This hut was nearly completed at the close of the year. It is put together with screw bolts, so that it can readily be taken to pieces. It is intended ultimately to take it to Kodaikānal, so that work can be begun there before the Observatory buildings are completed.

4. *Time Service.*—The time service was maintained as in former years. The time-gun at Fort St. George failed on fifteen occasions out of 726, giving a percentage of success of ninety-eight. The causes of the failures may be classified thus:—

Due to the earthplate at the Fort having been stolen	No.
„ connexion with the new earthplate not having been properly soldered	3
„ broken telegraphic line	4
„ miss-fires	3
„ clock failing to make contact	3
Cause unknown	1
	1
Total ..	15

The semaphore at the Port Office failed to drop on two days, and on five other days it failed at 1 o'clock but was dropped at 2 o'clock. On all other days throughout the year it was dropped correctly at 1 o'clock. The failures of the semaphore were, with one exception, due to interruptions on the line, the remaining failure was due to the marine signaller having lost the key of the signal room. The 4 p.m. time-signal was sent from the Observatory on every day throughout the year, but on two occasions it was not received at the Telegraph Office. The fault on both occasions lay in the switch-board at the Telegraph Office. During October the noon gun was not fired on Sundays. This was due to an order of the Commander-in-Chief, which was rescinded on representations made by the Government Astronomer.

5. *Observations.*—These have been practically confined to time observations and readings for the determination of circle errors. When the new micrometer screws were obtained, it was thought best to begin the work afresh. The errors of the four quadrants were first determined by three complete series of readings made by the Government Astronomer and the 1st and 2nd Assistants. In all 6,656 readings were made and the three series agreed very well with each other, as will be seen from the following table:—

Corrections to the four Quadrants of the Meridian Circle.

Observer.	180° to 90°	90° to 360°	360° to 270°	270° to 180°	Wt.
C.M.S.	— 1".86	+ 4".52	— 1".66	— 1.00	2
P.R.	— 1.87	+ 4.58	— 1.57	— 1.14	2
K.V.S.	— 1.73	+ 4.36	— 1.83	— 0.81	1
Accepted mean	— 1.84	+ 4.51	— 1.66	— 1.02	..

The quadrants were next trisected and the errors obtained for each arc of 30°. Three series of observations were made in this case also by the same observers. The agreement is not quite so good as in the former case, as some of the divisions are unsatisfactory and different observers estimate the centre differently. Still, the difference from the mean amounts to as much as two-tenths of a second in only one case. The work had not progressed beyond this point at the close of the year.

6. *Reduction and Publication.*—The preparation of the catalogue has been pressed on as rapidly as possible, and at the close of the year the mean places for 1875.0 had been deduced for the first 6 hours of R.A. These positions are subject to slight corrections for the adopted right ascensions of the nautical almanac stars and for the circle errors. It is not intended to apply any correction for latitude, since the application of a constant correction is a matter of no difficulty and it is unlikely that the divergence between the various latitude determinations can be accounted for without an entirely new determination; and this cannot be undertaken at present. So far as the reductions have been carried, it appears that the determinations of R.A. are, on the whole, very satisfactory. The polar distances are less satisfactory, but they cannot be fairly judged till the corrections due to division errors have been applied. Still, one very unsatisfactory feature has become prominent, viz., that either the

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper :—

From C. MICHIE SMITH, Esq., Government Astronomer, Madras, to the Chief Secretary to Government, dated Nungumbaukum, 19th June 1896, No. 120.

I have the honour to enclose the report on the Madras Observatory for the year May 1895 to April 1896 for the Indian Observatories Committee.

ENCLOSURE.

REPORT ON MADRAS OBSERVATORY FOR THE YEAR MAY 1895 TO APRIL 1896 FOR THE INDIAN OBSERVATORIES COMMITTEE.

I have the honour to submit the following report on the working of the Madras Observatory for the year from 1st April 1895 to 31st March 1896.

2. *Staff*.—The Government Astronomer was absent from Madras on privilege leave and deputation connected with the Kodaikānal Observatory from May 17th to October 9th. During his absence, Professor R. Ll. Jones, F.R.A.S., acted as Government Astronomer. Mr. P. N. Varadachari, the sixth Assistant, died on the 21st June 1895 and his place was filled temporarily by N. Subramaniya Aiyar, and in March P. Sambasiva Pattar was appointed permanently.

3. *Buildings and Instruments*.—The buildings and instruments were maintained in good order throughout the year. The screws of the micrometers of the transit instrument having been found, as mentioned in last report, to be so much worn that it was impossible to obtain accurate values for the circle errors, the micrometers were dismantled and sent home to the makers, Messrs. Troughton and Simms, for repairs. The old gun-metal screws were replaced by new steel screws and the microscopes were returned to Madras in good order in November. They were at once re-erected and found to give excellent results. There is no means in the Observatory for rigidly testing the accuracy of the screws, but such tests as were possible have been applied with satisfactory results. Both the transit clock and the mean time clock have been cleaned during the year and their rates have since then been very satisfactory. The mean time chronometer, Kullberg, No. 5394, continues to maintain an exceedingly uniform rate. A Kew-pattern photoheliograph intended for the Kodaikānal Observatory was received from Greenwich Observatory in April. In view of the long time that will elapse before the new buildings are ready, it has been thought best to have it erected and tested here before taking it to Kodaikānal, and sanction was obtained to put up a corrugated-iron hut for its reception. The hut measures $13\frac{1}{2}$ feet by $13\frac{1}{2}$ feet and has a roof which is carried on six wheels running on two rails which project some fourteen feet beyond the building. This hut was nearly completed at the close of the year. It is put together with screw bolts, so that it can readily be taken to pieces. It is intended ultimately to take it to Kodaikānal, so that work can be begun there before the Observatory buildings are completed.

4. *Time Service.*—The time service was maintained as in former years. The time-gun at Fort St. George failed on fifteen occasions out of 726, giving a percentage of success of ninety-eight. The causes of the failures may be classified thus:—

	NO.
Due to the earthplate at the Fort having been stolen	3
„ connexion with the new earthplate not having been properly soldered	4
„ broken telegraphic line	3
„ miss-fires	3
„ clock failing to make contact	1
Cause unknown	1
Total	15

The semaphore at the Port Office failed to drop on two days, and on five other days it failed at 1 o'clock but was dropped at 2 o'clock. On all other days throughout the year it was dropped correctly at 1 o'clock. The failures of the semaphore were, with one exception, due to interruptions on the line, the remaining failure was due to the marine signaller having lost the key of the signal room. The 4 p.m. time-signal was sent from the Observatory on every day throughout the year, but on two occasions it was not received at the Telegraph Office. The fault on both occasions lay in the switch-board at the Telegraph Office. During October the noon gun was not fired on Sundays. This was due to an order of the Commander-in-Chief, which was rescinded on representations made by the Government Astronomer.

5. *Observations.*—These have been practically confined to time observations and readings for the determination of circle errors. When the new micrometer screws were obtained, it was thought best to begin the work afresh. The errors of the four quadrants were first determined by three complete series of readings made by the Government Astronomer and the 1st and 2nd Assistants. In all 6,656 readings were made and the three series agreed very well with each other, as will be seen from the following table:—

Corrections to the four Quadrants of the Meridian Circle.

Observer.	180° to 90°	90° to 360°	360° to 270°	270° to 180°	Wt.
C.M.S.	— 1".86	+ 4".52	— 1".66	— 1.90	2
P.R.	— 1.87	+ 4.58	— 1.57	— 1.14	2
K.V.S.	— 1.73	+ 4.36	— 1.83	— 0.81	1
Accepted mean	— 1.84	+ 4.51	— 1.66	— 1.02	..

The quadrants were next trisected and the errors obtained for each arc of 30°. Three series of observations were made in this case also by the same observers. The agreement is not quite so good as in the former case, as some of the divisions are unsatisfactory and different observers estimate the centre differently. Still, the difference from the mean amounts to as much as two-tenths of a second in only one case. The work had not progressed beyond this point at the close of the year.

6. *Reduction and Publication.*—The preparation of the catalogue has been pressed on as rapidly as possible, and at the close of the year the mean places for 1875.0 had been deduced for the first 6 hours of R.A. These positions are subject to slight corrections for the adopted right ascensions of the nautical almanac stars and for the circle errors. It is not intended to apply any correction for latitude, since the application of a constant correction is a matter of no difficulty and it is unlikely that the divergence between the various latitude determinations can be accounted for without an entirely new determination; and this cannot be undertaken at present. So far as the reductions have been carried, it appears that the determinations of R.A. are, on the whole, very satisfactory. The polar distances are less satisfactory, but they cannot be fairly judged till the corrections due to division errors have been applied. Still, one very unsatisfactory feature has become prominent, viz., that either the

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper:—

From C. MICHIE SMITH, Esq., Government Astronomer, Madras, to the Chief Secretary to Government, dated Nungumbaukum, 19th June 1896, No. 120.

I have the honour to enclose the report on the Madras Observatory for the year May 1895 to April 1896 for the Indian Observatories Committee.

ENCLOSURE.

REPORT ON MADRAS OBSERVATORY FOR THE YEAR MAY 1895 TO APRIL 1896 FOR THE INDIAN OBSERVATORIES COMMITTEE.

I have the honour to submit the following report on the working of the Madras Observatory for the year from 1st April 1895 to 31st March 1896.

2. *Staff.*—The Government Astronomer was absent from Madras on privilege leave and deputation connected with the Kodaikānal Observatory from May 17th to October 9th. During his absence, Professor R. LL. Jones, F.R.A.S., acted as Government Astronomer. Mr. P. N. Varadachari, the sixth Assistant, died on the 21st June 1895 and his place was filled temporarily by N. Subramaniya Aiyar, and in March P. Sambasiva Pattar was appointed permanently.

3. *Buildings and Instruments.*—The buildings and instruments were maintained in good order throughout the year. The screws of the micrometers of the transit instrument having been found, as mentioned in last report, to be so much worn that it was impossible to obtain accurate values for the circle errors, the micrometers were dismantled and sent home to the makers, Messrs. Troughton and Simms, for repairs. The old gun-metal screws were replaced by new steel screws and the microscopes were returned to Madras in good order in November. They were at once re-erected and found to give excellent results. There is no means in the Observatory for rigidly testing the accuracy of the screws, but such tests as were possible have been applied with satisfactory results. Both the transit clock and the mean time clock have been cleaned during the year and their rates have since then been very satisfactory. The mean time chronometer, Kullberg, No. 5394, continues to maintain an exceedingly uniform rate. A Kew-pattern photoheliograph intended for the Kodaikānal Observatory was received from Greenwich Observatory in April. In view of the long time that will elapse before the new buildings are ready, it has been thought best to have it erected and tested here before taking it to Kodaikānal, and sanction was obtained to put up a corrugated-iron hut for its reception. The hut measures $13\frac{1}{2}$ feet by $13\frac{1}{2}$ feet and has a roof which is carried on six wheels running on two rails which project some fourteen feet beyond the building. This hut was nearly completed at the close of the year. It is put together with screw bolts, so that it can readily be taken to pieces. It is intended ultimately to take it to Kodaikānal, so that work can be begun there before the Observatory buildings are completed.

instrument received some injury about 1872 or else the observer who began work at that time had a large personal equation in estimating polar distances. This point will receive due attention in preparing the catalogue, but it does not seem probable that the error is one that can be safely dealt with after so long a lapse of time. No determinations of personal equation in estimating polar distances seem to have been made, and as only one of the observers survives no direct comparisons can now be made. No astronomical publications have been issued during the year, but a pamphlet containing the daily meteorological means for the Madras Observatory was completed and a few copies were issued at the end of March.

7. *The Kodaikānal Observatory.*—When at home on leave the Government Astronomer, after discussing the question of the instrumental equipment for the new Observatory with a number of astronomers, laid his proposals before the Indian Observatories Committee. These proposals were approved of and the necessary sanction of the Government of India and the Secretary of State has been obtained for them. The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

8. *Meteorological.*—The meteorological records have been maintained in the usual form and all reductions have been kept up to date. In addition to the usual routine work, special observations of the upper clouds have been made at least once a day when such clouds were visible. The Dines "recording pressure tube anemometer" received at the close of last year has been set up and is in regular use. At first the recording pen gave a great deal of trouble and absolutely refused to work during very dry weather. This difficulty has now been overcome by substituting for the crow-quill supplied by the maker a very fine Richard pen. This works quite satisfactorily and filled with it the instrument becomes a most valuable one.

ORDER—No. 668, Public, dated 25th June 1896.

The report will be forwarded to the Government of India.

2. The following extract from paragraph 7 will be communicated to the Public Works Department:—

The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Government Astronomer.
" Public Works Department.

ENDORSEMENT—No. 669, Public, dated 25th June 1896.

Copy to the Government of India, Revenue and Agricultural Department.

J. F. PRICE,
Chief Secretary.

Exd. A. Raiff.

Gobt. of {1896} Madras.

PUBLIC.

Issued

Recd.

Encl.

G.O., &c., Nos. 668, 669,
25th June 1896.

JUNE.

Madras Observatory.

Forwarding to the Government of India report
on the — for 1895-96.

instrument received some injury about 1872 or else the observer who began work at that time had a large personal equation in estimating polar distances. This point will receive due attention in preparing the catalogue, but it does not seem probable that the error is one that can be safely dealt with after so long a lapse of time. No determinations of personal equation in estimating polar distances seem to have been made, and as only one of the observers survives no direct comparisons can now be made. No astronomical publications have been issued during the year, but a pamphlet containing the daily meteorological means for the Madras Observatory was completed and a few copies were issued at the end of March.

7. *The Kodaikānal Observatory.*—When at home on leave the Government Astronomer, after discussing the question of the instrumental equipment for the new Observatory with a number of astronomers, laid his proposals before the Indian Observatories Committee. These proposals were approved of and the necessary sanction of the Government of India and the Secretary of State has been obtained for them. The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

8. *Meteorological.*—The meteorological records have been maintained in the usual form and all reductions have been kept up to date. In addition to the usual routine work, special observations of the upper clouds have been made at least once a day when such clouds were visible. The Dines "recording pressure tube anemometer" received at the close of last year has been set up and is in regular use. At first the recording pen gave a great deal of trouble and absolutely refused to work during very dry weather. This difficulty has now been overcome by substituting for the crow-quill supplied by the maker a very fine Richard pen. This works quite satisfactorily and filled with it the instrument becomes a most valuable one.

ORDER—No. 668; Public, dated 25th June 1896.

The report will be forwarded to the Government of India.

2. The following extract from paragraph 7 will be communicated to the Public Works Department:—

The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Government Astronomer.
„ Public Works Department.

ENDORSEMENT—No. 669, Public, dated 25th June 1896.

Copy to the Government of India, Revenue and Agricultural Department.

J. F. PRICE,
Chief Secretary.

Govt. of {1896} Madras.

PUBLIC.

Instrument received some injury about 1872 or else the observer at that time had a large personal opinion in estimating polar distances. The instrument is now in a better state than it was in 1872, but it does not seem to have been made at the same time as the other instruments. The instrument is now in a better state than it was in 1872, but it does not seem to have been made at the same time as the other instruments. The instrument is now in a better state than it was in 1872, but it does not seem to have been made at the same time as the other instruments.

1. The Astronomical Observatory.—When at home on leave the Government Astronomer after discussing the question of the instrumental equipment for the new Observatory with a number of astronomers, had his proposals before the Indian Astronomical Committee. These proposals were approved of and the necessary action of the Government of India and the Secretary of State has been obtained for them. The work at Kodaikanal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a good and the collection of some material. In October, indeed, the Astronomer laid the foundations of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

Issued

Recd.

Encl.

G.O., &c., Nos. 668, 669,
25th June 1896.

2. The following extract from paragraph 7 will be communicated to the Public Works Department:—
The work at Kodaikanal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a good and the collection of some material. In October, indeed, the Astronomer laid the foundations of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

(True Extract.)

J. T. PRICHARD,
Chief Secretary.

To the Government Astronomer,
Public Works Department.

Enclosure—No. 668, Public dated 25th June 1896.
Copy to the Government of India, Revenue and Agricultural Department.

Madras Observatory.

Forwarding to the Government of India report
on the — for 1895-96.

instrument received some injury about 1872 or else the observer who began work at that time had a large personal equation in estimating polar distances. This point will receive due attention in preparing the catalogue, but it does not seem probable that the error is one that can be safely dealt with after so long a lapse of time. No determinations of personal equation in estimating polar distances seem to have been made, and as only one of the observers survives no direct comparisons can now be made. No astronomical publications have been issued during the year, but a pamphlet containing the daily meteorological means for the Madras Observatory was completed and a few copies were issued at the end of March.

7. *The Kodaikānal Observatory.*—When at home on leave the Government Astronomer, after discussing the question of the instrumental equipment for the new Observatory with a number of astronomers, laid his proposals before the Indian Observatories Committee. These proposals were approved of and the necessary sanction of the Government of India and the Secretary of State has been obtained for them. The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

8. *Meteorological.*—The meteorological records have been maintained in the usual form and all reductions have been kept up to date. In addition to the usual routine work, special observations of the upper clouds have been made at least once a day when such clouds were visible. The Dines "recording pressure tube anemometer" received at the close of last year has been set up and is in regular use. At first the recording pen gave a great deal of trouble and absolutely refused to work during very dry weather. This difficulty has now been overcome by substituting for the crow-quill supplied by the maker a very fine Richard pen. This works quite satisfactorily and filled with it the instrument becomes a most valuable one.

ORDER—No. 668, Public, dated 25th June 1896.

The report will be forwarded to the Government of India.

2. The following extract from paragraph 7 will be communicated to the Public Works Department:—

The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Government Astronomer.
„ Public Works Department.

ENDORSEMENT—No. 669, Public, dated 25th June 1896.

Copy to the Government of India, Revenue and Agricultural Department.

J. F. PRICE,
Chief Secretary.

Erd. A. Raiff.

Govt. of {1896} Madras.

PUBLIC.

Issued

Recd.

Encl.

G.O., &c., Nos. 668, 669,
25th June 1896.

JUNE.

Madras Observatory.

Forwarding to the Government of India report
on the — for 1895-96.

instrument received some injury about 1872 or else the observer who began work at that time had a large personal equation in estimating polar distances. This point will receive due attention in preparing the catalogue, but it does not seem probable that the error is one that can be safely dealt with after so long a lapse of time. No determinations of personal equation in estimating polar distances seem to have been made, and as only one of the observers survives no direct comparisons can now be made. No astronomical publications have been issued during the year, but a pamphlet containing the daily meteorological means for the Madras Observatory was completed and a few copies were issued at the end of March.

7. *The Kodaikānal Observatory.*—When at home on leave the Government Astronomer, after discussing the question of the instrumental equipment for the new Observatory with a number of astronomers, laid his proposals before the Indian Observatories Committee. These proposals were approved of and the necessary sanction of the Government of India and the Secretary of State has been obtained for them. The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

8. *Meteorological.*—The meteorological records have been maintained in the usual form and all reductions have been kept up to date. In addition to the usual routine work, special observations of the upper clouds have been made at least once a day when such clouds were visible. The Dines "recording pressure tube anemometer" received at the close of last year has been set up and is in regular use. At first the recording pen gave a great deal of trouble and absolutely refused to work during very dry weather. This difficulty has now been overcome by substituting for the crow-quill supplied by the maker a very fine Richard pen. This works quite satisfactorily and filled with it the instrument becomes a most valuable one.

ORDER—No. 668, Public, dated 25th June 1896.

The report will be forwarded to the Government of India.

2. The following extract from paragraph 7 will be communicated to the Public Works Department:—

The work at Kodaikānal has been very greatly delayed for reasons which it is not easy to understand, and by the close of the year nothing had been done beyond the making of a road and the collection of some material. In October, indeed, His Excellency the Governor laid the foundation stone of the new Observatory and it was hoped that this indicated an intention to proceed with the work, but this hope has not been justified by the result. At the present rate of progress, it will be many years before the Observatory is ready for the instruments.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Government Astronomer.
„ Public Works Department.

ENDORSEMENT—No. 669, Public, dated 25th June 1896.

Copy to the Government of India, Revenue and Agricultural Department.

J. F. PRICE,
Chief Secretary.

Exd. A. Raitt.