M.R.O. 14-5,450—22-10-25.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 3183 — Press / ~~Mis.~~

517-518

Dated 21— 11— 1866.

Not to be folded or roughly handled

No 3183

No. 517. Read the following letter from the Under Secretary to the Government of India, Home Department, to the Secretary to the Government of Madras, dated Simla, 23rd October 1866, No. 5,705 :—

I am directed to forward, for information the accompanying copy of a correspondence* with Mr. A. P. Webb on the subject of a scheme proposed by him for collecting and registering Meteorological information.

* From Mr. Webb, dated 8th August 1866, and enclosure.
To do. No. 4,329, dated 7th September 1866.
From do. dated 7th October.

From AUGUSTUS PHILLIP WEBB, Esq., Zemindar, Meerut District, to the Secretary to the Government of India, Home Department, Simla, dated the 8th August 1866.

1. I beg to address you on the subject of Meteorology, and to enclose a copy of the Returns† published at my recommendation in the Punjab and North-Western Provinces. In a letter No. 1,946-190, dated 23rd June 1866, from the Secretary to the Chief Commissioner, Central Provinces, it has been intimated to me that the Chief Commissioner has issued instructions for the preparation of similar Returns for the Central Provinces. In Bengal and Oudh no Returns appear to be compiled at all, but the Governments there have my propositions before them.

† Vide North-Western Provinces Government Gazette Supplement, dated 18th April 1866, pages 114 to 116.

2. The Returns alluded to, although giving valuable information, are necessarily imperfect records of the weather. I did not think it advisable to place my scheme in detail before the Local Governments. Besides involving the question of a small outlay, it required general adoption over India to afford results of sufficient practical value. I solicit the favor of your laying my scheme before His Excellency the Viceroy.

3. No attempt has hitherto been made to utilize the local official establishments for meteorological purposes. Nothing could be more methodical than their distribution over the country. Nor could anything be better *as an agency for merely registering the phenomena of the seasons*. I will shew that they can be so employed effectually, *without imposing any appreciable additional labor* on officials whose time is already fully employed. The question of expense also is brought within very narrow limits.

4. The Return enclosed shews that the phenomena of the seasons are exhibited in them by the aid of letters. Thus H hailstorm, D duststorm, T thunderstorm, F frost, S snow, &c., and when *heavy*, the letter H is added to the previous letter. The Return also shews the rain-fall on each day.

5. But in addition to such Returns details are needed. Leaving the Tehseels aside (for the present lettered Returns will suffice for them), I propose to employ the *Sudder Offices only* on the detailed Return. The Sudder Stations are at distances sufficiently convenient to ensure a connection between their registrations.

6. The manner in which I propose to employ the Sudder Offices and turn to use the detailed Returns, is as follows :—

(1.) To all Deputy Commissioners' and Collectors' Offices there should be issued a 10-shilling Thermometer, which could be supplied by Messrs. Negretti and Zambra, or Messrs. Solomons (Opticians, London), to all India at an outlay of about £100.

(2.) In each Sudder Office, as above, the *Head Clerk* should keep up a Weather Statement in the accompanying form. He should write up his Statement at 10 A. M. and 4 P. M., or whenever office opens and closes. He will record first the temperature at the time of writing,* and then the character of the weather during the 24 hours. If any disturbances occurred, he should mention—

* Supposed always to be at 10 A. M. and 4 P. M.

1—Their character, i. e., whether frost, rain, thunderstorms, duststorms, hailstorms, snow, &c. ;

2—Direction or course ;

3—Hour of arrival ;

4—Duration ;

5—Amount of rain ;

6—Strength and effect of disturbance ;

7—General aspect of weather *subsequent* to disturbance and up to next entry.

This last will comprize—

1—General direction of wind or breaze ;

2—Whether wind or breeze ;

3—Aspect of sky, &c.

(3).—The preparation of such a Statement will scarcely occupy the Head Clerk 10 minutes per day. As but half a sheet of paper only will be used per week, no expense need be incurred for printing the form for the different offices.

(4).—Each week's Statement should be published in the local Gazette of the Province to which the Sudder Station belongs. The diaries should commence with the 1st day of January to ensure uniformity, and the odd day of the year should be included in the last week's Statement, so that the Statement for the following year may commence with the 1st January as before. The week's Statement from three Districts can be easily brought within one page of foolscap, when compiled and printed in the *Government Gazette*. About six sheets will be taken up thus weekly in each *Gazette* for the compiled Returns.

(5).—The various Meteorological Reporters appointed and being appointed to the different Provinces should review annually or *bi-annually* (as Government may direct) the Weather Statements of their respective Provinces, and treat the information therein given, in *connection with the Rain Returns and Barometrical Registrations published*. At present their work is confined to a review of the barometrical readings from half a dozen stations. The matter before them is so scanty that there is no room for scientific speculation and enquiry.

(6).—This annual or bi-annual digest should be directed to a grouping of the phenomena recorded in the Statements. With the aid of the data furnished therein, the *character* of the disturbances, their *course*, the *areas* covered by them, their *various intensities or fluctuating force, rate of travelling simultaneity of action*, and all other noteworthy matter which a review is likely to suggest, should be recorded. The Reporter should also compile the collateral information of *calms, heat, cold*, &c., giving their *area, duration, simultaneity, intensity*, &c., with such remarks as the matter may deserve. No opportunity should be lost of investigating and establishing the hidden connection between the weather and the barometrical and other instrumental registrations. And lastly, *of endeavouring to deduce weather-laws of local or general applicability, for this is the aim and end of all registrations*. The data now proposed to be compiled gives ample scope for scientific speculation.

(7).—In cases of remarkable disturbances, a lithographed chart illustrating the same should accompany the report, as done in England by the Board of Trade. It would also be of value to prepare a chart illustrative of each season shewing by the aid of colors or shading the distribution of *heat, cold, rain, duststorms, thunderstorms, hailstorms*, &c.—Charts like these for a succession of seasons would, with the reports, contribute greatly to a well-directed retrospect of the weather such as would lead to some broad and general weather-laws.

(8.) This annual or bi-annual report should be published in the *Government Gazette* of the Province to which it refers, and all the reports for the year from the different Provinces should be reviewed by one of the Reporters, or some other scientific gentleman. This would give an "annual Meteorological Report for all India." It should appear in the *Gazette of India*, and be illustrated by charts in the same way as the subordinate reports. These charts should chiefly be compilations of the subordinate ones.

7. I have given but an outline of what may be done with the aid of the Weather Statement proposed. The value of the reports will depend entirely upon the ability with which those entrusted with their preparation, grasp and turn to account the data before them.

8. A systematic registration of the weather, like that proposed, is nowhere carried out. The Meteorological Returns published are chiefly, if not entirely, instrumental registrations. There are literally heaps of such all over Europe. But they furnish no weather-laws under the strictest analysis. Had there been an equally systematic record *of the weather*, something probably would have been learned by a comparison of one set of registrations with the other. These would very likely have been a better interpretation of barometrical heights and some apprehension of weather-laws. A right direction would at least have been given to our efforts.

9. It has been forgotten that instruments record only a few features of the weather—features to which we are insensible, and which might appropriately be termed the effects of some occult atmospherical changes on certain instruments peculiarly constructed. *A great deal which cannot come within the scope of instrumental registration requires notice*. Let us record this, even while we continue to believe *that nature has hidden her laws in the mercurial column alone*.

10. It will be long before this country will have a suitable number of barometers properly looked after, but the phenomena of the seasons can at all times be thoroughly registered. The Weather Statement proposed will constitute a study in itself. It is likely to submit to some analysis, adapt itself to some hypothesis, or afford reliable data for induction, where instrumental registrations have proved refractory.

11. I would therefore press upon His Excellency's consideration the importance of commencing the weather-record. It is essentially *data*. It in no way interferes with or supersedes other registrations, and therefore does not clash with the present system of registration. Indeed it is auxiliary to everything that has been done hitherto, for it is comprehensive both as to area and matter.

MEERUT DISTRICT.

Weather Statement for the week ending the 7th January 18—.

Date.	Thermometer. 10 A.M.	Thermometer. 4 P.M.	Disturbances during the 24 hours.	Direction from which they came.	Hour of arrival.	Duration.	Rainfall.	General aspect of weather subsequent to disturbance and up to next entry. General direction of wind.	Wbether wind or breeze.	Aspect of sky, &c.	Strength and effect of disturbances.
January... 1	65°	68°	H. ...	N. W....	2 A. M.	1 hour	*Inches.* ·5 ...	N. W....	B. ...	Clouded and chilly.	Very violent. Trees levelled.
,, ... 2	61°	64°	D. ...	N. W....	7 A. M.	½ ,,	·1 ...	W. ...	W. ...	Clear and chilly.	Moderate ... ...
,, ... 3	...	...	T. ...	S. W....	9 P. M.	2 hours	·2 ...	..... *Nil*		Calm and clear.	Lightning vivid. Loud Thunder.
,, ... 4	61°	63°	F. ...	.....	..... *Nil*		.....	W. ...	W. ...	Clear and cold.	Heavy hoar-frost ... ...
,, ... 5	60°	61°	F. ...	.....	..... *Nil*		.....	W. ...	W. ...	Ditto.	Ditto ... ...
,, ... 6	63°	69°	E. ...	N. W....	1 P. M.	.....	.....	..... *Nil*		Calm and warm.	Two slight shocks ... ...
,, ... 7	64°	63°	R. ...	S. W....	9 P. M.	.....	·9 ...	S. W. ...	W. ...	Heavily clouded and rainy.	Drizzling showers all night
,, ...	66°	66°	R. ...	S. W....	.....	.....	1· ...	S. W. ...	W. ...	Ditto ditto.	Drizzling showers all day...

F. Earthquake.
R Rain.
B Breeze.
W Wind.

(Signed)
Collector or *Deputy Commissioner.*

Note.—H Hailstorm.
D Duststorm.
T Thunderstorm.
F Frost.

The 8th January 18—.

From the Under Secretary to the Government of India, Home Department, to A. P. WEBB, Esq., Meerut, dated Simla, the 7th September 1866, No. 4,329.

1. I am directed to acknowledge the receipt of your letter, dated the 8th ultimo, submitting a scheme for recording the state of the weather, and suggesting its adoption.

2. In reply, I am directed to inform you that, as there exists a special agency in the Punjab and the North-Western Provinces for collecting and registering meteorological information, copies of your communication have been forwarded to those Governments, in order that they may consider how far it may be desirable and praticable to give effect to your suggestions.

3. At first sight, however, I am to add, the Governor General in Council fears that the proposal which lies at the foundation of your plan for employing the Head Clerk of every Collectors' and Deputy Collectors' Office to keep a daily record of the weather, noting all its varieties and characteristics, would be found to give results of very small practical value, as it would, His Excellency in Council is disposed to think, be impossible to place any reliance on their accuracy.

From A. P. WEBB, Esq., to the Under Secretary to the Government of India, dated Meerut District, 7th October 1866.

1. With reference to your No. 4,329, dated Simla, 7th September, I solicit the favor of your placing this my request before His Excellency the Viceroy, that copies of my letter dated 8th August containing the scheme for meteorological registrations may be sent *also* to the Governments of Bengal, Central Provinces, Bombay, Madras, and Oude, with whom I shall place myself (on receiving your reply) in communication. The subject is one likely to receive a satisfactory solution now that His Excellency has decided that the scheme may be carried into effect "as far as desirable and practicable" in the Punjab and North-Western Provinces.

2. In Bengal, I am led to infer from Memorandum No. 2,636 T, dated Darjeeling, 28th September 1866, from Secretary to Government of Bengal to my address (in reply to my proposal to adopt the *lettered* Meteorological Return introduced by me elsewhere) that a well digested scheme for meteorological registrations will be attended to.

3. In the Central Provinces, as already reported, and in Bombay, as per letter No. 1,932, dated Bombay Castle, 27th September 1866, from the Under Secretary Government of Bombay to my address just received, the *lettered* return, has been adopted so that both these Governments are in a position equally with those of the Punjab and North Western Provinces to take up my meteorological scheme.

4. I shall attentively watch its treatment, and will at some distant period return to the subject in a communication to His Excellency the Viceroy.

Transferred to the Revenue Department.

(Signed) F. BRANDT,
Acting Under Secretary to Government.

Fort Saint George,
12*th November* 1866.

No. 518. Order thereon, 21st November 1866, No. 3,183.

Miscellaneous.

Communicated to the Government Astronomer for any further observations he may wish to offer, and to the Board of Revenue, with reference to Docket dated 23rd August last.

(True Extract.)

(Signed) J. GROSE,
Under Secretary to Government.

To the Government Astronomer.
,, the Board of Revenue.

Exd. S. T. Augustin.

Rev.

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2r. 3183.

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with reference to ~~G.O.~~ docket
letter
dated 23 ~~September~~ last

Copy to Govt Astronomer Dec 22
Rec'd Dec 21

Rec.
Colonies 1866 Dept
Tow of Govt for November
Rec. 4068.

From
Undersecy to Govt of India
Home Dept
No. 5705
Rec. Bd of Revenue Dated
4 Decr 1866 No. 4391.

Rec. 25 Dec 1866
Rep. 31 Dec 1866

Transferred
to the Revenue
Department.
Fort St George
12 Nov 1866
F. Brandt.
Lt Col Underwood 26 Dec

Endorsement
to 14th
Forwards for information
copy of correspondence
on the subject of collect-
-ing and registering Geo-
-logical Observations
No 3183. 21 Nov
Withorder