



of desert sand sloping to the sea. There is no vegetation whatever except beyond Raka fort where there are remnants of the old town and date gardens no longer cultivated. The fort at Raka marks an old settlement of the same name, as many of the deeds of transfer and the sale of property in Hassa are signed by the Kadhi of Raka.

Ojeir has a *Mudir*, Abdul Wadood, a custom house officer and a tax collector. The total number of soldiers and servants under these officials is perhaps sixty. Each fort has ten soldiers. The others are housed in the custom warehouse.

According to information received, about 250,000 bags of rice are landed at Ojeir every year. A caravan of from two hundred to six hundred camels leaves every week for Hassa. The first part of the journey is through the desert, gradually rising until four hours from Hassa one reaches the towns of Jissa and Jufair. Steamer anchorage is at least two hours sailing in ordinary wind from Ojeir wharf.

During our stay the weary hours were not altogether wasted. We sold a number of Scriptures and had an interesting time with the soldiers and the *Mudir*. All of them were anxious to have their photographs taken, and some of them were willing to study the portrait of Christ which we showed them in the Gospel.

S. M. ZWEMER.



Ten Years of Weather by the Clock in Bahrein.

There is no topic of conversation so widely used in Europe or America as that of the weather. Everywhere in the Occident the weather is recognized as a convenient opening for the exchange of ideas on any subject, between any two people. After the conventional "How are you?" comes the even more conventional "Lovely day, isn't it?" and so on. In the Orient, however, the weather is seldom discussed, and to venture an opinion on what weather we may expect a few hours hence is blasphemy in the ears of a Moslem. To any query on the subject he invariably replies, "God knows." Among the various duties of the Physician in Charge of Mason Memorial Hospital is that of Meteorologist to the Government of India. The science of meteorology is still in its infancy, and the work which is being done by meteorologists all over the world is little understood or appreciated by the man in the street, who laughingly makes fun of "The Weather Man" because he cannot always forecast the

weather correctly. As a matter of fact forecasting the weather is the least of the duties of a meteorologist and indeed occupies no place at all in our work here. It must be remembered that weather in the Tropics is not the uncertain thing that we know at home and talk about and grumble about so much. The rains and storms have their place in the year's curriculum and are generally content to stay there. This very certainty and unchangeableness of the weather is possibly one reason why people in this part of the world generally leave the weather out of their conversation. Our work here consists in carefully recording barometer readings, temperatures, the direction and velocity of the wind, and the amount of the rainfall. The Indian Meteorological Department maintains four classes of observatories as follows:

FIRST-CLASS.—Observatories at which continuous records are obtained by means of self-registering instruments.

SECOND-CLASS.—Observatories at which observations are recorded three times daily, viz:—at 8 a.m., 10 a.m., and 4 p.m.

THIRD-CLASS.—Observatories at which observations are recorded at 8 a.m. only, for transmission by telegraph to Simla, Bombay, Calcutta or Madras.

FOURTH-CLASS.—Observatories where observations of only temperature, wind direction and rainfall are recorded.

Bahrein belongs to the Third Class but transmits its records once a month only, by post, there being no telegraph here. Muscat is a true third Class station, transmitting its records daily by cable and telegraph to the head office. Kuwait is a fourth class station. I mention these three because the Arabian Mission is working in them, but it is to be noted that the Government of India maintains a Meteorological Observatory at every important place in the Persian Gulf and the Gulf of Oman. There are also stations at Busrah and Baghdad. All these observatories are merely an accessory to the Meteorological Department of India, which is all the time extending its lines of investigation from India to Beluchistan and from Beluchistan far up into Persia. I have neither the time nor the space to go into the why and the wherefore of all this work—suffice it to say that one of the great objectives of the Government of India is to trace the sources of the Indian rainfall, that rainfall which means by its paucity or plenty, starvation or prosperity to 300,000,000 people.

The following is a list of the more important instruments supplied to us by the Government:

Barometer of the Fortin type; Dry Bulb Thermometer; Wet Bulb Thermometer; Maximum Thermometer; Minimum Thermometer;

Rain-Gauge, Symon's pattern; Wind-Vane, Voorhees' pattern; Anemometer, Robinson's pattern; Sundial, Government's own pattern.

Of all these instruments the Barometer gives us to-day the least information. I say to-day because no one knows how valuable the data that we are to-day accumulating may be to the future investigator. The variations, however, of this instrument are very slight from one end of the year to the other and in the present state of meteorological science tell us practically nothing in Bahrein. The only other instrument needing comment is the Anemometer which as its name implies is an instrument for measuring wind.

Meteorological observations in Bahrein were first commenced in September, 1901, by Dr. S. M. Zwemer so that we have now reached a point where an analysis of such observations begins to have real value. I quote here from "Instructions to Observers of the India Meteorological Department": "In order to determine the normal meteorological conditions of a place, accurate observations for a period of at least ten years are necessary." In other words, if you want a picture of Bahrein weather, consult the accompanying table.

And yet without some explanation this table is apt to be misleading. It is too general to be complete. Many a person looking over the Maximum column, for instance, would exclaim, "Why! It's no hotter there than it is here." To understand our temperature here one must know the topography of these islands. The Bahrein Archipelago is surrounded by large expanses of *shallow* water, with the result that (especially in the summer) there is an enormous amount of evaporation and a consequent very high percentage of humidity. This humidity keeps the thermometer down, but I can assure the reader that on a day when the dry bulb registers 94° and the wet bulb 90°—92° Bahrein is a place to be avoided by health seekers. When the thermometer goes to 100° or over in Bahrein it generally means that we have a dry wind from over the deserts (these days are comparatively rare here) so that the apparently hot days are thus the most comfortable.

The summer with us commences about the middle of April when the thermometer first touches the nineties—last year April 14th was the first day on which we had a temperature of 90° or over. April is usually a delightful month with soft fresh breezes and an occasional storm or cloudy day to vary the monotony. In May the weather is still pleasant though there is a steady and persistent rise of temperature all through the month with frequently a spell of very hot dry weather towards the end of the month. If the table is consulted it will be seen that in four of the ten years May was the month in which the highest Maximum Temperature for the year was recorded.

Analysis of Rainfall and Temperature Records—Jan. 1st, 1902, to Dec. 31st, 1911.

BAHREIN, PERSIAN GULF.

Year	Rainfall in inches	Temp. Max. 100° and over	Temp. Max. 60° and below	Temp. Min. 50° and below
1902	.85 5 wet days	11 Times, May 8, 106.5	1 Times, Jan. 29 59.9	10 Times, Dec. 12, 45.0
1903	3.32 7 "	32 " Aug. 7, 107.2	5 " Jan. 31, 56.5	2* " Feb. 6, 46.0
1904	1.62 6 "	7 " Aug. 28, 102.5	0 " "	1 " Feb. 4, 49.5
1905	1.59 7 "	10 " Sept. 2, 104.0	10 " Jan. 27, 49.8	10 " Jan. 27, 42.5
1906	1.31 5 "	6 " May 29, 107.5	0 " "	1 " Feb. 2, 49.8
1907	2.56 10 "	9 " May 28, 108.5	8 " Jan. 28, 51.5	9 " Jan. 28, 42.8
1908	1.13 10 "	10 " Aug. 23, 106.5	6 " Feb. 18, 55.0	5 " Feb. 15, 45.0
1909	4.08 14 "	18 " May 23, 107.0	5 " Dec. 27, 56.4	2 " Jan. 10, 48.5
1910	4.02 26 "	8 " July 17, 102.3	5 " Jan. 13, 49.8	5 " Jan. 14, 40.5
1911	6.21 26 "	11 " July 16, 107.4	20 " Jan. 25, 51.4	13 " Jan. 29, 42.2
	Average Rainfall for 10 years, 2.669	Highest Temperature for 10 years: May 28, 1907.....108.5	Lowest Maximum Temp. for 10 years: January 27, 1905 } 49.8 January 13, 1910 }	Lowest Temperature for 10 years. January 14, 1910.....40.5

In the 10 years the Thermometer went to 100° and over 122 times: May, 7 times; June, 12 times; July, 41 times; August, 59 times; September, 3 times.

In the 10 years the Thermometer went to 50° and below 58 times: January, 34 times; February, 14 times; December, 10 times.

*Note:—In 1903 the Minimum Records are incomplete.

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Supt. Observatory, Bahrein.

It will also be noticed that the Highest Maximum Temperature recorded in the ten years occurred in the month of May (May 28, 1907). In June the approach of the real hot weather is still headed off by a Northerly Breeze which blows more or less steadily for forty days. This breeze, which is called "El Bareh," (or "the going out," due to the fact that in olden days sailors used to wait for this before starting on their long voyages) usually commences about the 10th of June. Its tempering effect is borne witness to by our records, which show that the thermometer rarely touches 100° in the month of June (on an average slightly over once a year) and also by the fact that the highest maximum temperature of the year has never been recorded in June. Towards the end of July "El Bareh" begins to weaken and with its disappearance come the stifling days that we all dread. Day after day without the suspicion of a breeze and the thermometer registering a mean temperature of about 90° for the 24 hours. August is by all odds the hottest month of the year, but with the appearance, about September 1st, of Canopus in the South South East just before dawn, we begin to feel a little more comfortable. Throughout September the mercury slowly descends and by the middle of October we may fairly say that the summer is over, although a temperature of over 90° has been recorded as late as November 10th. There is yet another element in the temperature of these latitudes that is not measured by scientific instruments—this has been referred to as the "quality" of the temperature—there is a great difference between a given temperature here and the same temperature in England or the United States. It is a difference in "quality" or kind, as well as in quantity. In this enervating climate a temperature of 95° seems hotter than at home, and a temperature of 50° seems colder than at home. One fairly good index of the length of our summer is the "Punkah" season—we hang our punkahs about the middle of April and we take them down about the middle of October. Six months. For those who do not know I may explain that a "punkah" is a curtain of varying length and about two feet wide—this curtain is suspended from the ceiling at a convenient height with its long axis horizontal and made rigid at its upper edge by being attached to a heavy pole—this curtain is pulled to and fro by a servant and as an effective fan it has not yet been surpassed by any modern mechanical device. It is not an Oriental idea—the story goes that an Englishman, worn out with the heat in India, wrenched a door from its hinges and had it suspended over his work table and pulled backwards and forwards to serve as a fan. It probably never occurred to an Indian that it was specially hot until

an Englishman told him. In any case very few natives ever use a punkah, though the custom is coming in a little, even in Bahrein.

So much for the summer—how about the winter? The winter months are December, January and February, with January “facile princeps” as the coldest month of the year. Last year we had a record cold snap with 20 days in January and February when the thermometer never reached 60°. Fifteen of these twenty days were in January. I shall not say much about the cold weather—to even call it cold weather will seem absurd to you people at home. The rainfall, too, must seem insignificant to you, but we had a storm last November that anyone might be proud of—hailstones as big as marbles fell for about ten minutes cutting up our trees quite badly, and rain to the amount of one inch fell in twenty minutes, with the



CHAPEL WITH TOWER-CLOCK.

result that the place was flooded until the water could soak away. There were also thunder and lightning to match. Rain is liable to fall here at any time from the end of October to the beginning of May.

In summing up this article one might point out that the weather in Bahrein seems to be changing—the rainfall is increasing—the summers are getting cooler and the winters are becoming colder. Of course, it is early to speak—ten years observations are not sufficient to justify such a deduction. It might also be remarked here that the reader must not judge all our Mission Stations by this article—the

weather in Busrah, Kuweit or Muscat varies greatly from the weather in Bahrein. All of these other places, for instance, are dry. Earlier in this article I mentioned that our observations as a third-class station were made at 8 a.m. This means accurate time, for observations are useless unless they are always made at the same time. Being off the telegraph we are obliged to manufacture our own time, which we do by means of a very excellent and accurate sun-dial. One is reminded of the song of the Australian bushman who sang "My clock is the sun and a right good one—It keeps good time and needs no winding." This dial gives us apparent time, which we correct to mean time by a table. This year the Arabian Mission has had the honor of erecting the first public clock in the Persian Gulf—the idea was Dr. Zwemer's, who raised the money for the clock by local subscription. The clock is of German manufacture, has a five foot dial and strikes the hours and half hours. It was put into position in the church tower by Messrs. Dykstra, Pennings and Shaw. They had several difficulties to overcome, not the least being the repair of a cog-wheel which was broken in transit. Dr. Zwemer was away in Baghdad when it arrived and on his return it was all in going order. It has been a matter of some dispute among the natives here because we keep English time on the clock and not Arabic. Arabic time, as you all know, is reckoned from sunset to sunset—sunset being 12 o'clock. This means that one must alter the clock almost every day in the year. Inaccuracy is a characteristic of the Arab so he does not mind this—the Mission, however, amongst other things, is here as a public educator and it surely will have gained something when it shall have taught the Arab the value of correct time. We point out to them that in all progressive Mohammedan countries like India and Egypt, Eastern time has given place to Western. In a word Eastern time is entirely unsuited to the needs of a work-a-day world. Our clock is one of the sights of the Gulf—almost every day groups of people may be seen at one time or another gazing at the clock and waiting with bated breath to hear it strike. Already my patients are making appointments with me by the new clock, "When the big clock strikes such an hour, I will come," say they. I believe that our clock when it first struck the hour of 5 p.m. on December the 20th, 1911, struck also the death-knell of Eastern time in Bahrein. At the back of the clock-dial Mr. Pennings has inscribed the words "So teach us to number our days that we may get us a heart of wisdom."

C. STANLEY G. MYLREA.

The Lucknow Conference, 1911.

A meeting of the Literature Committee of the Lucknow Conference was recently held at Cairo, when attention was chiefly concentrated upon the ways and means of improving the production of literature and its increased circulation, and upon the method of securing more fervent prayer for greater spiritual results.

On the important subject of "A Medium of Exchange" the following action was taken:

Resolved, That attention be drawn to—

1. The urgent necessity for writers of spiritual articles in vernacular languages to co-operate with others by passing their MSS. in English with a view to re-translation into any other language desired.

2. The readiness of the Editors of *The Moslem World* to insert such articles in their exchange columns free of charge, this magazine being the best possible medium for such exchange, and

3. As a return for such service they feel that every one interested in the evangelization of Moslems should make an effort to send at least one new subscription to *The Moslem World*, 35 John St., Bedford Row, London; 4s per annum post free, or REVELL & Co., New York.



The Arabian Mission.

The Arabian Mission depends for its support, and the extension of its work, not on the treasury of the Board of Foreign Missions of the Reformed Church in America, though under its care and administration, but upon contributions specifically made for this purpose. The churches, societies and individuals subscribing are not confined to the Reformed Church. Members of other denominations are among its supporters and its missionaries. Regular gifts and special donations are invited from all who are interested in Mission work in Arabia. Regular contributors will receive quarterly letters and annual reports, without application. All contributions, or applications for literature or information, should be sent to

THE ARABIAN MISSION,
25 East 22d Street, New York.