MONTHLY WEATHER REVIEW

ALFRED J. HENRY, Editor.

Vol. 51, No. 10.
W. B. No. 821.

OCTOBER, 1923.

Closed Dec. 3, 1923.
Issued Dec. 31, 1923.

HERNANDEZ ON THE TEMPERATURE OF MEXICO.[1]

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[Weather Bureau, Washington, D. C., Nov. 10, 1923.]

In accordance with custom, a rather full abstract of the material contained in Weather Review Supplement No. 23 is herein presented. Those who may have a special interest in the subject and desire to obtain the full report can do so free of charge by applying to the Chief of Weather Bureau while the Bureau's supply lasts. After that supply is exhausted application should be made to the Superintendent of Documents, Washington, D. C. The price of the Supplement is 25c.—*Editor.*

The Republic of Mexico, although it lies mostly in the Tropics, is characterized by great diversity of climate ranging from tropical heat in the lowlands to near freezing temperatures in the cold season on the elevated plains of the interior.

In general there are three great thermal divisions—

(1) The hot zone (*zona calida*), which parallels the coast and includes the Isthmus of Tehuantepec, the States of Tabasco, Campeche, and the peninsula of Yucatan; it has a mean temperature of 22.5° C. (72.5° F.).

(2) The temperate zone (*zona templada*) comprises a large area that stretches from the northern plains to the arable lands of the interior and southern regions as far as Puebla and Oaxaca. In Chiapas there is also a temperate zone which must extend into the Republic of Guatamala. The mean annual temperature of this zone is between 15° and 22.5° C. (59.0°–72.5° F.).

The third zone, much smaller than those already noted, is confined to the most elevated regions and is therefore not a continuous area but is found in separate districts, or islands, coextensive with the higher elevations of the interior; for example, one such district may be found between the States of Zacatecas and San Luis; another and much larger comprises the valleys or depressions in the surface of the great plateau of Mexico; these are Toluca, Tula, Pachuca, Chignahuapan, and the large valley that includes the whole of the State of Tlaxcala and part of Puebla, and yet another in the elevated regions of Chiapas.

Figure 1 shows the location of the stations used in this discussion and Figure 2 presents the outlines of the three great thermal divisions of the Republic.

In Table No. 1 is presented the geographic coordinates and the elevations of the stations shown in Fig. 1. The arrangement is alphabetical by States; the arrangement of the tables of temperature data is alphabetical.

Table No. 1.—*States and stations arranged alphabetically.*

States and stations.	North latitude.	West longitude (Greenwich).	Elevation.
Chiapas.	°	°	*Meters.*
Comitan	16.2	92.1	1,635
San Cristobal	16.7	92.6	2,118
Tapachula	14.9	92.3	187
Tuxtla Gutierrez	16.6	93.1	536

[1] Mo. Weather Rev. Supplement No. 23, Hernandez, J.: The temperature of Mexico.

Table No. 1.—*States and stations arranged alphabetically*—Continued.

States and stations.	North latitude.	West longitude (Greenwich).	Elevation.
Chihuahua.	°	°	*Meters.*
Chihuahua	28.6	106.1	1,423
Juarez [1]	31.7	106.5	1,134
Ojinaga	29.6	104.4	800
Parral	26.9	106.0	1,730
Coahuila.			
Piedras Negras	28.7	100.5	221
Saltillo	25.4	101.0	1,605
Sierra Mojada	27.3	103.7	1,528
Torreon	25.6	103.4	1,135
Colima.			
Colima	19.2	103.7	507
Manzanillo	19.0	104.3	4
Durango.			
Durango	24.0	104.6	1,903
Federal District.			
Mexico	19.4	99.1	2,259
Guanajuato.			
Guanajuato	21.0	101.3	2,037
Leon	21.1	101.6	1,809
Hidalgo.			
Huejutla	21.1	98.4	316
Pachuca	20.1	98.7	2,436
Zacualtipan	20.5	98.6	2,024
Jalisco.			
Ahualulco	20.8	103.9	1,325
Autlan	19.5	104.5	1,003
Colotlan	22.6	103.6	1,683
Guadalajara	20.7	103.4	1,558
Guzman [1]	19.6	103.5	1,529
La Barca	20.3	102.5	1,532
Lagos	21.4	101.9	1,872
Mascota	20.6	104.7	1,238
Teocaltiche	21.2	102.3	1,724
Toluca	19.3	99.7	2,676
Valle de Bravo	19.2	100.0	1,825
Michoacan.			
Morelia (Observatorio)	19.7	101.1	1,925
Morelia (Seminario)	19.7	101.1	1,933
Morelos.			
Cuernavaca	18.9	99.2	1,540
Nayarit.			
Tepic	21.5	105.0	930
Nuevo Leon.			
Lampazos	27.0	100.5	317
Monterrey	25.7	100.3	533
Oaxaca.			
Oaxaca	17.1	96.7	1,563
Pochutla	15.7	96.5	165
Salina Cruz	16.2	95.2	56
Silacayoapan	17.5	98.2	1,635
Tuxtepec	18.1	96.1	25
Puebla.			
Chignahuapan	19.9	98.0	2,270
Puebla	19.0	98.1	2,150
Queretaro.			
Queretaro	20.6	100.3	1,842
Quintana Roo.			
Isla Mujeres	21.1	86.7	0
Vigia Chico	19.8	87.6	0
Xkalak	18.2	87.8	0

[1] Station listed in tables with "C" (*Ciudad*, City) prefixed.

TABLE No. 1.—*States and stations arranged alphabetically*—Continued.

States and stations.	North latitude.	West longitude (Greenwich).	Elevation.
San Luis Potosi.	°	°	*Meters.*
San Luis Potosi	22.2	101.0	1,887
Sinaloa.			
Culiacan	24.8	107.3	53
Fuerte	26.5	108.7	102
Mazatlan	23.1	106.4	78
Sonora.			
Guaymas	27.9	110.9	9
Hermosillo	29.1	110.9	218
Tabasco.			
San Juan Bautista	18.0	92.9	22
Tamaulipas.			
Rio Bravo	26.0	98.1	30
Tampico	22.2	98.0	24
Victoria [1]	23.7	99.1	324
Tlaxcala.			
Tlaxcala	19.3	98.2	2,240
Vera Cruz.			
Jalapa	19.5	96.9	1,399
Ulua (Vera Cruz)	19.2	96.1	12
Yucatan.			
Izamal	20.9	89.0	16
Maxcanu	19.8	90.5	12
Merida	21.0	89.6	22
Peto	20.0	88.9	36
Progreso	20.6	90.0	15
Valladolid	20.7	88.2	22
Zacatecas.			
Zacatecas, Bufa	22.6	102.6	2,611
Zacatecas, Instituto	22.6	102.6	2,443

[1] Station listed in tables with "C" (*Ciudad*, City) prefixed.

The observations.—The Mexican meteorological service has maintained two series of temperature observations, one at the hours of 7 a. m., 2 and 9 p. m., mean local time, the other at 8 a. m. and 8 p. m., 75th meridian time. In order that the series used in the discussion might be comparable the records were reduced to the epoch 1901–1910.

The method of reduction is best explained by an example as given in Table 2 below. The station used is Morelia (Seminario), and the observations ended in 1907; the object is to reduce them to the epoch 1901–1910.

TABLE 2.—*Reduction of temperature to the epoch 1901–1910.*

[Morelia (*Seminario*), Michoacan. month of March. Mean temperature, 16.5° C.; observations at 7 a. m., 2 p. m., 9 p. m. Figures without sign are positive.]

Comparative stations.	Differences.										Mean difference.	Comparative temperature.	Reduction.
	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910			
Guadalajara	−1.4	−3.0	−3.6	−2.7	−2.6	−1.8	−2.5	....	....	....	−2.5	19.3	16.8
Guanajuato	−0.9	−2.6	−2.9	−1.0	−1.3	−1.6	−0.8	....	....	....	−1.6	18.3	16.7
Leon	−0.7	−2.3	−2.7	−1.3	−2.3	−0.9	−1.9	....	....	....	−1.7	18.7	17.0
Queretaro	−0.6	−2.4	−1.3	−2.0	−1.4	−0.5	−1.0	....	....	....	−1.3	17.8	16.5
Toluca	4.0	2.3	4.6	3.7	3.6	5.8	5.3	....	....	....	4.2	12.4	16.6

Reduced temperature, 16.7° C.

Thus it is seen the reduced temperature for this station is 16.7 C., which corresponds to the mean for the epoch 1901–1910.

In the Observatoria Central de Mexico reductions have been made as above of all of the observations of the meteorological service separately for 8 a. m. and 8 p. m., 75th meridian time, and also for the series, $\frac{7 \text{ a. m. } 2 \text{ p. m. } 9 \text{ p. m}}{3}$

In referring to the different series the following simplified notation will be used henceforth throughout this discussion:

System $\frac{7 \text{ a. m.} + 2 \text{ p. m.} + 9 \text{ p. m.}}{3}$ 7, 2, 9

System $\frac{7 \text{ a. m.} + 3 \text{ p. m.} + 11 \text{ p. m.}}{3}$ 7, 3, 11

System $\frac{8 \text{ a. m.} + 8 \text{ p. m}}{2}$ 8, 8

System $\frac{\text{maximum} + \text{minimum}}{2}$ ..... max., min.

The custom has been to use as daily means of temperature the average values derived from the system 7, 2, 9; max., min., or even that of 8, 8; which latter falls far short of giving the accuracy demanded in monthly and annual values. The corrections that recent studies have revealed may exceed 1.5° C. in not a few cases, as will be shown later.

Hourly temperature records.—Hourly records of temperature are available for the City of Mexico only; using these to obtain a correction to reduce to the mean of 24 hourly observations the following corrections are found for the annual means:

For 7, 2, 9	−0.34° C.
max. and min	−0.74
8, 8	+1.16

This subject, however, will be fully discussed in Part III. For the present it suffices to say that the means of the 7, 2, 9 system approach most nearly to those deduced from 24-hourly observations. These unreduced means, especially those of the 7, 2, 9 system, serve to illustrate in a general way many phases of temperature distribution.

In Table 3 will be found the monthly and annual means reduced to the epoch 1901–1910 for the separate hours of 8 a. m. and 8 p. m., 75th meridian time, the means of the combination 8+8÷2 and of 7+2+9/3. The arrangement of the table is alphabetical by stations; and the geographical coordinates and elevation will be found in Table 1.

From the data of Tables 3 and 4 a series of charts have been prepared to show, first, the month to month variation in the monthly means, and, second, the monthly surface isotherms.

TABLE 3.—*Monthly and annual mean temperatures (°C.) reduced to the epoch 1901–1910.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Ahualulco:													
8 a. m.	9.9	10.4	12.1	14.7	18.1	19.2	18.7	18.4	18.1	16.7	12.9	10.7	15.0
8 p. m.	20.3	21.8	24.6	27.2	27.9	26.2	25.0	24.2	24.0	23.8	22.1	20.0	23.9
8, 8	15.1	16.1	18.4	21.4	23.0	22.7	21.8	21.3	21.0	20.2	17.4	15.4	19.5
7, 2, 9	16.3	17.3	19.7	22.4	24.0	23.2	22.4	22.0	21.9	21.0	18.1	16.4	20.4
Autlan:													
8 a. m.	13.7	15.0	17.2	19.3	20.9	21.8	22.8	19.9	19.6	18.6	15.6	14.0	18.0
8 p. m.	21.2	21.6	23.7	25.6	26.6	26.9	25.2	23.6	23.3	23.1	22.0	21.2	23.7
8, 8	17.4	18.3	20.5	22.4	23.8	24.4	23.0	21.8	21.4	20.8	18.3	17.6	20.8
7, 2, 9	19.8	20.5	22.4	24.7	26.0	26.5	24.6	23.2	23.0	22.5	21.2	20.1	22.8
C. Guzman:													
8 a. m.	10.8	11.0	12.8	14.5	16.4	18.0	17.3	16.9	16.3	15.3	13.4	10.8	14.4
8 p. m.	19.0	20.4	21.9	23.3	24.1	22.5	21.2	21.1	21.0	20.9	20.4	18.8	21.2
8, 8	14.4	15.7	17.4	18.9	20.2	20.2	19.2	19.0	18.6	18.1	16.9	14.8	17.8
7, 2, 9	16.2	17.5	19.8	21.8	22.6	21.8	20.7	20.4	20.4	20.4	18.0	16.3	19.6
C. Juarez:													
8 a. m.	1.5	3.5	7.5	11.9	16.5	20.7	21.5	20.7	17.6	11.3	5.7	2.0	11.7
8 p. m.	9.8	12.5	16.5	21.1	26.4	29.2	29.4	27.9	25.0	20.2	13.9	8.8	20.1
8, 8	5.6	8.0	12.0	16.5	21.4	25.0	25.4	24.3	21.3	15.8	9.8	5.4	15.9
7, 2, 9	6.9	9.6	13.5	17.7	22.9	26.6	27.6	26.1	22.2	16.3	10.4	6.2	17.2
C. Victoria:													
8 a. m.	11.6	13.2	16.6	20.1	22.5	24.2	24.1	24.2	22.6	19.9	15.8	13.0	19.0
8 p. m.	17.8	20.0	24.4	27.6	29.4	30.6	28.7	30.1	28.1	24.2	20.4	17.8	24.9
8, 8	14.7	16.6	20.5	23.8	26.0	27.4	26.4	27.2	25.4	22.0	18.1	15.4	22.0
7, 2, 9	16.4	18.2	22.0	25.2	27.4	28.7	27.9	29.0	27.2	23.2	19.1	16.4	23.4

Fig. 1. Location of temperature stations in Mexico.

5 Transition
6 N. Ancral
7 L. "
8 Sub-tropical
9 Tropical

Fig. 2. Thermal divisions of Mexico.

TABLE 3.—*Monthly and annual mean temperatures (°C.) reduced to the epoch 1901–1910*—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Colima:													
8 a. m.	16.2	16.3	16.8	18.1	20.3	22.2	21.7	21.3	21.0	19.9	18.0	16.8	19.0
8 p. m.	24.1	24.5	25.7	26.9	27.0	26.4	25.4	25.0	24.9	24.8	24.6	23.6	25.2
8, 8	20.2	20.4	21.4	22.5	23.6	24.3	23.6	23.2	23.0	22.4	21.3	20.2	22.2
7, 2, 9	21.7	22.2	23.5	24.7	26.1	25.9	24.8	24.6	24.5	24.2	23.4	21.8	24.0
Colotlan:													
8 a. m.	7.0	8.2	11.1	13.7	16.6	19.3	17.8	17.1	15.9	13.9	10.4	6.7	13.1
8 p. m.	18.8	20.4	23.8	25.9	27.6	27.8	24.8	23.5	23.4	23.5	20.7	18.4	23.2
8, 8	12.9	14.3	17.4	19.8	22.1	23.6	21.3	20.3	19.6	18.7	15.6	12.6	18.2
7, 2, 9	14.2	16.5	19.5	21.7	23.7	24.9	22.8	22.0	21.6	20.3	17.0	13.8	19.8
Comitan:													
8 a. m.	11.5	12.4	14.0	15.7	16.2	15.9	15.3	15.3	15.7	15.5	14.2	12.7	14.5
8 p. m.	15.6	16.1	18.4	20.3	20.1	19.3	18.6	18.4	18.5	18.6	17.7	16.4	18.2
8, 8	13.6	14.2	16.2	18.0	18.2	17.6	17.0	16.8	17.1	17.0	16.0	14.6	18.0
7, 2, 9	15.5	16.6	18.1	19.4	20.4	19.6	18.4	18.4	18.8	18.0	16.6	15.7	18.0
Cuernavaca:													
8 a. m.	14.2	15.1	16.5	18.0	19.0	18.3	17.4	17.2	17.1	16.4	15.1	14.5	16.6
8 p. m.	20.2	22.3	24.6	26.6	25.5	23.5	22.1	21.6	21.4	21.2	20.2	19.1	22.4
8, 8	17.2	18.7	20.6	22.3	22.2	20.9	19.8	19.4	19.2	18.8	17.8	16.8	19.5
7, 2, 9	18.2	19.4	21.4	23.4	22.9	21.3	20.3	19.9	19.8	19.9	19.3	18.1	20.3
Culiacan:													
8 a. m.	14.3	14.3	15.3	17.3	20.9	24.7	25.6	25.4	24.6	21.8	17.6	14.4	19.7
8 p. m.	23.6	24.2	26.0	28.0	30.0	31.6	30.7	29.7	29.7	28.6	25.4	23.0	27.5
8, 8	19.0	19.2	20.6	22.6	25.4	28.2	28.3	27.6	27.2	25.2	21.5	18.7	23.6
7, 2, 9	20.5	20.5	22.3	24.4	26.8	29.5	29.2	28.4	28.1	26.4	23.1	20.0	24.9
Chignahuapan:													
8 a. m.	4.2	5.0	6.7	9.3	11.4	11.3	10.7	10.3	10.0	8.8	6.6	4.8	8.3
8 p. m.	9.6	10.8	12.9	14.6	15.4	14.9	14.0	14.1	13.5	11.8	10.3	9.2	12.6
8, 8	6.9	7.9	9.8	12.0	13.4	13.1	12.4	12.2	11.8	10.3	8.4	7.0	10.4
7, 2, 9	8.5	9.8	11.8	14.3	15.6	15.1	14.5	14.4	13.8	12.2	10.5	9.2	12.5
Chihuahua:													
8 a. m.	5.3	7.0	10.4	14.0	17.3	21.3	21.0	20.2	18.0	12.8	8.0	4.2	13.3
8 p. m.	14.9	16.3	21.0	25.0	30.8	29.8	28.0	27.0	25.3	22.7	16.7	13.7	22.6
8, 8	10.0	11.6	15.7	19.5	24.0	25.6	24.5	23.6	21.6	17.8	12.4	9.0	17.9
7, 2, 9	10.9	12.2	16.2	20.0	24.6	26.3	24.9	24.1	22.1	18.5	13.2	10.0	18.6
Durango:													
8 a. m.	6.4	7.5	10.2	12.6	14.7	16.6	16.5	15.8	14.5	11.1	8.0	6.2	11.7
8 p. m.	15.5	18.5	21.5	23.3	24.7	25.0	23.2	21.6	20.4	19.6	17.9	16.0	20.6
8, 8	11.0	13.0	15.8	18.0	19.7	20.8	19.8	18.7	17.4	15.4	13.0	11.1	16.1
7, 2, 9	12.5	14.2	17.4	19.4	21.2	22.6	21.6	20.5	19.1	17.4	14.9	13.0	17.8
Fuerte:													
8 a. m.	9.5	9.7	12.6	14.8	18.6	24.0	25.3	24.4	23.8	19.3	14.3	10.2	17.2
8 p. m.	24.0	24.8	26.9	29.9	32.6	34.7	32.1	30.8	30.5	29.8	26.8	23.0	28.8
8, 8	16.8	17.2	19.7	22.2	25.6	29.4	28.7	27.6	27.1	24.6	20.4	16.6	23.0
7, 2, 9	18.6	18.6	21.6	24.0	27.4	30.6	29.6	28.3	28.0	35.4	21.1	17.9	24.3
Guadalajara:													
8 a. m.	10.1	10.8	12.7	15.4	17.4	18.6	17.8	17.3	16.7	14.9	12.7	10.5	14.6
8 p. m.	19.6	21.5	23.8	26.1	27.6	25.8	23.7	22.6	22.2	22.0	21.2	19.3	23.0
8, 8	14.8	16.2	18.2	20.8	22.5	22.2	20.8	20.0	19.4	18.4	16.8	14.9	18.8
7, 2, 9	15.4	17.0	19.3	21.9	23.3	22.8	21.5	20.8	20.5	19.6	17.8	15.8	19.6
Guanajuato:													
8 a. m.	7.9	9.1	11.4	13.9	15.8	15.3	14.6	14.4	13.9	12.4	10.5	8.8	12.3
8 p. m.	16.0	18.4	20.8	23.2	23.8	22.4	20.9	20.5	20.4	19.2	17.6	16.1	19.9
8, 8	12.0	13.8	16.1	18.6	19.8	18.8	17.8	17.4	17.2	15.8	14.0	12.4	16.1
7, 2, 9	14.1	15.6	18.3	21.0	21.8	20.7	19.4	19.2	19.0	17.9	16.2	14.5	18.1
Guaymas:													
8 a. m.	16.1	16.9	18.7	20.6	23.0	26.0	28.0	28.4	28.0	24.7	19.3	16.7	22.2
8 p. m.	20.1	21.2	23.5	26.3	28.6	30.8	31.9	31.6	31.0	28.4	22.9	19.9	26.3
8, 8	18.1	19.0	21.1	23.4	25.8	28.4	30.0	30.0	29.5	26.6	21.1	18.3	24.3
7, 2, 9	19.8	19.3	21.6	24.0	26.8	20.6	31.0	31.0	30.2	27.8	22.4	18.7	25.2
Hermosillo:													
8 a. m.	12.5	13.4	15.4	17.6	20.8	24.6	27.4	26.9	26.0	20.5	15.0	12.2	19.4
8 p. m.	20.5	22.4	25.7	29.0	32.2	34.7	34.8	33.9	32.8	28.6	22.5	18.9	28.0
8, 8	16.5	17.9	20.6	23.3	26.5	29.6	31.1	30.4	29.4	24.6	18.8	15.6	23.7
7, 2, 9	17.6	17.3	20.0	22.9	26.1	30.2	31.2	30.7	29.9	25.8	20.7	16.6	24.1
Huejutla:													
8 a. m.	17.6	18.9	21.4	23.6	25.4	25.9	25.8	25.7	24.8	22.8	20.5	18.2	22.5
8 p. m.	20.0	21.1	24.4	27.0	28.3	28.8	28.0	27.7	27.1	25.0	22.2	20.7	25.0
8, 8	18.8	20.0	22.9	25.3	26.8	27.4	26.9	26.7	26.0	23.9	21.4	19.4	23.8
7, 2, 9	19.4	20.3	23.6	26.5	28.1	28.7	28.0	27.7	26.7	24.4	21.9	20.2	24.9
Isla Mujeres:													
8 a. m.	23.3	23.7	24.6	25.0	26.5	26.7	27.1	27.4	27.0	26.0	24.3	23.7	25.4
8 p. m.	24.1	24.6	25.6	26.2	27.2	27.3	27.5	27.7	27.4	26.3	25.3	24.6	26.1
8, 8	23.7	24.2	25.1	25.6	26.8	27.0	27.3	27.6	27.2	26.2	24.8	24.2	25.8
7, 2, 9	23.8	24.1	25.2	25.6	27.0	27.2	27.4	27.6	27.3	26.1	24.8	24.2	25.9
Izamal:													
8 a. m.	16.0	16.9	18.9	21.2	23.5	23.8	23.2	23.0	22.6	21.3	19.0	17.3	20.6
8 p. m.	22.7	24.3	26.9	28.5	28.8	26.4	25.9	25.8	25.6	24.8	23.6	22.8	25.5
8, 8	19.4	20.6	22.9	24.8	26.2	25.1	24.6	24.4	24.1	23.0	21.3	20.0	23.0
7, 2, 9	21.8	22.9	25.2	27.2	28.3	27.4	26.4	26.1	26.0	25.5	23.7	22.4	25.2
Jalapa:													
8 a. m.	11.6	12.7	14.8	17.0	18.4	17.8	17.4	17.3	16.9	15.7	14.3	12.3	15.5
8 p. m.	14.1	15.2	17.1	19.0	19.9	19.3	19.0	19.0	18.4	17.5	16.0	14.7	17.5
8, 8	12.8	14.0	16.0	18.0	19.2	18.6	18.2	18.2	17.6	16.6	15.2	13.5	16.5
7, 2, 9	13.8	14.8	17.0	19.4	20.2	19.2	18.8	18.8	18.3	17.3	15.9	14.5	17.3
La Barca:													
8 a. m.	8.8	10.1	12.7	15.1	17.1	18.5	17.5	16.8	16.0	14.4	12.6	9.7	14.1
8 p. m.	18.6	20.8	23.2	25.4	26.7	24.7	22.7	21.9	21.7	21.3	20.5	19.0	22.2
8, 8	13.7	15.4	18.0	20.2	21.9	21.6	20.1	19.4	18.9	17.8	16.6	14.4	18.2
7, 2, 9	15.3	16.8	19.7	22.4	24.0	23.4	21.5	21.0	20.8	19.8	18.1	15.9	19.9
Lagos:													
8 a. m.	7.4	8.0	9.9	12.2	14.2	15.9	14.9	14.4	14.1	13.3	11.3	8.2	12.0
8 p. m.	17.9	19.2	22.2	24.2	26.1	25.1	23.2	22.4	22.0	21.5	19.7	18.2	21.8
8, 8	12.6	13.6	16.0	18.3	20.2	20.5	19.0	18.4	18.0	17.4	15.5	13.2	16.9
7, 2, 9	13.8	15.1	17.9	20.1	21.6	22.1	21.0	20.6	20.2	19.1	16.5	14.3	18.5
Lampazos:													
8 a. m.	10.0	11.3	15.5	19.5	23.0	25.8	25.3	25.4	23.4	18.8	14.8	10.0	18.6
8 p. m.	15.8	17.4	22.1	25.8	29.8	32.8	32.5	33.5	30.4	25.4	20.1	16.2	25.2
8, 8	12.9	14.4	18.8	22.6	26.9	29.3	28.9	29.4	26.9	22.1	17.4	13.1	21.9
7, 2, 9	13.6	15.0	19.3	22.6	26.3	29.0	29.3	30.0	27.5	22.1	17.6	13.6	22.2

TABLE 3.—*Monthly and annual mean temperatures (°C.) reduced to the epoch 1901–1910*—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Leon:													
8 a. m.	6.9	8.5	11.0	13.8	16.1	17.2	16.2	15.6	14.7	12.4	9.7	7.7	12.5
8 p. m.	17.4	19.8	22.9	25.8	27.6	25.2	22.8	22.2	21.6	20.6	18.8	16.9	21.8
8, 8	12.2	14.2	17.0	19.8	21.8	21.2	19.5	18.9	18.2	16.5	14.2	12.3	17.1
7, 2, 9	13.6	15.5	18.7	21.5	22.9	22.4	20.7	20.4	19.7	18.3	16.2	14.0	18.7
Manzanillo:													
8 a. m.	21.4	21.2	21.6	22.8	24.7	26.4	26.4	25.6	25.6	25.2	23.9	22.3	23.9
8 p. m.	23.9	23.8	24.2	25.6	27.2	28.8	29.1	28.7	28.1	27.6	26.5	24.9	26.5
8, 8	22.6	22.5	22.9	24.2	26.0	27.6	27.6	27.2	26.8	26.4	25.2	23.6	25.2
7, 2, 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mascota:													
8 a. m.	11.5	11.4	12.8	14.9	17.3	19.4	19.1	18.3	18.1	17.0	14.3	12.2	15.5
8 p. m.	19.4	19.8	20.9	22.5	24.0	25.0	23.8	22.2	21.5	21.0	20.0	19.2	21.6
8, 8	15.4	15.6	16.8	18.7	20.6	22.2	21.2	20.2	19.8	19.0	17.2	15.7	18.5
7, 2, 9	16.6	16.6	18.0	19.7	21.4	22.8	21.8	20.4	20.2	19.8	18.2	17.4	19.4
Maxcanu:													
8 a. m.	17.1	18.1	20.3	22.2	23.8	24.3	23.4	23.3	23.2	21.7	19.6	17.8	21.2
8 p. m.	23.5	25.2	27.5	29.2	29.7	27.9	27.3	27.4	27.0	26.0	24.8	23.5	26.6
8, 8	20.3	21.6	23.9	25.7	26.8	26.1	25.4	25.4	25.1	23.8	22.2	20.6	23.9
7, 2, 9	22.1	23.4	25.6	27.5	28.7	27.9	27.0	27.0	26.4	25.3	23.5	22.3	25.6
Mazatlan:													
8 a. m.	19.2	18.8	19.6	20.7	23.0	26.0	26.6	26.7	26.6	25.4	22.5	20.1	22.9
8 p. m.	22.1	21.6	22.7	23.9	25.6	28.1	29.0	29.3	29.3	28.5	25.4	22.8	25.7
8, 8	20.6	20.2	21.2	22.3	24.3	27.0	27.8	28.0	28.0	27.0	24.0	21.4	24.3
7, 2, 9	21.0	20.6	21.6	22.8	24.8	27.5	28.3	28.4	28.3	27.2	24.4	21.6	24.7
Merida:													
8 a. m.	18.2	19.2	21.1	23.1	25.0	25.2	24.7	24.6	24.4	23.1	21.0	19.4	22.4
8 p. m.	22.8	24.0	25.5	27.8	28.6	27.4	26.8	26.8	26.7	25.8	24.6	23.4	25.9
8, 8	20.5	21.6	23.8	25.4	26.8	26.3	25.8	25.7	25.6	24.4	22.8	21.4	24.2
7, 2, 9	22.3	23.1	25.1	27.1	28.4	27.7	27.0	27.0	26.9	26.0	24.3	22.9	25.6
Mexico:													
8 a. m.	6.3	8.1	9.7	12.1	13.7	13.9	13.4	13.3	12.9	11.3	9.5	7.4	11.0
8 p. m.	15.0	17.0	18.7	20.1	19.9	18.9	17.3	17.6	17.4	16.9	16.0	14.5	17.4
8, 8	10.6	12.6	14.2	16.1	16.8	16.4	15.4	15.4	15.2	14.1	12.8	11.0	14.2
7, 2, 9	11.9	13.8	16.0	17.9	18.5	18.2	17.2	17.1	16.6	15.1	14.1	12.4	15.7
Monterrey:													
8 a. m.	10.8	11.6	15.4	18.2	20.9	22.9	23.0	22.8	21.4	17.9	14.3	11.3	17.5
8 p. m.	17.0	18.9	22.8	25.6	30.8	31.0	30.5	30.9	27.6	23.1	19.1	17.3	24.5
8, 8	13.9	15.2	19.1	21.9	25.8	27.0	26.8	26.8	24.5	20.5	16.7	14.3	21.0
7, 2, 9	14.9	16.1	20.2	22.9	26.3	28.0	27.8	28.1	25.8	21.6	17.3	14.5	22.0
Morelia, Obs:													
8 a. m.	7.6	8.9	11.3	13.4	15.1	15.8	15.0	14.6	14.4	12.7	10.6	8.7	12.3
8 p. m.	16.3	18.9	20.9	22.6	22.5	20.8	19.3	18.7	18.5	17.9	17.0	16.1	19.1
8, 8	12.4	13.9	16.1	18.0	18.8	18.3	17.2	16.6	16.4	15.3	13.8	12.4	15.8
7, 2, 9	13.8	15.1	17.4	19.6	20.2	19.2	18.2	18.0	17.6	16.8	15.4	13.9	17.1
Morelia, Sem:													
8 a. m.	6.2	7.5	9.7	12.0	13.8	14.6	13.7	13.5	13.2	11.2	9.4	7.4	11.0
8 p. m.	16.9	18.7	20.4	21.6	21.7	20.5	19.2	18.4	18.2	18.0	17.5	16.9	19.0
8, 8	11.6	13.1	15.0	16.8	17.8	17.6	16.4	16.0	15.7	14.6	13.4	12.2	15.0
7, 2, 9	13.0	14.4	16.7	18.6	19.6	18.9	17.5	17.0	16.6	15.9	14.6	13.3	16.3
Oaxaca:													
8 a. m.	9.8	10.6	12.6	15.7	17.7	17.4	16.2	16.0	15.7	14.8	12.9	10.2	14.1
8 p. m.	19.2	21.4	23.3	24.4	23.0	21.6	21.4	21.3	20.7	20.2	19.8	19.4	21.3
8, 8	14.5	16.0	18.0	20.0	20.4	19.5	18.8	18.6	18.2	17.5	16.4	14.8	17.7
7, 2, 9	16.5	18.2	20.4	22.4	22.2	21.0	20.4	20.4	20.0	19.5	18.6	17.3	19.7
Ojinaga:													
8 a. m.	6.7	8.4	11.5	15.3	19.4	24.0	25.7	25.7	22.0	15.0	9.2	6.2	15.8
8 p. m.	16.4	18.7	24.0	27.5	31.0	34.2	33.2	32.5	29.1	24.6	19.3	14.4	25.4
8, 8	11.6	13.6	17.8	21.4	25.2	29.1	29.4	29.1	25.6	19.8	14.2	10.3	20.6
7, 2, 9	15.0	16.6	20.6	24.4	28.4	30.8	30.5	30.2	27.6	22.7	17.5	13.8	23.2
Pachuca:													
8 a. m.	7.1	8.0	9.6	11.5	13.2	13.1	12.5	12.3	11.8	10.9	9.3	7.6	10.6
8 p. m.	12.1	13.5	14.9	16.2	16.7	16.1	15.4	15.0	15.0	14.8	13.5	12.0	14.6
8, 8	9.6	10.8	12.2	13.8	15.0	14.6	14.0	13.6	13.4	12.8	11.4	9.8	12.6
7, 2, 9	12.4	14.1	16.0	17.3	17.3	16.4	15.6	15.2	15.2	14.9	13.5	12.5	15.0
Parral:													
8 a. m.	3.7	5.4	8.5	11.6	15.1	17.6	17.0	16.2	14.6	10.5	6.0	2.9	10.8
8 p. m.	14.7	16.1	19.0	22.6	28.0	26.2	24.1	23.1	21.4	19.2	16.0	14.6	20.4
8, 8	9.2	10.8	13.8	17.1	21.6	21.9	20.6	19.6	18.0	14.8	11.0	8.8	15.6
7, 2, 9	11.0	13.0	15.5	18.5	22.6	23.4	22.2	21.4	19.6	16.8	13.0	10.0	17.2
Peto:													
8 a. m.	15.8	17.0	18.9	21.0	23.1	23.9	22.9	23.1	22.5	20.9	18.9	17.0	20.4
8 p. m.	22.9	24.8	27.3	28.6	28.7	27.0	26.3	26.2	26.0	25.2	23.8	22.9	25.8
8, 8	19.4	20.9	23.1	24.8	25.9	25.4	24.6	24.6	24.2	23.1	21.4	19.9	23.1
7, 2, 9	21.9	23.1	25.3	27.3	28.2	27.6	26.5	26.1	25.7	24.7	23.2	22.1	25.1
Piedras Negras:													
8 a. m.	8.0	9.7	14.2	16.9	21.3	24.6	25.5	25.3	22.5	16.7	11.1	6.4	16.8
8 p. m.	15.7	18.2	23.4	26.1	29.8	33.7	32.4	33.8	30.4	24.8	18.0	14.2	25.0
8, 8	11.8	14.0	18.8	21.5	25.6	29.2	29.0	29.6	26.4	20.8	14.6	10.3	21.0
7, 2, 9	12.3	14.5	19.1	21.9	26.0	30.2	31.0	30.8	27.3	21.4	15.3	10.9	21.7
Pochutla:													
8 a. m.	19.1	20.0	21.1	22.7	24.3	23.8	22.4	22.7	27.0	22.6	20.6	19.4	21.8
8 p. m.	25.9	26.7	27.6	28.3	28.5	28.1	27.2	26.4	26.9	27.0	25.6	25.7	27.0
8, 8	22.5	23.4	24.4	25.5	26.4	26.0	24.8	24.6	25.0	24.8	23.6	22.6	24.5
7, 2, 9	24.3	25.2	26.6	27.9	27.8	27.0	26.6	26.7	26.4	26.0	25.3	24.5	26.2
Progreso:													
8 a. m.	19.5	19.9	21.3	23.0	24.8	25.6	25.3	25.2	25.4	24.8	22.6	20.5	23.2
8 p. m.	22.7	23.3	24.6	25.9	26.9	26.8	25.5	26.9	27.3	26.6	25.1	23.6	25.4
8, 8	21.1	21.6	23.0	24.4	25.8	26.2	25.9	26.0	26.4	25.7	23.8	22.0	24.3
7, 2, 9	22.2	22.6	24.0	25.4	26.6	27.0	26.8	26.5	26.9	26.3	24.4	22.9	25.1
Puebla:													
8 a. m.	6.1	6.4	8.5	12.0	13.5	13.6	13.3	13.0	12.2	11.1	8.9	6.3	10.4
8 p. m.	14.5	16.5	18.2	19.5	19.2	18.2	17.3	17.3	16.9	16.5	15.9	15.0	17.1
8, 8	10.3	11.4	13.4	15.8	16.4	15.9	15.3	15.2	14.6	13.8	13.4	10.6	13.8
7, 2, 9	12.3	13.3	15.5	17.5	18.0	17.0	16.6	16.7	16.2	15.6	14.2	12.5	15.4
Queretaro:													
8 a. m.	7.4	8.8	11.2	13.7	15.6	15.7	14.9	14.4	13.8	13.4	10.1	8.2	12.3
8 p. m.	17.0	18.6	22.0	23.7	24.0	22.8	21.3	20.8	20.1	19.2	18.1	16.8	20.4
8, 8	12.2	13.7	16.6	18.7	19.8	19.2	18.1	17.6	17.0	15.8	14.1	12.5	16.3
7, 2, 9	13.6	15.2	17.8	20.2	21.3	20.6	19.6	19.2	18.6	17.4	15.8	14.1	17.8

TABLE 3.—*Monthly and annual mean temperatures (°C.) reduced to the epoch 1901-1910*—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Rio Bravo:													
8 a. m.	12.9	14.6	17.5	20.4	23.6	26.7	25.4	25.4	23.4	19.9	15.4	12.2	19.8
8 p. m.	16.8	18.5	23.2	26.0	29.4	31.9	30.3	30.2	28.5	26.1	20.4	17.5	24.9
8, 8.	14.8	16.6	20.4	23.2	26.5	29.3	27.8	27.8	26.0	23.0	17.9	14.8	22.3
7, 2, 9.	15.4	16.9	20.8	23.6	26.9	29.7	28.7	29.2	27.1	24.1	18.9	15.6	23.1
Salina Cruz:													
8 a. m.	22.8	23.0	23.7	25.0	26.2	25.7	25.2	25.2	25.2	25.0	24.1	22.9	24.5
8 p. m.	25.1	25.9	27.6	28.9	29.2	28.7	28.8	29.0	28.7	27.8	26.8	25.7	27.7
8, 8.	24.0	24.4	25.6	27.0	27.7	27.2	27.1	27.2	27.0	26.4	25.4	24.3	26.1
7, 2, 9.	24.8	25.4	26.7	27.9	28.3	27.7	27.7	28.0	27.8	27.1	26.1	25.1	26.9
Saltillo:													
8 a. m.	8.4	9.8	12.3	15.4	17.9	19.4	18.4	18.0	15.8	13.5	10.8	7.9	14.0
8 p. m.	13.3	15.9	18.8	21.6	24.7	26.8	25.3	24.9	21.9	18.6	15.4	12.5	20.0
8, 8.	10.8	12.8	15.6	18.5	21.3	23.1	21.9	21.4	18.8	16.0	13.1	10.2	17.0
7, 2, 9.	11.7	14.0	16.9	19.5	22.5	23.7	22.1	22.2	19.9	16.7	13.6	11.1	17.8
San Cristobal:													
8 a. m.	6.4	6.6	8.5	10.4	11.9	13.1	12.3	12.0	12.7	12.5	10.6	8.2	10.4
8 p. m.	13.2	15.1	16.6	17.4	17.6	16.4	15.7	15.4	15.4	15.4	15.0	13.5	15.6
8, 8.	9.8	10.8	12.6	13.9	14.7	14.8	14.0	13.7	14.0	14.0	12.8	10.8	13.0
7, 2, 9.	11.3	12.4	13.8	14.2	16.4	15.8	15.0	14.8	15.0	14.9	14.0	12.1	14.1
San Juan Bautista:													
8 a. m.	21.5	22.4	24.6	26.5	28.2	27.3	27.0	27.1	26.4	25.2	24.0	22.4	25.2
8 p. m.	23.2	24.2	26.5	28.5	29.9	29.1	29.0	28.7	28.0	26.6	24.9	23.5	26.8
8, 8.	22.4	23.3	25.6	27.5	29.0	28.2	28.0	27.9	27.2	25.9	24.4	23.0	26.0
7, 2, 9.	22.6	23.4	25.6	27.6	29.0	28.4	28.5	28.2	27.5	26.0	24.4	23.1	26.2
San Luis Potosi:													
8 a. m.	7.6	9.5	12.2	15.0	17.0	17.0	16.8	16.3	15.4	13.0	11.1	9.1	13.3
8 p. m.	12.0	15.1	18.2	21.3	22.6	22.1	20.5	20.6	19.6	17.4	15.5	13.8	18.2
8, 8.	9.8	12.3	15.2	18.2	19.8	19.6	18.6	18.4	17.5	15.2	13.3	11.4	15.8
7, 2, 9.	11.4	13.3	16.1	19.0	20.7	21.0	19.2	19.3	18.6	16.4	14.7	13.0	16.9
Sierra Mojada:													
8 a. m.	9.8	10.6	14.1	16.5	19.5	20.4	21.5	21.0	18.9	15.3	12.2	9.7	15.8
8 p. m.	14.9	17.5	21.0	24.0	27.1	29.7	26.7	26.2	23.5	20.2	16.6	13.0	21.7
8, 8.	12.4	14.0	17.6	20.2	23.3	25.0	24.1	23.6	21.2	17.8	14.4	11.4	18.8
7, 2, 9.	13.2	14.9	18.2	21.0	24.3	25.6	24.8	24.2	21.8	18.4	14.6	12.0	19.4
Silacayoapan:													
8 a. m.	9.4	10.8	12.8	14.6	16.1	16.5	15.4	14.9	14.6	13.6	11.9	10.7	13.4
8 p. m.	18.9	20.4	21.9	22.9	22.3	21.3	20.3	20.2	20.3	20.5	19.6	18.0	20.6
8, 8.	14.2	15.6	17.4	18.8	19.2	18.9	17.8	17.6	17.4	17.0	15.8	14.4	17.0
7, 2, 9.	16.7	18.5	20.4	21.9	21.7	20.6	19.8	19.6	19.7	19.4	18.4	17.3	19.5
Tampico:													
8 a. m.	17.7	18.7	20.9	23.1	25.2	26.8	26.3	26.2	25.7	23.3	20.3	17.8	22.7
8 p. m.	19.8	20.2	22.5	24.8	26.7	27.7	27.8	28.0	27.1	25.3	22.5	19.3	24.3
8, 8.	18.8	19.4	21.7	24.0	26.0	27.2	27.0	27.1	26.6	24.3	21.4	18.6	23.5
7, 2, 9.	19.6	20.1	22.8	25.2	27.1	28.0	27.9	27.4	27.4	24.9	22.1	19.4	24.3
Tapachula:													
8 a. m.	19.9	20.9	22.1	23.5	24.6	23.7	22.5	22.0	22.1	22.7	22.5	20.9	22.3
8 p. m.	25.2	26.8	28.1	28.4	27.2	26.1	25.4	24.7	24.4	25.5	26.6	26.1	26.2
8, 8.	22.6	23.8	25.1	26.0	25.9	24.9	24.0	23.4	23.2	24.1	24.6	23.5	24.3
7, 2, 9.	24.8	25.9	27.0	27.3	26.8	25.8	25.1	25.0	24.9	25.1	25.9	25.4	25.8
Teocaltiche:													
8 a. m.	5.5	6.6	9.5	12.3	15.2	16.7	16.2	15.4	14.6	12.1	7.8	6.0	11.5
8 p. m.	18.2	19.7	23.1	25.4	27.1	26.3	23.8	22.4	22.0	21.4	20.0	18.8	22.3
8, 8.	11.8	13.2	16.3	18.8	21.2	21.5	19.7	18.9	18.3	16.8	13.9	12.4	16.9
7, 2, 9.	13.4	14.8	17.7	20.4	22.6	22.9	21.0	20.2	19.9	18.4	15.2	13.5	18.3
Topic:													
8 a. m.	11.6	12.3	14.6	17.6	19.5	20.4	19.8	18.8	18.4	17.6	15.2	12.2	16.3
8 p. m.	17.3	18.7	21.0	23.0	24.6	25.3	24.2	22.7	22.4	22.2	20.9	18.2	21.7
8, 8.	14.4	15.5	17.8	20.3	22.0	22.8	22.0	20.8	20.4	19.9	18.0	15.2	19.1
7, 2, 9.	15.0	16.3	19.0	21.0	22.6	23.7	23.2	22.0	21.8	21.2	19.2	16.4	20.1
Tlaxcala:													
8 a. m.	6.0	7.1	8.9	11.9	13.6	13.6	13.2	12.5	11.8	11.2	9.2	7.1	10.5
8 p. m.	15.0	16.6	18.2	18.8	18.8	17.9	17.2	17.2	17.2	16.7	15.7	15.0	17.0
8, 8.	10.5	11.8	13.6	15.4	16.2	15.8	15.2	14.8	14.5	14.0	12.4	11.0	13.8
7, 2, 9.	12.4	13.9	16.1	17.8	18.3	17.4	16.7	16.6	16.6	16.1	14.6	13.0	15.8
Toluca:													
8 a. m.	2.5	3.4	6.2	9.1	10.7	11.1	10.8	10.3	10.0	8.3	5.5	3.7	7.6
8 p. m.	11.4	12.9	14.9	16.4	16.4	15.6	14.5	14.5	13.8	13.2	12.4	11.4	14.0
8, 8.	7.0	8.2	10.6	12.8	13.6	13.4	12.6	12.4	11.9	10.8	9.0	7.6	10.8
7, 2, 9.	8.9	10.3	12.4	14.5	15.6	15.2	14.1	14.0	13.5	12.5	10.9	9.4	12.6
Torreon:													
8 a. m.	8.7	10.2	14.0	17.3	19.7	22.1	22.1	22.0	19.9	15.5	12.2	8.6	16.0
8 p. m.	18.7	20.7	24.9	27.7	29.6	30.9	30.0	30.0	27.3	24.1	20.9	17.7	25.3
8, 8.	13.7	15.4	19.4	22.4	24.6	26.5	26.0	26.0	23.6	20.3	16.6	13.2	20.6
7, 2, 9.	13.9	15.7	19.8	22.8	25.2	26.8	26.4	26.8	24.3	20.6	16.8	13.3	21.0
Tuxtepec:													
8 a. m.	18.0	18.9	20.5	23.1	24.8	24.9	23.7	23.8	23.8	23.1	21.4	19.5	22.1
8 p. m.	21.8	23.0	25.7	28.4	29.6	28.8	27.8	27.4	26.8	24.8	22.8	22.0	25.7
8, 8.	19.9	21.0	23.1	25.8	27.2	26.8	25.8	25.6	25.3	24.0	22.1	20.8	24.0
7, 2, 9.	21.1	22.0	24.3	26.8	28.3	27.5	26.4	26.3	26.2	25.0	23.3	21.7	24.9
Tuxtla Gutierrez:													
8 a. m.	17.5	18.2	19.6	22.3	23.5	23.4	22.4	22.1	22.2	21.6	20.1	18.5	21.0
8 p. m.	22.4	24.1	25.8	27.2	27.6	26.8	26.0	25.7	26.0	24.7	23.6	22.8	25.2
8, 8.	20.0	21.2	22.7	24.8	25.6	25.1	24.2	23.9	24.1	23.2	21.8	20.6	23.1
7, 2, 9.	21.3	22.6	24.0	25.9	27.2	26.5	25.4	25.1	25.5	24.2	23.0	21.9	24.4
Ulua:													
8 a. m.	19.4	19.9	21.6	23.6	25.4	25.6	25.3	24.8	24.4	23.5	21.9	20.0	23.0
8 p. m.	22.0	22.2	23.9	25.8	27.1	27.9	28.1	28.2	27.6	26.6	24.7	22.6	25.6
8, 8.	20.7	21.0	22.8	24.7	26.2	26.8	26.7	26.5	26.0	25.0	23.2	21.3	24.2
7, 2, 9.	21.2	21.6	23.4	25.3	26.5	27.0	26.9	27.0	26.5	25.4	23.6	21.6	24.7
Valladolid:													
8 a. m.	17.2	18.3	20.9	22.8	24.3	25.0	25.1	24.8	24.0	22.0	19.9	18.4	21.9
8 p. m.	22.0	23.3	25.5	26.8	27.0	26.2	25.9	25.8	25.5	24.7	23.3	22.2	24.7
8, 8.	19.6	20.8	23.2	24.8	25.6	25.6	25.5	25.3	24.8	23.4	21.6	20.3	23.4
7, 2, 9.	21.7	22.6	24.4	26.1	27.2	26.8	26.3	26.2	26.1	25.1	23.5	22.2	24.8
Valle de Bravo:													
8 a. m.	7.8	8.5	11.0	13.4	15.6	15.8	14.5	14.1	13.7	12.6	11.1	9.3	12.3
8 p. m.	16.1	17.3	20.0	22.2	22.7	20.7	19.2	18.3	18.0	17.8	17.5	16.5	18.9
8, 8.	12.0	12.9	15.5	17.8	19.2	18.2	16.8	16.2	15.8	15.2	14.3	12.9	15.6
7, 2, 9.	13.2	14.5	16.9	18.7	19.7	18.7	17.5	16.9	16.7	16.2	15.2	13.8	16.5

TABLE 3.—*Monthly and annual mean temperatures (°C.) reduced to the epoch 1901-1910*—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Vigia Chico:													
8 a. m.	21.0	22.2	23.7	24.7	25.2	25.4	25.6	26.0	25.6	24.1	22.7	21.3	24.0
8 p. m.	22.8	24.0	25.2	26.0	27.2	27.7	27.3	27.0	26.7	26.3	25.0	23.5	25.7
8, 8.	21.9	23.1	24.4	25.4	26.2	26.6	26.4	26.5	26.2	25.2	23.8	22.4	24.8
7, 2, 9.	22.2	23.5	24.6	25.6	26.5	27.2	27.3	27.4	27.2	25.8	24.2	22.7	25.4
Xkalak:													
8 a. m.	22.5	23.0	24.0	25.3	26.3	26.5	26.5	25.4	25.5	24.2	23.2	22.7	24.6
8 p. m.	23.4	24.0	25.2	26.2	27.0	27.4	27.4	27.2	26.5	25.4	20.4	23.7	25.3
8, 8.	23.0	23.5	24.6	25.8	26.6	27.0	27.0	26.8	26.0	24.8	23.8	23.2	25.2
7, 2, 9.	23.9	24.5	25.7	26.8	27.8	28.1	28.1	28.0	27.5	26.4	25.1	24.3	26.4
Zacatecas, Inst.:													
8 a. m.	5.7	6.7	8.9	11.3	13.3	13.2	12.1	12.3	11.4	9.5	7.7	6.2	9.9
8 p. m.	12.2	11.0	16.7	19.3	20.9	20.2	17.6	17.6	16.6	15.4	14.2	13.1	16.5
8, 8.	9.0	10.4	12.8	15.3	17.1	16.7	14.8	15.0	14.0	12.4	11.0	9.6	13.2
7, 2, 9.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zacatecas, Bufa:													
8 a. m.	7.5	8.4	9.7	11.1	12.4	12.9	11.8	11.8	10.7	9.3	8.5	8.0	10.2
8 p. m.	12.2	13.3	16.2	18.5	19.6	18.9	17.3	17.2	16.2	15.0	13.9	12.9	15.9
8, 8.	9.8	10.8	13.0	14.8	16.0	15.9	14.6	14.5	13.4	12.2	11.2	10.4	13.0
7, 2, 9.	10.2	11.2	13.6	16.0	17.6	17.3	16.2	16.2	15.1	13.9	12.6	11.2	14.4
Zacualtipan:													
8 a. m.	7.0	7.6	8.9	11.5	13.6	13.4	12.9	12.6	12.0	10.5	8.9	7.6	10.5
8 p. m.	9.3	10.9	12.7	15.0	16.6	16.4	15.7	15.6	14.9	13.4	11.6	10.1	13.5
8, 8.	8.7	9.2	10.8	13.2	15.1	14.9	14.3	14.1	13.4	12.0	10.2	8.8	12.1
7, 2, 9.	8.9	10.2	12.4	14.7	16.1	15.7	15.2	15.0	14.5	12.8	10.9	9.4	13.0

TABLE 4.—*Temperature changes from month to month, 7, 2, 9 system (°C.).*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Ahualulco	−0.1	1.0	2.4	2.7	1.6	−0.8	−0.8	−0.4	−0.1	−0.9	−2.9	−1.7
Autlan	−0.3	0.7	1.9	2.3	1.3	0.1	−1.5	−1.4	−0.2	−0.5	−1.3	−1.1
C. Guzman	−0.1	1.3	2.3	2.0	0.8	−0.8	−1.1	−0.3	0.0	−0.4	−2.0	−1.7
C. Juarez	0.7	2.7	3.9	4.2	5.2	3.7	1.0	−1.5	−3.9	−5.9	−5.9	−4.2
C. Victoria	0.0	1.8	3.8	3.2	2.2	1.3	−0.8	1.1	−1.8	−4.0	−4.1	−2.7
Colima	−0.1	0.5	1.3	1.2	1.4	−0.2	−1.1	−0.2	−0.1	−0.3	−0.8	−1.6
Colotlan	0.4	2.3	3.0	2.2	2.0	1.2	−2.1	−0.8	−0.4	−1.3	−4.3	−3.2
Comitan	−0.2	1.1	1.5	1.3	1.0	−0.8	−1.2	0.0	0.4	−0.8	−1.4	−0.9
Cuernavaca	0.1	1.2	2.0	2.0	−0.5	−1.6	−1.0	−0.4	−0.1	0.1	−0.6	−1.2
Culiacan	0.5	0.0	1.8	2.1	2.4	2.7	−0.3	−0.8	−0.3	−1.7	−3.3	−3.1
Chignahuapan	−0.7	1.3	2.0	2.5	1.3	−0.5	−0.6	−0.1	−0.6	−1.6	−1.7	−1.3
Chihuahua	0.9	1.3	4.0	3.8	4.6	1.7	−1.4	−0.8	−2.0	−3.6	−5.3	−3.2
Durango	−0.5	1.7	3.2	2.0	1.8	1.4	−1.0	−1.1	−1.4	−1.7	−2.5	−1.9
Fuerte	0.7	0.0	3.0	2.4	3.4	3.2	−1.0	−1.3	−0.3	−2.6	−4.3	−3.2
Guadalajara	−0.4	1.6	2.3	2.6	1.4	−0.5	−1.3	−0.7	−0.3	−0.9	−1.8	−2.0
Guanajuato	−0.4	1.5	2.7	2.7	0.8	−1.1	−1.3	−0.2	−0.2	−1.1	−1.7	−1.7
Guaymas	1.1	−0.5	2.3	2.4	2.8	2.8	1.4	0.0	−0.8	−2.4	−5.4	−3.7
Hermosillo	1.0	−0.3	2.7	2.9	3.2	4.1	1.0	−0.5	−0.8	−4.1	−5.1	−4.1
Huejutla	−0.8	0.9	3.3	2.9	1.6	0.6	−0.7	−0.3	−1.0	−2.3	−2.5	−1.7
Isla Mujeres	−0.4	0.3	1.1	0.4	1.4	0.2	0.2	0.2	−0.3	−1.2	−1.3	−0.6
Izamal	−0.6	1.1	2.3	2.0	1.1	−0.9	−1.0	−0.3	−0.1	−0.5	−1.8	−1.3
Jalapa	−0.7	1.0	2.2	2.4	0.8	−1.0	−0.4	0.0	−0.5	−1.0	−1.4	−1.4
La Barca	−0.6	1.5	2.9	2.7	1.6	−0.6	−1.9	−0.5	−0.2	−1.0	−1.7	−2.2
Lagos	−0.5	1.3	2.8	2.2	1.5	0.5	−1.1	−0.4	−0.4	−1.1	−2.6	−2.2
Lampazos	0.0	1.4	4.3	3.3	3.7	2.7	0.3	0.7	−2.5	−5.4	−4.5	−4.0
Leon	−0.4	1.9	3.2	2.8	1.4	−0.5	−1.7	−0.3	−0.7	−1.4	−2.1	−2.2
Manzanillo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mascota	−0.8	0.0	1.4	1.7	1.7	1.4	−1.0	−1.4	−0.2	−0.4	−1.6	−0.8
Maxcanu	−0.2	1.3	2.2	1.9	1.2	−0.8	−0.9	0.0	−0.6	−1.1	−1.8	−1.2
Mazatlan	−0.6	−0.4	1.0	1.2	2.0	2.7	0.8	0.1	−0.1	−1.1	−2.8	−2.8
Merida	−0.6	0.8	2.0	2.0	1.3	−0.7	−0.7	0.0	−0.1	−0.9	−1.	−1.4
Mexico	−0.5	1.9	2.2	1.9	0.6	−0.3	−1.0	−0.1	−0.5	−1.5	−1.0	−1.7
Monterrey	−0.4	1.2	4.1	2.7	3.4	1.7	−0.2	0.3	−2.3	−4.2	−4.3	−2.8
Morelia, Obs.	−0.1	1.3	2.3	2.2	0.6	−1.0	−1.0	−0.2	−0.4	−0.8	−1.4	−1.5
Morelia, Sem.	−0.3	1.4	2.3	1.9	1.0	−0.7	−1.4	−0.5	−0.4	−0.7	−1.3	−1.3
Oaxaca	−0.8	1.7	2.2	2.0	−0.2	−1.2	−0.6	0.0	−0.4	−0.5	−0.9	−1.3
Ojinaga	1.2	1.6	4.0	3.8	4.0	2.4	−0.3	−0.3	−2.6	−4.9	−5.2	−3.7
Pachuca	−0.1	1.7	1.9	1.3	0.0	−0.9	−0.8	−0.4	0.0	−0.3	−1.4	−1.0
Parral	1.0	2.0	2.5	3.0	4.1	0.8	−1.2	−0.8	−1.8	−2.8	−3.8	−3.0
Peto	−0.2	1.2	2.2	2.0	0.9	−0.6	−1.1	−0.4	−0.4	−1.0	−1.5	−1.1
Piedras Negras	1.4	2.2	4.6	2.8	4.1	4.2	0.8	−0.2	−3.5	−5.9	−6.1	−4.4
Pochutla	−0.2	0.9	1.4	1.3	−0.1	−0.8	−0.4	0.1	−0.3	−0.4	−0.7	−0.8
Progreso	−0.7	0.4	1.4	1.4	1.2	0.4	−0.2	−0.3	0.4	−0.6	−1.9	−1.5
Puebla	−0.2	1.0	2.2	2.0	0.5	−1.0	−0.4	0.1	−0.5	−0.6	−1.4	−1.7
Queretaro	−0.5	1.6	2.8	2.4	1.1	−0.7	−1.0	−0.4	−0.6	−1.2	−1.6	−1.7
Rio Bravo	−0.2	1.5	3.9	2.8	3.3	2.8	−1.0	0.5	−2.1	−3.0	−5.2	−3.3
Salina Cruz	−0.3	0.6	1.3	1.2	0.4	−0.6	0.0	0.3	−0.2	−0.7	−1.0	−1.0
Saltillo	0.6	2.3	2.9	2.6	3.0	1.2	−1.6	0.1	−2.3	−3.2	−3.1	−2.5
San Cristobal	−0.8	1.1	1.4	0.4	2.2	−0.6	−0.8	−0.2	0.2	−0.1	−0.9	−1.9
S. Juan Bautista	−0.5	0.8	2.2	2.0	1.4	−0.6	0.1	−0.3	−0.7	−1.5	−1.6	−1.3
S. Luis Potosi	−1.6	1.9	2.8	2.9	1.7	0.3	−1.8	0.1	−0.7	−2.2	−1.7	−1.5
Sierra Mojada	1.2	1.7	3.3	2.8	3.3	1.3	−0.8	−0.6	−2.4	−3.4	−3.8	−3.5
Silacayoapan	−0.6	1.8	1.9	1.5	−0.2	−1.1	−0.8	−0.2	0.1	−0.3	−1.0	−1.7
Tapachula	−0.6	1.1	1.1	0.3	−0.5	−1.0	−0.7	−0.1	−0.1	0.2	0.8	−2.6
Tampico	0.2	0.5	2.7	2.4	1.9	0.9	−0.1	−0.5	0.0	−2.5	−2.8	−1.1
Teocaltiche	−0.1	1.4	2.9	2.7	2.2	0.3	−1.9	−0.8	−0.3	−1.5	−3.2	−0.5
Topic	−1.4	1.3	2.7	2.0	1.6	1.1	−0.5	−1.2	−0.2	−0.6	−2.0	−2.7
Tlaxcala	−0.6	1.5	2.2	1.7	0.5	−0.9	−0.7	−0.1	0.0	−0.5	−1.5	−1.7
Toluca	−0.5	1.4	2.1	2.1	1.1	−0.4	−1.1	−0.1	−0.5	−1.0	−1.6	−2.8
Torreon	0.6	1.8	4.1	3.0	2.4	1.6	−0.4	0.4	−2.5	−3.7	−3.8	−1.6

Fig. 3. Range in monthly means.

Fig. 4. Months of maximum and minimum temperature.

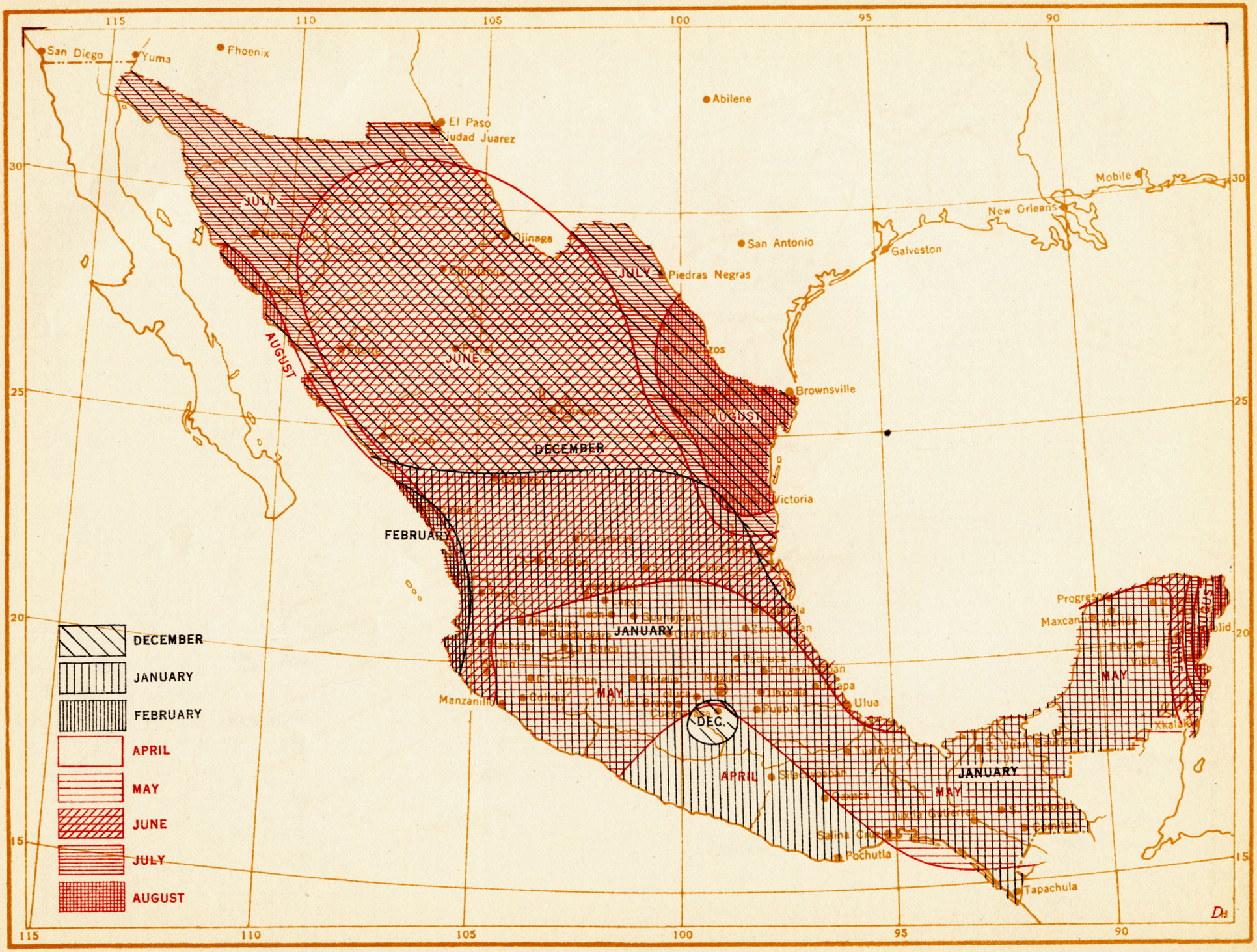

TABLE 4.—*Temperature changes from month to month, 7, 2, 9 system (°C.)*—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Tuxtepec	−0.6	0.9	2.3	2.5	1.5	−0.8	−1.1	−0.1	−0.1	−1.2	−1.7	−1.6
Tuxtla Gutierrez	−0.6	1.3	1.4	1.9	1.3	−0.7	−1.1	−0.3	0.4	−1.3	−1.2	−1.1
Ulua	−0.4	0.4	1.8	0.9	1.2	0.5	−0.1	0.1	−0.5	−1.1	−0.8	−2.0
Valladolid	−0.5	0.9	1.8	1.7	1.1	−0.4	−0.5	−0.1	−0.1	−1.0	−1.6	−1.3
Valle de Bravo	−0.6	1.3	2.4	1.8	1.0	−1.0	−1.2	−0.6	−0.2	−0.5	−1.0	−1.4
Vigia Chico	−0.5	1.3	1.1	1.0	0.9	0.7	0.1	0.1	−0.2	−1.4	−1.6	−2.5
Xkalak	−0.4	0.6	1.2	1.1	1.0	0.3	0.0	−0.1	−0.5	−1.1	−1.3	−0.8
Zacatecas, Inst	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zacatecas, Bufa	−1.0	1.0	2.4	2.4	1.6	−0.3	−1.1	0.0	−1.1	−1.2	−1.3	−1.4
Zacualtipan	−0.5	1.3	2.2	2.3	1.4	−0.4	−0.5	−0.2	−0.5	−1.7	−1.9	−1.5

TABLE 5.—*Months of maximum and minimum temperature (7, 2, 9 system), with amplitude in °C.*

Stations.	Max.	Min.	Amp.	Stations.	Max.	Min.	Amp.
Ahualulco	May	Jan.	7.7	Oaxaca	Apr.	Jan.	5.9
Autlan	June	do.	6.3	Ojinaga	June	Dec.	17.0
C. Guzman	May	do.	6.4	Pachuca	May	Jan.	4.9
C. Juarez	July	Dec.	21.4	Parral	June	Dec.	13.4
C. Victoria	Aug.	Dec.[1]	12.6	Peto	May	Jan.	6.3
Colima	May	Jan.	4.4	Piedras Negras	July	Dec.	20.1
Colotlan	June	Dec.	11.1	Pochutla	Apr.	Jan.	3.6
Comitan	May	Jan.	4.9	Progreso	June	do.	4.8
Cuernavaca	Apr.	Dec.	5.3	Puebla	May	do.	5.7
Culiacan	June	do.	9.5	Queretaro	do.	do.	7.7
Chihuahua	do.	do.	16.3	Rio Bravo	June	do.	14.3
Chignahuapan	May	Jan.	7.1	Salina Cruz	May	do.	3.5
Durango	June	do.	10.1	Saltillo	June	Dec.	12.6
Fuerte	do.	Dec.	12.7	S. Cristobal	May	Jan.	5.1
Guadalajara	May	Jan.	7.9	S. Juan Bautista	do.	do.	6.4
Guanajuato	do.	do.	7.7	S. Luis Potosi	June	do.	9.6
Guaymas	July[2]	Dec.	12.3	Sierra Mojada	do.	Dec.	13.6
Hermosillo	July	do.	14.6	Silacayoapan	Apr.	Jan.	5.2
Huejutla	June	Jan.	9.3	Tapachula	do.	do.	2.5
Isla Mujeres	Aug.	do.	3.8	Tampico	June	Dec.	8.6
Izamal	May	do.	6.5	Teocaltiche	do.	Jan.	9.5
Jalapa	do.	do.	6.4	Tepic	do.	do.	8.7
La Barca	do.	do.	8.7	Tlaxcala	May	do.	5.9
Lagos	June	do.	8.3	Toluca	do.	do.	6.7
Lampazos	Aug.	Dec.[1]	16.4	Torreon	June	Dec.	13.5
Leon	May	Dec.	9.3	Tuxtepec	May	Jan.	7.2
Manzanillo	.....	.....	.....	Tuxtla Gutierrez	do.	do.	5.9
Mascota	June	Jan.[3]	6.2	Ulua	June	do.	5.8
Maxcanu	May	Jan.	6.6	Valladolid	May	do.	5.5
Mazatlan	Aug.	Feb.	7.8	Valle de Bravo	do.	do.	6.5
Merida	May	Jan.	6.1	Vigia Chico	Aug.	do.	5.2
Mexico	do.	do.	6.6	Xkalak	July	do.	4.2
Monterrey	Aug.	Dec.	13.6	Zacatecas, Inst	.....	.....	.....
Morelia, Obs	May	Jan.	6.4	Zacatecas, Bufa	May	Jan.	7.4
Morelia, Sem	do.	do.	6.6	Zacualtipan	do.	do.	7.2

[1] January also. [2] August also. [3] February also.

Range in monthly means.—The range or amplitude in the monthly means is graphically shown in Figure 3. It is greatest in the State of Chihuahua, where it amounts to 22° C. as may be seen from the figure; it diminishes thence toward the equator, amounting to but 6° C. in the Isthmus of Tehuantepec and elsewhere in the south.

With advance from the northern frontier toward lower latitudes the annual variation in temperature undergoes continual change that ultimately results in types of variation peculiar to tropical regions. In summer the variations from month to month are at first quite small. Later they not only become zero but change in sign to negative, with temperature fall toward the middle of the year that is more considerable the lower the latitude, until at the most southern stations there is clearly defined two maxima and two minima.

Time of occurrence of annual maximum and minimum.—These data are graphically shown in Figure 4 and the tabular values appear in Table 5.

Months of maximum and minimum temperature.—In all parts of Mexico south of the Tropic of Cancer the sun must be in the zenith twice each year; therefore a rapid rise in temperature is to be expected as the sun approaches and crosses the zenith at any place. The months of maximum temperature in southern Mexico are April and May; north of the tropic the maximum is reached in by far the greater part of the area in June, and in certain limited areas in July and August, as may be seen from Figure 4.

The delay in reaching the annual maximum until August is due to a climatic condition peculiar to certain portions of Mexico. The author discusses this condition rather fully under the term "perturbacion de verano," which we have freely translated as "summer temperature anomaly." The regions where the summer temperature anomaly prevails are shown in Figure 4, the chief one being in northeastern Mexico (see the region marked "August"); a similar though less marked region appears on the northwest coast. In these regions the first maximum occurs in June, but in July, on account of the cloudy rainy weather that prevails, the temperature falls as compared with the preceding month but rises somewhat in August slightly exceeding the June temperatures, and thus the maximum falls in August rather than in June or July.

In general it may be said that in Mexico between latitudes 16° and 23° north, the maximum is recorded in one of the six months, from April to September. A curious fact in connection with the occurrence of the maximum in the peninsula of Yucatan is that, notwithstanding the small extent of this territory and absence of the influence of altitude, the maximum advances from west to east; that is, from the Gulf of Mexico to the Caribbean Sea.

The annual minimum.—After August the temperature falls progressively until December or January, except at stations having an equatorial thermal regimen. On the coasts of Sinaloa and Jalisco there is a small region where the annual minimum tends to occur in February, but the territory as a whole may be divided into two great regions, in the first of which the minimum occurs in December and in the second in January as shown in Figure 4.

SURFACE ISOTHERMS.

From the monthly means derived from the 7, 2, 9 system surface isotherms have been drawn for each month and the year, as shown in Figures 5 to 17.

This series of charts clearly shows that elevation and distance from the sea are the dominant factors in the temperature regimen of the Republic. The several monthly charts enable one to closely follow the course of the monthly means throughout the year. The areas shaded in red are coextensive with regions having monthly means below 20° C. (59° F.) and by noting the decrease in the area of red shading and the increase in the area without shading-monthly means in excess of 20° C., one gets a very accurate picture of the month to month variations in mean temperature.

On the annual chart, Figure 17, the region of highest temperature is found in the Isthmus of Tehuantepec and in other places in southern Mexico, including the peninsula of Yucatan. The greatest cold is experienced in the elevated regions of the *Mesa del Norte* as at Zacatecas; in the *Mesa Central;* Toluca, also in Chiapas at San Cristobal. The author remarks that there are other places that are hotter and those that are colder for which no data are available. In these cases, however, local conditions are the influences producing such extremes.

Comparing these extremes in annual means with those experienced in the United States it may be remarked that the annual mean temperature of Key West, Fla., approaches most nearly to the high annual means for points in southern Mexico.

Places in the United States having annual means close to those experienced on the high plateau of Mexico will be found along and near to the 38th parallel of North Latitude, but naturally similar annual means do not signify a similar temperature regime throughout the year.

Midwinter mean temperatures in Mexico.—The small table below presents statistics of January monthly means in the cold zone of Mexico (arranged from south to north):

Station.	N. Lat.	Alt.	January mean.	
	°	m.	C.	F.
San Cristobal	16.7	2,118	11.3	52.3
Toluca	19.3	2,676	8.9	48.0
Zacatecas (Bufa)	22.6	2,611	10.2	50.3
C. Juarez	31.7	1,134	6.9	44.4

In the maritime region the temperature remains above 26° C. (78.8° F.) and north of 22 degrees and in parts of Tabasco and Quintana Roo it continues above 28° C. (82.4° F.).

In August the conditions are but little changed.

September marks the beginning of a fall in temperature, particularly in the central and eastern part of the country and on the high plain and Chiapas.

By October a general fall in temperature takes place and the isotherms of this month bear a striking resemblance to the annual curves.

The winter isotherms of 10° C. (50° F.) appears in December in the northern region and indeed a minimum of 6° C. (42.8° F.) appears in the vicinity of Ciudad Jaurez.

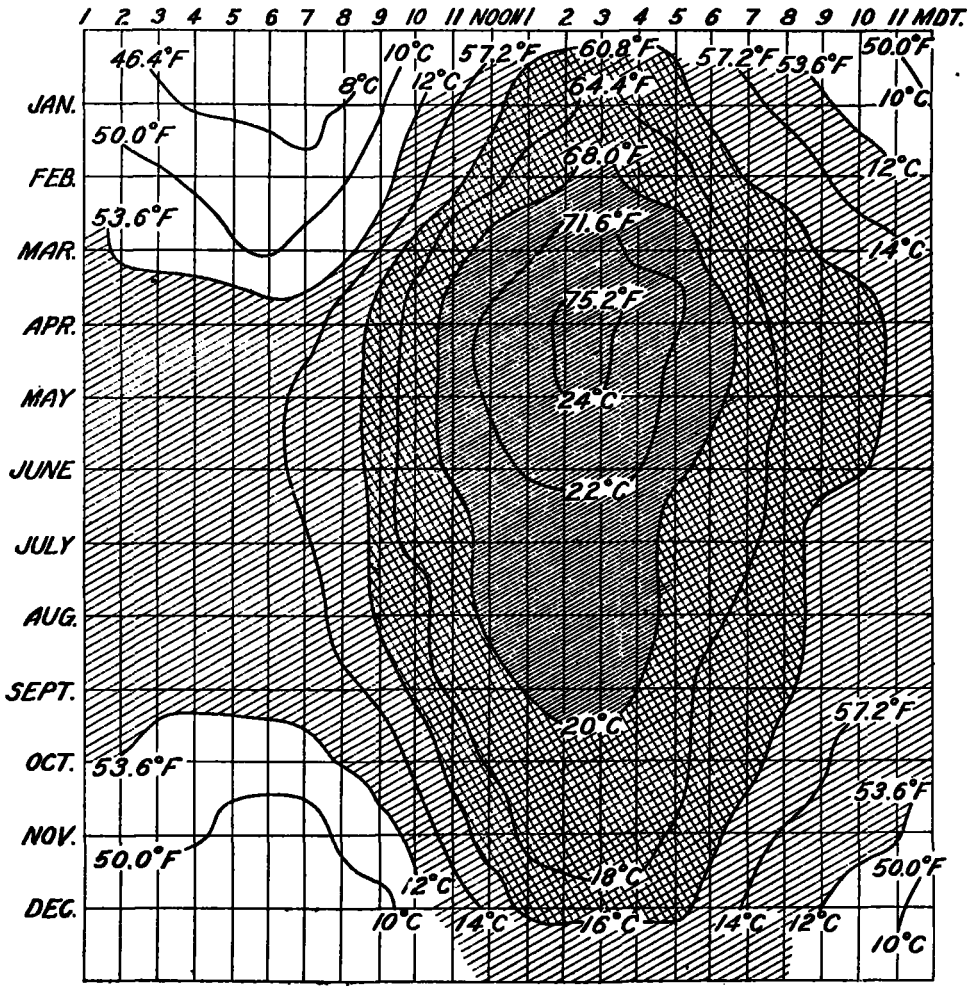

FIG. 13.—Isopleth, City of Mexico

The last named is an example of extreme continentality.

By March mean temperatures below 10° C. (50° F.) disappear and by May, the month of maximum temperature in the cold zone, the temperatures are above 20° C. everywhere except in limited portions of the *Mesa del Norte*, the *Mesa Central*, and Chiapas.

In July the temperature has begun to fall noticeably in different regions; in all of the high plain (*mesata*) temperatures are below 20° C (68° F.), and in the northern and northwestern parts of the country the isotherm of 30° remains.

PART II. TEMPERATURE VARIATIONS IN THE CITY OF MEXICO.

Special importance attaches to the records of hourly temperature made at the central office of the *Servicio Meteorologico* of the Republic of Mexico in the city of Mexico.

The City of Mexico, situated in the valley of the same name, has the following geographic coordinates: Latitude, 19° 26′ 4″ N., longitude, 99° 11′ 25″ W. The elevation above sea level is 2,240 meters (7,349 feet). The observatory, removed in 1916 to the city of Tacabaya, was located from the beginning on the grounds of the *Palacio*

Fig. 5. Surface isotherms (°C.), January (7+2+9)/3.

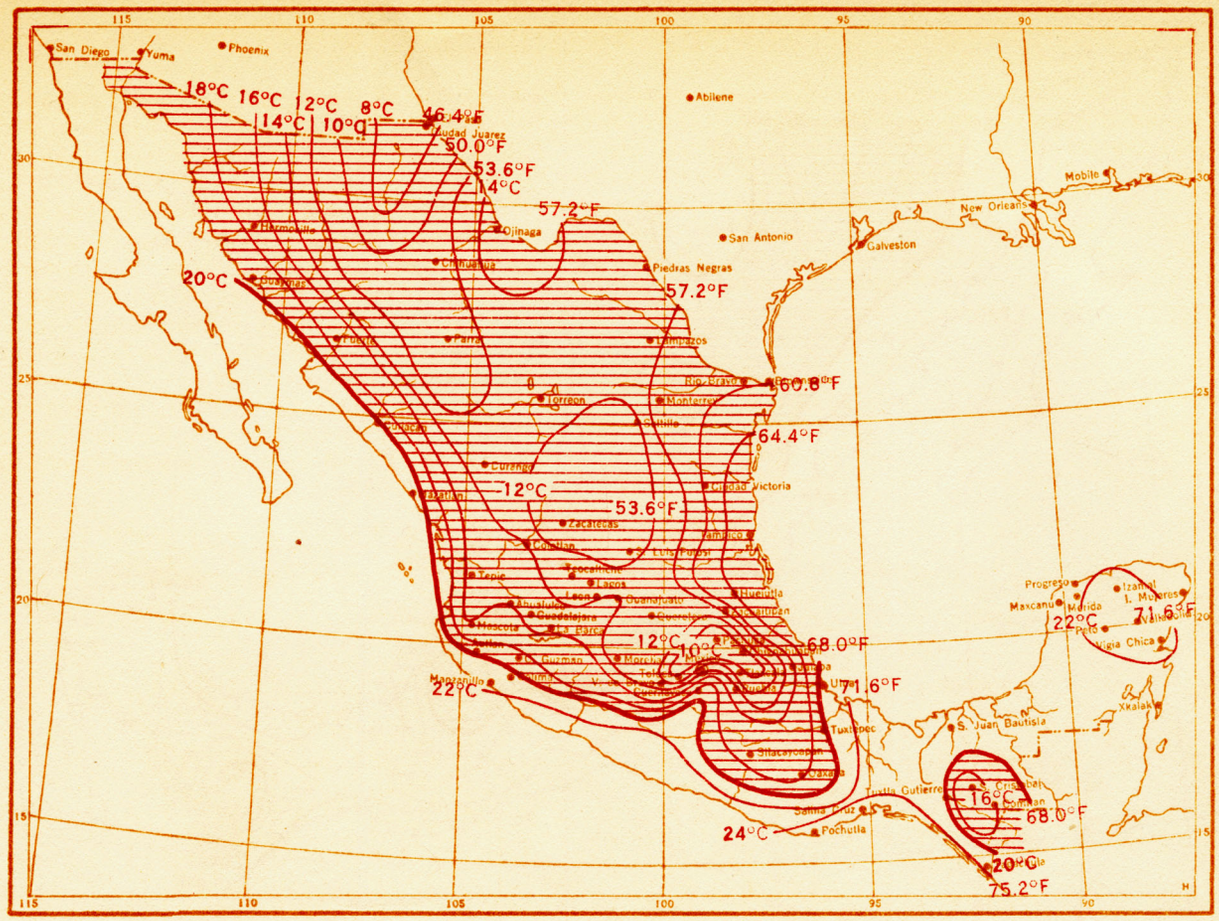

Fig. 6. Surface isotherms (°C.), February (7+2+9)/3.

Fig. 7. Surface isotherms (°C.), March (7+2+9)/3.

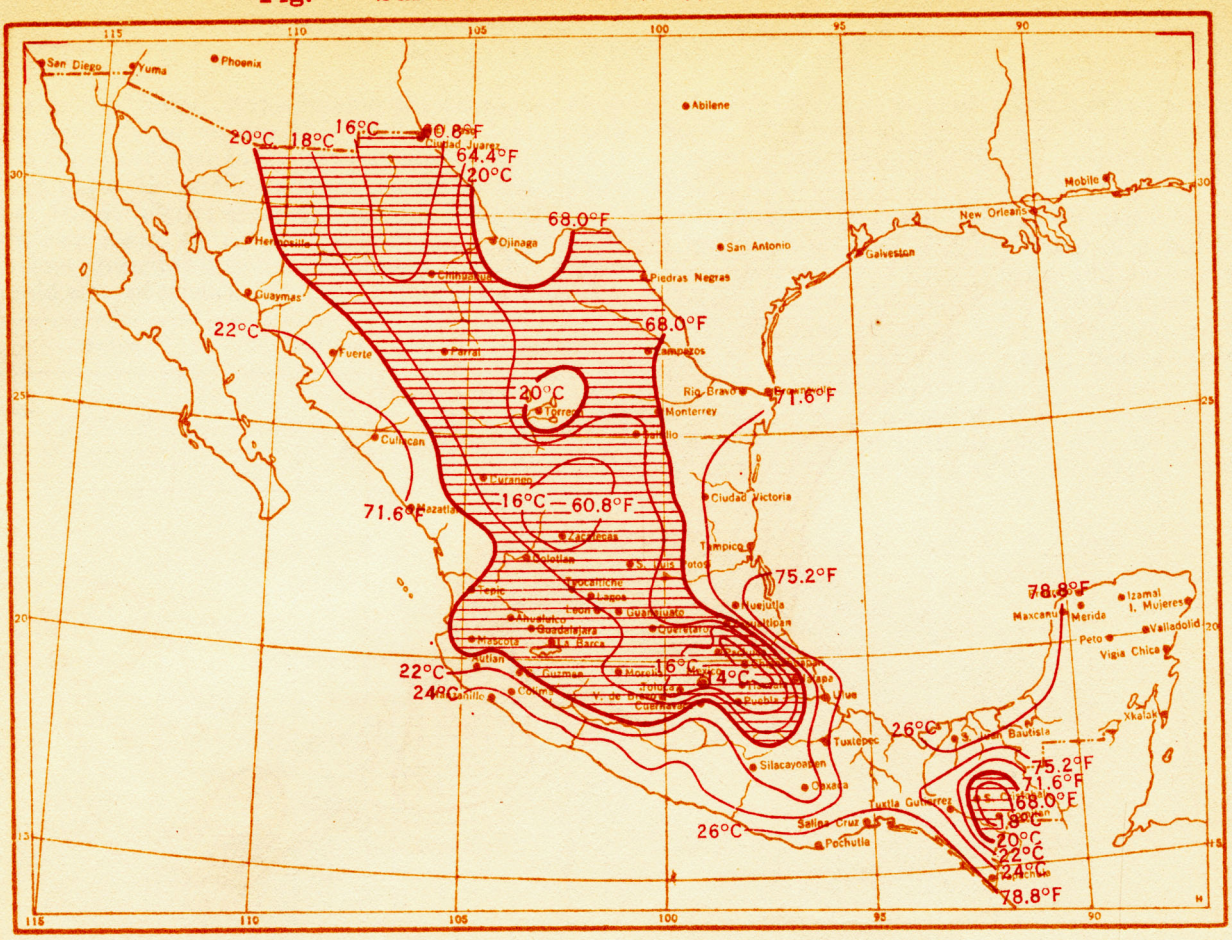

Fig. 8. Surface isotherms (°C.), April (7+2+9)/3.

Fig. 9. Surface isotherms (°C.), May (7+2+9)/3.

Fig. 10. Surface isotherms (°C.), June (7+2+9)/3.

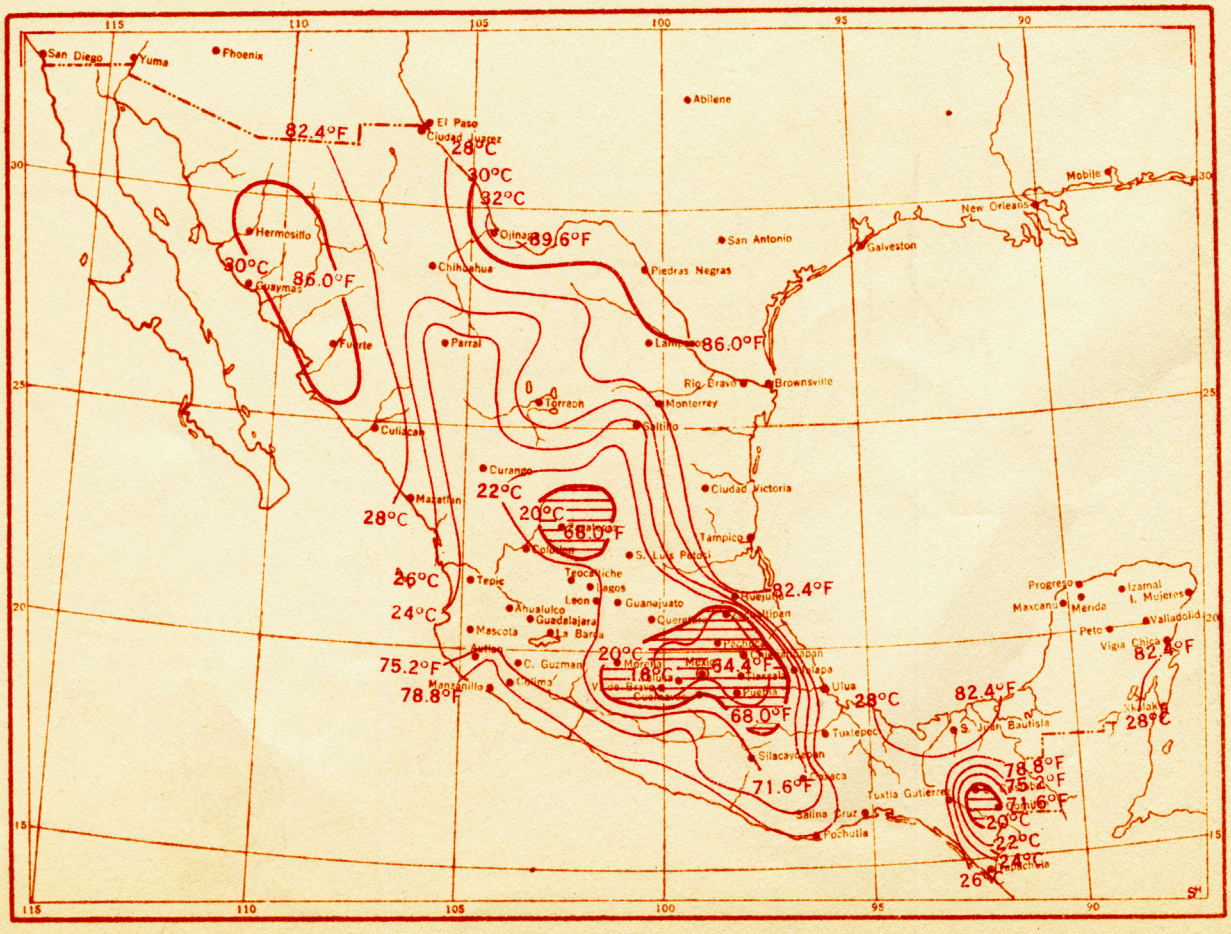

Fig. 11. Surface isotherms (°C.), July (7+2+9)/3.

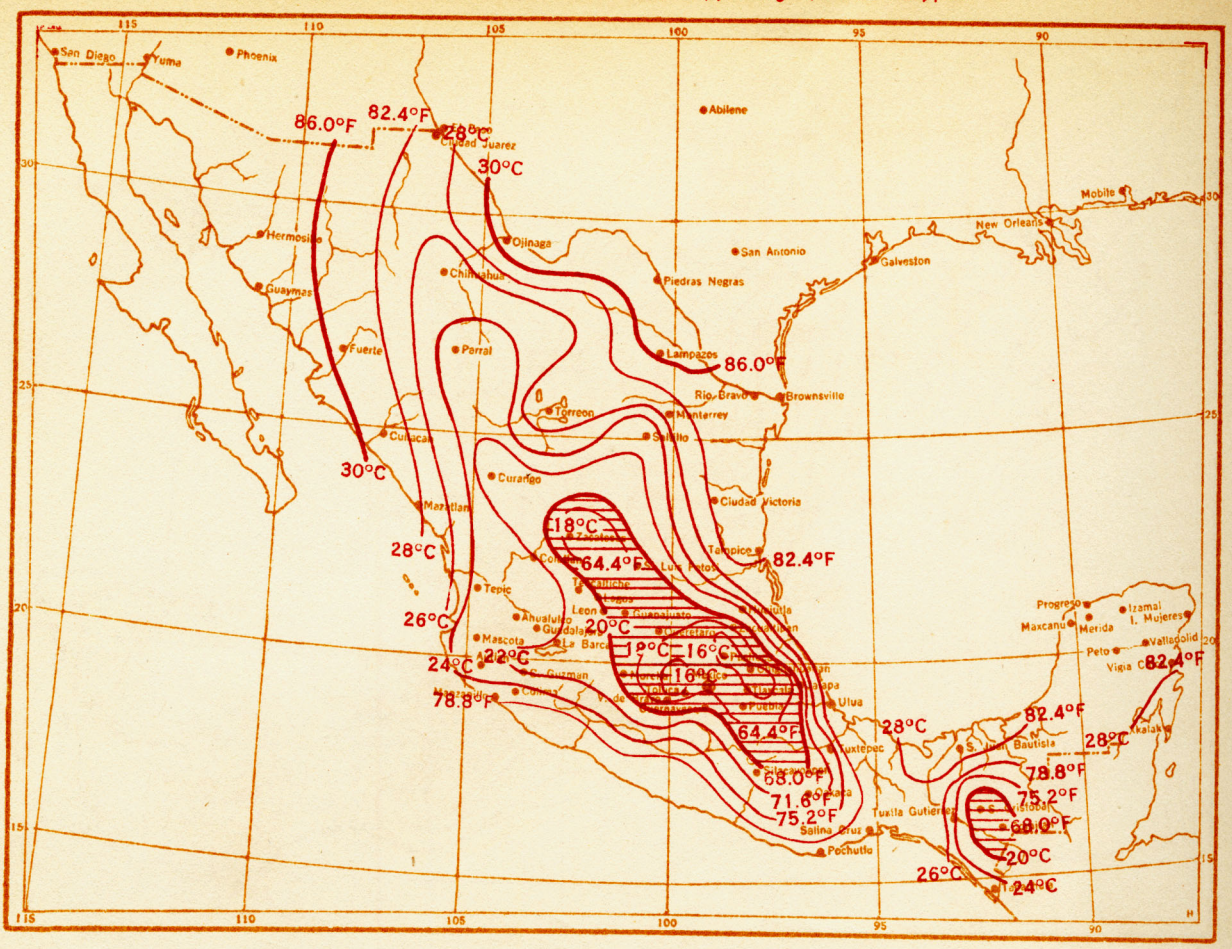

Fig. 12. Surface isotherms (°C.), August (7+2+9)/3.

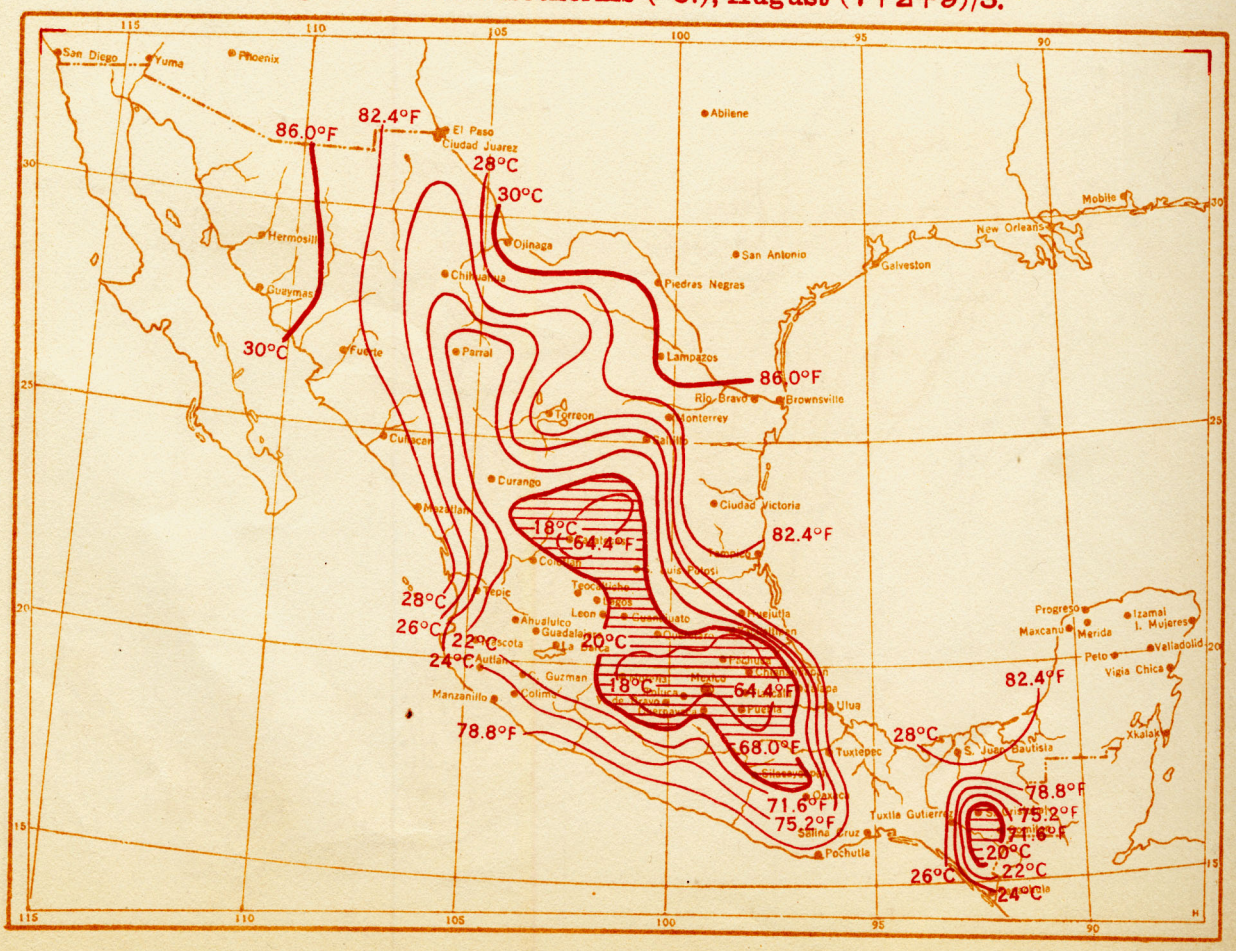

Fig. 13. Surface isotherms (°C.), September (7+2+9)/3.

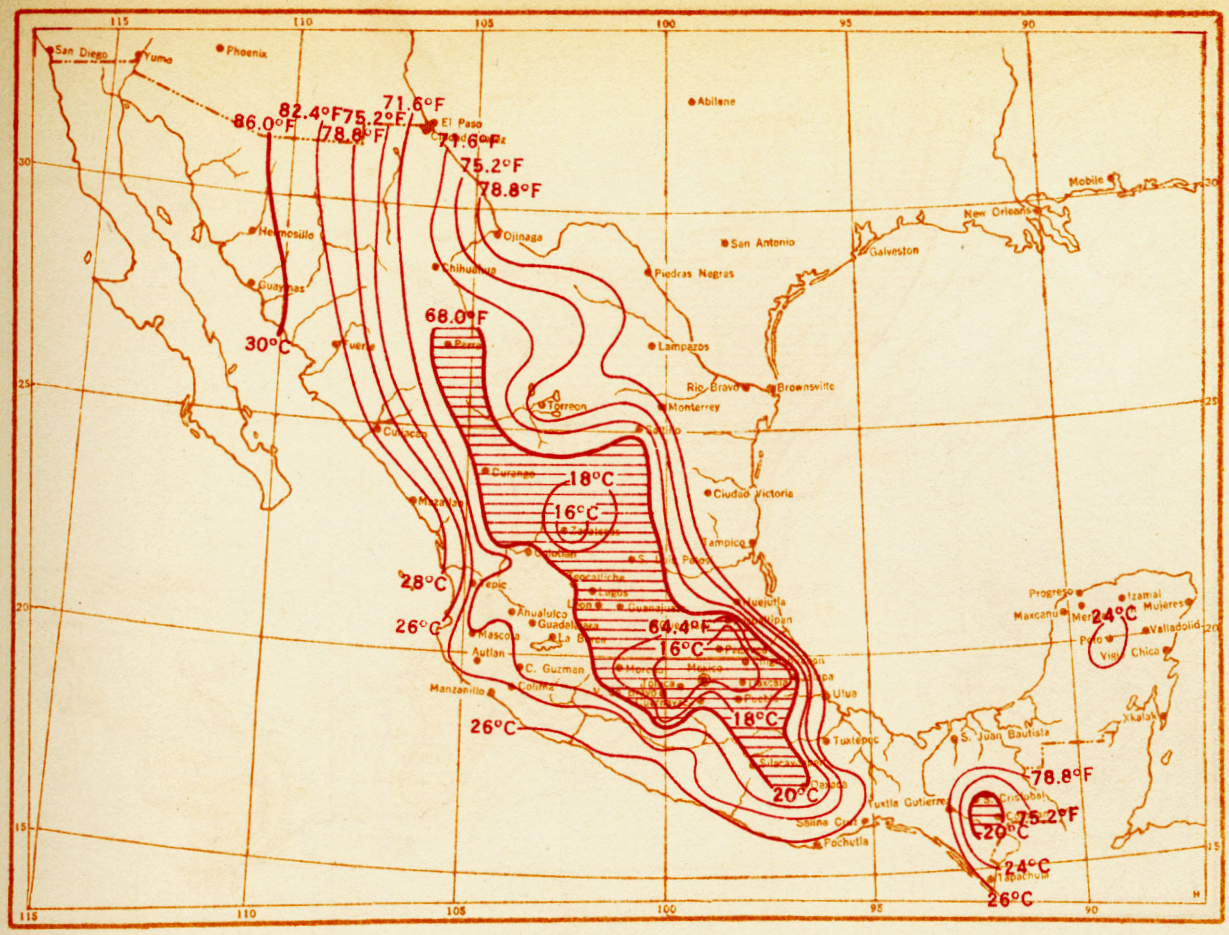

Fig. 14. Surface isotherms (°C.), October (7+2+9)/3.

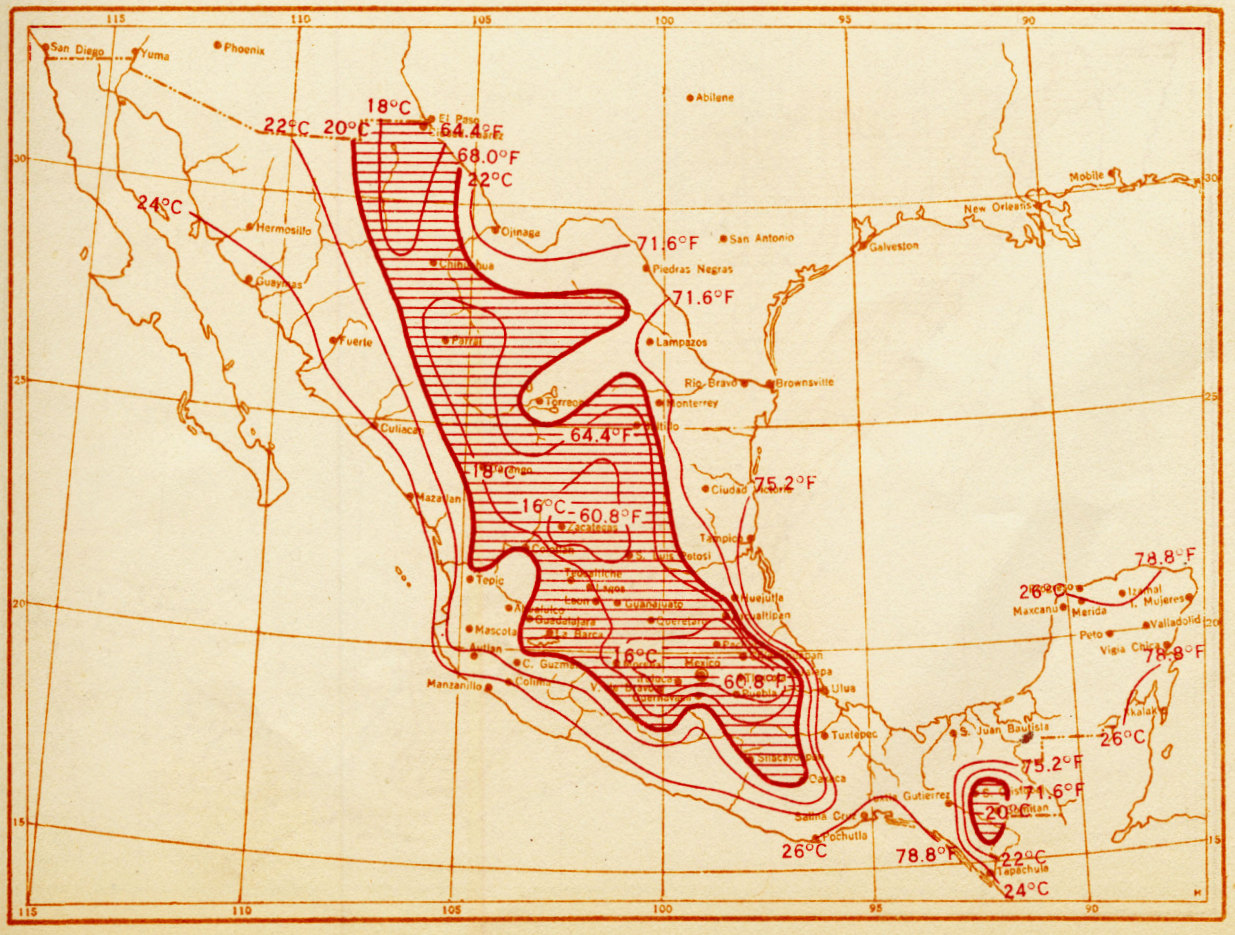

Fig. 15. Surface isotherms (°C.), November (7+2+9)/3.

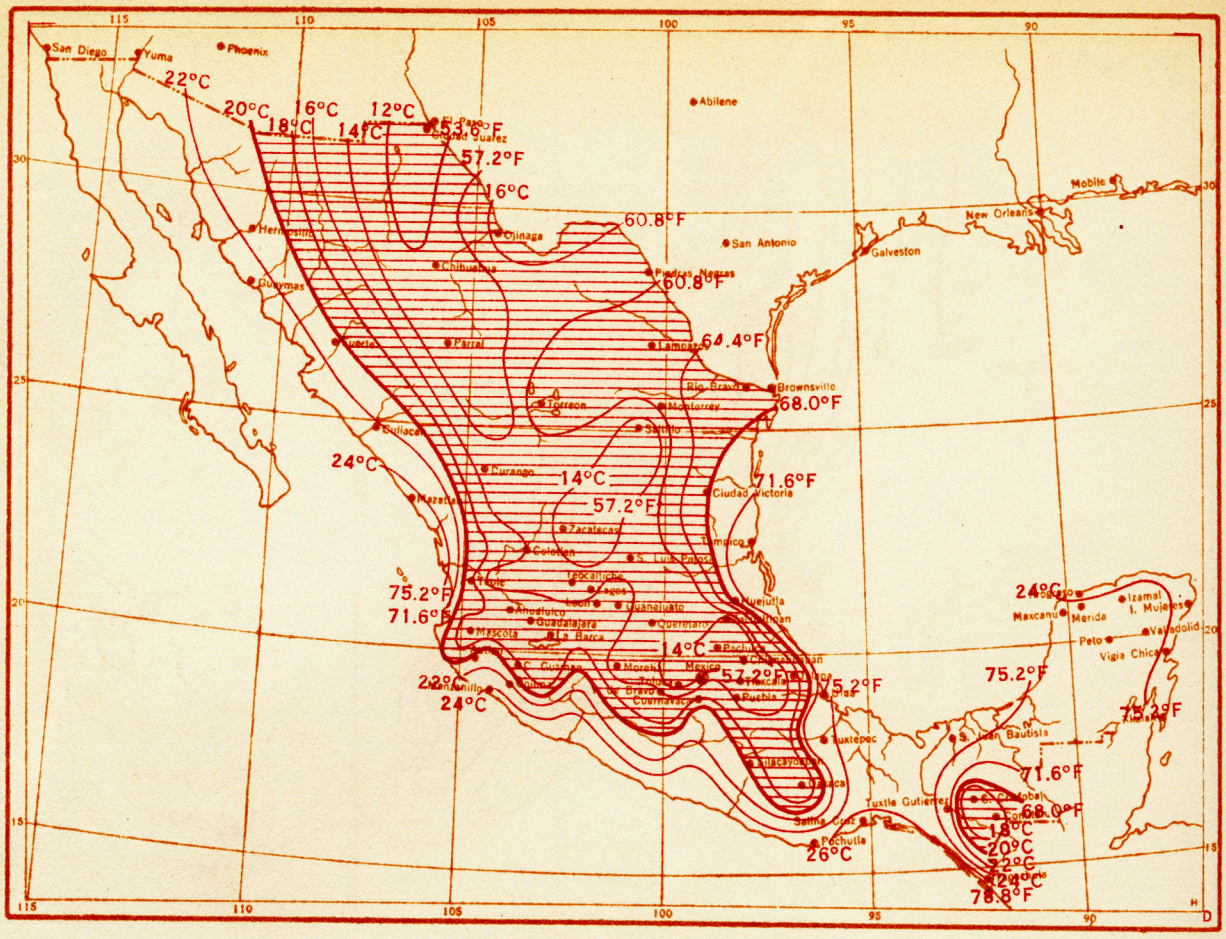

Fig. 16. Surface isotherms (°C.), December (7+2+9)/3.

Fig. 17. Surface isotherms (°C.), Year (7+2+9)/3.

Nacional; the temperature readings that have been used in this study relate to that location.

Table 6 presents the hourly temperature values for Mexico for each month of the year and Figures 18–20 the series of curves drawn from those values.

TABLE 6.—*Mean hourly temperatures, Mexico City.* (°C.)

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1 a. m.	8.9	10.8	12.5	14.3	14.8	14.8	14.3	14.3	13.9	12.4	11.4	9.5	12.66
2 a. m.	8.4	10.2	11.9	13.7	14.5	14.5	14.0	14.0	13.6	12.1	10.9	9.1	12.24
3 a. m.	7.9	9.6	11.3	13.2	14.1	14.1	13.7	13.6	13.4	11.9	10.6	8.6	11.83
4 a. m.	7.4	9.0	10.6	12.6	13.6	13.8	13.4	13.4	13.1	11.6	10.2	8.2	11.41
5 a. m.	6.9	8.5	10.1	12.2	13.3	13.6	13.2	13.2	12.9	11.3	9.8	7.8	11.07
6 a. m.	6.5	8.1	9.7	12.0	13.3	13.6	13.4	13.2	12.8	11.2	9.6	7.5	10.91
7 a. m.	6.5	7.9	10.2	12.8	14.3	14.6	14.0	13.8	13.3	11.4	9.8	7.6	11.35
8 a. m.	7.3	9.0	11.4	14.2	15.7	15.7	14.9	14.7	14.3	12.4	10.7	8.5	12.40
9 a. m.	8.8	11.3	13.5	16.1	17.7	17.2	16.6	16.2	15.5	13.5	12.3	9.9	14.05
10 a. m.	11.0	13.3	15.9	18.9	19.6	18.9	18.1	17.7	16.9	15.1	14.2	11.9	15.96
11 a. m.	13.0	15.5	18.3	20.9	21.3	20.4	19.5	19.0	18.1	16.7	15.9	13.7	17.69
12 noon	14.9	17.3	20.0	22.4	22.8	21.5	20.6	20.2	19.4	18.0	17.5	15.4	19.17
1 p. m.	16.3	18.6	21.2	23.5	23.6	22.6	21.3	21.2	20.4	19.1	18.5	16.7	20.25
2 p. m.	17.3	19.5	22.2	23.9	24.0	23.3	21.8	21.8	21.1	19.6	19.2	17.6	20.96
3 p. m.	18.0	20.1	22.3	24.0	23.9	23.2	21.8	21.5	21.1	19.8	19.4	17.9	21.08
4 p. m.	17.8	19.0	21.6	23.4	23.1	22.1	20.7	20.8	20.2	19.5	19.0	17.7	20.41
5 p. m.	17.2	19.2	20.4	22.3	21.8	20.9	18.9	19.6	18.9	18.7	18.1	16.8	19.40
6 p. m.	15.7	17.5	19.0	20.2	20.2	19.4	17.8	18.3	17.5	17.3	16.6	15.1	17.88
7 p. m.	14.3	15.9	17.7	18.8	18.8	18.3	16.9	17.2	16.6	16.3	15.3	14.0	16.67
8 p. m.	13.0	14.9	16.5	17.7	17.9	17.3	16.3	16.5	16.0	15.3	14.3	12.9	15.72
9 p. m.	11.9	13.9	15.6	16.9	17.2	16.6	15.8	15.8	15.4	14.4	13.4	11.9	14.90
10 p. m.	11.0	13.0	14.6	16.1	16.5	16.1	15.3	15.3	15.0	13.8	12.8	10.9	14.20
11 p. m.	10.3	12.2	13.8	15.3	15.9	15.6	14.9	14.9	14.6	13.3	12.2	10.3	13.61
12 p. m.	9.4	11.5	13.2	14.7	15.3	15.2	14.6	14.5	14.1	12.8	11.6	9.8	13.06
Mean	11.57	13.61	15.56	17.50	18.05	17.64	16.74	16.68	16.17	14.89	13.89	12.06	15.36

TABLE 7.—*Miscellaneous temperature data, Mexico City.* (°C.)

	January.	February.	March.	April.	May.	June.
Mean, 24 hours	11.57	13.61	15.56	17.50	18.05	17.64
Mean, 7 a., 2 p., 9 p.	11.90	13.77	16.00	17.87	18.50	18.17
Mean, 8 a.	6.3	8.1	9.7	12.1	13.7	13.9
Mean, 8 p.	15.0	17.0	18.7	20.1	19.9	18.9
Mean, 8 a., 8 p.	10.65	12.55	14.20	16.10	16.80	16.40
Mean maximum	19.1	21.1	23.8	25.5	26.1	24.3
Mean minimum	5.6	6.9	8.8	10.9	12.3	12.7
Mean of max. and min.	12.35	14.00	16.30	18.20	19.20	18.65
Maximum hourly	18.0	20.1	22.3	24.0	24.0	23.3
Minimum hourly	6.5	7.9	9.7	12.0	13.3	13.6
Mean, 7 a., 3 p., 11 p.	11.60	13.40	15.43	17.37	18.03	17.80
Hourly amplitude	11.5	12.2	12.6	12.0	10.7	9.7
Total amplitude	13.5	14.2	15.0	14.6	13.8	11.6
Calculated:						
Mean, 24 hours	11.83	13.30	15.56	17.35	18.02	17.63
Mean maximum	18.98	20.69	23.52	25.84	26.22	24.85
Mean minimum	5.77	6.83	8.83	11.98	12.36	12.60

	July.	August.	September.	October.	November.	December.	Annual.
Mean, 24 hours	16.74	16.68	16.17	14.89	13.89	12.06	15.36
Mean, 7 a., 2 p., 9 p.	17.20	17.13	16.60	15.13	14.13	12.37	15.73
Mean, 8 a.	13.4	13.3	12.9	11.3	9.5	7.4	10.97
Mean, 8 p.	17.3	17.6	17.4	16.9	16.0	14.5	17.44
Mean, 8 a., 8 p.	15.35	15.45	15.15	14.10	12.75	10.95	14.20
Mean maximum	23.1	23.1	22.0	21.2	19.9	18.6	22.32
Mean minimum	12.2	12.3	12.1	10.2	8.2	6.2	9.87
Mean of max. and min.	17.65	17.70	17.05	15.70	14.05	12.40	16.10
Maximum hourly	21.8	21.8	21.1	19.8	19.4	17.9	21.12
Minimum hourly	13.2	13.2	12.8	11.2	9.6	7.5	10.87
Mean, 7 a., 3 p., 11 p.	16.90	16.73	16.33	14.83	13.80	11.93	15.35
Hourly amplitude	8.6	8.6	8.3	8.6	9.8	10.4	10.25
Total amplitude	10.9	10.8	9.9	11.0	11.7	12.4	12.45
Calculated:							
Mean, 24 hours	16.92	16.51	16.27	15.34	13.59	12.00	15.36
Mean maximum	23.21	22.37	22.04	21.34	20.08	18.95	22.34
Mean minimum	12.38	12.32	11.97	10.47	8.09	6.20	9.98

The course of the curves that represents graphically the diurnal march of temperature has the general features that correspond to conditions in middle and tropical latitudes. The temperature rises uniformly from the minimum, whose time of occurrence coincides more or less with the rising of the sun. This ascending movement carries the curve to the maximum, which occurs, on an average, at 3 p. m. The temperature then falls continuously, but with less rapid change than during its rise, until the minimum of the following day.

In the mean annual curve the amplitude in hourly values is 10.2° C. (18.4° F.), with minimum temperature of 10.9° C. (51.6° F.) at 6 a. m. and maximum of 21.1° C. (70.0° F.) at 3 p. m. Consequently the ascending march takes place during the period of 9 hours, and the descending march in the period of 15 hours, there being a mean hourly change of 1.21° C. during the ascent and of 0.73° C. in the descent, which gives the ratio of 10:6.

These conditions vary with the season of the year, and the example given should be taken only as a generality since, as is well known, the mean annual variation of

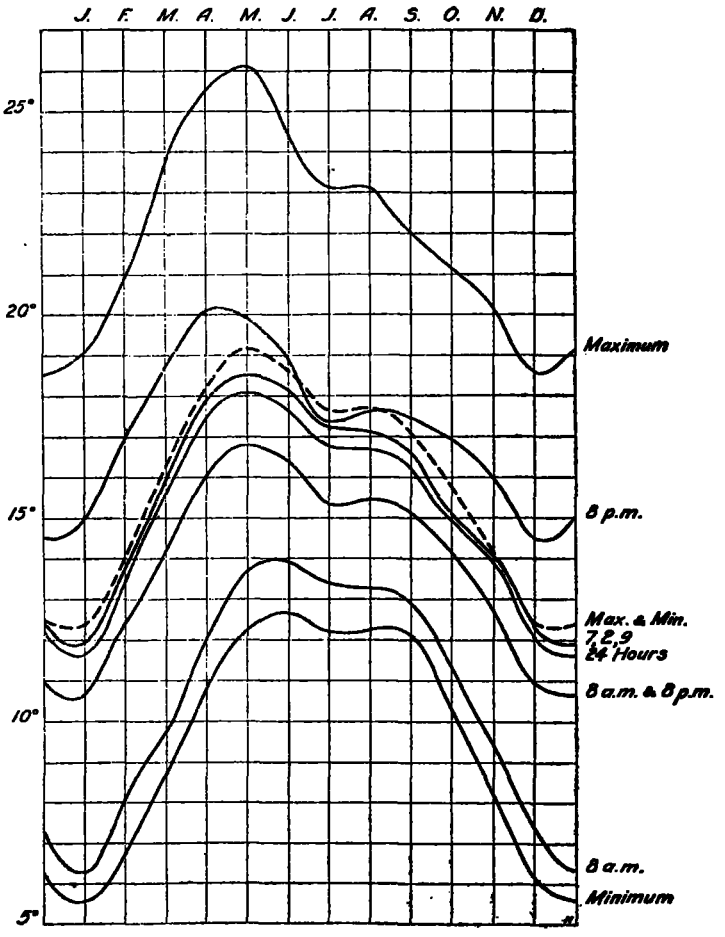

FIG. 19.—Temperature march, various hours, City of Mexico.

any meteorological element whatever does not actually occur on any date in the year.

As has been stated, the minimum temperature occurs about sunrise, due to the fact that the loss of heat through nocturnal radiation does not cease until the increased insolation on the new day is sufficiently great to compensate it. On examining the table of hourly temperatures it is seen that this minimum occurs at 5 a. m. from May to August, at 6 a. m. in March, April, September, October, November, and December, and at 7 a. m. in January and February, thus confirming the previous statement. The maximum is reached at 2 p. m. from May to September, and at 3 p. m. during the remainder of the year. These variations are due to cloudiness,

which increases considerably after midday during the summer, causing a premature fall in temperature.

The amplitude of the extreme hourly values also varies with the season of the year, as will be seen in the table. With mean daily amplitude 10.2° C. (18.4° F.) the maximum (12.6° C. or 22.7° F.) is recorded in March and the minimum (8.3° C. or 14.9° F.) in September. The values for the 12 months of the year give a curve whose form is similar to those for cloudiness and humidity, which shows that the amplitudes are subject to these influences.

When the hourly means are examined with regard to annual march there are found some phenomena worthy of mention.

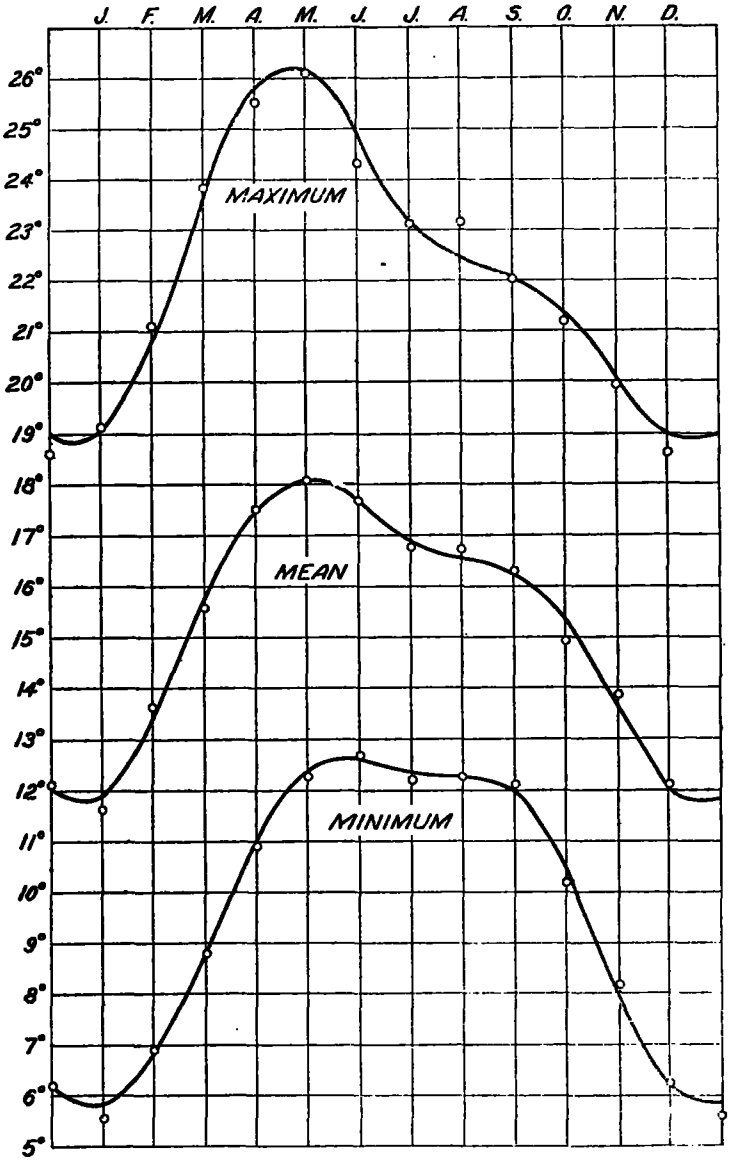

FIG. 20.—Difference, observed minus calculated. Observed values in small circles.

The mean value of temperature at Mexico is 15.36° C. (59.6° F.); this is derived from the monthly values, means from 24 observations daily, which are as follows:

	°C.	°F.		°C.	°F.
January	11.57	52.8	July	16.74	62.1
February	13.61	56.5	August	16.68	62.0
March	15.56	60.0	September	16.17	61.1
April	17.50	63.5	October	14.89	58.8
May	18.05	64.5	November	13.89	57.0
June	17.64	63.8	December	12.06	53.7

The curve traced from these values (see fig. 19)' corresponds exactly with the type that is characteristic of the *Mesa Central*. It has a minimum in January, a maximum in May and the annual march is interrupted slightly by the summer temperature anomaly in August. An examination of the table of hourly values, Table 6, discloses certain other anomalies with respect to the march of the temperature within the year. These irregularities are as follows:

(1) The maximum which is normally found in May appears in April in the temperatures from 3 to 6 p. m., and this leads to the inference that the factors which produce the annual maximum reach the Valley of Mexico in April, the same month in which the annual maximum occurs in the States of Guerrero, Morelos, Oaxaca, and Chiapas.

(2) In general temperature falls from May to June with a mean change of 0.41° C (0.7° F.) but during the early hours of the day—from 1 to 8 a. m. the temperature rises, or at least there is no change.

Since May is less cloudy than June nocturnal radiation is more effective in the first-named month, thus giving it a greater diurnal temperature variation. Theoretically May should be colder than June but cloudiness plays such an important rôle in the phenomenon that observation is contrary to theory.

(3) The summer temperature anomaly hereinbefore mentioned is reflected very noticeably in the hourly temperatures. The temperature is higher in August than in July for the hours 4 to 8 p. m. and the hourly temperatures are the same in both months at 1, 2, 4, 5, a. m., 2, 9, 10, and 11 p. m., so that the phenomenon is general from 2 p. m. until 5 a. m. or during a period of 15 hours.

(4) In Mexico the annual minimum, monthly means considered, occurs in December or January, in each case over a large extent of territory. In the city of Mexico the monthly minimum occurs in January, the change from the preceding month being 0.49° C. (0.9° F); however, as in the case of the maximum, there are hours for which the minimum occurs in December. The cause of this phenomenon is the influence of cloudiness which is more marked in December than in January, especially in the afternoon and evening.

PART III. REDUCTIONS OF OBSERVED MEAN TEMPERATURES TO THE MEAN OF 24 HOURS.

The method of reduction of the temperature means derived from the 8, 8 and the 7, 2, 9 series to the mean of 24 hours was necessarily an indirect one. The author had as a starting point the method used by Bigelow in his work "Report on the Temperatures and Vapor Pressures in the United States Weather Bureau Bulletin S, and since the 8, 8 system is common to both countries it was possible to prolong the curves of equal correction found in Bulletin S into Mexico. In so doing the hourly temperature data for the City of Mexico was of material aid.

In the beginning of the work tables were constructed showing the differences 8, 8 minus 8 a. m. and 7, 2, 9 minus 8, 8. From these differences it was possible to chart the corrections for reducing the mean of the 8, 8 system to the mean of 24 hours. Following is a statement in mathematical form of the course of reasoning pursued:

As the difference between the remainders found when two quantities are subtracted separately from a third is equal to the difference between the quantities subtracted, if the quantities are designated A, B, and M, respectively, then we have

$$\triangle A - \triangle B = (B - A)$$

or

$$(M-A)-(M-B)=(B-A) \quad \ldots\ldots (1)$$

If we then take A = observations 7, 2, 9
B = observations 8, 8
M = observations 24 hours

there will be obtained:

$$[24-(8, 8)]-[24-(7, 2, 9)]=(7, 2, 9)-(8, 8)$$

and since in the curves of equal correction 24 − (8, 8) the value (M − B) is already known, as described in a previous paragraph, and from the data obtained directly from the temperature values and appearing in Table VII,[3] the value (B − A) is also known it is easy to deduce the value of (M − A):

$$(M-A)=(M-B)+(B-A) \quad \ldots\ldots (2)$$

and the equation gives the correction 24 − (7, 2, 9).

In the same manner by substituting for A the value A^1, observations at 8 a. m. we obtain:

$$(M-A_1)=(M-B)+(B-A_1) \quad \ldots\ldots (3)$$

On tracing the charts which give the values of the corrections to reduce the two systems 8, 8 and 8 a. m. to 24 hourly values it can be observed that the values of $\triangle$ B and $\triangle A_1$ when applied separately to their respective observations give for M values that are generally very nearly equal. However, when the first approximation had been made we repeated the calculation until it resulted that the hypothetical values for the mean of hourly observations were similar on making application of the values $\triangle$ B and $\triangle A_1$.

Lastly, after the required approximation was obtained, we calculated the values of $\triangle$ A, which are the corrections to reduce the system 7, 9, 2 to that of 24 hourly observations. The corrections to reduce the mean temperatures derived from the various hours of observation to the mean of 24 hours are given in Table 8, and finally the reduced means will be found in Table 9.

TABLE 8.—*Corrections to reduce temperatures of the hours named to the 24-hour mean.* (°*C.*)

[Figures without sign are positive.]

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Ahualulco:													
7, 2, 9	−0.6	−0.6	−0.5	−0.1	−0.2	0.2	0.2	0.1	−0.2	−0.2	−0.1	−0.3	−0.3
8, 8	0.6	0.6	0.8	0.9	0.8	0.7	0.8	0.8	0.7	0.6	0.7	0.7	0.7
8 a. m.	5.8	6.3	7.1	7.6	5.7	4.2	3.9	3.7	3.6	4.1	5.3	5.4	5.1
Autlan:													
7, 2, 9	−1.2	−1.0	−0.4	−0.8	−0.8	−0.4	−0.2	−0.1	−0.4	−0.8	−1.1	−1.1	−0.7
8, 8	1.2	1.2	1.5	1.5	1.4	1.3	1.4	1.3	1.2	0.9	1.3	1.4	1.3
8 a. m.	4.9	4.5	4.8	4.6	4.3	3.9	3.6	3.2	3.0	3.1	4.5	5.0	4.1
Guzman:													
7, 2, 9	−0.7	−0.7	−1.1	−1.5	−1.1	−0.3	−0.2	−0.2	−0.8	−1.1	−0.1	−0.4	−0.6
8, 8	1.1	1.1	1.3	1.4	1.3	1.3	1.3	1.2	1.0	0.8	1.0	1.1	1.2
8 a. m.	5.7	5.8	5.9	5.8	5.1	3.5	3.2	3.3	3.3	3.6	4.5	5.1	4.5
Juarez:													
7, 2, 9	−0.7	−1.0	−0.9	−0.5	−0.8	−1.1	−1.5	−1.0	0.0	0.5	0.6	0.2	−0.4
8, 8	0.6	0.6	0.6	0.7	0.7	0.5	0.7	0.8	0.9	1.0	1.2	1.0	0.8
8 a. m.	4.7	5.1	5.1	5.3	5.6	4.8	4.6	4.4	4.6	5.5	5.3	4.4	5.0
Victoria:													
7, 2, 9	−1.1	−1.0	−0.7	−0.7	−0.8	−0.8	−1.0	−1.1	−1.0	−0.3	−0.1	−0.2	−0.7
8, 8	0.6	0.6	0.8	0.7	0.6	0.5	0.5	0.7	0.8	0.9	0.9	0.8	0.7
8 a. m.	3.7	4.0	4.5	4.4	4.3	3.7	3.0	3.7	3.6	3.0	2.1	3.2	3.7
Colima:													
7, 2, 9	−0.4	−0.7	−0.8	−0.8	−1.2	−0.3	−0.1	−0.3	−0.4	−0.9	−0.9	−0.4	−0.6
8, 8	1.1	1.1	1.3	1.4	1.3	1.3	1.3	1.3	1.1	1.1	1.2	1.2	1.2
8 a. m.	5.1	5.2	5.9	5.8	4.6	3.4	3.2	3.2	3.1	3.6	4.5	4.6	4.4
Colotlan:													
7, 2, 9	−0.4	−1.0	−0.4	−0.3	−0.6	−0.5	−0.5	−0.7	−0.5	−0.4	−0.6	−0.4	−0.6
8, 8	0.7	1.2	1.7	1.6	1.0	0.8	0.6	1.0	1.5	1.2	0.8	0.8	1.1
8 a. m.	6.6	7.3	8.0	7.7	6.5	5.1	4.1	4.2	5.2	6.0	6.0	6.7	6.2
Comitan:													
7, 2, 9	−0.7	−1.3	−0.6	0.0	−1.1	−0.9	−0.3	−0.3	−0.6	−0.6	−0.5	−0.1	−0.4
8, 8	1.2	1.1	1.3	1.4	1.1	1.1	1.1	1.3	1.1	1.0	1.1	1.2	1.2
8 a. m.	3.3	2.9	3.5	3.7	3.1	2.8	2.8	2.8	2.5	2.5	2.9	3.1	3.1

[3] Not reproduced.

TABLE 8.—*Corrections to reduce temperatures of the hours named to the 24-hour mean.* (°*C.*)—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Cueranavaca:													
7, 2, 9	−0.2	0.0	0.2	0.0	0.3	0.5	0.5	0.2	0.3	−0.5	−0.7	−0.4	−0.1
8, 8	0.8	0.7	1.0	1.1	1.0	0.9	1.0	0.8	0.9	0.6	0.8	0.9	0.9
8 a. m.	3.8	4.3	5.1	5.4	4.2	3.5	3.4	3.0	3.0	3.0	3.5	3.1	3.8
Culiacan:													
7, 2, 9	−1.0	−0.9	−1.3	−1.1	−0.8	−0.8	−0.3	−0.2	−0.2	−0.5	−0.8	−0.6	−0.7
8, 8	0.5	0.5	0.6	0.7	0.6	0.5	0.6	0.6	0.7	0.7	0.8	0.7	0.6
8 a. m.	5.2	5.4	5.9	5.7	5.1	4.0	3.3	2.8	3.3	4.1	4.7	5.0	4.5
Chignahuapan:													
7, 2, 9	−0.6	−0.9	−0.6	−0.9	−1.0	−0.8	−0.8	−1.0	−1.0	−1.1	−1.1	−1.1	−0.9
8, 8	1.0	1.0	1.4	1.4	1.2	1.2	1.3	1.2	1.0	0.8	1.0	1.1	1.1
8 a. m.	3.7	3.9	4.5	4.1	3.2	3.0	3.0	3.1	2.8	2.3	2.8	3.3	3.2
Chihuahua:													
7, 2, 9	0.0	0.2	0.3	0.4	0.3	0.1	0.4	0.5	0.6	0.5	0.4	0.2	0.4
8, 8	0.9	0.8	0.8	0.9	0.9	0.8	0.8	1.0	1.1	1.2	1.2	1.2	1.0
8 a. m.	5.6	5.4	6.1	6.4	7.6	5.1	4.3	4.4	4.7	6.2	5.6	6.0	5.7
Durango:													
7, 2, 9	−0.6	−0.4	−0.7	−0.4	−0.6	−0.7	−1.0	−0.8	−0.7	−0.8	−0.7	−0.8	−0.7
8, 8	0.9	0.8	0.9	1.0	0.9	0.8	0.8	1.0	1.0	1.2	1.2	1.1	1.0
8 a. m.	5.5	6.4	6.5	6.4	5.9	5.0	4.1	3.9	3.9	5.5	6.2	6.0	5.4
Fuerte:													
7, 2, 9	−1.2	−0.8	−1.5	−1.0	−1.1	−0.6	−0.2	0.0	0.1	0.1	0.3	−0.5	−0.5
8, 8	0.6	0.6	0.6	0.8	0.7	0.6	0.7	0.7	1.0	0.9	1.0	0.8	0.8
8 a. m.	7.9	8.1	7.6	8.2	7.7	6.0	4.1	3.9	4.3	6.2	7.1	7.2	6.6
Guadalajara:													
7, 2, 9	0.0	−0.2	−0.3	−0.2	0.0	0.1	0.1	0.0	−0.4	−0.6	−0.3	−0.2	−0.1
8, 8	0.6	0.6	0.8	0.9	0.8	0.7	0.8	0.8	0.7	0.6	0.7	0.7	0.7
8 a. m.	5.3	6.0	6.3	6.3	5.9	4.3	3.8	3.5	3.4	4.1	4.8	5.1	4.9
Guanajuato:													
7, 2, 9	−0.8	−0.6	−0.6	−0.8	−1.0	−0.8	−0.5	−0.4	−0.4	−0.4	−0.7	−0.6	−0.7
8, 8	1.3	1.2	1.6	1.6	1.0	1.1	1.1	1.4	1.4	1.7	1.5	1.5	1.3
8 a. m.	5.4	5.9	6.3	6.3	5.0	4.6	4.3	4.4	4.7	5.1	5.0	5.1	5.1
Guaymas:													
7, 2, 9	−1.4	0.0	−0.1	−0.2	−0.6	−0.9	−0.6	−0.6	−0.2	−0.6	−0.1	0.2	−0.5
8, 8	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.6	0.7	0.6	0.4
8 a. m.	2.3	2.4	2.8	3.2	3.2	2.7	2.4	2.0	2.0	2.5	2.5	2.2	2.3
Hermosillo:													
7, 2, 9	−0.7	0.9	1.0	0 8	0.8	−0.3	0.3	0.1	0.0	−0.6	−1.0	−0.4	0.2
8, 8	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.6	0.7	0.6	0.4
8 a. m.	4.4	4.8	5.6	6.1	6.1	5.3	4.1	3.9	3.9	4.7	4.5	4.0	4.7
Huejutla:													
7, 2, 9	0.3	0 4	0.4	0.0	−0.2	−0.4	−0.3	−0.3	0.1	0.1	0.2	0.1	0.4
8, 8	0.8	0.7	1.1	1.2	1.1	0.9	0.8	0.7	0.8	0.6	0.7	0.9	0.9
8 a. m.	2.1	1.8	2.4	2.9	2.5	2.4	1.9	1.7	2.0	1.7	1.6	2.1	2.1
Isla Mujeres:													
7, 2, 9	0.3	0.5	0.4	0.5	0.2	0.1	0.2	0.4	0.2	0.3	0.4	0.5	0.3
8, 8	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.4	0.3	0.2	0.4	0.5	0.4
8 a. m.	0.8	0.9	1.0	1.1	0.7	0.6	0.5	0.6	0.5	0.4	0.9	1.0	0.8
Izamal:													
7, 2, 9	−1.3	−1.1	−1.1	−1.2	−1.1	−1.3	−0.8	−0.6	−0.7	−1.6	−1.4	−1.2	−1.1
8, 8	1.1	1.2	1.2	1.2	1.0	1.0	1.0	1.1	1.2	0.9	1.0	1.2	1.1
8 a. m.	4.5	4.9	5.2	4.8	3.7	2.3	2.4	2.5	2.7	2.6	3.3	3.9	3.5
Jalapa:													
7, 2, 9	−0.3	0.0	0.0	−0.4	−0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.0
8, 8	0.7	0.8	1.0	1.0	0.8	0.6	0.6	0.7	0.8	0.7	0 9	0.8	0.8
8 a. m.	1.9	2.1	2.2	2.0	1.6	1.4	1.4	1.6	1.5	1.6	1.8	2.0	1.8
La Barca:													
7, 2, 9	−0.6	−0.4	−0.5	−0.8	−0.9	−0.6	−0.2	−0.4	−0.8	−0.8	−0.4	−0.4	−0.5
8, 8	1.0	1.0	1.2	1.4	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.1	1.2
8 a. m.	5.9	6.3	6.5	6.5	6.0	4.3	3.8	3.8	4.0	4.6	5.1	5.8	5.3
Lagos:													
7, 2, 9	−0.3	−0.6	−0.7	−0.6	−0.3	−0.4	−0.8	−0.9	−1.2	−0.7	0.0	−0.2	−0.5
8, 8	0.9	0.9	1.2	1.3	1.1	1.2	1.2	1.3	1.0	1.0	1.0	0.9	1.1
8 a. m.	6.1	6.5	7.3	7.4	7.1	5.8	5.3	5.3	4.9	5.1	5.2	6.0	6.0
Lampazos:													
7, 2, 9	−0.5	−0.4	−0.3	0.3	0.9	0.5	0.0	−0.3	−0.4	0.5	0.2	0.2	0.1
8, 8	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.3	0.2	0 5	0.4	0.3	0.3
8 a. m.	3.1	3.3	3.5	3.5	4.2	3.7	4.0	4.3	3.7	3.8	3.0	3.4	3.6
Leon:													
7, 2, 9	−0.6	−0.5	−0.7	−0.5	−0.1	−0.2	−0.2	−0.5	−0.6	−0.8	−1.1	−0.8	−0.5
8, 8	0.8	0.8	1.0	1.2	1.0	1.0	1.0	1.0	0.9	1.0	0.9	0.9	1.0
8 a. m.	6.1	6.3	7.0	7.2	6.7	5.0	4.3	4.3	4.4	5.1	5.4	5.5	5.6
Manzanillo:													
7, 2, 9	−0.3	−0.5	−0.5	−0.4	−0 5	−0.3	0.2	−0.2	−0.3	−0.6	−0.4	−0.3	−0.3
8, 8	0.8	0.8	1.0	1.1	1.0	1.0	1.0	1.0	0.8	0.7	0.7	0.8	0.9
8 a. m.	2.0	2.1	2.3	2.5	2.3	2.2	2.2	2.6	2.0	1.9	2.0	2.1	2.2
Mascota:													
7, 2, 9	−0.6	−0.4	−0.5	−0 2	−0.1	0.0	0.1	0.5	0.3	−0.2	−0.8	−1.0	−0.1
8, 8	0.6	0.6	0 7	0.8	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.7
8 a. m.	4.5	4.8	4.7	4.6	4.0	3.4	2.8	2.6	2.4	2.6	3.0	4.2	3.7
Maxcanu:													
7, 2, 9	−1.1	−1.0	−0.9	−1.0	−1.2	−1.2	−1.0	−1.0	−0.7	−0.9	−0.6	−0.9	−1.0
8, 8	0.7	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.7
8 a. m.	3.9	4.3	4.4	4.3	3.7	2.4	2.6	2.7	2.5	2.7	3.3	3.6	3.4
Mazatlan:													
7, 2, 9	−0.2	−0.2	−0.1	−0.1	−0.2	−0.2	−0.3	−0.1	0.0	0.1	−0.1	0.1	−0.1
8, 8	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8 a. m.	1.6	1.6	1.9	2.0	1.6	1.3	1.5	1.6	1.7	1.9	1.8	1.6	1.7
Merida:													
7, 2, 9	−1.1	−0.7	−0.5	−0.9	−1.0	−0.8	−0.6	−0.5	−0.6	−1.0	−0.8	−0.6	−0.7
8, 8	0.7	0.8	0.8	0.8	0.6	0.6	0.6	0.8	0.7	0.6	0.7	0.9	0.7
8 a. m.	3.0	3.2	3.5	3.1	2.4	1.7	1.7	1.9	1.9	1.9	2.5	2.9	2.5
Mexico:													
7, 2, 9	−0.3	−0.2	−0.4	−0.4	−0.4	−0.5	−0.5	−0.4	−0.4	−0.2	−0.2	−0.3	−0.3
8, 8	0.9	1.1	1.4	1.4	1.2	1.2	1.4	1.2	1.0	0.8	1.1	1.1	1.2
8 a. m.	5.3	5.5	5.9	5.4	4.3	3.7	3.3	3.4	3.3	3.6	4.4	4.7	4.4
Monterrey:													
7, 2, 9	−0.7	−0.5	−0.7	−0.4	−0.2	−0.6	−0.6	−0.7	−0.6	−0.4	0.0	0.4	−0.6
8, 8	0.4	0.4	0.4	0.6	0.5	0.4	0.4	0.6	0.7	0.7	0.7	0.6	0.5
8 a. m.	3.5	4.0	4.1	4.3	5.4	4.5	4.2	4.6	3.8	3.3	3.1	3.6	4.0

TABLE 8.—*Corrections to reduce temperatures of the hours named to the 24-hour mean.* (°C.)—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Morelia:													
7, 2, 9	−0.6	−0.4	−0.2	−0.4	−0.4	0.1	0.0	−0.4	−0.4	−0.8	−0.7	−0.6	−0.4
8, 8	0.8	0.8	1.1	1.2	1.0	1.0	1.0	1.0	0.8	0.7	0.9	0.9	0.9
8 a. m.	6.2	6.4	6.4	6.0	5.0	4.0	3.7	3.5	3.3	4.1	4.9	5.7	4.4
Oaxaca:													
7, 2, 9	−0.9	−1.1	−0.9	−0.9	−0.7	−0.3	−0.2	−0.5	−0.7	−1.1	−1.1	−0.9	−0.7
8, 8	1.1	1.1	1.5	1.5	1.1	1.2	1.4	1.3	1.1	0.9	1.1	1.2	1.2
8 a. m.	5.8	6.5	6.9	5.8	3.8	3.3	4.0	3.9	3.6	3.6	4.6	5.8	4.9
Ojinaga:													
7, 2, 9	−1.8	−1.8	−1.8	−1.9	−2.1	−0.8	0.0	0.1	−0.7	−1.4	−1.5	−2.0	−1.2
8, 8	1.8	1.2	1.0	1.1	1.1	0.9	1.1	1.2	1.3	1.5	1.8	1.5	1.4
8 a. m.	6.7	6.4	7.3	7.2	6.9	6.0	4.8	4.6	4.9	6.3	6.8	5.6	5.2
Pachuca:													
7, 2, 9	−1.4	−1.9	−2.1	−1.8	−0.7	−0.2	0.1	0.0	−0.4	−0.9	−0.7	−1.1	−0.9
8, 8	1.4	1.4	1.7	1.7	1.6	1.6	1.7	1.6	1.4	1.4	1.4	1.5	1.5
8 a. m.	3.9	4.2	4.3	4.0	3.4	3.1	3.2	2.9	3.0	3.1	3.5	3.7	3.5
Parral:													
7, 2, 9	−0.9	−1.4	−0.8	−0.4	−0.1	−0.7	−0.8	−0.8	−0.6	−0.8	−0.8	0.0	−0.6
8, 8	0.9	0.8	0.9	1.0	0.9	0.8	0.8	1.1	1.0	1.2	1.2	1.2	1.0
8 a. m.	6.4	6.2	6.2	6.5	7.4	5.1	3.4	4.4	4.4	5.5	6.2	6.1	5.8
Piedras Negras:													
7, 2, 9	−0.4	−0.1	0.1	0.1	0.0	−0.6	−1.4	−0.2	−0.2	0.2	0.1	0.1	−0.1
8, 8	0.4	0.4	0.4	0.5	0.5	0.4	0.6	0.6	0.7	0.8	0.8	0.6	0.6
8 a. m.	4.2	4.7	5.0	5.1	4.8	5.0	4.1	4.9	4.8	4.9	4.3	4.5	4.8
Peto:													
7, 2, 9	−1.6	−1.2	−1.2	−1.5	−1.5	−1.4	−1.1	−0.5	−0.5	−0.9	−0.9	−1.1	−1.1
8, 8	0.9	1.0	1.0	1.0	0.8	0.8	0.8	1.0	1.0	0.7	0.9	1.1	0.9
8 a. m.	4.5	4.9	5.2	4.8	3.6	2.3	2.5	2.5	2.7	2.9	3.4	4.1	3.6
Pochutla:													
7, 2, 9	−0.7	−0.7	−0.8	−0.9	−0.4	0.2	−0.5	−0.8	−0.3	−0.2	−0.6	−0.7	−0.5
8, 8	1.1	1.1	1.4	1.5	1.0	1.2	1.3	1.3	1.1	1.0	1.1	1.2	1.2
8 a. m.	4.5	4.5	4.7	4.3	3.1	3.4	3.7	3.2	3.1	3.2	4.1	4.4	3.8
Progreso:													
7, 2, 9	−0.5	−0.3	−0.3	−0.3	−0.3	−0.3	−0.3	0.1	0.0	−0.2	0.0	−0.1	−0.1
8, 8	0.7	0.8	0.8	0.8	0.6	0.5	0.6	0.5	0.4	0.6	0.6	0.8	0.7
8 a. m.	2.3	2.5	2.5	2.2	1.6	1.2	1.1	1.4	1.5	1.3	1.8	2.1	1.8
Puebla:													
7, 2, 9	−1.1	−1.0	−0.8	−0.4	−0.5	−0.1	−0.1	−0.4	−0.7	−1.0	−0.9	−0.9	−0.6
8, 8	0.9	0.9	1.3	1.3	1.1	1.0	1.2	1.1	0.9	0.7	0.9	1.0	1.0
8 a. m.	5.1	5.9	6.2	5.1	4.0	3.3	3.2	3.3	3.3	3.4	4.4	5.3	4.4
Queretaro:													
7, 2, 9	−0.5	−0.6	0.0	−0.2	−0.4	−0.3	−0.4	−0.5	−0.7	−0.8	−0.7	−0.6	−0.3
8, 8	0.9	0.9	1.2	1.3	1.1	1.1	1.1	1.1	0.9	0.8	1.0	1.0	1.0
8 a. m.	5.7	5.8	6.6	6.3	5.3	4.6	4.2	4.3	4.2	3.2	5.0	5.3	5.0
Rio Bravo:													
7, 2, 9	−0.3	−0.2	0.1	0.1	0.0	−0.1	−0.3	−0.9	−0.7	−0.4	−0.4	−0.2	−0.4
8, 8	0.3	0.3	0.3	0.4	0.4	0.3	0.6	0.5	0.4	0.7	0.6	0.6	0.4
8 a. m.	2.2	2.3	3.2	3.4	3.3	2.9	3.2	2.9	3.0	3.8	3.1	3.2	2.9
Salina Cruz:													
7, 2, 9	0.0	−0.2	0.0	0.1	0.1	0.3	0.3	0.2	0.0	0.1	0.1	0.2	0.2
8, 8	0.8	0.8	1.1	1.0	0.7	0.8	0.9	1.0	0.8	0.7	0.8	1.0	0.9
8 a. m.	2.0	2.2	3.0	3.0	2.2	2.3	2.8	3.0	2.6	2.1	2.0	2.4	2.6
Saltillo:													
7, 2, 9	−0.5	−0.8	−0.8	−0.4	−0.7	−0.3	0.1	−0.4	−0.6	−0.1	0.1	−0.4	−0.3
8, 8	0.4	0.4	0.5	0.6	0.5	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.5
8 a. m.	2.8	3.4	3.7	3.7	3.9	4.0	3.8	3.8	3.5	3.1	2.9	2.8	3.5
San Cristobal:													
7, 2, 9	−0.6	−0.7	−0.2	−0.1	−0.7	−0.2	−0.3	−0.4	−0.4	−0.3	−0.4	−0.4	−0.3
8, 8	0.9	0.9	1.0	1.2	1.0	0.8	0.7	0.7	0.6	0.7	0.8	0.9	0.8
8 a. m.	4.3	5.1	5.1	4.7	3.8	2.5	2.4	2.4	1.9	2.2	3.0	3.5	3.4
San Juan Bautista:													
7, 2, 9	0.1	0.4	0.6	0.5	0.5	0.3	0.0	0.4	0.1	0.2	0.5	0.5	0.3
8, 8	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.6	0.4	0.3	0.5	0.6	0.5
8 a. m.	1.4	1.6	1.6	1.6	1.3	1.4	1.5	1.4	1.2	1.0	0.9	1.2	1.3
San Luis Potosi:													
7, 2, 9	−1.0	−0.4	−0.2	0.0	−0.2	−0.6	0.1	−0.1	−0.4	−0.5	−0.7	−0.8	−0.7
8, 8	0.6	0.6	0.7	0.8	0.7	0.8	0.7	0.8	0.7	0.7	0.7	0.7	0.7
8 a. m.	2.8	3.4	3.7	4.0	3.5	3.4	2.5	2.9	2.8	2.9	2.9	3.0	3.2
Sierra Mojada:													
7, 2, 9	−0.3	−0.4	−0.1	−0.1	−0.4	−0.2	−0.2	0.0	0.0	0.2	0.5	0.0	0.0
8, 8	0.5	0.5	0.5	0.7	0.6	0.4	0.5	0.6	0.6	0.8	0.7	0.6	0.6
8 a. m.	3.1	3.9	4.0	4.4	4.4	5.0	3.1	3.2	2.9	3.3	2.9	2.3	3.6
Silacayoapan:													
7, 2, 9	−1.3	−1.7	−1.4	−1.5	−1.2	−0.4	−0.5	−0.6	−0.9	−1.2	−1.4	−1.6	−1.1
8, 8	1.2	1.2	1.6	1.6	1.3	1.3	1.5	1.4	1.4	1.2	1.2	1.3	1.4
8 a. m.	6.0	6.0	6.2	5.8	4.5	3.7	3.9	4.1	4.2	4.6	5.1	5.2	5.0
Tapachula:													
7, 2, 9	−1.1	−1.1	−0.7	0.0	0.1	0.1	−0.1	−0.4	−0.7	−0.1	−0.3	−0.8	−0.4
8, 8	1.1	1.0	1.2	1.3	1.0	1.0	1.0	1.2	1.0	0.9	1.0	1.1	1.1
8 a. m.	3.8	3.9	4.2	3.8	2.3	2.2	2.5	2.6	2.1	2.3	3.1	3.7	3.1
Tampico:													
7, 2, 9	−0.2	−0.1	−0.4	−0.6	−0.4	−0.1	−0.1	0.5	−0.1	−0.1	0.0	−0.2	−0.1
8, 8	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.8	0.7	0.5	0.7	0.6	0.7
8 a. m.	1.7	1.3	1.5	1.5	1.5	1.1	1.5	1.7	1.6	1.5	1.8	1.4	1.5
Teocaltiche:													
7, 2, 9	−0.8	−0.8	−0.4	−0.4	−0.4	−0.4	−0.3	−0.3	−0.7	−0.6	−0.4	−0.2	−0.5
8, 8	0.8	0.8	1.0	1.2	1.0	1.0	1.0	1.0	0.9	1.0	0.9	0.9	0.9
8 a. m.	7.1	7.4	7.8	7.7	7.0	5.8	4.5	4.5	4.6	5.7	7.0	7.3	6.3
Tepic:													
7, 2, 9	−0.1	−0.3	−0.6	0.0	0.0	−0.4	−0.6	−0.6	−0.8	−0.6	−0.6	−0.7	−0.4
8, 8	0.5	0.5	0.6	0.7	0.6	0.5	0.6	0.6	0.6	0.7	0.6	0.5	0.6
8 a. m.	3.3	3.7	3.8	3.4	3.1	2.9	2.8	2.6	2.6	3.0	3.4	3.5	3.2
Tlaxcala:													
7, 2, 9	−0.8	−1.0	−0.8	−0.9	−0.8	−0.4	−0.1	−0.5	−1.0	−1.2	−1.1	−0.6	−0.8
8, 8	1.1	1.1	1.3	1.5	1.3	1.2	1.4	1.3	1.1	0.9	1.1	1.2	1.2
8 a. m.	5.6	5.8	6.2	5.0	4.3	3.4	3.4	3.6	3.8	3.7	4.3	5.1	4.5

TABLE 8.—*Corrections to reduce temperatures of the hours named to the 24 hour mean.* (°C.)—Continued.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Toluca:													
7, 2, 9	−1.0	−1.2	−0.5	−0.6	−0.7	−0.7	−0.5	−0.5	−0.7	−0.8	−1.0	−0.8	−0.7
8, 8	0.9	0.9	1.3	1.3	1.3	1.1	1.2	1.1	0.9	0.9	0.9	1.0	1.1
8 a. m.	5.4	5.7	5.7	4.2	4.0	3.4	3.0	3.1	2.8	3.4	4.4	4.9	4.3
Torreon:													
7, 2, 9	0.1	0.1	−0.1	0.1	−0.2	0.0	0.0	−0.3	−0.3	0.3	0.4	0.5	0.0
8, 8	0.3	0.3	0.3	0.5	0.4	0.3	0.4	0.5	0.4	0.6	0.6	0.6	0.4
8 a. m.	5.3	5.5	5.7	5.7	5.3	4.7	4.3	4.5	4.1	5.4	5.0	5.2	5.0
Tuxtepec:													
7, 2, 9	−0.5	−0.3	−0.3	−0.1	−0.3	0.1	0.2	0.2	0.2	−0.4	−0.5	−0.1	−0.2
8, 8	0.7	0.8	0.9	0.9	0.8	0.8	0.8	0.9	0.7	0.6	0.7	0.8	0.8
8 a. m.	2.6	2.9	3.5	3.6	3.2	2.7	2.9	2.7	2.2	1.5	1.4	2.1	2.5
Tuxtla Gutierrez:													
7, 2, 9	−0.6	−0.8	−0.5	−0.2	−0.9	−0.7	−0.5	−0.4	−0.6	−0.4	−0.6	−0.5	−0.6
8, 8	0.6	0.6	0.8	0.9	0.7	0.7	0.7	0.8	0.8	0.6	0.6	0.8	0.7
8 a. m.	3.1	3.6	3.9	3.4	2.8	2.4	2.5	2.6	2.7	2.8	2.2	2.9	2.8
Ulua:													
7, 2, 9	0.0	−0.1	0.2	0.2	0.3	0.4	0.4	0.2	−0.1	0.0	−0.2	−0.3	0.1
8, 8	0.5	0.6	0.8	0.8	0.6	0.6	0.6	0.7	0.5	−0.4	0.6	0.6	0.6
8 a. m.	1.8	1.7	2.0	1.9	1.4	1.8	2.0	2.4	2.1	1.9	1.9	1.9	1.8
Valladolid:													
7, 2, 9	−1.2	−0.8	−0.2	−0.4	−0.8	−0.3	0.0	0.1	−0.3	−1.0	−1.0	−0.8	−0.8
8, 8	0.9	1.0	1.0	0.9	0.8	0.9	0.8	0.9	1.0	0.7	0.9	1.1	0.8
8 a. m.	3.3	3.5	3.3	2.9	2.1	1.5	1.2	1.4	1.8	2.1	2.6	3.0	3.3
Valle de Bravo:													
7, 2, 9	−0.4	−0.4	−0.3	−0.4	−0.3	−0.2	0.0	−0.2	−0.3	−0.6	−0.5	−0.4	−0.3
8, 8	0.7	0.7	1.0	1.1	0.9	0.9	0.9	0.9	0.7	0.6	0.8	0.8	0.8
8 a. m.	4.9	5.1	5.5	5.5	4.5	3.3	3.2	3.0	2.8	3.2	4.0	4.2	4.1
Vigia Chico:													
7, 2, 9	0.3	0.3	0.5	0.2	0.2	−0.1	−0.4	−0.2	−0.3	−0.1	0.2	−0.5	0.1
8, 8	0.6	0.7	0.7	0.7	0.5	0.5	0.5	0.7	0.7	0.5	0.6	0.8	0.6
8 a. m.	1.5	1.6	1.4	1.4	1.5	1.7	1.3	1.2	1.3	1.6	1.7	1.9	1.4
Xkalak:													
7, 2, 9	−0.1	−0.1	−0.2	−0.2	−0.4	−0.4	−0.4	−0.3	−0.6	−0.9	−0.5	0.0	−0.4
8, 8	0.8	0.9	0.9	0.9	0.7	0.7	0.7	0.9	0.9	0.7	0.8	1.0	0.8
8 a. m.	1.3	1.4	1.5	1.4	1.0	1.2	1.2	1.3	1.4	1.3	1.4	1.5	1.3
Zacatecas, Bufa:													
7, 2, 9	0.2	0.2	0.1	−0.3	−1.1	−0.7	−0.8	−0.9	−1.0	−1.0	−0.7	0.0	−0.6
8, 8	0.6	0.6	0.7	0.9	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.8	0.7
8 a. m.	2.9	3.0	4.0	4.6	4.3	3.7	3.6	2.5	3.4	3.6	3.4	3.2	3.5
Zacualtipan:													
7, 2, 9	0.4	−0.3	−0.8	−0.8	−0.2	0.0	0.0	0.0	−0.3	−0.2	0.1	0.2	−0.2
8, 8	0.7	0.7	0.8	0.7	0.8	0.8	0.9	0.9	0.8	0.6	0.8	0.8	0.8
8 a. m.	1.3	2.3	2.5	2.4	2.3	2.3	2.3	2.4	2.2	2.1	2.1	2.0	2.3

TABLE 9.—*24-hour mean temperatures by reduction.* (°C.)

(See Tables 3 and 10.)

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Ahualuco	15.7	16.7	19.2	22.3	23.8	23.4	22.6	22.1	21.7	20.8	18.0	16.1	20.2
Autlan	18.6	19.5	22.0	23.9	25.2	25.7	24.4	23.1	22.6	21.7	20.1	19.0	22.2
C. Guzmàn	15.5	16.8	18.7	20.3	21.5	21.5	20.5	20.2	19.6	18.9	17.9	15.9	18.9
C. Juarez	6.2	8.6	12.6	17.2	22.1	25.5	26.1	25.1	22.2	16.8	11.0	6.4	16.7
C. Victoria	15.3	17.2	21.3	24.5	26.6	27.9	26.9	27.9	26.2	22.9	19.0	16.2	22.7
Colima	21.3	21.5	22.7	23.9	24.9	25.6	24.9	24.3	24.1	23.3	22.5	21.4	23.4
Colotlan	13.8	15.5	19.1	21.4	23.1	24.4	22.3	21.3	21.1	19.9	16.4	13.4	19.3
Comitan	14.8	15.3	17.5	19.4	19.3	18.7	18.1	18.1	18.2	17.4	16.1	15.6	17.4
Cuernavaca	18.0	19.4	21.6	23.4	23.2	21.8	20.8	20.1	20.1	19.4	18.6	17.7	20.4
Culiacàn	19.5	19.6	21.0	23.3	26.0	28.7	28.9	28.2	27.9	25.9	22.3	19.4	24.2
Chignahuapan	7.9	8.9	11.2	13.4	14.6	14.3	13.7	13.4	12.8	11.1	9.4	8.1	11.6
Chihuahua	10.9	12.4	16.5	20.4	24.9	25.3	25.3	24.6	22.7	19.0	13.6	10.2	18.9
Durango	11.9	13.8	16.7	19.0	20.6	21.9	20.6	19.7	18.4	16.6	14.2	12.2	17.1
Fuerte	17.4	17.8	20.1	23.0	26.3	30.0	29.4	28.3	28.1	25.5	21.4	17.4	23.7
Guadalajara	15.4	16.8	19.0	21.7	23.3	22.9	21.6	20.8	20.1	19.0	17.5	15.6	19.5
Guanajuato	13.3	15.0	17.7	20.2	20.8	19.9	18.9	18.8	18.6	17.5	15.5	14.0	17.5
Guaymas	18.4	19.3	21.5	23.8	26.2	28.7	30.4	30.4	30.0	27.2	22.3	18.9	24.7
Hermosillo	16.9	18.2	21.0	23.7	26.9	29.9	31.5	30.8	29.9	25.2	19.7	16.2	24.2
Huejutla	19.7	20.7	24.0	26.5	27.9	28.3	27.7	27.4	26.8	24.5	22.1	20.3	24.8
Isla Mujeres	24.1	24.6	25.6	26.1	27.2	27.3	27.6	28.0	27.5	26.4	25.2	24.7	26.2
Izamal	20.5	21.8	24.1	26.0	27.2	26.1	25.6	25.5	25.3	23.9	22.3	21.2	24.1
Jalapa	13.5	14.8	17.0	19.0	20.0	19.2	18.8	18.9	18.4	17.3	16.0	14.7	17.3
La Barca	14.7	16.4	19.2	21.6	23.1	22.8	21.3	20.6	20.0	19.0	17.7	15.5	19.3
Lagos	13.5	14.5	17.2	19.5	21.3	21.7	20.2	19.7	19.0	18.4	16.5	14.1	18.0
Lampazos	13.1	14.6	19.0	22.9	27.2	29.5	29.3	29.7	27.1	22.6	17.8	13.8	22.2
Leon	13.0	15.0	18.0	21.0	22.8	22.2	20.5	19.9	19.1	17.5	15.1	13.2	18.1
Manzanillo	23.7	23.3	23.9	25.3	27.0	28.6	28.6	28.2	27.6	27.1	25.9	24.4	16.1
Mascota	16.0	16.2	17.5	19.5	21.3	22.8	21.9	20.9	20.5	19.6	17.4	16.4	19.2
Maxcanu	21.0	22.4	24.7	26.5	27.5	26.7	26.0	26.0	25.7	24.4	22.9	21.4	24.6
Mazatlan	20.8	20.4	21.5	22.7	24.6	27.3	28.0	28.3	28.3	27.3	24.3	21.7	24.6
Merida	21.2	22.4	24.6	26.2	27.4	26.9	26.4	26.5	26.3	25.0	23.5	22.1	24.9
Mexico	11.6	13.6	15.6	17.5	18.1	17.7	16.7	16.7	16.2	14.9	13.9	12.1	15.4
Monterrey	14.2	15.6	19.5	22.5	26.1	27.4	27.2	27.4	25.2	21.2	17.3	14.9	21.5
Morelia, Obs.	13.2	14.7	17.2	19.2	19.8	18.8	18.2	17.6	17.2	16.0	14.7	13.3	16.7
Morelia, Sem.	12.4	13.9	16.1	18.0	18.8	18.6	17.4	17.0	16.5	15.1	14.3	13.2	15.9
Oaxaca	15.6	17.1	19.5	21.5	21.5	20.7	20.2	19.9	19.3	18.4	17.5	16.4	19.0
Ojinaga	13.2	14.8	18.8	22.5	26.3	30.0	30.5	30.3	26.9	21.3	16.0	11.8	21.9
Pachuca	11.0	12.2	13.9	15.5	16.6	16.2	15.7	15.2	14.8	14.0	12.8	11.4	14.1
Parral	10.1	11.6	14.7	18.1	22.5	22.7	21.4	20.6	19.0	16.0	12.2	10.0	16.6
Peto	20.3	21.9	24.1	25.8	26.7	26.2	25.4	25.6	25.2	23.8	22.3	21.0	24.0

Fig. 2 1. Centers of reduction to sea-level.

Fig. 22. Variation of temperature with altitude.
Average per 100 meters in zone 0–1,500 m.

TABLE 9.—*24-hour mean temperatures by reduction.* (°*C.*)—Contd.

Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Piedras Negras.	11.9	14.4	19.2	22.0	26.0	29.6	29.6	30.6	27.1	21.6	15.4	11.0	21.5
Pachutla	23.6	24.5	25.8	27.0	27.4	27.2	26.1	25.9	26.1	25.8	24.7	23.8	25.7
Progreso	21.7	22.3	23.7	25.1	26.3	26.8	26.4	26.6	26.9	26.1	24.4	22.8	24.9
Puebla	11.2	12.3	14.7	17.1	17.5	16.9	16.5	16.3	15.5	14.6	13.3	11.6	14.8
Queretaro	13.1	14.6	17.8	20.0	20.9	20.3	19.2	18.7	17.9	16.6	15.1	13.5	17.3
Rio Bravo	15.1	16.7	20.9	23.7	26.9	29.6	28.4	28.3	26.4	23.7	18.5	15.4	22.8
Salina, Cruz	24.9	25.2	26.7	28.0	28.4	28.0	28.0	28.2	27.8	27.2	26.2	25.3	27.0
Saltillo	11.2	13.7	16.6	19.2	22.2	23.4	21.8	22.3	19.9	16.5	13.6	11.0	17.6
S. Cristobal	10.7	11.7	13.6	14.1	15.7	15.6	14.7	14.4	14.6	14.6	13.6	11.7	13.7
S.JuanBautista	22.7	23.8	26.2	28.1	29.5	28.7	28.5	28.6	27.6	26.2	24.9	23.6	26.5
S. Luis Potosi	10.4	12.9	15.9	19.0	20.5	20.4	19.3	19.2	18.2	15.9	14.0	12.2	16.5
Sierra Mojada	12.9	14.5	18.1	20.9	23.9	25.4	24.6	24.2	21.8	18.6	15.1	12.0	19.3
Silacayoapan	15.4	16.8	19.0	20.4	20.5	20.2	19.3	19.0	18.8	18.2	17.0	15.7	18.4
Tapachule	23.7	24.8	26.3	27.3	26.9	25.9	25.0	24.6	24.2	25.0	25.6	24.6	25.3
Tampico	19.4	20.0	22.4	24.6	26.7	27.9	27.8	27.9	27.3	24.8	22.1	19.2	24.2
Teocaltiche	12.6	14.0	17.3	20.0	22.2	22.5	20.7	19.9	19.2	17.8	14.8	13.3	17.9
Tepic	14.9	16.0	18.4	21.0	22.6	23.3	22.6	21.4	21.0	20.6	18.6	15.7	19.7
Tlaxcala	11.6	12.9	15.3	16.9	17.5	17.0	16.6	16.1	15.6	14.9	13.5	12.4	15.0
Toluca	7.9	9.1	11.9	13.9	14.9	14.5	13.6	13.5	12.8	11.7	9.9	8.6	11.9
Torreon	14.0	15.8	19.7	22.9	25.0	26.8	26.4	26.5	24.0	20.9	17.2	13.8	21.1
Tuxtepec	20.6	21.7	24.0	26.7	28.0	27.6	26.6	26.5	26.4	24.6	22.8	21.6	24.7
Tuxtla Gutierrez	20.7	21.8	23.5	25.7	26.3	25.8	24.9	24.7	24.9	23.8	22.4	21.4	23.8
Ulua	21.2	21.5	23.6	25.5	26.8	27.4	27.3	27.2	26.4	25.4	23.4	21.3	24.7
Valladolid	20.5	21.8	24.2	25.7	26.4	26.5	26.3	26.3	25.8	24.1	22.5	21.4	24.3
Valle de Bravo.	12.8	14.1	16.6	18.3	19.4	18.5	17.5	16.7	16.4	15.6	14.7	13.4	16.2
Vigia Chico	22.5	23.8	25.1	25.8	26.7	27.1	26.9	27.2	26.9	25.7	24.4	23.2	25.5
Xkalak	23.8	24.4	25.5	26.6	27.4	27.7	27.7	27.7	26.9	25.5	24.6	24.3	26.0
Zacatecas, Inst.	9.6	11.0	13.5	16.2	17.8	17.4	15.6	15.8	14.7	13.1	11.7	10.4	13.9
Zacatecas, Bufa	10.4	11.4	13.7	15.7	16.5	16.6	15.4	15.3	14.1	12.9	11.9	11.2	13.8
Zacualtipan	9.3	9.9	11.6	13.9	15.9	15.7	15.2	15.0	14.2	12.6	11.0	9.6	12.8

PART IV. REDUCTION OF TEMPERATURE TO SEA LEVEL.

The 70 stations used in this discussion may be classed with respect to altitude as follows:

Stations with less than 500 meters elevation	27
Stations with 500–1,500 meters elevation	12
Stations with 1,509–2,500 meters elevation	29
Stations with elevation greater than 2,500 meters	2

In brief, the method of reducing the temperatures to sea level was accomplished about as follows:

The stations were assembled in groups as shown in Figure 21 and the coordinates of each group were calculated. The stations in the group and the group coordinates are given in Table 10.

TABLE 10.—*Centers of reduction. Grouping of stations and geographical coordinates of centers.*

Centers and stations.	Elevation.	Latitude, north.	Longitude, west.
	Meters.	°	°
(1) Guaymas	9	27.9	110.9
Hermosillo	218	29.1	110.9
C. Juarez	1,134	31.7	106.5
Chihuahua	1,423	28.6	106.1
		29.3	108.6
(2) Guaymas	9	27.9	110.9
Culiacan	53	24.8	107.3
Mazatlan	78	23.1	106.4
Fuerte	102	26.5	108.7
		25.6	108.3
(3) Mazatlan	78	23.1	106.4
Fuerte	102	26.5	108.7
Torreon	1,135	25.6	103.4
Sierra Mojada	1,528	27.3	103.7
Parral	1,730	26.9	106.0
Durango	1,903	24.0	104.5
		25.6	105.5
(4) Piedras Negras	221	28.7	100.5
Lampazos	317	27.0	100.5
Monterrey	533	25.7	100.3
Ojinaga	800	29.6	104.4
Torreon	1,135	25.6	103.4
Sierra Mojada	1,528	27.3	103.7
Saltillo	1,605	25.4	101.0
		27.0	102.1
(5) Rio Bravo	30	26.0	98.0
Piedras Negras	221	28.7	100.5
Lampazos	317	27.0	100.5
C. Victoria	324	23.7	99.1
Monterrey	533	25.7	100.3
Saltillo	1,605	25.4	101.0
		26.1	99.9

TABLE 10.—*Centers of reduction. Grouping of stations and geographical coordinates of centers*—Continued.

Centers and stations.	Elevation.	Latitude, north.	Longitude, west.
	Meters.	°	°
(6) Tampico	24	22.2	98.0
C. Victoria	324	23.7	99.1
Torreon	1,135	25.6	103.4
Saltillo	1,605	25.4	101.0
Queretaro	1,842	20.6	100.3
San Luis Potosi	1,887	22.2	101.0
Zacatecas, Inst	2,443	22.6	102.6
		23.2	100.5
(7) Mazatlan	78	23.2	106.4
Tepic	930	21.5	105.0
Colotlan	1,683	22.6	103.6
Durango	1,903	24.0	104.6
Zacatecas, Inst	2,443	22.6	102.6
		22.8	104.4
(8) Manzanillo	4	19.0	104.3
Colima	507	19.2	103.7
Tepic	930	21.5	105.0
Autlan	1,003	19.5	104.5
Mascota	1,238	20.6	104.7
Ahualulco	1,325	20.8	103.9
C. Guzman	1,529	19.6	103.5
Guadalajara	1,558	20.7	103.4
Colotlan	1,683	22.6	103.6
		20.4	104.1
(9) Manzanillo	4	19.0	104.3
Colima	507	19.2	103.7
C. Guzman	1,529	19.6	103.5
La Barca	1,532	20.3	102.5
Teocaltiche	1,724	21.2	102.3
Leon	1,809	21.1	101.6
Lagos	1,872	21.4	101.9
Morelia (Obs.)	1,925	19.7	101.1
Morelia (Sem.)	1,933	19.7	101.1
Guanajuato	2,037	21.0	101.3
		20.2	102.3
(10) Manzanillo	4	19.0	104.3
Salina Cruz	56	16.2	95.2
Pochutla	164	15.7	96.5
Colima	507	19.2	103.7
		17.5	99.9
(11) Ulua	12	19.2	96.1
Tampico	24	22.2	98.0
Huejutla	316	21.1	98.4
Jalapa	1,399	19.5	96.9
Cuernavaca	1,540	18.9	99.2
Valle de Bravo	1,525	19.2	100.0
Queretaro	1,842	20.6	100.3
Zacualtipan	2,024	20.5	98.6
Puebla	2,150	19.0	98.1
Tlaxcala	2,240	19.3	98.2
Mexico	2,259	19.4	99.1
Chignahuapan	2,270	19.9	98.0
Pachuca	2,436	20.1	98.7
Toluca	2,676	19.3	99.7
		19.9	98.5
(12) Ulua	12	19.2	96.1
Tampico	24	22.2	98.0
Tuxtepec	25	18.1	96.1
Huejutla	316	21.1	98.4
Jalapa	1,399	19.5	96.9
		20.0	97.1
(13) Ulua	12	19.2	96.1
Tuxtepec	25	18.1	96.1
Salina Cruz	56	16.2	95.2
Pochutla	164	15.7	96.5
Jalapa	1,399	19.5	96.9
Oaxaca	1,563	17.1	96.7
Silacayoapan	1,635	17.5	98.2
Puebla	2,150	19.0	98.1
		17.8	97.0
(14) Ulua	12	19.2	96.1
San Juan Bautista	22	18.0	92.9
Tuxtepec	25	18.1	96.1
Salina Cruz	56	16.2	95.2
Tuxtla Gutz	536	16.6	93.1
		17.6	94.7
(15) San Juan Bautista	22	18.0	92.9
Salina Cruz	56	16.2	96.1
Tapachula	187	14.9	92.3
Tuxtla Gutierrez	536	16.6	93.1
Comitan	1,635	16.2	92.1
San Cristobal	2,118	16.7	92.6
		16.4	93.2
(16) Vigia Chico	0	19.8	87.6
Xkalak	0	18.2	87.8
Tapachula	187	14.9	92.3
Comitan	1,635	16.2	92.1
San Cristobal	2,118	16.7	92.6
		17.2	90.5
(17) Isla Mujeres	0	21.1	86.7
Vigia Chico	0	19.8	87.6
Xkalak	0	18.2	87.8
Maxcanu	12	19.8	90.5
Progreso	15	20.6	90.0
Izamal	16	20.9	89.0
Merida	22	21.0	89.6
Valladolid	22	20.7	88.2
Peto	36	20.0	88.9
		20.2	88.7

The different stations of a group were located by taking as abscissas the temperature values for each station and as ordinates the respective elevations, the computations being made separately for each group. The series of points, as many as there are stations, referred to the center of correction will give a curve that will be classified according to its characteristics but in the present case it will generally belong to the first or second degree.

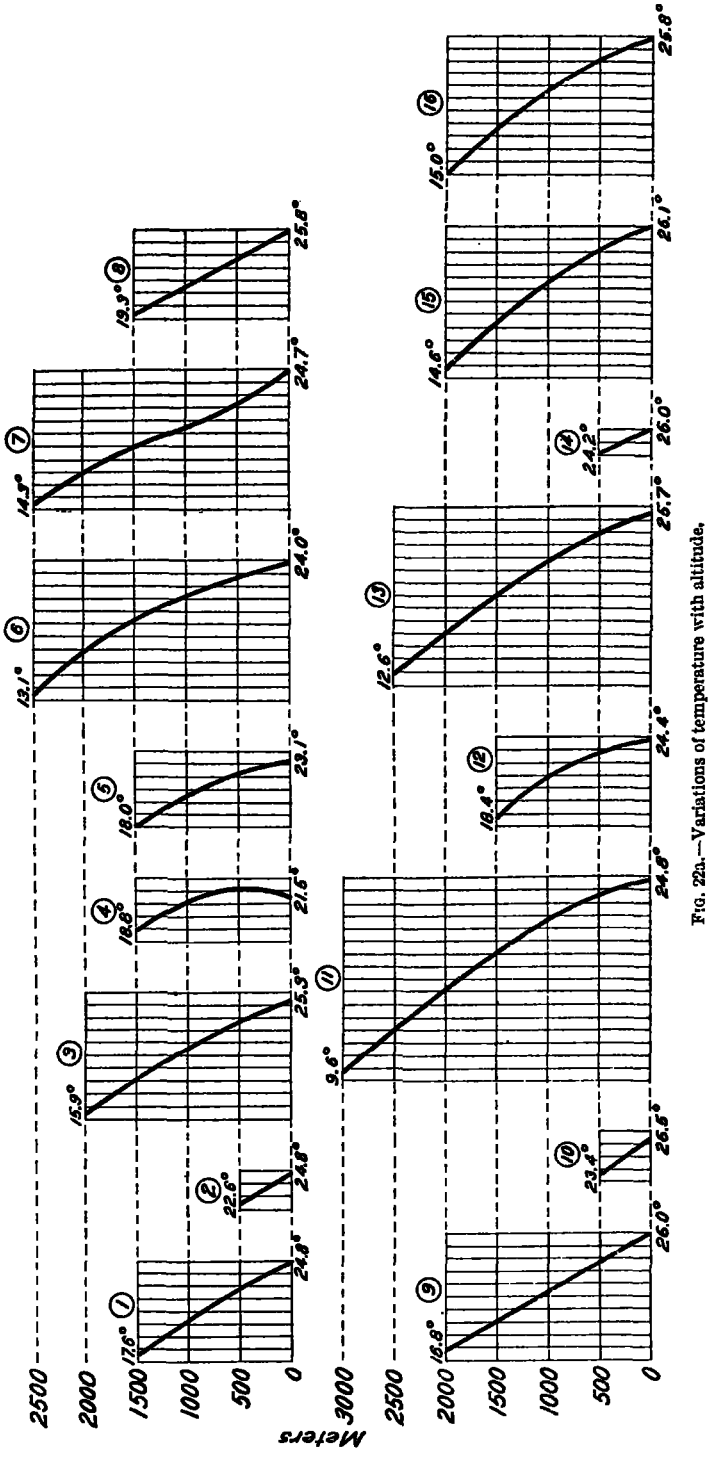

FIG. 22a.—Variations of temperature with altitude.

The curves for temperature gradient with elevation that have been obtained for the 17 centers and for which values of the sea level temperatures have been deduced appear in Figure 22a and the corresponding numerical values for each month and the year are given in Table 11 for elevations of 0, 500, 1,000, 1,500, 2,000, 2,500, and 3,000 meters. For lack of space only the annual curves are reproduced. District No. 17 includes the sea-leves stations of Yucatan for which no curve is given.

Finally from these data there have been computed statistics of the relative variation of temperature with altitude as shown in Table 12. The values in the last column of that table are presented graphically in Figure 22, and from the temperature situation at sea-level charts of variation with latitude and longitude were prepared, but are not reproduced in this abstract.

TABLE 11.—*Mean temperatures at different planes, derived from the curves giving temperature gradient with altitude.* (°C.)

AT 0 METERS.

Centers.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1	18.4	17.4	21.2	23.9	27.0	30.0	31.7	31.2	30.7	27.0	21.6	18.0	24.8
2	19.6	19.8	21.4	23.6	25.9	28.9	29.8	29.6	28.8	26.6	22.2	19.0	24.8
3	20.2	20.2	22.0	24.0	27.0	30.4	29.8	29.4	28.6	27.6	23.6	20.4	25.3
4	12.3	14.0	18.2	22.0	26.6	29.6	29.5	30.0	26.8	21.6	16.3	13.0	21.5
5	15.2	17.0	21.0	23.7	27.4	29.6	29.0	29.0	27.6	23.8	18.8	15.6	23.1
6	17.8	19.0	22.2	24.6	27.2	29.0	28.0	28.4	27.2	24.6	21.7	18.7	24.0
7	21.0	21.2	22.0	23.8	24.8	27.2	27.5	28.0	27.6	27.0	24.5	22.0	24.7
8	23.0	23.2	23.7	25.0	26.8	28.6	28.2	27.8	27.6	27.0	25.4	23.8	25.8
9	23.4	23.0	23.6	24.8	27.6	28.0	28.3	28.2	27.5	27.0	26.0	24.4	25.9
10	24.6	24.8	25.4	27.0	28.0	27.6	27.6	27.6	27.4	21.1	26.2	24.9	26.5
11	20.8	21.2	23.1	25.8	27.2	28.0	27.8	27.6	27.2	24.9	23.0	21.0	24.8
12	20.5	21.0	22.8	25.3	27.2	27.5	27.2	27.0	26.4	24.8	23.0	20.6	24.4
13	22.6	23.9	25.0	27.0	27.5	27.4	27.0	27.3	27.0	25.7	24.2	23.6	25.7
14	22.6	23.7	25.0	26.8	28.3	28.2	27.8	27.7	27.2	26.2	24.9	23.7	26.0
15	23.8	24.6	26.4	27.5	27.6	27.2	26.6	26.4	25.0	26.3	26.0	24.8	26.1
16	23.2	24.3	25.6	26.8	26.8	27.4	26.9	27.3	26.7	25.7	25.1	24.0	25.8
17	21.7	22.8	24.7	26.0	27.0	26.8	26.5	26.6	26.3	25.0	23.6	22.4	25.0

AT 500 METERS.

1	15.4	16.5	19.8	23.0	26.6	29.2	30.5	29.7	28.6	23.8	18.2	14.6	22.8
2	17.0	17.8	19.8	21.8	24.3	27.2	27.1	27.7	27.7	25.0	18.5	16.4	22.5
3	17.2	18.2	21.3	23.8	26.4	29.0	28.6	28.2	25.0	24.9	20.9	17.1	23.4
4	13.5	15.2	19.5	22.8	26.6	29.2	28.9	29.2	26.8	22.0	17.6	14.6	22.2
5	14.5	16.3	20.1	22.7	26.3	28.2	27.8	27.8	25.7	22.4	17.8	14.6	22.2
6	16.8	17.7	21.4	24.0	26.3	28.0	27.3	27.7	25.6	22.5	19.4	16.2	22.7
7	18.6	18.8	20.0	22.4	23.6	25.0	25.2	25.4	24.6	24.4	22.0	18.8	22.4
8	20.6	21.0	22.6	23.8	25.0	26.2	25.2	25.0	24.6	24.6	22.6	21.4	23.6
9	21.0	21.5	22.6	24.2	25.4	26.2	25.3	24.6	24.4	23.9	22.8	21.6	23.6
10	21.6	21.8	23.0	24.2	25.0	25.6	24.4	24.2	24.0	23.4	22.4	21.3	23.4
11	19.2	20.4	22.8	25.3	25.3	26.2	26.4	26.2	25.7	23.2	21.4	20.2	23.6
12	19.3	20.2	23.0	25.8	27.2	27.4	27.2	26.6	25.8	23.8	21.4	19.4	23.9
13	20.6	21.8	23.4	25.1	25.6	25.7	25.2	25.2	24.9	24.0	22.6	21.5	23.8
14	21.3	22.2	23.6	25.8	27.0	26.0	26.2	25.0	25.0	24.2	22.6	21.4	24.2
15	21.6	22.7	25.2	26.3	26.5	26.1	25.0	24.6	24.2	24.3	23.6	22.8	24.4
16	20.0	22.9	25.4	26.2	26.0	24.9	23.8	23.6	24.0	24.0	24.6	23.0	24.0

AT 1,000 METERS.

1	12.6	13.8	17.6	21.1	25.1	27.6	28.0	27.0	25.4	20.6	15.0	11.4	20.4
3	14.7	16.2	20.2	22.9	25.4	27.4	27.0	26.6	24.8	22.0	18.0	14.6	21.6
4	13.2	15.0	19.2	22.2	25.4	27.7	27.1	27.2	25.2	21.1	17.0	14.0	21.2
5	13.2	15.0	18.6	21.4	24.6	26.4	25.7	25.6	25.4	20.2	16.2	13.0	20.4
6	15.5	16.2	20.0	22.8	24.8	26.3	25.5	26.2	23.6	20.2	17.4	14.2	21.1
7	16.2	16.8	19.0	21.4	23.0	23.5	23.7	23.3	22.2	21.7	19.3	16.2	20.5
8	18.3	18.8	20.6	22.2	23.4	24.4	23.0	22.5	22.3	22.2	19.8	18.2	21.3
9	18.6	19.4	21.0	22.7	23.9	24.6	22.6	22.0	22.0	21.3	19.8	18.6	21.4
11	17.2	19.0	21.2	23.8	24.1	23.6	23.4	23.3	23.0	20.9	19.3	18.6	21.5
12	17.0	18.5	21.3	24.0	25.0	24.8	24.6	24.0	23.4	21.3	19.2	17.8	21.7
13	17.0	19.6	21.4	23.0	23.4	23.4	23.0	22.7	22.2	21.6	20.2	18.9	21.4
15	18.8	20.0	22.2	23.7	23.8	23.4	21.7	21.6	21.2	21.6	20.8	19.5	21.5
16	19.5	20.2	23.1	24.0	23.8	22.4	21.2	21.1	21.8	21.8	22.2	20.8	21.8

AT 1,500 METERS.

1	9.6	11.0	14.8	18.8	23.4	25.6	24.6	23.2	21.5	17.5	12.2	8.2	17.5
3	12.7	14.2	18.1	20.8	23.4	24.8	24.3	23.8	21.7	19.0	15.3	12.5	19.2
4	12.2	13.6	17.4	20.4	23.2	25.0	24.4	23.8	21.6	18.2	14.8	11.6	18.8
5	11.4	13.4	16.8	19.4	22.5	24.3	22.9	22.7	19.8	17.0	13.8	10.6	17.9
6	13.9	14.4	18.4	20.9	22.6	23.8	23.0	23.5	20.9	17.8	15.2	12.4	18.9
7	14.0	14.8	17.8	20.6	21.2	22.6	21.8	21.0	20.0	19.0	16.6	14.0	19.0
8	15.2	16.4	18.4	20.8	22.0	23.4	22.2	21.6	20.5	19.7	17.1	14.5	19.3
9	15.6	17.0	19.0	21.0	22.3	22.5	20.6	20.0	19.7	18.9	17.3	15.8	19.1
11	14.8	16.9	19.0	21.6	21.6	20.8	20.0	20.7	19.8	18.2	16.6	16.0	18.8
12	14.0	16.0	18.6	20.8	21.0	20.5	20.0	19.8	19.7	18.2	16.4	15.6	18.4
13	15.2	17.0	19.2	20.6	21.0	20.8	20.2	19.9	19.4	18.7	17.4	15.9	18.8
15	15.6	16.7	18.6	20.2	20.6	19.8	18.5	18.3	18.2	18.6	17.7	16.3	18.3
16	16.1	16.7	19.3	21.0	20.8	19.7	18.8	18.8	19.4	19.3	19.0	17.4	18.6

AT 2,000 METERS.

3	11.0	12.3	15.2	17.2	20.0	20.6	19.6	18.8	17.6	15.6	12.6	10.8	15.9
6	11.9	14.4	16.1	18.7	20.0	20.5	19.0	19.4	17.4	15.2	13.2	11.0	16.4
7	11.4	13.0	16.5	19.3	20.7	21.2	19.4	18.8	17.6	16.4	13.4	11.8	16.6
9	12.4	14.0	16.6	19.0	20.1	19.7	18.4	18.2	17.7	16.6	14.8	12.8	16.7
11	12.2	14.4	16.4	19.0	19.0	17.8	17.0	17.6	16.6	15.4	13.7	12.8	16.0
13	12.1	14.0	16.6	18.2	18.4	18.0	17.4	17.0	16.2	15.5	14.3	12.8	15.9
15	11.8	12.8	14.4	16.0	16.6	16.3	15.4	15.0	15.0	15.4	14.2	12.5	14.6
16	12.1	12.6	14.6	17.2	17.0	17.0	16.0	15.4	16.0	15.8	14.6	12.7	15.0

Fig. 23. Sea-level isotherms, January.

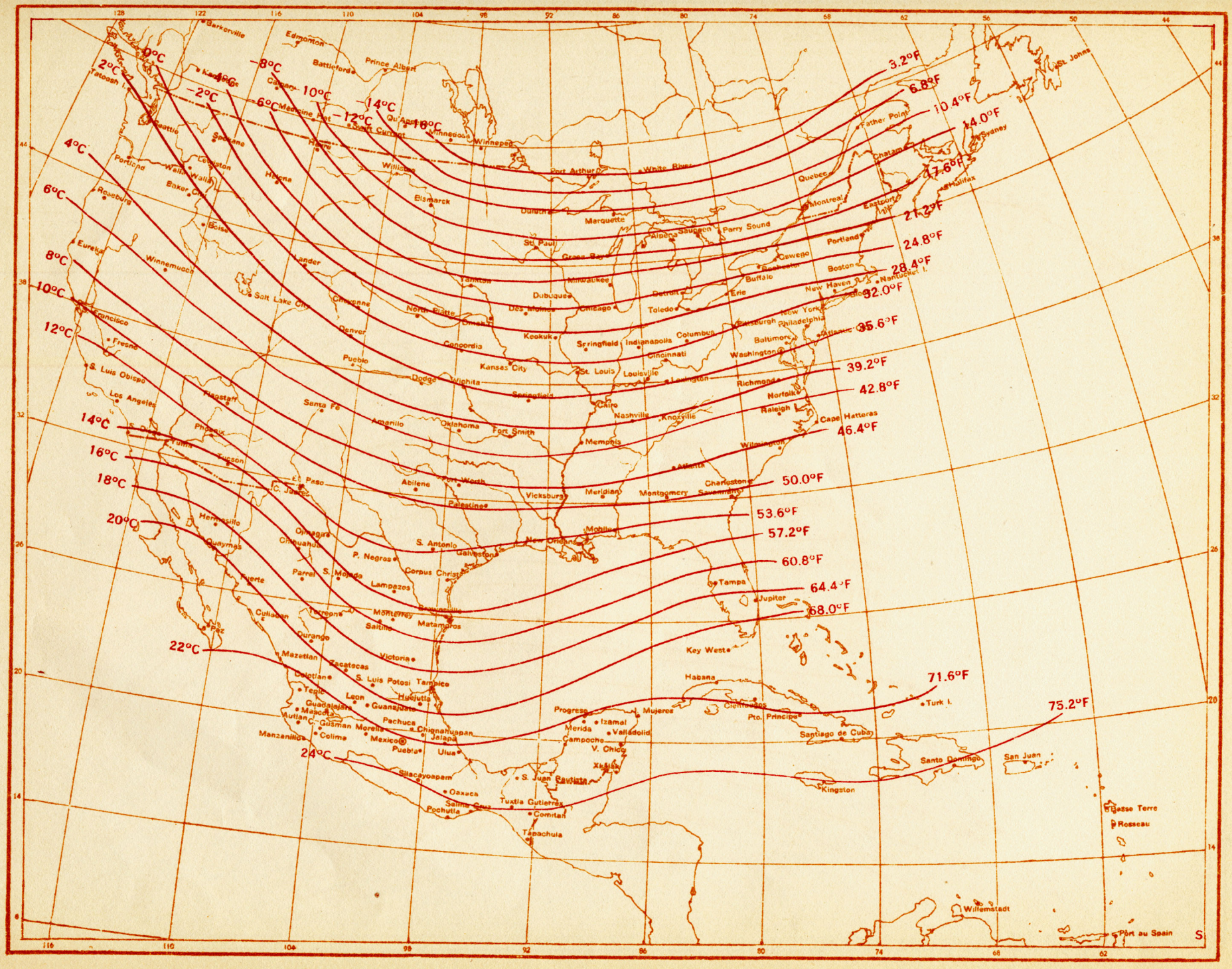

Fig. 24. Sea-level isotherms, February.

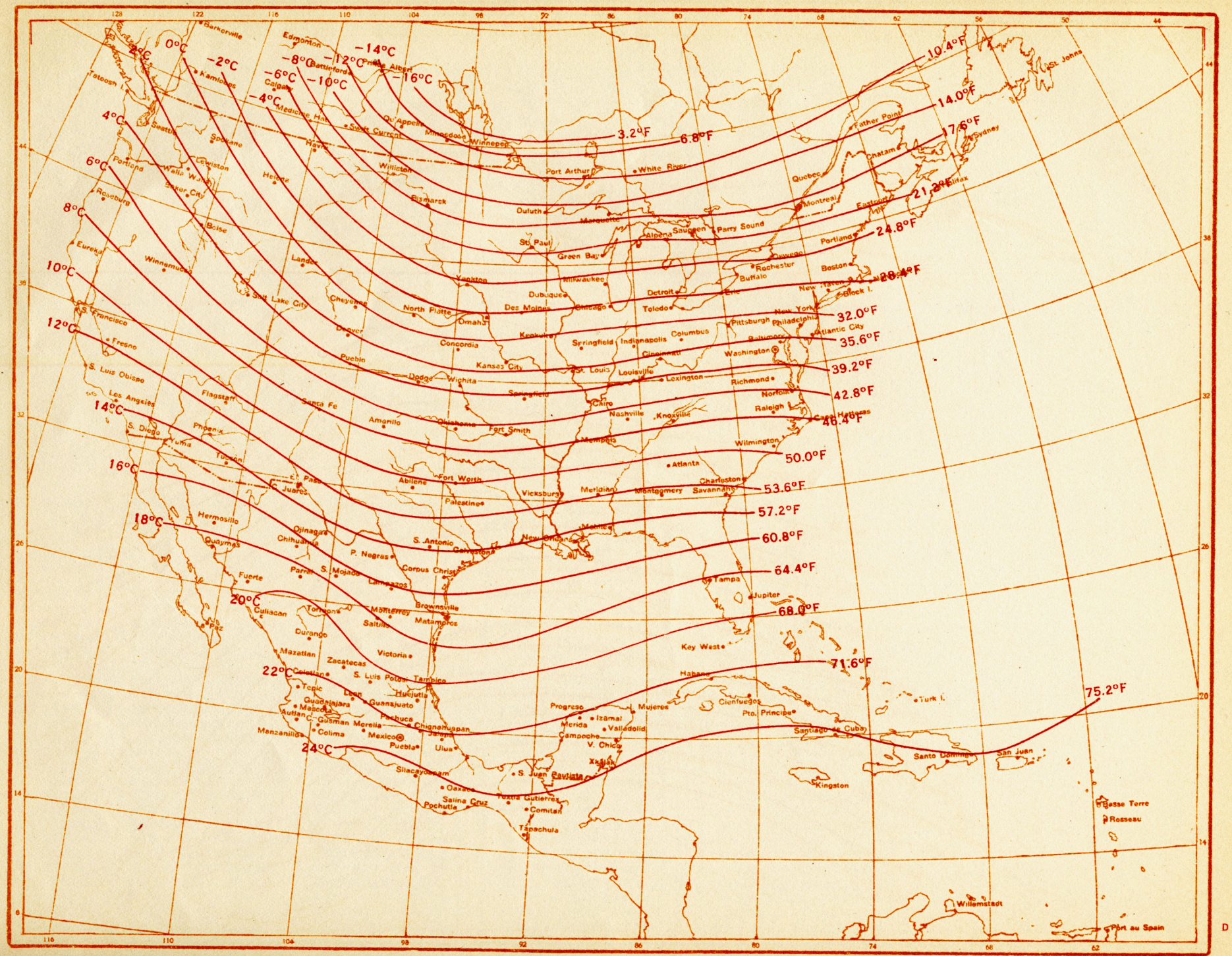

Fig. 25. Sea-level isotherms, May.

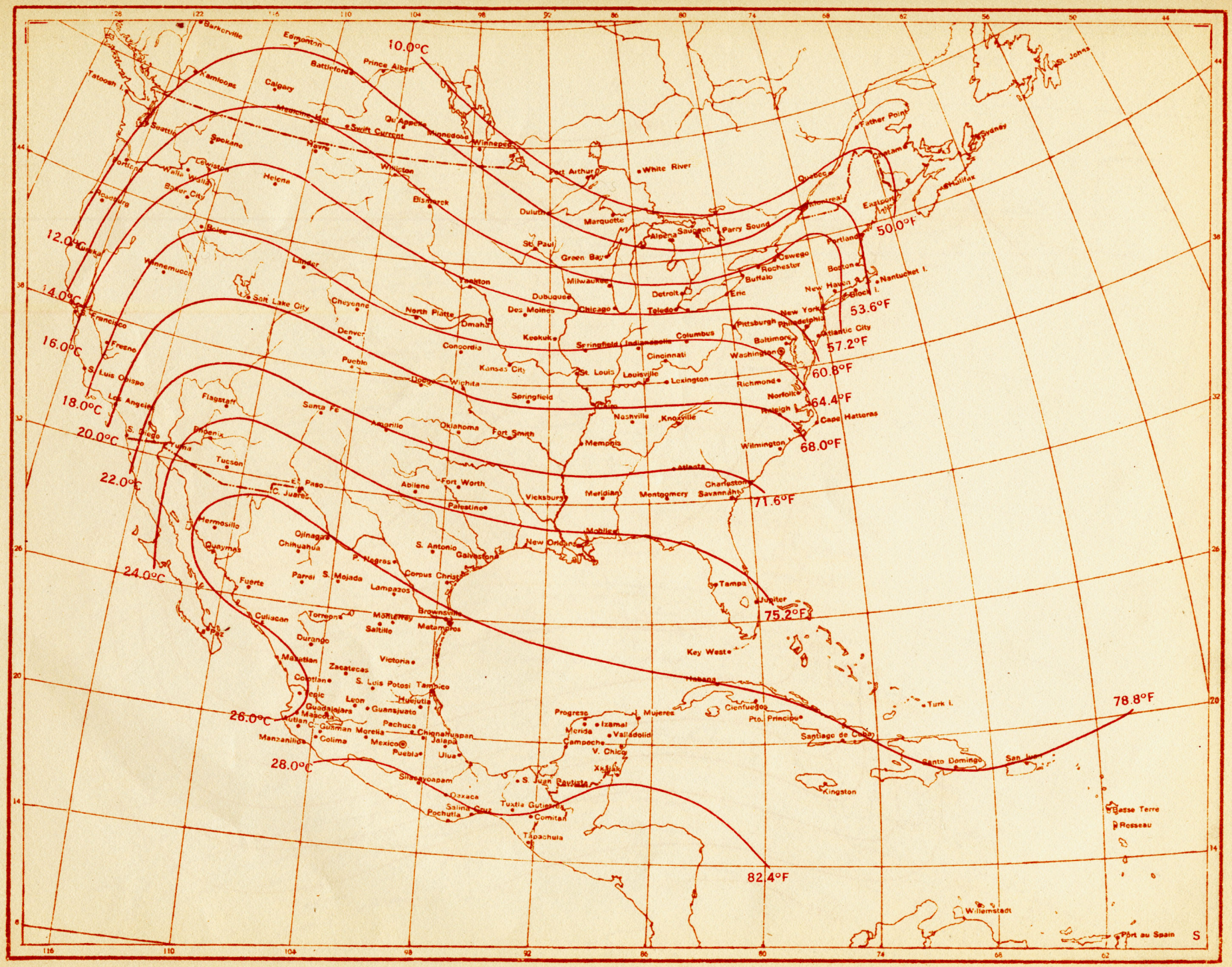

Fig. 26. Sea-level isotherms, June.

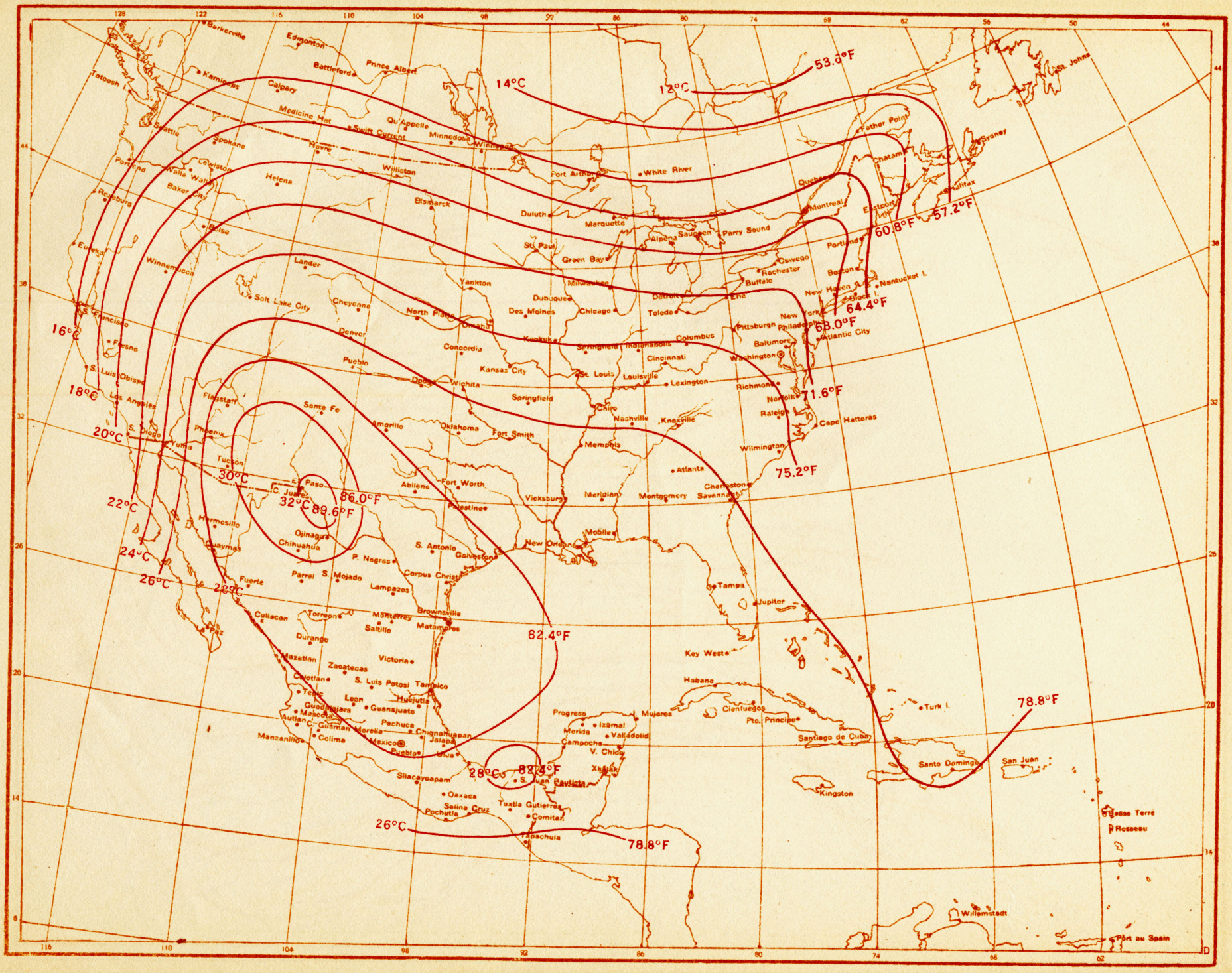

Fig. 27. Sea-level isotherms, September.

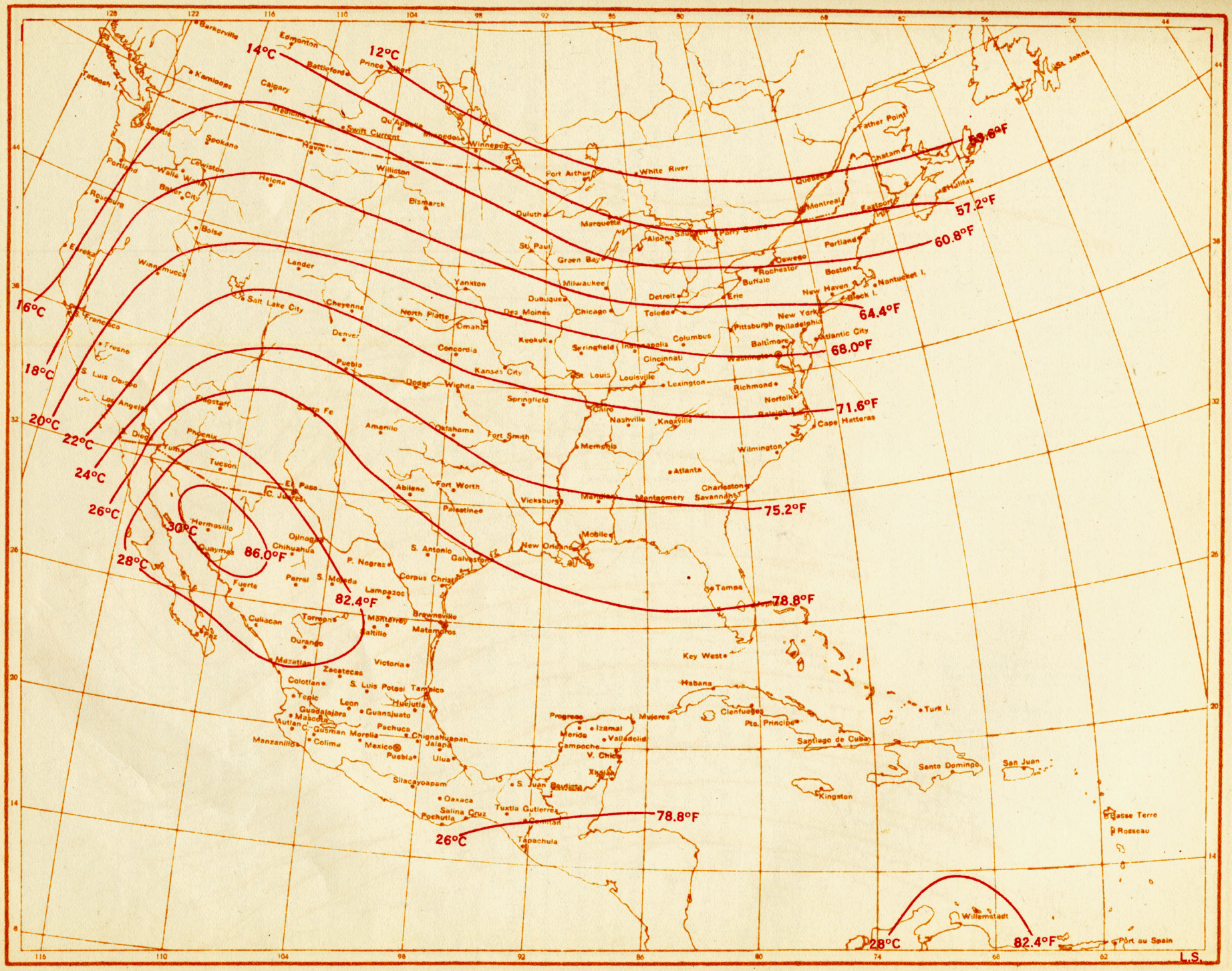

Fig. 28. Sea-level isotherms, Year.

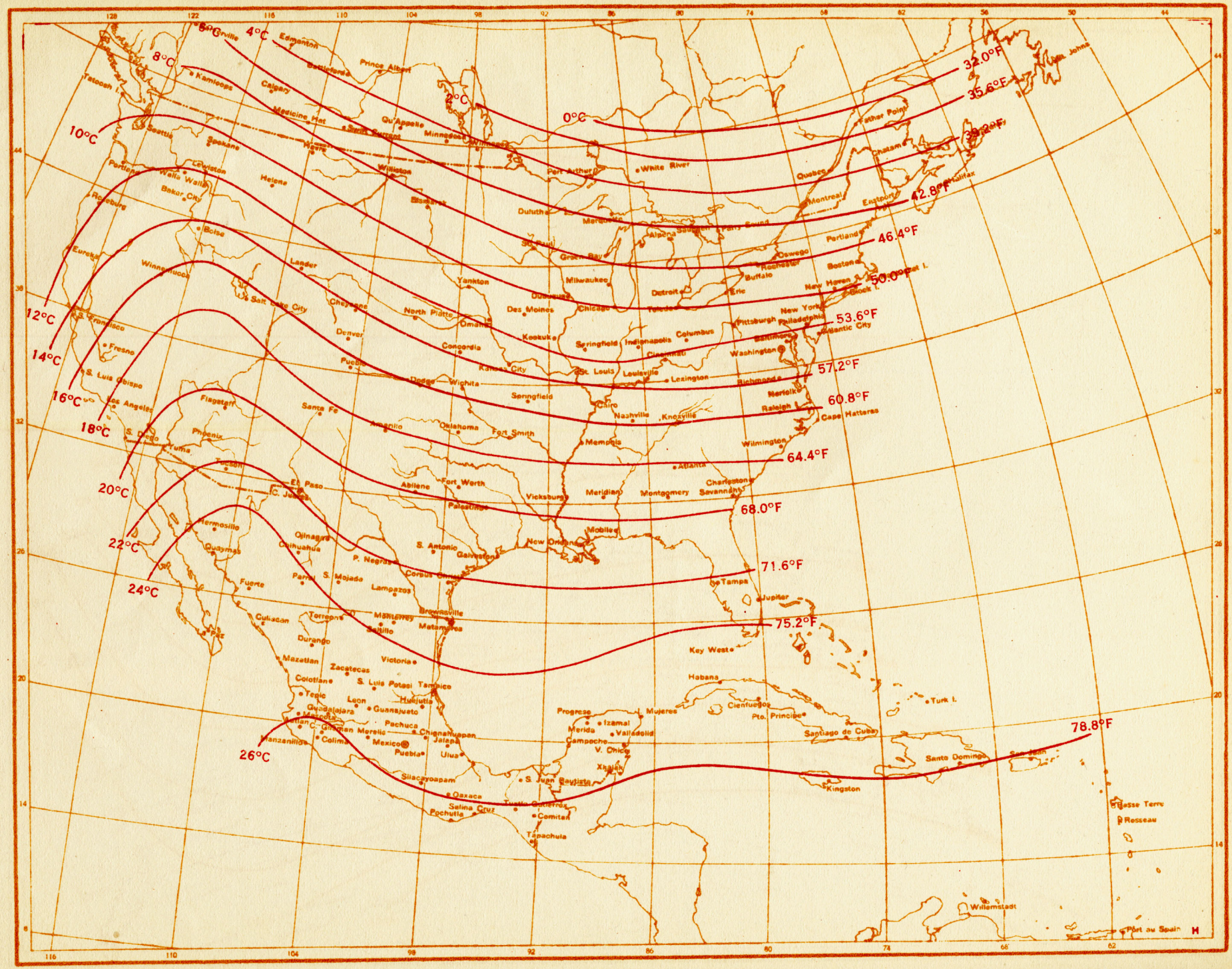

TABLE 11.—*Mean temperatures at different planes, derived from the curves giving temperature gradient with altitude.* (°*C.*)—Continued.

AT 2,500 METERS.

Centers.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
6	9.4	9.8	13.2	16.2	17.0	16.6	14.0	14	13 3	12.4	10.8	10.0	13.1
7	9.6	11.0	13.8	16.6	17.8	17.6	16.0	16	15.4	13.6	10.0	10.0	14.3
11	9.2	11.1	13.4	15.8	15.8	14.8	13.7	14	13.2	12.2	10.6	9.2	12.8
13	9.0	10.6	14.0	14.7	15.4	14.8	14.2	14	12.8	12.0	10.8	9.2	12.6

AT 3,000 METERS.

11	6.2	7.6	10.0	12.3	12.4	12.0	10.6	11.2	9.8	9.0	7.4	5.8	9.5

TABLE 12.—*Vertical temperature gradient* (°*C.*). *Mean values per 100 meters.*

Centers.	Zones (in meters).						
	0 to 500.	500 to 1,000.	1,000 to 1,500.	1,500 to 2,000.	2,000 to 2,500.	2,500 to 3,000.	0 to 1,500.
1	−0.4	−0.5	−0.6				−0.5
2	−0.5						
3	−0.4	−0.4	−0.5	−0.5			−0.4
4	0.1	−0.2	−0.5				−0.2
5	−0.2	−0.4	−0.5				−0.4
6	−0.3	−0.3	−0.4	−0.5	−0.5		−0.3
7	−0.5	−0.4	−0.3	−0.5	−0.5		−0.4
8	−0.4	−0.5	−0.4				−0.4
9	−0.5	−0.4	−0.4	−0.5			−0.4
10	−0.6						
11	−0.2	−0.4	−0.5	−0.6	−0.6	−0.7	−0.4
12	−0.1	−0.4	−0.6				−0.4
13	−0.4	−0.5	−0.5	−0.6	−0.7		−0.5
14	−0.4						
15	−0.3	−0.6	−0.6	−0.7			−0.5
16	−0.4	−0.4	−0.6	−0.7			−0.5

CLIMATE OF SAN JOSE, CALIFORNIA.

ESEK S. NICHOLS, Meteorologist.

[Weather Bureau, San Jose, Calif., Sept. 26, 1923.]

PHYSICAL BASIS OF THE CLIMATE.

San Jose is situated in latitude 37° 20′ N. at an elevation of about 100 feet above sea level near the western coast of the North American Continent, only about 30 miles distant from the Pacific Ocean.

The city lies in the midst of the Santa Clara Valley, the floor of which is generally nearly flat. In the immediate vicinity, the slope is about 20 feet per mile north-northwestward toward San Francisco Bay, the southern end of which is about 10 miles distant. Isolated hills rise to a height of about 450 feet 3 miles south of town, while it is about 8 miles westward to the foothills of the Santa Cruz Mountains and about 5 miles in the opposite direction to the Mount Hamilton Range foothills. These two members of the Coast Range system and connecting ranges run in a northwest-southeasterly direction approximately parallel with the coast. The valley, the bay, and other valleys both northward and southward lie in the trough between the two ridges. No topographic features prevent the free flow of air between the valley and the bay. The main portion of this practically land-locked body of water is 42 miles from northwest to southeast, 5 to 13 miles wide, and its total area is about 450 square miles. It is an arm of the ocean, salt, and subject to tidal fluctuations. Being more affected by land temperatures, it must be somewhat colder in winter and warmer in summer than near-by parts of the Pacific.

Peaks of the Mount Hamilton Range rise above the 4,200-foot level, and extensive highlands east of San Jose are about 2,500 feet in elevation. These mountains are sufficient to protect the valley to a great extent from the hot, dessicating summer air of the interior of the State, as well as from many cold spells of winter and spring. The Sierra Nevada Mountains, peaks of which ascend to heights above 14,000 feet, lie about 125 miles east-northeastward. As far as we are concerned, the effects of this range are mainly the following: Slowing up and deflecting the general wastward drift of the lower air strata and preventing cold surface air overlying the Great Basin during cold waves from overspreading California.

Although the Santa Cruz Range west of San Jose is only about 2,500 feet in elevation, it deflects and breaks the force of the ocean winds, largely prevents ocean fog from reaching the valley directly, and, by its foehn or chinook effects, reduces cloudiness and rainfall and raises the temperature of west and southwest winds.

The prevailing drift of the lower atmosphere in this part of California is from northwest to southeast, largely from an area of high atmospheric pressure off the coast. Therefore, through the winds, the ocean has a great effect upon San Jose's climate, which it could not have if the wind blew from land to water. The ocean is the main source of moisture. For many reasons a body of water maintains a more constant temperature than does a body of land under the same conditions; so the ocean, aided by the bay, modifies the temperature, making winters warmer and summers cooler than otherwise. The surface water near the coast is colder than that some hundreds of miles out to sea, due to the up-welling of cold water along shore, although the main surface drift in this part of the ocean comes from the northwest in the California Current and is of comparatively low temperature for the latitude. The average annual water temperature near the coast west of this district is reported as about 55°, varying from about 50° in winter to 60° in late summer.

SOURCE OF CLIMATIC DATA.

The following brief description of the climate of San Jose is based mostly on records kept at the Weather Bureau office in that city. The instruments and their exposures have been practically unchanged from a short time after the San Francisco earthquake of 1906 to date, and the data for the 17-year period form a homogeneous series. The meteorological instruments used are of types too well known to need any description here, being standard equipment of regular United States Weather Bureau stations. The most important are the following: Mercurial barometer, aneroid barograph, Robinson cup anemometer, 6-foot wind vane, electrical sunshine recorder, tipping bucket rain gauge, maximum and minimum thermometers, Richard thermograph, whirled psychrometer, and quadruple register. The accompanying Table No. 1 gives many of the data used in the preparation of this article, as well as many details that can not be referred to in a discussion of reasonable length. Further details