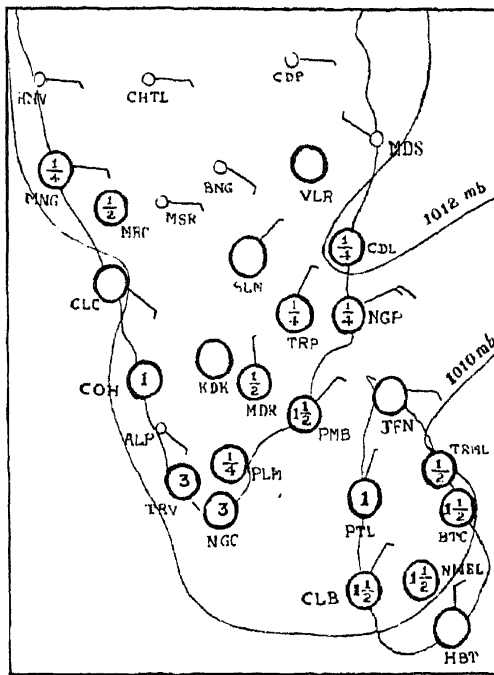


Date: 15-3-1946



Date: 16-3-1946

FIG. 2. Weather Map for 0800 Hrs. I. S. T.

could be expected to result in the westward extension of the area of precipitation. The isentropic chart thus shows that conditions were sufficiently favourable for the occurrence of precipitation over S.E. Madras by the morning of the 15th.

The weather subsequently realised on the 15th and 16th is shown in Fig. 2. All places where any sizable precipitation occurred are indicated in this figure by encircling them. The circles around places where the fall of rain was less than $\frac{1}{4}$ " are left blank. Where the amount exceeded $\frac{1}{4}$ ", the rounded amounts are charted inside the circle. The surface winds and the isobars are also shown on this chart. These charts fully bear out the arguments set forth in the above paragraphs. It will be noticed that the areas where the heaviest fall of rain occurred by the morning of the 16th are in the extreme south of the Peninsula with lighter falls of rain to the north and south. This is because the steepest up-slope movement as well as the highest concentration of moisture in the moist tongue obtained in that area. The greater intensity of the precipitation in the southern as compared with the northern parts of the moist tongue is due to the existence of the isentropic hill over the Comorin area.

Details are being published elsewhere.

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February 15, 1948.

BAND SPECTRUM OF THALLIUM IODIDE

Exciting the vapour of Thallium Iodide by a low power high frequency oscillator, a characteristic band spectrum ascribed to the diatomic molecule, Thallium Iodide, was obtained extending from $\lambda 5300$ to $\lambda 3750$, the wavelength region between the two components $^2P - ^2S$ of the Thallium arc. The bands are generally headless but some of them are red degraded. Over a wide range, they occur in well-separated groups, each consisting of about 4 or 5 equi-spaced components with an interval of about 28 wave-number units. Each group presents a maximum and then a gradual falling off in intensity, indicating a clear sequence structure. By comparison with the corresponding spectra of the other related halide molecules (In, Hg, etc.), these bands are interpreted as forming two overlapping systems due to the transitions $^3O^+ \rightarrow ^1\Sigma^+$ and $^3I \rightarrow ^1\Sigma^+$; the vibrational frequency ω'_e of the common ground state is derived to be approximately 122 cm.^{-1} , the anharmonic constant being negligibly small. The frequency ω'_e corresponding to the state of $^3O^+$ is approximately 94 cm.^{-1} .

A third brief system is also obtained between $\lambda 3680 - \lambda 3600$ consisting of three or perhaps four continuous patches superposed by distinct sequences of bands separated by the same wave-number interval of about 28 units. The lower state of this system is considered to be the same as that of the above systems.

Details of the analysis will be published elsewhere.

Andhra University,
Waltair,
March 31, 1948.

P. TIRUVENGANNA RAO.
K. R. RAO.

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