Notes and News

EXTENSION OF METEOROLOGICAL FACILITIES TO AVIATION

With effect from 5 July 1952, the Revised Meteorological Specifications as formulated by the 3rd Session of the Met. Division (Paris, March 1950) of the International Civil Aviation Organisation have been introduced in this country. Under the new arrangement, Meteorological Watch Offices have begun to function at Bombay (Santacruz), Calcutta(Dum Dum), New Delhi (Safdarjung) and Madras (St. Thomas Mount) which are maintaining a continuous Area Met. Watch over the met. conditions within the Flight Information Region served by the office concerned. Short Range warnings valid for 6 hours and Long Range warnings valid for 12 hours are issued at specified hours by these offices whenever hazardous phenomena like thunderstorm, duststorm, widespread fog, severe turbulence, low ceiling, low visibility etc. etc. have occurred or are expected to occur, or improve, within 50 miles on either side of the scheduled air routes passing through the Flight Information Region concerned. In addition to this, Flight Met. Watch is also kept by these offices for upper winds and temperatures over designated international air routes.

NATIONAL INSTITUTE OF SCIENCES OF INDIA

1. A Symposium on the Rajputana Desert was held on 7 and 8 March 1952 at Delhi. S. C. Roy and S. K. Pramanik attended the meeting from the India Meteorological Department. S. K. Pramanik presented the following papers at the Symposium—

> (*a*) Hydrology of Rajasthan by S. K. Pramanik and (*b*) Meteorological conditions in and the extension of the Rajasthan Desert by S. K. Pramanik, P. S. Hariharan and S. K. Ghose.

2. A Symposium on Semi-arid tracts of Peninsular India and their Development was held at Poona on 1 and 2 August 1952. This Symposium was intended to bring together information regarding the geological, physiographical and climatological characters of these areas, their vegetation, zoology and Hydrology and to focus attention on the measures to be adopted for their development. The following papers were presented by officers of the India Meteorological Department—

> (*a*) Introductory paper on Problems facing the Development of Semi-arid tracts of Peninsular India by V. V. Sohoni, (*b*) Climate of Maha Gujarat and the extension of the Rann of Cutch by B. N. Desai, (*c*) Climate of the Deccan by S. K. Pramanik, P. S. Hariharan and S. K. Ghose, (*d*) Climatic changes in the Deccan by S. K. Pramanik and P. Jagannathan, (*e*) Hydrology of the Semi-arid tracts of Peninsular India by L. A. Ramdas, (*f*) Wind Power in the Semi-arid regions of the Peninsula by V. Satakopan and (*g*) Radio-meteorology by S. P. Venkiteshwaran.

An interesting discussion on the definition of arid and semi-arid regions took place. A need for a clear definition of these terms was emphasized by several speakers.

CENTRAL BOARD OF GEOPHYSICS

A meeting of the Central Board of Geophysics was held at Delhi on 14 August 1952. V. V. Sohoni and S. K. Pramanik attended the meeting from the India Meteorological Department. Among the various items which came up for discussion mention may be made of the following—

(*a*) Setting up of a Central Geophysical Institute

(*b*) Scheme for collection of sea-water samples and determination of their salinity etc. as prepared by S. K. Pramanik

(*c*) Scholarships for research in Geophysics

(*d*) Application of Radar to Geodesy in India.

CENTRAL BOARD OF IRRIGATION AND POWER

The twentysecond Annual Meeting of the Research Committee of the Central Board of Irrigation and Power was held at Simla from 7 to 12 July 1952. S. K. Pramanik attended the meeting on behalf of the India Meteorological Department and presented a paper on the 'Hydrometeorology of the Damodar Catchment' by himself and K. N. Rao.

MICROSEISMOGRAPH STATION AT MADRAS

A Tripartite Microseismograph Station was opened at the Meenambakkam Observatory, Madras, in June 1952. Three Sprengnether microseismograph recorders have been placed at the vertices of an equilateral triangle, each of its sides being about $\frac{1}{2}$ a mile. The seismographs are connected by underground cable to the recording room in the Observatory compound and the records of all the seismographs are photographed on the same drum.

Cyclonic storms in the sea cause pulsations which give rise to groups of oscillations or microseisms in the records of a seismograph. The differences in the times of arrival of the pulsations at the three seismometers can be detected by an examination of the photographic records. From this difference of times, one can obtain the bearing of the cyclonic storms.

Besides the immediate help to the weather forecaster in storm location, the records collected will be of help to seismologists to understand the nature of microseismic phenomena and their relation with sea waves.

It is proposed to instal another Tripartite Microseismograph Station at Colaba.

METEOROLOGICAL AND OCEANOGRAPHIC OBSERVATIONS FROM *I. N. S. INVESTIGATOR*

P. K. Das and N. C. Dhar, of the India Meteorological Department were deputed on *I. N. S. Investigator* for meteorological and oceanographic observations during the ship's voyage from Bombay to Port Blair and back during March to May 1952.

During the voyage, measurements of the wind and humidity gradients in the lower layers over the sea, and density and temperature of surface sea water were taken. Twenty radiosonde flights and a few pibal ascents were also made.

WINDS BY RADAR

The India Meteorological Department is operating at present four Radar stations at New Delhi, Poona, Madras and Calcutta and upper wind information is obtained daily up to about 30,000 ft. Radar Sets AA No. 3 Mk III operating on 204 mc/s are used for the purpose. These sets which were obtained from surplus Army Stores were not in working condition and were put into service after repair in the departmental laboratories. The balloon carrying the radiosonde also carries some specially designed light-weight dipole targets, which reflect a portion of the incident energy; this is picked up by the directional receiving aerials of the set. Three operators follow the movements of the balloon in space and take elevation, bearing and range readings every minute. Wind speed and direction are computed from these data. The range of the present equipment is limited only up to 16,000 yards and angular accuracies are not very high. Better accuracies can only be obtained by employing centimetric systems.

HEAVY RAIN IN BOMBAY IN JULY 1952

Widespread heavy to very heavy rainfall occurred in north Konkan and the northern portions of the Western Ghats during the five days commencing from 14 July 1952. In Bombay City, Colaba recorded 19·28, Santacruz 36·61 and Malabar Hill 31·71 inches of rain during this period. The normal life of the city of Bombay and its suburbs was greatly affected by these heavy downpours which dislocated the communication system and caused floods in many parts.

A low pressure wave from Central Burma moved into northeast Bay on 14 July and into northwest Bay by the evening of 15 July 1952. In association with this, monsoon activity considerably increased in north

Konkan and during the twentyfour hours ending 0830 IST of 15th, Santacruz recorded 5″, Malabar Hill (Bombay) 7″ and Colaba, Harnai and Dahanu 3″ each. On the afternoon of the 15th an upper air discontinuity appeared at 5000, 7000 and 10,000 ft, the northern limit of *Em* passing through Calingapatam, Aurangabad and Dahanu. By 0830 IST of the 16th, Santacruz recorded 10″, Malabar Hill (Bombay) and Dahanu 6″ each and Colaba and Harnai 4″ each. Of the 10 inches of rain at Santacruz, 8″ fell after midnight when the discontinuity apparently became more marked at the western end. Among the water supply lakes of Bombay Vihar, Tulsi and Powai recorded 8″ each, but Tansa only 1″. At 0830 IST of the 16th it was noticed that the low pressure wave had moved inland. However, in association with the upper wind discontinuity which was now passing through Cocanada, Aurangabad and Dahanu, a trough of low pressure developed in west Central Bay off the Circars Coast. As on the previous day, the discontinuity line was more marked at 0230 IST of 17th at the western end. During the 24 hours ending 0830 IST of the 17th there was a further increase of rainfall in north Konkan and very heavy rain was reported from all the stations. Santacruz registered 12″, Malabar Hill (Bombay) 7″, Dahanu 11″, Harnai 8″, Alibag 6″ and Colaba 5″. Of the 12 inches of rain at Santacruz, 11½″ fell after 2330 IST and 7″ after 0630 IST. It may be mentioned that Santacruz did not register so much rain on any other occasion in the month of July since the observatory was started there in 1948. This amount of 12″ at Santacruz also exceeds the highest rainfall ever recorded at Colaba during 24 hours in July by 2″. In the lakes, Tulsi recorded 9″, Vihar 8″, Powai 7″ and Tansa 2″. It may be noted that on both the days, the rainfall in Tansa Lake was comparatively very small. The correctness of these figures was confirmed by the Hydraulic Engineer, Bombay Municipality. He has further informed that the rainfall at other raingauges near Tansa was also of the same order. It would thus appear that there was an area towards Ghats and away from the coast where there was not even heavy rain during these two days. In the Ghats Khandalla recorded 4″ and Mahabaleshwar 5″. During the next two days there was a general decrease of rainfall in north Konkan but some stations still continued to get heavy to very heavy falls. However, in the Hydroelectric supply lakes very heavy rain fell on these days.

WEATHER, APRIL—MAY 1952

The chief feature of weather during the period under review was a severe cyclonic storm in the southwest and west central Bay during the latter half of May which was responsible for an early arrival of the Arabian Sea branch of the southwest monsoon along Malabar coast by 20 May.

April—Of the four western disturbances which passed across the country during April, the first and the last only were somewhat active. The first gave fairly widespread thundershowers in northwest Uttar Pradesh on the 1st, Gangetic West Bengal and Assam on 2nd and 3rd, and Chota Nagpur on the 3rd. The fourth moved across the Punjab (I) between the 26th and 29th and caused local thundershowers in and near the Punjab-Kumaon hills on the 28th and 29th. Scattered thundershowers occurred over most of the country in the first half of the month. During the last ten days, most of northeast India got local thundershowers, while fairly widespread thunderstorm-rain occurred in Assam between the 21st and 24th and on the 26th. According to newspaper reports, a cinema house in Howrah (Calcutta) was struck by lightning during a nor'wester on the 25th evening resulting in the death of three persons ; the wind speed during a squall reached 61 mph. The anemogram showing severe nor'wester squall at Calcutta (Alipore) on 25 April 1952 is reproduced in Fig. 1. This storm was accompanied by heavy rain dislocating the traffic and flooding many low-lying areas in Calcutta. Local thunder showers also occurred in Travancore-Cochin, Mysore and the Deccan during the last week.

May—Of about ten western disturbances which moved across the north of the country during May, only one which moved across northwest Uttar Pradesh and the Punjab (I) between the 10th and 11th, caused widespread thundershowers over these regions on the 11th. Thunderstorm activity, however, prevailed in Assam and sub-Himalayan West Bengal on most days in the month and fairly

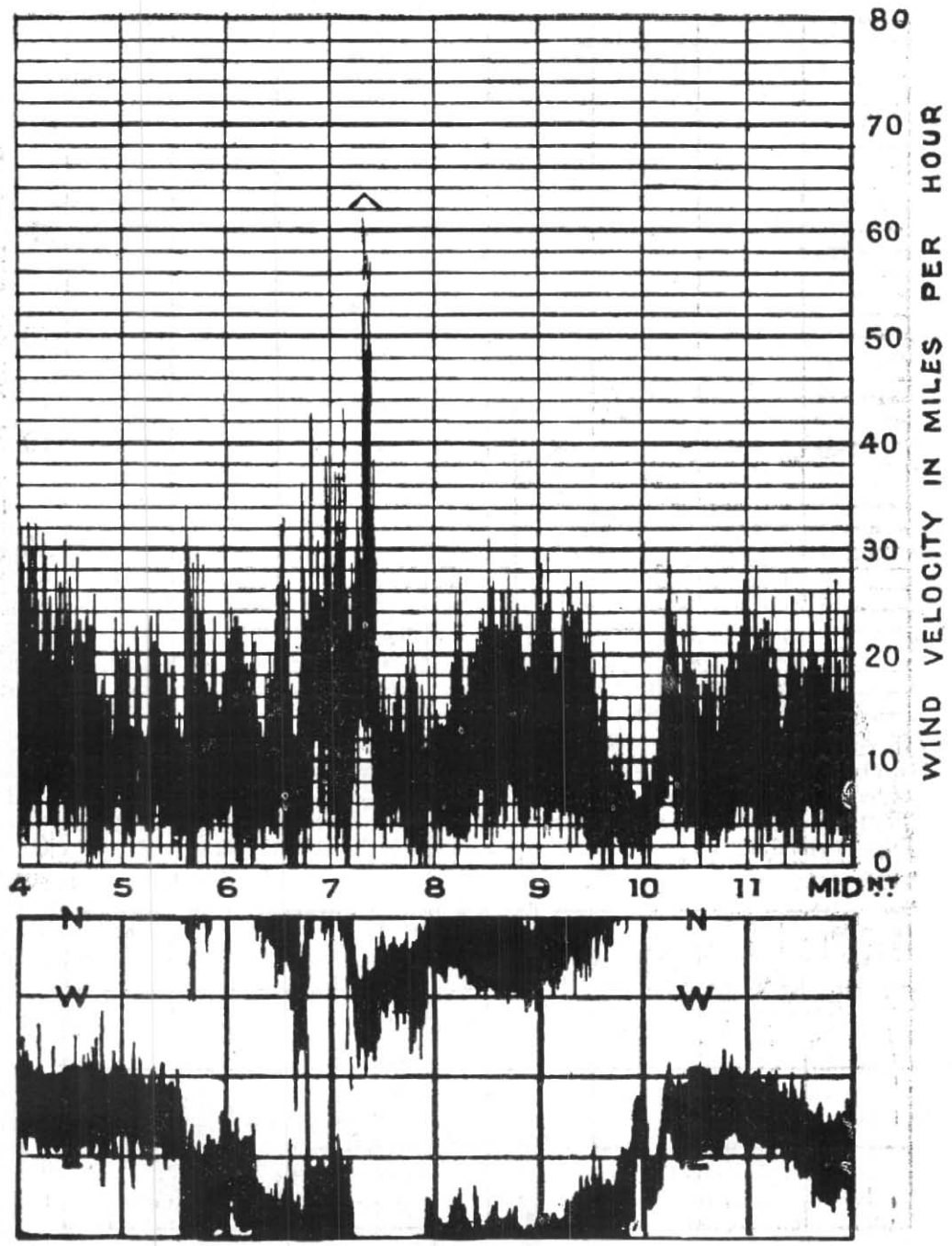

Fig. 1. Anemogram showing severe nor'wester squall at Calcutta (Alipore)—25 April 1952.

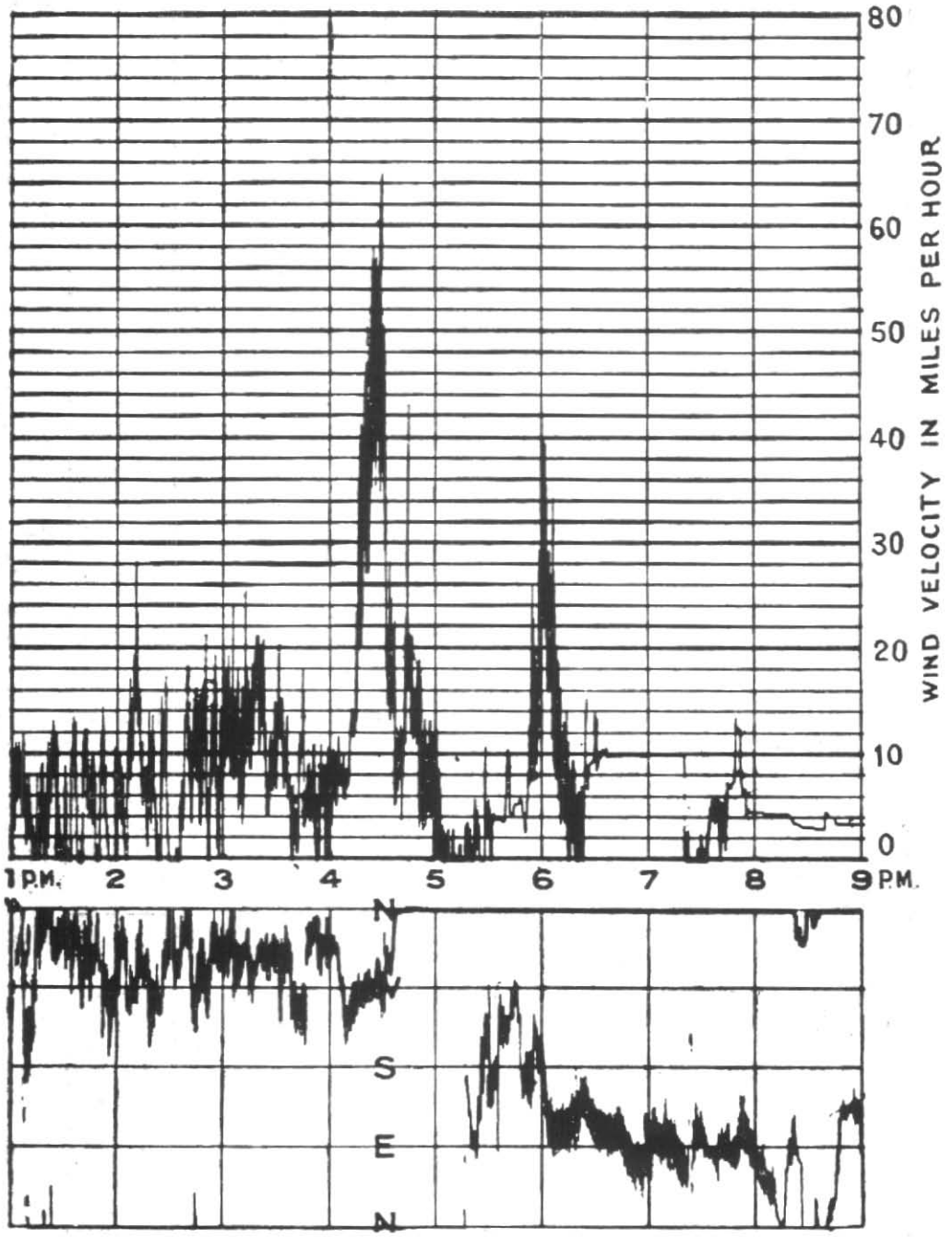

Fig. 2. Anemogram showing severe squall in a dust storm at New Delhi—4 May 1952

widespread thundershowers were reported ; locally heavy rain occurred in northwest Assam between the 21st and 27th and in east Assam on the 31st. According to press reports, these heavy rains caused the Brahmaputra and Lohit rivers to be in spate inundating three villages near Abor hills and part of Sadiya town where a number of buildings were damaged. Fairly widespread thundershowers also occurred in Gangetic West Bengal and Chota Nagpur intermittently during the first half of the month. Otherwise weather remained generally dry throughout the month in Uttar Pradesh, northwest India, the central parts of the country and the northern parts of the Peninsula. Severe dust storms were experienced at Delhi and Calcutta on the 4th accompanied by wind speeds of 64 and 57 mph respectively which according to newspaper reports, resulted in some casualties and local damage. The anemogram showing severe squall in a dust storm at New Delhi on 4 May 1952 is reproduced in Fig. 2.

The eastern part of the Peninsula, however, had a wet spell in the latter half of May under the influence of a cyclonic storm in the Bay of Bengal. A depression formed in the Bay centred on the 19th evening near Lat. 13°N, Long. 87°E. Moving in a westnorthwesterly direction it deepened rapidly, and became a severe cyclonic storm by the 21st morning when it was centred about 120 miles east-northeast of Madras. On the 22nd morning it was centred about 50 miles east of Ongole, but recurving thereafter, and weakening at the same time, it lay as a deep depression on the 23rd morning with its centre close to the coast near Masulipatam. It then weakened further, and a trough of low pressure extended over coastal Andhradesa and the adjoining west central Bay of Bengal, which became unimportant by the 26th. Under the influence of this disturbance, widespread rain with locally very heavy falls occurred in north Tamilnad on the 21st and 22nd and in south Hyderabad, coastal Andhradesa and Rayalaseema between the 22nd and 26th. Madras (Nungambakkam) and Madras (Meenambakkam) had 17″ and 13″ of rain respectively between the 21st and 22nd and Nellore 13″ between the 22nd and 23rd, while a State raingauge station Ponneri in Tamilnad recorded 13·7″ on the 22nd.

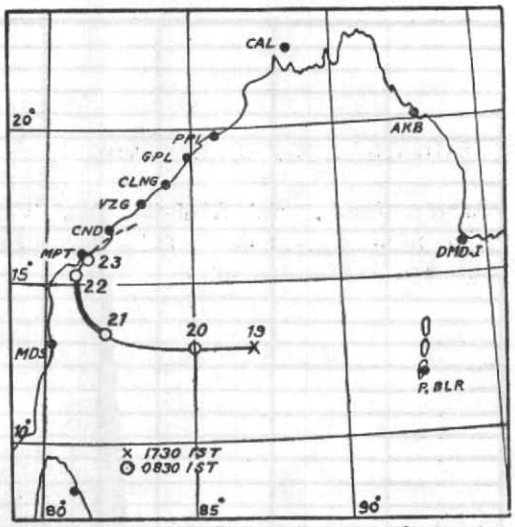

Fig. 3. Track of the Bay of Bengal cyclonic storm (19-23 May 1952)

A track of this disturbance is given in Fig. 3 . According to press reports many low-lying areas in the Madras City were flooded on the 22nd and all traffic was dislocated. The rivers Krishna and Pennar went in spate and breaches occurred in the Southern Railway lines between Madras and Vijayawada. These rains, however, brought a great relief to the drought affected areas of Tamilnad and Rayalaseema.

Under the influence of this storm, the Arabian Sea branch of the southwest monsoon burst in Travancore-Cochin by the 20th May, about 10 days earlier than usual. Thereafter, widespread thundershowers continued in Travancore-Cochin during the rest of the month with local thundershowers in Malabar-south Kanara and Mysore.

Day temperatures were unusually high in the coastal areas of the north Konkan, Saurashtra and Kathiawar on 13 and 14 April ; some of the noteworthy maximum temperatures were, Bombay 100°F (12°F above normal) and Surat 113° F (14°F above normal) recorded on the 13th afternoon and Veraval 106°F (19°F above normal) and Surat 114°F (15°F above normal) recorded on the afternoon of the 14th. Day temperatures were also markedly above normal during the last 10 days of May in northwest India, Uttar Pradesh and north Madhya Bharat. According to newspaper reports, three cases of deaths due to sunstroke occurred in Nagpur on 15 May and three in Kanpur on 24 May.