CURRENT NOTES ON METEOROLOGY.

ANNALS OF MONT BLANC OBSERVATORY.

Vol. VI. of the *Annals of the Mont Blanc Observatory* (Vallot), bearing the date 1905, bears witness, in the author's preface, to the difficulties under which M. Vallot has labored, and to the indomitable energy with which he has pursued his work in spite of severe handicaps. A rheumatic affection, contracted during his long sojourns on Mont Blanc, has prevented M. Vallot from continuing his ascents to the observatory, and even from reducing his observations. The present volume was begun in 1904, but another severe illness prevented its completion until the year 1905. Although in much better health, the author is not yet sufficiently strong to undertake the ascent of Mont Blanc.

Vol. VI. contains as its most important paper, M. Vallot's 'Expériences sur la Respiration au Mont Blanc dans les Conditions habituelles de la Vie' (136 pp.), in which a detailed account is given of a large number of observations of physiological importance, made by the author on himself as well as on other persons, during the ascent of, and during sojourns on, Mont Blanc. This is one of the most complete accounts of the physiological effects of high altitudes that we have seen.

A second paper, by MM. Mougin and Bernard, inspectors of forests, 'Etudes exécutées au Glacier de Tête-Rousse,' deals with the interesting observations made by these officials with a view to preventing in the future another catastrophe such as that which destroyed the baths of Saint-Gervais some years ago. The meteorological station established by M. Vallot on the Grands Mulets, and which he could not make use of owing to his illness, was taken by MM. Mougin and Bernard to the Tête-Rousse, where a series of observations has been carried on regularly throughout the summer months, at about 3,200 meters above sea level. The publication of these results has been entrusted to M. Vallot, and begins in the present volume.

Two other papers concern cartographic subjects in connection with the Mont Blanc area.

METEOROLOGISCHE ZEITSCHRIFT.

The *Meteorologische Zeitschrift*, which has, since 1889, been published in Vienna (Hölzel), is transferred to Braunschweig (Vieweg) with the first number for 1906. Vol. XXIII. of the *Zeitschrift* begins with this number. When the volumes of the *Zeitschrift der k. k. Oesterreichischen Gesellschaft der Meteorologie* are taken into account (these two publications having been consolidated in 1884) the number of the new volume is XLI. There is no change in the editorship, Hann and Hellmann continuing in charge, as before. This invaluable meteorological journal seems to have gained new vigor with the beginning of a new year. Woeikof contributes three papers, one on the relation between the temperature of the lower air and that of the upper surface of land and water, and two on the character of rainfalls. Rainfalls are classified by Woeikof in the following four types: (*A*) Thunderstorms of moist regions, short, heavy rainfalls; (*B*) rains of dry regions, very short, and usually of moderate amount; (*C*) monsoon rains in their best development, long duration, but of moderate intensity; (*D*) rains of higher latitudes, especially in autumn and winter, long duration, but generally light.

Götz, of Munich, contributes a discussion of the progressive change in the condition of the soil as regards moisture, which is of interest in connection with the prevailing popular views concerning changes of climate. Von Ficker describes the development of valley haze from the dissipation of stratus clouds. Hann gives the results of a new determination of the mean temperatures of the whole earth, as well as of the eastern and western hemispheres. These temperatures have been determined a good many times before, but these latest results include the data given in Mohn's table of normal temperatures of latitudes 60° to 90° north (Report of the Nansen Expedition), in which the observations made by the *Fram* Expedition were utilized. This is a very important addition to our knowledge of the temperatures of the Arctic, and naturally leads to revision of previous calculations of mean temperatures for the earth.

FORESTS AND RAINFALL.

PROFESSOR J. SCHUBERT, director of the meteorological division of the Prussian forestry experiment station work, has made a study of the relation of forests and precipitation in Silesia, taking as a basis the rainfall map published by Hellmann in 1899. The conclusion reached—the author himself says that his estimates are to some extent uncertain—is that forests seem to produce an increase in precipitation. If one half of the observed difference is set down as being due to the increased protection of the gauges set up in or near the forests, the actual effect of the trees themselves would roughly correspond to an increase in altitude of 40 meters (*Met. Zeitschr.*, December, 1905).

NOTES.

A NEW aeronautical observatory is to be established at Friedrichshafen, on the shore of the Lake of Constance, for carrying out meteorological observations in the free air by means of kites. The money for original equipment, and for annual expenses, is to be contributed by Germany, Wurtemberg, Bavaria, the Duchy of Baden and Alsace-Lorraine. Observations are to begin January 1, 1907. Boats of special construction are to be built for flying the kites (*Ciel et Terre*, January 16, 1906).

THE French Glacier Commission has been carrying out a series of measurements of snowfall at different altitudes on Mont Blanc. In general it appears that the snowfall increases with altitude between 1,000 and 3,200 meters, but the individual gauges do not give satisfactory results (*Met. Zeitschr.*, December, 1905).

R. DEC. WARD.

CARBON SUBOXIDE.

THE interesting announcement of the discovery of a new oxide of carbon has just been made by Messrs. O. Diels and B. Wolf,[1] working in E. Fischer's laboratory. When the vapor of diethyl malonate is passed over phosphorus pentoxide, heated at 300°, it suffers the loss of two molecules of alcohol, which, of course, is immediately converted into ethylene and water, and there results an oxide of carbon, C_3O_2; this is one of the two possible anhydrides of malonic acid, the other being

$$CH_2<\begin{matrix}CO\\CO\end{matrix}>O.$$

The reaction which takes place is represented by the following equation:

$$CH_2(COOC_2H_5)_2 \rightarrow 2C_2H_4 + 2H_2O + OC:C:CO.$$

The new compound is a colorless, highly refractive, very volatile liquid, boiling at 7°; it has an intense odor of acroleïn and mustard oil, and rapidly attacks the mucous membrane of the eyes, nose and respiratory organs.

Chemically, it is extremely reactive; with water malonic acid is quickly regenerated; dry hydrogen chloride gives malonyl chloride, $CH_2(COCl)_2$; aniline and ammonia yield malonanilide, $CH_2(CONHC_6H_5)$ and malonamide, $CH_2(CONH_2)_2$, respectively.

Although carbon suboxide can be volatilized under reduced pressure, so as to admit of the determination of its vapor density, yet it slowly undergoes spontaneous decomposition at the ordinary temperature. The product is a dark red solid, which dissolves in water, giving an intense eosin red color. At 37° the decomposition of the suboxide is much more rapid and at 100° it is instantaneous. Under these conditions there is formed a deep blackish-red, very hard substance. The two solids appear to be the oxides of carbon, C_4O_3 and C_8O_3, which were described about thirty years ago by Brodie and by Berthelot.

Even from the brief description of carbon suboxide given above it will be seen that its properties and mode of formation are in admirable accord with the formula OC:C:CO, and that it possesses three series of relationships, according to whether it is regarded as being: (1) an oxide of carbon, (2) an anhydride of malonic acid, (3) a carbon carbonyl, similar to those of nickel and iron, $Ni(CO)_4$ and $Fe(CO)_5$, which excited so much interest at the time of their discovery some years ago.

J. BISHOP TINGLE.

[1] *Ber. d. Chem. Ges.*, **39**, 689, 1903.