

the evaporation took place was not 0°C .—Dr. Dieterici repeated his experiments, using a platinum instead of a glass tube. The values obtained in this set of experiments only differed by $\frac{1}{4}$ per cent. The mean of the two sets of experiments was identical, and the final outcome of the whole research was that the latent heat of evaporation of water at 0°C . is $596\cdot4$ thermal units. The speaker then discussed fully the theoretical significance of the above results, and described an experiment he had made in order to determine the latent heat of evaporation of ice at 0°C . The method employed was the same as above, but it did not yield the value which was theoretically expected, which should have been equal to the sum of the latent heat of evaporation of water and of the latent heat of fusion of ice. The cause of the divergence was due to the fact that the ice used was not clear and crystalline, but milky and opaque. Dr. Dieterici intends to repeat these determinations next winter.—Prof. von Bezold gave an account of a paper which he had recently read before the Berlin Academy on the thermodynamics of the atmosphere. Recent meteorology has derived very considerable benefit from the application of the thermodynamics to events taking place in the atmosphere; but up to the present time all the researches had only dealt with adiabatic and reversible processes. As a matter of fact, these processes are neither adiabatic nor reversible, since, when the air is cooled, its aqueous vapour is condensed, and the water thus formed falls as either rain, hail, or snow. If both these facts are taken into account, the calculations involved thereby become so complicated that Prof. von Bezold was only enabled to proceed to the application of thermodynamics to the processes which really take place in the atmosphere by employing an artifice; the latter consisted of the graphic method introduced by Clapeyron with such marked success as a technical method. For this purpose the consideration starts with the assumption that the air is dry, in which case the equation for its condition is given in terms of its volume, pressure, and temperature, and can be represented by plane co-ordinates. The variable amount of aqueous vapour in the air is then treated as a further variable in the third co-ordinate, in such a way that for any given amount of aqueous vapour in the air a new co-ordinate representing the change in condition of the air is obtained. When, on cooling, a portion of this aqueous vapour is condensed, the curve representing the change of condition passes over from one plane to the other, pursuing its further course in the latter plane. In this way it becomes possible, as the speaker fully showed, to treat non-reversible and pseudo-adiabatic processes theoretically, according to the laws of thermodynamics. It can thus be shown in the case of the Föhn and of cyclones, as well as of anticyclones, which are not reversible but reversed processes, that the theoretical considerations lead to results which are found to be confirmed by experience. Thus, according to theory, in an anticyclone occurring in winter, there should be a rise of temperature at some height above the earth, a fact which is now observed at all meteorological stations at high altitudes.

Physiological Society, May 25.—Prof. du Bois-Reymond, President, in the chair.—Dr. Weyl gave an account of the results of his further researches on silk. Among the products of decomposition of albumen and proteid substances, one is known as a snowy crystalline body, which is considered to be leucin, and is generally regarded as being also a product of the decomposition of silk. Since this substance may be obtained in large quantities by the decomposition of silk, the speaker had prepared it from this source and analyzed it, and has come to the conclusion that it is not leucin (amidocaproic acid), but rather another amidated acid—namely, alanin. Of the two possible isomers of alanin, it is α -alanin which is obtained by the decomposition of silk. Dr. Weyl laid stress on the fact that Schützenberger had also concluded that alanin and glycol occur among the products of decomposition of silk, notwithstanding that, during his elaborate and careful researches on proteids, he employed a method which is as unfavourable as can be imagined for determining this point: this result is now confirmed by the speaker's researches. Schützenberger's further supposition, that an amido-acid of the acrylic series can be prepared from silk, was not supported by Dr. Weyl's analyses.—The same speaker further communicated the results of his researches on the physiological action of anthrarobin and chrysarobin, which have recently been largely used in medical practice. These two substances, whose chemical constitution and relationship to alizarin and anthracene have been made clear by Liebermann, are largely used as reducing-bodies, especially in skin diseases. Dr. Weyl endeavoured, by means of experiments

on rabbits and dogs, and on himself, to determine the physiological action of anthrarobin, and found that it possesses absolutely no action on the living organism, even when taken by the mouth in relatively large doses, or injected subcutaneously. It could be detected in an unaltered condition in the urine, so that this substance, notwithstanding that it possesses a great affinity for oxygen, passes through the body without being oxidized. Chrysarobin, on the other hand, has a very different action; notwithstanding its close relationship to the non-injurious anthrarobin, it has a powerfully poisonous action, so that all experiments made with it were of necessity confined to rabbits and dogs. The speaker was unable to confirm the statements of several authors that chrysarobin reappears in the urine as chrysophanic acid. It is rather his opinion that chrysarobin is first excreted in an unaltered condition, and only subsequently undergoes a change into chrysophanic acid. It remains for further experiments to clear up this point.—Prof. Gad spoke on the phosphorescent moss *Schistostega osmundacea*, which he had been for some time cultivating, and which he exhibited. A thorough investigation of the phosphorescent powers of this plant promises a rich harvest of facts from a physical point of view: it is well known, on the basis of morphological research, that the phosphorescence is due to a reflection of the incident light.

In the report of the Berlin Meteorological Society, May 1 (p. 119), the expression "a spring-vane," should have been "a vane made of feathers."

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Travels in Arabia Deserta, 2 vols.: C. M. Doughty (Cambridge Press).—Modern Science in Bible Lands: Sir J. W. Dawson (Hodder and Stoughton).—Catalog der Conchylien-Sammlung, Lief. 7: Fr. Paetel (Berlin).—Charts showing the Mean Barometrical Pressure over the Atlantic, Indian, and Pacific Oceans (Eyre and Spottiswoode).—Inorganic Chemistry, 2nd edition: by Kolbe, translated and edited by Hünig (Longmans).—Longmans' Test Cards in Mechanics, Stages I., II., III. (Longmans).—Flora of North America (the Gamopetalæ): Dr. Asa Gray (Smithsonian Institution, Washington).—La Biologie Végétale: P. Vuillemin (Baillière, Paris).—Applications of Dynamics to Physics and Chemistry: J. J. Thomson (Macmillan).—Lingua: G. J. Henderson (Trübner).

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