and alcohols tried (dextrose, saccharose, lactose, maltose, mannit and glycerin). It is white on standard nutrient agar and potato and in peptonized bouillon. In tubes of bouillon it grows best at the top, producing a stringy ragged rim easily separable on shaking. It does not cloud bouillon heavily. The surface colonies on agar, 25° C., are small, round, smooth and rather dense. In agar streak cultures the organism is inclined to pile up along the track of the needle rather than to spread widely. It is inclined to be viscid on agar, after three days. It gradually blues litmus milk, throwing down the casein by means of a lab ferment, or at least not by the production of any acid, finally the litmus is reduced. It does not liquefy standard nutrient gelatin (fifteen days) and does not grow in the thermostat at blood heat (agar, bouillon). In young agar streak cultures it is a medium-sized, short rod, with rounded ends, often in pairs with a plain constriction, the elements usually being 1μ or less in diameter and two to three times as long as broad. The one to three flagella are polar. It is not yellow on any medium, or green fluorescent, nor does it brown the agar. It is rather short-lived on agar. It does not grow in Cohn's solution and does not infect olive shoots. It occurs principally at the bottom of the tumor rather than uniformly distributed in its tissues. It is best isolated from that part of the stem where the tumor joins the healthy tissues. There are slight indications of metastasis. Non-pathogenic yellow organisms are frequently obtained on plates made from older portions of the galls.

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April 4, 1907

NOTES ON ORGANIC CHEMISTRY

CATALYTIC ACTION OF ETHER AND OF TERTIARY BASES ON THE CLAISEN CONDENSATION AND ON THE FORMATION OF GRIGNARD'S REAGENT

SINCE its discovery the Claisen condensation has excited a considerable amount of interest, not only on account of the compounds which can be obtained by its means, but also because of the rather complex changes which attend its progress and which are far from being understood. In its simplest form, the reaction consists of the elimination of one molecule of alcohol from equal molecules of an ester and an aldehyde or ketone, and it proceeds under the influence of sodium or sodium ethylate. Thus, for example, acetone, CH_3COCH_3, and ethyl oxalate, $C_2H_5OCOCOOC_2H_5$, under the conditions mentioned, readily form ethyl acetoneoxalate, $CH_3COCH_2COCOOC_2H_5$, and alcohol, C_2H_5OH.

In the course of some work on which we have been engaged for a number of months, we have found that the Claisen reaction is very greatly accelerated by the addition of small quantities of ether or of a tertiary base, such as pyridine or quinoline, the reacting materials being dissolved in low boiling ligroin. We have shown that this accelerating action is not due to the fact that any of the intermediate sodium compounds have a solubility in such a mixture, materially different, from their solubility in pure ligroin. In short, the ether and the bases act as typical catalytic agents. We believe that these observations put the Claisen reaction in an entirely new light.

About eighteen months ago it was found by Tschelinzeff,[1] that the formation of Grignard's reagent,

$$Mg<\begin{matrix}X\\R'\end{matrix}$$

(X = halogen; $R = C_2H_5$, C_6H_5, etc.) is also influenced in the same manner by the presence of ether or of a tertiary base. We have confirmed this result and have made some new observations of our own. There is thus, experimentally, a very striking parallel established between the Claisen condensation and the formation of the Grignard reagent. The object of this note is to call attention to our results, which we think have some general interest. A fuller account of the subject, together with a description of the experiments

[1] *Ber. d. Chem. Ges.*, **37**, 2081, 4534; **38**, 3664 (1905).

which we have made, will be found in a paper published quite recently.[2]

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April, 1907

CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

VON BEZOLD, PAULSEN, RUSSELL

Death has claimed three men whose work in meteorology has made their names well known the world over: von Bezold, Paulsen and Russell.

Wilhelm von Bezold died on February 17, 1907. Born in Munich in 1837; Ph.D. of Göttingen; professor at Munich; organizer of the Bavarian Meteorological Service; professor of meteorology at Berlin; director of the Prussian Meteorological Institute at Berlin; his best-known and most important writings concerned meteorology as the physics of the atmosphere. A collection of his contributions to meteorology was published in October, 1906, by Vieweg, of Braunschweig.

Adam F. W. Paulsen (1833–1907) died at Copenhagen on January 11. Physicist; director of the Danish Meteorological Institute; active in organizing and supervising the extended meteorological work of that institute; critical student of the aurora borealis and of the meteorological conditions of Greenland; established permanent telegraphic communication between Iceland and Europe for the transmission of meteorological despatches; member of the International Meteorological Committee.

H. C. Russell died at Sydney, New South Wales. Since 1870 government astronomer and director of the Sydney Observatory; organizer of the New South Wales meteorological service; untiringly enthusiastic in increasing the number of his observers and in publishing the results of their work; fellow of the Royal Society.

SOUNDING THE AIR OVER THE OCEANS

The Prince of Monaco recently addressed the Scottish Geographical Society on 'Meteorological Researches in the High Atmosphere' (*Scot. Geogr. Mag.*, March, 1907), giving a popular account of the work which he has carried on during the past three years in exploring the free air over the oceans by means of kites, captive balloons, *ballons-sondes* and pilot balloons. On his recent expedition to Spitzbergen, the Prince reports that these pilot balloons were followed by means of special theodolites up to an altitude of 82,000 feet at the very least. At the moment one particular balloon disappeared it was at a distance of 49½ miles from the observers. The pilot balloon ascents of 1906 showed that near the 80th parallel north latitude, at a height of 13,600 meters, more or less, there are winds of 132 miles an hour, with a direction S. 68° W.

RAINFALL AND THE SALTON SEA

Professor A. J. Henry (*Monthly Weather Review*, December, 1906) discusses briefly the, at present, very pertinent question of the possible effects of the new Salton Sea on the climate of the surrounding area. The excessive rainfalls of 1905, which have been attributed to the influence of the Salton Sea, are shown to have had nothing to do with that body of water. It is undoubtedly true that the relative humidity in the immediate vicinity has been somewhat increased, but this does not mean that there must be an increase in rainfall.

CLIMATE OF VIRGINIA

In a recent paper on 'Climate and Boundaries of Virginia' (*Bull. Amer. Geogr. Soc.*, February, 1907) G. T. Surface gives a brief account of the climatic features of the state, subdividing into three provinces, tidewater; middle piedmont; and Blue Ridge, valley and Appalachia. The discussion is inadequate so far as giving any very clear picture of the actual conditions is concerned. A table of mean annual temperature, rainfall and snowfall, and length of the growing season (1900–1905) is given for 'representative' stations. We note that in the western districts "the most successful growers plant their orchards on the mountains, because the valleys are not

[2] *Amer. Chem. Jour.*, **37**: 483 (1907).