relationship to acetic acid may be indicated by the expression,

$$H\cdot CH_2\cdot CO\cdot OH\ .$$

Ketene is prepared by bringing liquid acetone, ethyl acetate, or, preferably, acetic anhydride into contact with a glowing platinum spiral; instead of the spiral an arc burning between carbon or metallic poles may be employed. The gaseous products of the reaction are passed through a condenser and then cooled to —100° in liquid air. Ketene is a colorless gas at the ordinary temperature, but it may be liquefied and frozen, and it has a peculiar penetrating odor. Its molecular weight agrees with the simple formula given above, but the substance undergoes polymerization rather readily, as would be expected. Ketene does not react with *dry* oxygen, but it quickly combines with water forming acetic acid; with alcohols it gives the corresponding acetates. Moreover, it is an admirable acetylating agent. With aniline, for example, it yields pure acetanilide directly, and similar compounds are obtained with other primary amines. These reactions demonstrate the correctness of the formula for ketene given above. The further investigation of this interesting substance should yield results of decided value.

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THE BALLONS-SONDES AT ST. LOUIS

A FINAL series of ascensions of *ballons-sondes,* or registration balloons, at St. Louis was completed in November, 1907, by Mr. S. P. Fergusson, of the Blue Hill Observatory, under the direction of the writer. These experiments to obtain the meteorological conditions at great heights in America were begun in 1904, with the cooperation of the authorities of the Louisiana Purchase Exposition, as related in SCIENCE, Vol. XXI., pages 76–77, and were continued during subsequent years with the assistance of grants from the Hodgkins Fund of the Smithsonian Institution. Seventy-six balloons have been despatched and all but six have been recovered with the attached instruments, while there is the possibility of the number lost being further reduced by the finding of three of those sent up last autumn. The preliminary results of the earlier ascensions are given by the writer in the *Proceedings of the American Academy of Arts and Sciences,* Vol. XLI., No. 14, and are discussed by Mr. H. H. Clayton in *Beiträge zur Physik der freien Atmosphäre,* Band 2, Heft 2. The object of the recent ascensions, twenty-one in number, was to supply data for the high atmosphere during the autumn, a season when there were few observations, and also to compare with those obtained simultaneously in Europe on the international term-days in October and November. The work at St. Louis at the time of the international balloon race was facilitated by the cooperation of the Aero Club of St. Louis. An examination of the record sheets recently returned indicates generally the presence, at an altitude exceeding eight miles, of the isothermal, or relatively warm stratum, which was found somewhat lower in summer. For example, on October 8 the minimum temperature of — 90° Fahrenheit was found at a height of 47,600 feet, whereas at the extreme altitude reached, namely 54,100 feet, the temperature had risen to —72°. Similarly, on October 10, the lowest temperature of —80° occurred at 39,700 feet while —69° was recorded at 49,200 feet, the limit of this ascension, showing that the temperature-inversion had come down about 8,000 feet in two days. The prevailing drift of the balloons last autumn was from the northwest, whereas in previous years they traveled more from the west.

Professor Moore, chief of the United States Weather Bureau, announces that, in view of the success achieved by the Blue Hill experiments, he will send up *ballons-sondes* simultaneously from various stations.

A. LAWRENCE ROTCH
BLUE HILL METEOROLOGICAL OBSERVATORY,
January 9, 1908

CARL VON VOIT

FROM Munich announcement is made of the death of Carl von Voit in the seventy-seventh year of his age. Voit was born at a time when his native land was poor and when there

were no such palaces of learning nor such armies of students as now characterize university life in Germany. His doctor's thesis presented in 1856 was upon the subject "Contributions to the Circulation of Nitrogen in the Animal Organism." In 1860 Voit was made professor extraordinarius in physiology, and in 1863, at the age of thirty-two, was created professor ordinarius and conservator of the physiological institute at Munich, positions which he held until his death.

At the age of twenty-six Voit had demonstrated that the nitrogen in the excreta of an animal could be used as a measure of the animal's proteid metabolism. At the age of thirty-five (1866) his ideas had led to the construction of the Pettenkofer respiration apparatus, and with Pettenkofer he had determined the amount of metabolism in a healthy person on various diets, during fasting and during work, and also the metabolism in patients suffering from diabetes and leukæmia. These experiments established once for all the principles of nutrition upon a scientific basis. Waves of criticism have broken upon them and left them untouched. Then in his afterlife more and more details upon the subject were given to the world. These are to be found throughout the fifty volumes of the *Zeitschrift für Biologie,* of which he was one of the founders. He said last summer: "If I spent my time answering those publications which are only rediscoveries of what I have already shown, I would have nothing else to do."

Voit was always keenly interested in his lectures and his teaching. His joy at a new discovery by any one in his laboratory was inspiring to all who worked there. He was conscientious in every relation in life. An assistant once addressed some flattering remarks to him and received the sharp rejoinder "Es macht nichts *wer* Recht hat, nur dass die Wahrheit herauskommt."

The clinicians Friedrich Müller, F. Moritz, and a son Fritz Voit received their early scientific training in Voit's laboratory, and have carried this knowledge to a wide scope of usefulness in clinical medicine.

Of the physiologists and hygienists who have belonged to the "Munich school" of Voit may be mentioned Rubner, Lindemann, Straub, Ellinger, Otto Frank, Erwin Voit, Prausnitz, Max Gruber, Cremer, Weinland, Heilner, Atwater and Yandell Henderson.

In the midst of conflict among others concerning his views Voit was always calm, and assumed a waiting attitude, trusting to time for his justification. He deprecated hurried publication of results. His last article gave to the world work accomplished seventeen years before.

Voit was honored as among the highest in his own land, but he would have been a great man in any country. He was one of those spirits whose lives are the heritage of mankind. It only requires knowledge of his work to realize that his fame will grow greater as the years pass by.

Graham Lusk

Scientific Notes and News

The council of the senate of Cambridge University has reported the opinion that the university should hold a Darwin celebration in the course of the year 1909. The senate is reminded that Charles Darwin was born on February 12, 1809; and that "The Origin of Species" was published on November 24, 1859. The one hundredth anniversary of the former event and the fiftieth anniversary of the latter will, therefore, fall in the course of the year 1909. The council does not think it advisable, so long beforehand, to enter into any details; but suggests that representatives of universities and other learned bodies, together with distinguished individuals, should receive invitations to visit the university on the occasion. Should this report be confirmed by the senate, the council will appoint a committee to consider the details of the proposed celebration. The week beginning June 20, 1909, appears to the council to be the most suitable time for the celebration.

Dr. Robert Koch, the eminent German bacteriologist, expects to visit this country during the spring of the present year. He proposes to rest for a year from his scientific work and has refused all invitations to lecture while in the United States.