

**A NEW REGISTERING KITE.**

Experiments in the use of kites for meteorological purposes recently tried by A. L. Rotch, of the Blue Hill Observatory, Boston, Dr. Hergesell, of the Meteorologischen Landesinstitut, Alsace - Lorraine, and others, have given such very satisfactory results as to arouse the greatest interest in all scientific circles. Although the kite is known to possess many advantages over the balloon as a vehicle for self-registering meteorological instruments, it is generally with considerable reluctance that such expensive apparatus are intrusted to one of these devices, which are still very uncertain, for no one has yet succeeded in making a kite that is steady and safe in all winds. Many experiments have been undertaken with kites of various kinds for the purpose of overcoming these difficulties, and some of special interest were made by Hugo L. Nickel, treasurer of the Vienna Flugtechnischer Verein, with his new kite, which is constructed according to the interrupted plane principle, and is provided with a horizontal and vertical rudder. The string is attached to the kite in such a manner that the latter can always assume the position most favorable to its ascent. The experiments with this kite, which was 26 feet long and 13 feet wide, weighed 16.5 pounds and had a surface covering an area of 129 square feet, were made last August at Krzeszowice, near Krakow, and were remarkably successful. The first ascent was a perfect success, although the wind was very light—scarcely 8 feet per second.

The kite rose with a rush, and the entire length of the string, 1,115 feet, was let out by using a windlass with a band brake. With a wind of about 20 feet the kite carried a load of about 66 pounds, which is more than even the heavy instruments weigh. The motion of the kite was quiet and uniform, only a slight tacking indicating a change of wind. At a height varying from 190 feet to 330 feet the only effect of a change in the pressure of the wind was to cause a moderate ascension when the force of the wind increased, and a slow descent when the wind pressure decreased. The use of a tail or landing line, such as is generally attached to a balloon, proved most satisfactory. The line was 33 feet long and hung from the neck of the rudder. The experiment of securing a dynamite cartridge to the landing line and exploding it at a considerable height was tried, and the result showed that the kite could, if desired, be used for the purpose of producing rain by explosions. We are indebted to *Illustrierte Zeitung* for the engravings and particulars.

**Insect Drunkards.**

Many plants and shrubs secrete pollen and nectar that are intoxicating, and the blossoms of such plants are especially sought out by certain insects, who seem to enjoy a debauch on the natural stimulants as much as does a veritable human drunkard a like carouse on the artificial potations of mankind whose basis is alcohol.

The juices of certain of the Compositæ are likewise toxic, and are eagerly devoured by some beetles, who seem to have discovered this quality in the plants. But the flower which probably supplies more insect drunkards than any other is the cosmos, an autumn annual which blooms luxuriantly in this section of the country (Kentucky) from the middle of September to late in November, unless cut down by severe frosts.

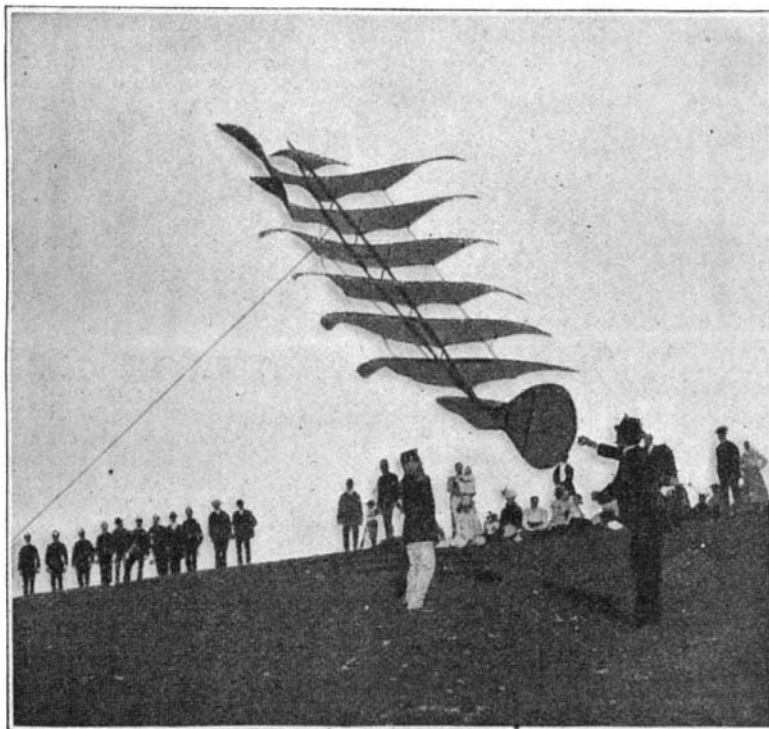
This is a beautiful flower, both as to foliage and blossom, and is, comparatively speaking, quite hardy. Both *C. diversifolius* and *C. bipinnatus* secrete pollen and nectar that are distinctly toxic to the insects who feed upon them. Furthermore, this toxic substance is capable of exerting a marked influence on the human being, as I will point out further along in this paper.

My attention was first drawn to the intoxicating properties of this annual one warm, bright day in October, 1897. I was observing the eagerness with which a large number of bumblebees, small beetles, butterflies, and an innumerable host of flies of many genera and species were seeking the blossoms, when I saw a bumblebee suddenly fall to the ground from an

open flower and lie supine, feebly moving its legs in an aimless and purposeless manner.

I took it up, and, after careful examination, concluded that it had been attacked by some bumblebee ill that was beyond my powers of diagnosis. Soon, however, I saw another and another and another bee succumb to this mysterious illness. I noticed also that many of the coleopterous, lepidopterous, and dipterous insects were likewise falling to the earth (there were hundreds of these creatures on the ground) or feebly crawling about on the plants.

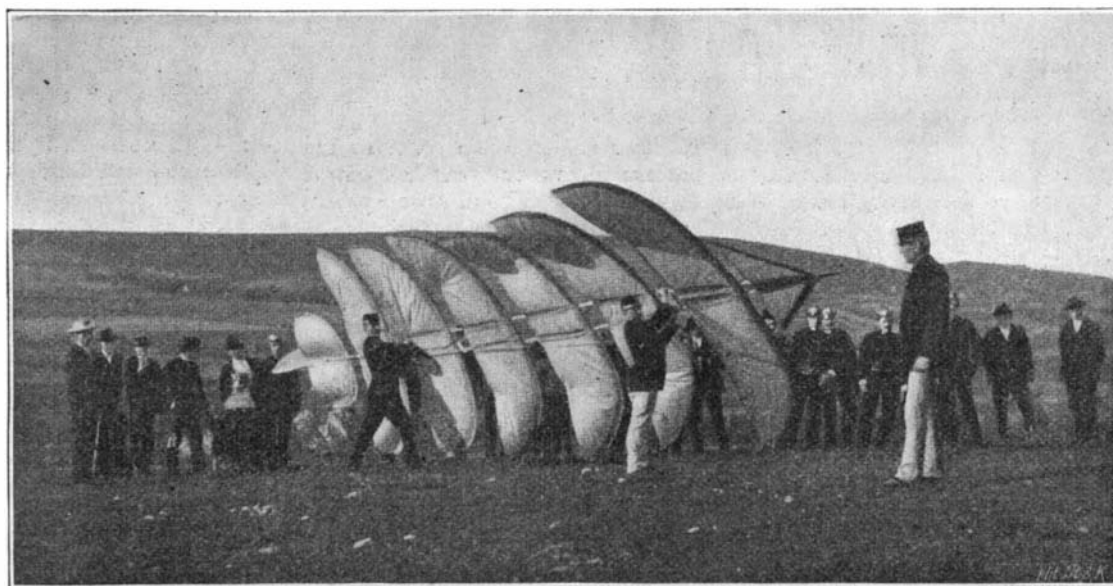
These observations led me to believe that there was something toxic in the pollen, or nectar (probably in both, for the beetles could not easily get at the nectaries), and that these insects were simply intoxicated.



REGISTERING KITE MAKING ITS ASCENT.

This view was confirmed later on, for I frequently saw the intoxicated individuals partially recover from the effects of the intoxicant and again seek the seductive blossoms. This fact was easily demonstrated by marking some of the prostrate bees with a paint of zinc oxide and gum arabic; the marked bees, in the course of an hour or so, were to be seen on the flowers, greedily sucking the nectar from the nectaries.

An intoxicated bee was carried to my laboratory for dissection and microscopic investigation. This insect was so drunk that, when placed upon its back, it had the greatest difficulty in getting upon its legs; yet, when a cosmos blossom was brought within two inches



NEW REGISTERING KITE RECENTLY TESTED IN GERMANY.

of its head, the bee thrust out its proboscis and staggered toward it! It immediately began to suck the nectar, and, in a few moments, tumbled over, a drunken, senseless, almost inert little mass—a victim of appetite!

The cosmos is rich in pollen, and a half-teaspoonful was therefore soon collected by shaking the blossoms over a sheet of note paper. This pollen I swallowed. In about fifteen minutes I noticed an acceleration of the pulse rate (three beats to the minute) with a feeling of increased warmth; there was also slight exhilaration.

The nectaries of the depollenized flowers were macerated in boiling water and then distilled. A half drachm of the distillate was then injected hypodermat-

ically in my left arm. Almost immediately there was marked acceleration of the pulse beat (six to the minute), with greatly increased volume. A feeling of exhilaration supervened, which lasted for some twenty-five or thirty minutes, and which was followed by slight nausea.

There was considerable pain at the seat of the injection, and a tumefied spot as large as a hen's egg made its appearance, which gave me some alarm for several days; I feared that an abscess was in process of formation. The swelling gradually disappeared, however, and in five days the arm regained its normal appearance, save for a slight discoloration, which eventually faded away.

From these experiments it would seem that the toxic principle is to be found both in the pollen and in the nectar. This conclusion is further strengthened by the fact that numerous beetles were found in an intoxicated condition on the blossoms and on the ground beneath the plants. These insects evidently eat the pollen; having no proboscides, they cannot reach the nectaries, hence must content themselves with the "next best dish on the table."

JAMES WEIR, JR., M.D.

PRESIDENT SCHURMAN, in his recent address at the opening of the fall semester at Cornell University, makes the statement that the age of freshmen at entrance has been falling continuously for three years, although the standard of requirements for admission was at the same time continuously rising. "The average age of Cornell freshmen was nineteen years and eleven months in 1895-96, nineteen years and eight months in 1896-97, and nineteen years and seven months in 1897-98. This seems to show," continues Dr. Schurman, "that the high schools of the country are quite rapidly increasing in efficiency." It would be interesting and valuable to know also the relative physical condition of these youths compared with their predecessors.

**The Current Supplement.**

The current SUPPLEMENT, No. 1195, contains several articles of remarkable interest. Our readers have so many times wished for directions for making an electric automobile vehicle that we take great pleasure in acceding to their request, and present them with full directions and working drawings for making a thoroughly practical and economical electric vehicle. This article was written by Charles T. Child, the electrician, and it is accompanied by detailed illustrations which show every step in the manufacture of the carriage, the motor, and the batteries. It is an interesting and important paper, and forms one of a series of articles which we are publishing on methods of making electrical apparatus, of which the electrical furnace was the first. "Diamonds in Meteorites" is an interesting article by Mrs. E. M. Souvielle. "The Decorah Ice Cave and Its Explanation" is an original article, by A. T. Kovarik, and is accompanied by illustrations taken directly from photographs. "Mammals" is an interesting lecture by Prof. Witmar Stone. "The Stomach and Phonendoscope" shows the curious application of the use of an amplified stethoscope. "Table of Atomic Weights," by T. W. Richards, is a most important article to those who are interested in chemical matters. It is accompanied by tables. "The Present Status of the Electrical Engineer" is the inaugural address of Prof. A. E. Kennelly before the American Institute of Electrical Engineers.

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