

Year's First Comet

The first comet of 1928, which will be known therefore as comet 1928a, has been found by an astronomer named Filipoff at the French Observatory at Algiers, in northern Africa. Announcement of this discovery has just reached the Harvard College Observatory, according to Dr. Harlow Shapley, director.

When discovered, on January 28, the new comet was in the constellation of Gemini, the twins, which is now overhead in the late evenings. It was of the eleventh magnitude, too faint to be seen without telescopic aid, and its position, in the astronomical equivalents of latitude and longitude, was 6 hours 24 minutes and 56 seconds right ascension and 20 degrees 16 minutes north declination. It is reported as having very slow movement, thus indicating that it is at a great distance from the earth. After two more observations have been made, astronomers will be able to compute its orbit and tell whether or not it is likely to become visible to the naked eye.

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New All-American Disease

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administrative charge of the situation and ordered the cultures and guinea pigs destroyed and the laboratory disinfected. He was taking no chances of letting this dangerous American infection get loose.

In all, twenty cases of tularemia have occurred in laboratory workers, including physicians, bacteriologists, entomologists and trained laboratory assistants. To these for the most part unnamed victims of scientific progress, the editors of the American Medical Association have paid the following tribute:

"Americans are prone to laud the enterprise and intrepidity of heroes who do not hesitate to risk their lives in attempts to reach the poles, to conquer the highest altitude, and to penetrate into danger zones of varied sorts. Why shall we not herald with equal pride the glory of those scientific workers who are daily facing unrecognized dangers of the gravest sort in their efforts to conquer insidious diseases? The mantle of distinction should fall on the shoulders of these modest medical explorers, many of whom have suffered severely through chance infection 'in the scientific line of duty'."

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Billion Dollars From Corn Wastes

A billion dollars of new wealth for the Corn Belt, through the annual utilization of its two hundred million tons of corn stalks and twenty million tons of cobs, now wasted, is the promise of engineers and chemists to the American farmer.

How the greatest agricultural waste, corn stalks and cobs, can be made into some three hundred useful products is told in a report to the Engineering Foundation by Prof. O. R. Sweeney of Iowa State College. In a decade or two they will be utilized on a large scale, he predicted.

"Before the many products of promising usefulness could be made even on a small scale in the laboratory," Prof. Sweeney said, "years had to be spent in patient, ingenious, fundamental researches to determine the exact chemical and physical natures of these raw materials and their constituents. Not only agricultural, but also industrial and economic problems had to be solved with the aid of engineering research, supplementing the work of the scientist. Much remains to be done.

"Iowa State College, in the midst of the corn belt, has been a leader in the attack. Knowledge being gotten in the cornfield will be useful also to growers of other grains, peanuts, flax and cotton, who have similar waste materials. Civilized men will be able to continue to feed and clothe the increasing populace and to supply many of their other wants by successful solution of just these problems.

"What does the laboratory offer to industry from these raw materials now wasted? Paper of several grades, papier maché, wallboard and other substitutes for building lumber, substitutes for hard woods used in furniture and finish, rayon, acetic acid, acetone, a sugar that can be used by diabetics, maple sugar flavoring to be combined with cane or beet sugar to make 'maple syrup,' oxalic acid, plastic materials, electrical and heat insulation, and furfural.

"Furfural was a laboratory chemical not many years ago, scarce at \$50 a pound. Now it is produced in large quantities at 14 cents. With increasing production, improved methods and development of co-products, even the latter price may be more than cut in half. Furfural is a fluid heavier than water, having many and various uses in plastics, dyes, paint removers, antiseptics, anesthetics, germicides, embalming fluids and motor fuels. It burns in lamps with a more brilliant flame

than kerosene and has not the unpleasant odor of the latter.

"If the chemist and engineer and farmer can solve the economic problems, new industries may dot the prairies. Among these problems one of the foremost has been the cheap collection of the stalk and cobs to a few places where they will be subjected to the first steps toward becoming saleable commodities. Special machines have been devised for gathering up the cornstalks in the field, or for cutting the standing corn, husking the ears and shredding the stalks. Another problem is the safe and inexpensive storage of the raw materials throughout the year, in order that the industrial operations may be continuous.

"As contrasted with forests, which, once cut, are not quickly replaced, and commonly in America are not replaced at all, the corn wastes would be produced year after year in great quantities within the same areas. As nearby forests have been consumed, for example, the saw mills and pulp mills have had to move to more and more remote locations from their markets.

"Lest the corn production should decrease, the fertility of the soil must be maintained. It has been learned that this can readily be done by growing soya beans as the 'rotation' crop. The soya bean is a strong nitrifier of the soil. After extracting the oil from the bean, the refuse, including the stalk and meal, can be plowed back in to the soil. The income from the oil, which has many uses, will partially offset the lack of income from corn in the years of change crop. Thus the cycle would become complete by the chemistry of nature, and the energy of the sun would be converted perennially to many uses of man.

"Depletion of forests and of mineral resources and advances in chemistry and engineering will have much to do with the measures of success which may be achieved in turning these agricultural wastes into wealth. At best, it will take much time, research and development.

"More than research, engineering, industrial development and financing will be required. Useful and valuable new commodities may be produced, but successful production at a fair price may not bring economic success. As has well been said: The fight for recognition for a new product is almost as hard to wage as is the fight for a new idea."

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