braziliensis and is said to be very closely related to the wild cottontail of North America. Whether European species of *Lepus* and wild species of *Oryctolagus* would show a natural immunity to this virus is an interesting conjecture.

Our experiments are being continued and will be more fully reported at a later date.

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NOTE ON THE CORN COMPONENT OF A RACHITOGENIC DIET

IN working with white rats and rickets the authors have found irregularity in the development of rickets on the Steenbock Diet 2965. The trouble has been traced apparently to the yellow corn component of the diet, and a satisfactory remedy was derived from the following experiment.

Thirty pounds of whole grain market yellow corn were equally divided. One half was immediately placed in a loosely covered earthenware crock, and the other half ground finely before storage in a similar container. Each lot was held at the variable room temperature of a dry laboratory for one year. At the end of this period of time the whole grain corn was ground in the same machine previously used, and twin batches of the above diet were compounded from these two samples of ground corn. The difference, obviously, was that one batch of meal was freshly ground from old corn, while the other batch had been aged as meal. A third lot of diet mixture employed corn-meal bought at a grocery.

The three diet mixtures were fed to animals selected equally from three litters of rats, and on the twenty-fourth day all animals were diagnosed by X-ray and line test, with the following result.

No. of animals	Peculiarity of diet	Positive rickets	Ave. gain in weight
6	Freshly ground corn	none	27 grams
6	Aged ground corn	6	19 "
6	Market corn-meal	6	8 "

We do not find in the literature the caution that whole market corn may contain an amount of anti-rachitic factor sufficient to interfere with desired development of rickets in white rats, if the corn be used freshly ground, but only the notation that storage of ground corn is attended with loss of growth-promoting factor. Since it is desirable to retain the growth-promoting vitaminic power but is imperative to avoid excess of antirachitic factor, one seems to be between the horns of a dilemma in respect to the corn component of this diet. A reasonable solution seems to be to store the ground corn-meal for six months and use it up in the next few months, and this procedure, for want of one more exact, serves as a successful expedient for insuring the development of a definite rachitic condition in white rats on a definite time schedule, with a simultaneous reasonable rate of gain in weight.

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WHEAT MOSAIC IN EGYPT

IN 1927–1929 the writer began investigations on a "new" wheat disease in Egypt for the Egyptian Ministry of Agriculture. It seems advisable to present a preliminary note at this time; later a complete paper will be published on various aspects of the problem. This disease was called to the writer's attention in December, 1927. The crop of 1928 was severely attacked. It was present to a somewhat less degree in the wheat crop of 1929 and has been reported to the writer as occurring in the crop of 1930.

In December, 1927, many completely yellow or chlorotic plants were sent to the mycology laboratory of the Giza agricultural farm. The same condition appeared on certain varieties of wheat in the varietal plots at Giza. The characteristic yellow color or chlorotic condition of the early stages of growth (when the plants were from one to two months of age) suggested the tentative names "yellows disease" or "wheat chlorosis," names by which it became known in Egypt. This condition was said never to have been seen on wheat in Egypt prior to 1927, and many explanations for its cause were forthcoming from staff members of the several divisions of the Ministry of Agriculture as well as from laymen.

Circumstantial evidence as well as established facts convince the writer that this malady had been present in Egypt for several years prior to the outbreak of 1928 but had escaped notice.

Diseased plants were scattered in a field and were not restricted to definite areas. There was no definite relation with respect to soil conditions. Normal plants were found next to a group of diseased individuals. The Hindi variety, one of the standard wheats of Egypt, was especially susceptible. Many fields were observed that had from 40 to 60 per cent. of the plants badly affected. The yield in these fields was reduced 20 to 40 per cent. Badly diseased plants were completely yellow or chlorotic in the early stages of growth and as the tillers began to form. The root

system at this age of the plant was apparently normal in expanse. Some plants died and appeared to be starved to death, but most of them reached maturity. Badly diseased plants never became more than one third or one quarter the size of a normal plant, having about the same number of culms but very small heads and shriveled grain. Plants which were completely yellow rarely showed any additional leaf or sheath symptoms as the season progressed. Those not completely yellow in the early stages, or which appeared normal up to the shooting stage but were slightly infected, characteristically showed yellow striping the entire length of the leaf, or mottled areas of yellow mosaic of short or long streaks. This sometimes occurred on only a few of the leaves. At times the writer discovered symptoms of green mosaic on the leaf and sheath, but this was exceedingly uncommon.

The rosette disease of wheat and the rosette of barley occur in Egypt. It is problematical how long these have been in Egypt, although members of the Ministry of Agriculture state they have been since 1925, but there is no published record to this effect. The writer found the rosette of wheat and barley in 1927 in many of the Egyptian provinces. He found barley affected also with what appeared to be a similar striping and yellow mosaic, and, from general appearances, indistinguishable from certain of the rosette mosaic symptoms occurring on wheat in the United States.

Data have been secured on varietal resistance to these diseases in wheat and barley, the effect of dates of planting, the effect of the "dry" and "wet methods" of sowing wheat, and the relation of soil temperatures and the occurrence of these mosaics. Also limited studies were made on artificial transmission of the disease by expressed juice and infested soils.

In light of the studies made on this wheat disease in Egypt, the writer regards it as one of the wheat mosaics and probably associated with the rosette disease. The reaction of certain varieties of spring wheat from the United States supplied by H. H. McKinney and grown in Egypt indicates that the viruses in Egypt and in the United States are dissimilar. This is substantiated by trials made of Egyptian varieties by McKinney[1] in the United States.

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THE FATAL BELGIAN FOG

ABOUT the week-end of December 7, an extremely heavy fog prevailed in Belgium and England, and the daily press reported that in the neighborhood of Liège more than forty persons and a considerable number of cattle died, exhibiting symptoms of asphyxiation. Autopsies performed on twelve cows indicated that they had died from pulmonary edema. Although final judgment on this phenomenon must await the results of the investigation which the Belgian government has undertaken, there are certain aspects of the situation which might be here referred to.

According to the New York *Times*, of November 30, 1930, a terrific sand-storm and hurricane blew over French Morocco on November 27. The following night, yellow sand was heavily deposited on the streets and on the foliage at Barcelona, Spain. On the morning of November 28, a "mud rain" fell in Paris and all over northern France as far west as Granville, on the southern Brittany coast and along the English Channel.

It seems probable that the more finely dispersed material carried by this storm reached considerable heights and settled down slowly over Belgium and England. These colloidal or semicolloidal dust particles served to reinforce the normally high atmospheric nucleation of the winter season; for, as Carl Barus has shown (Smithsonian publication 1309, published 1905) the products of combustion (burning coal, etc.) furnish highly efficient nuclei, and this atmospheric nucleation is especially marked in industrial neighborhoods and in the winter season. The tiny nuclei serve as centers about which, under suitable atmospheric conditions, moisture will deposit to form fog droplets. The extremely fine dust will continue to settle down for days and, given a sufficiently still and moisture-depositing atmosphere, prolonged and dense fogs would be expected.

This view is further confirmed by the fact that the *Evening Sun* of December 19, 1930, reported another terrific storm which swept over northern Algeria following a disastrous seven months' drought. Today's New York *Times* (December 22) carries a heading "Worst Fog in Years Paralyses London" (visibility only three feet at times).

The quantity of dust moved by storms of this character may be gauged from the fact that Hellman and Meimardus state that a cyclonic storm centered over Tunis about March 8 to 10, 1901, sucked up such a cloud of dust from the deserts that about one third of the 1,800,000 tons of dust that fell in Europe dropped north of the Alps. Apart from what fell into the Mediterranean Sea, they figured that about 150,000,000 tons were deposited on the African coast. Miller and Winchell estimated that the million or so tons of dust which fell with snow over an area of

[1] H. H. McKinney, "A Mosaic of Wheat Transmissible to All Cereal Species in the Tribe Hordeae," *Jour. Agr. Res.*, 40: 547–556, 1930.