

*ostertagi*, new to this country, and large numbers of the rare *Sclerostoma hypostomum*.

Exigencies of space forbid the mention of other contributions.



FIG. 3.—A branch of seeded hops produced on the same line and under identical conditions as those shown in Fig. 2, except that pollen was supplied to the "burr."

The letterpress and plates are alike excellent, and, as a year's record of all that is best in scientific agriculture, the *Journal of the South-Eastern Agricultural College* should find a place on many bookshelves.

C. A. E.

#### THE ROYAL PRUSSIAN AERONAUTICAL OBSERVATORY'S AÉROLOGICAL EXPEDITION TO TROPICAL EAST AFRICA.

THE Royal Prussian Aeronautical Observatory, Lindenberg, supported by the active interest of some "friends of science," sent out in June, 1908, an aërological expedition to tropical East Africa under the direction of Prof. Berson, first observer at Lindenberg, accompanied by Dr. Elias, formerly assistant, and Mr. Mund, balloon superintendent of the observatory. At the end of December last they returned safely, and in possession of a good amount of interesting data.

In consideration of the proximity of the region explored to British possessions in East Africa, and also in recognition of the help and protection given to our work by the English authorities, I asked Prof. Berson to write a special report for *NATURE*, believing that there are British readers who take interest in our work.

I am therefore glad to offer the following account of the work by Prof. Berson.

R. ASSMANN.

Director of the Royal Prussian Aeronautical Observatory, Lindenberg.

Much good work has been done lately in the exploration of the upper atmosphere in the region of the trade winds, more particularly the Atlantic trades, where men of science of Germany, the United States, and France have been making investigations, trying above all to

elucidate the very important question of the anti-trade. But in the Indian Ocean and the adjacent regions, the realm of the most powerful and persistent monsoonic system of the globe, with the exception of a few ascents from the German ship *Planet*, carried out in the southern and eastern portions of the ocean, only the Indian meteorologists, Mr. Walker and Mr. Field, had applied the new aërological methods for the study of the monsoon phenomena, the work in the south-west monsoon proving especially difficult on account of the stormy and rainy character of the weather prevailing during its sway.

Very naturally the idea occurred to try similar explorations on the east African coast and the waters washing it, the region lying at the starting point or (in the case of the Indian "winter monsoon") at the extreme limit of these peculiar wind-systems. It might be expected that there would be less difficulty to be encountered here than in India proper, especially if the work were carried out on the water, where self-registering balloons might be found easier, by means of a small steamer chartered for the purpose, and the wind, if too weak or too strong for kite ascents, increased or lessened by the motion of the vessel.

This plan once conceived, it occurred to us that some 600 miles further inland there was situated a vast sheet of water—the Victoria Nyanza—on the surface of which all the above-named advantages might be met for balloon as well as for kite work, thus affording the possibility of efficient and fruitful aërological research in the heart of a tropical continent, even in the middle of the equatorial belt, a unique spot of similar convenience to be found on the surface of the globe.

The Royal Prussian Aeronautical Observatory, the well-known creation of Prof. Assmann, took the matter in hand, and after having overcome a rather lengthy series of difficulties—above all, naturally enough, of a financial character—chiefly by the persistence of Prof. Assmann and the generosity of a few wealthy friends of scientific work we succeeded in carrying out our plan, at least in the leading features. This had in itself a double bearing. The first item consisted in an investigation of the monsoons, more particularly of the conditions of their change in the north-hemispheric autumn, and the intervening land and sea breezes, on the coast of British and German East Africa, as well as on the neighbouring sea (as a matter of fact, the work was carried far beyond the limits of the monsoons, down to the tropic of Capricorn). The other point was the "study of the tropical, or, more exactly speaking, the equatorial continent"—in contrast to the ocean of the same latitudes—from the aërological point of view, over the Lake Victoria, implying the research of the vertical distribution of temperature, the question of the "upper inversion," the study of the winds prevailing in the different strata, and, in addition, a comparative investigation of the land and sea breezes of the lake in analogy to those on the coast of the ocean.

For scientific and practical reasons, though, the experiments had to be executed in the inverse order; we began by the ascents on the large "inland sea of Central Africa," and wound up by research on the ocean.

The writer, as leader of the expedition, accompanied by Dr. Elias, and a technical assistant, left Europe in the middle of June, and managed, after some little delay at Mombasa and Nakuru, to arrive, *via* Uganda Railway and the lake, with all our cargo of windlasses, kites, balloons, chemicals, instruments, and personal equipment, on July 24 at Shirati, in German East Africa, situated on the east coast of the Nyanza, in 1° 7' S. lat.

That all the difficulties which, of course, did not fail to arise could be overcome with so little loss of time is to a large extent due to the extreme courtesy, or in many cases even most helpful assistance, with which the expedition met everywhere in British East Africa. For this the observatory is largely indebted to Dr. Shaw, the director of the Meteorological Office, to the Colonial Office, and to all the authorities, Imperial as well as local, in British East Africa and Uganda. We beg to express our feelings of sincere gratitude to all of them, most particularly to Dr. Shaw and to the officials of the Uganda Railway, the custom and port officers in all those places, and the officers of the steamers plying on Lake Victoria.

Owing to this loyal help we succeeded in securing a