DERMATITIS PRODUCED BY PHACELIA (HYDROPHYLLACEAE)

IN March of this year, on returning from a botanical trip to the Colorado Desert of California, I developed a severe case of dermatitis on the face, hands and arms, with the usual symptoms produced by "poison oak" (*Rhus diversiloba* T. and G.), although no Rhus grew in the region in which I had been working. The disturbance lasted for about ten days. I had had the same sort of experience before and determined to attempt to learn the cause. For several days my hands were stained with a heavy brown material that had come from pressing a series of specimens of a very glandular plant (*Phacelia pedicellata* Gray) and naturally this species became suspect. On my next trip to the desert I rubbed a bit of it on one of my arms and in 24 hours the area so treated turned red and began to swell and itch. I suffered quite a little annoyance for several days. I was pleased to know what had caused my trouble and determined to guard against this plant in the future.

Early in May I was again on the desert, this time in the region of Death Valley. There I collected a peculiar form of *Phacelia crenulata* Torr., carrying the plants in to camp on my left forearm. The next day the skin of this arm and of my right hand became inflamed. Now at the end of two weeks this attack is just disappearing. The fact that this second species could produce the same effect as the first one led to experimentation with several others. *Phacelia grandiflora* (Benth.) Gray, *P. minor* (Harvey) Macbr., *P. Campanularia* Gray, and *P. brachyloba* (Benth.) Gray all produced decided dermatitis when rubbed on the skin, but *P. distans* Benth., *P. tanacetifolia* Benth., and *P. ramosissima* var. *subsinuata* (Greene) Macbr. had little or no effect. The species that produced the irritation fall in at least three different sections of the genus and agree only in being viscid-glandular, while the others are but slightly glandular.

I have discussed the matter with two physicians, neither of whom was aware of any such poisonous properties in Phacelia. Several laymen with whom I have talked have had experiences similar to mine, namely, a severe dermatitis after trips into regions where they knew *Rhus diversiloba* did not exist. One physician, after such a trip, had wondered why "Rhus Tox" antigen had no remedial effect, although he usually had good results with it. I have made no careful examination of the literature, but it would seem that many cases of "poison oak" dermatitis in the West are not caused by Rhus at all, and that a field of investigation as to toxic properties, preparation of extracts, etc., is open with regard to some of our native plants, such as Phacelia spp. and other viscid Hydrophyllaceae as *Nama Parryi* Gray. Furthermore, the desirability of the present use in our "wildflower mixtures" of some of the glandular species of Phacelia, as *P. minor* and *P. Campanularia*, may well be questioned.

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THE UNDERGROUND WATER LEVEL AND ITS RELATION TO THE DROUGHT OF 1930

THE writer had the opportunity of collecting some data on ground water and lake levels during the past few years. The results of these observations have given definite information concerning the fluctuations of the ground water level, as a result of the drought of 1930.

In 1929, the annual rainfall at the Ohio Experiment Station located at Wooster, Ohio, was 44.35 inches, 5.25 inches more than normal, which for the period of 41 years is 39.10 inches. During that year, every month except March, August, September and October were well above the average. In January of 1930, the rainfall was 5.33 inches, 2.19 inches above the average, which is 3.14 inches. From February, 1930, to April, 1931, there was not a single month which had normal rainfall; all were well below the average and some below half of what it should be. From April, 1931, the rainfall for the balance of the year was somewhat above normal. As far as the rainfall deficiency is concerned, the drought began in February, 1930, and ended in April, 1931. The writer had occasion, in connection with another problem, to measure the height of the water in a well at Wooster. In 1929, the water stood at a point 13.5 feet from the top. During the summer of 1930, a time of extreme drought, the water level, as indicated by the depth to the water surface, was 17 feet. During the later part of the summer and early fall of 1931, the water surface was 19 feet from the top. In May, 1932, the water level was still below what it was in 1929.

The writer questioned a number of farmers in the vicinity of Wooster and Orrville, Ohio, concerning the water supply during the years 1929, 1930 and 1931. In every case the opinion, based on observation, was that the water supply from streams, wells and springs was smaller during the summer and early fall of 1931 than at the height of the drought during the summer and fall of 1930. All gave testimony that springs and creeks were still flowing and wells had enough water for all purposes in the summer and fall of 1930. Investigations by the writer made in the course of field trips resulted in the same conclusion. During the winter of 1930–1931, wells began to go dry, and during the summer and early fall of 1931 the creeks dried up and springs disappeared. An interesting case was brought to the attention of the writer of an artesian well, 55 feet deep, which flowed