Hill's experience as a persistent field student is a lesson in patience and courage. His numerous field trips on crutches and afterward with canes; his devices to overcome the handicap of lameness while collecting; his persistence in making these trips even when he paid a severe penalty for exposure or over-exertion—all testify to the spirit of the man. During his later years he was a constant and welcome visitor at the weekly meetings of the Botanical Club of the University of Chicago, and was always intensely interested in the various phases of modern botany. His mind was open and progressive, turned toward the future of his subject rather than toward the past.

His bibliography as published includes 162 titles, ranging in time from 1870 to 1916, and covering all the phases of botany that would attract the attention of an active field man with broad interests. This journal published 34 of his titles, the majority of them during the decade 1880–1890, and the last one in 1910. Certain genera received his critical attention, among them being *Potamogeton*, *Carex*, *Quercus*, *Prunus*, *Salix*, and *Crataegus*. Taxonomists will recognize the fact that these are difficult genera, but it was their difficulty that attracted.

The Hill Herbarium, which is said to include 16,000 sheets, the accumulation of years of critical work, has been secured by the University of Illinois. It represents probably the most valuable single collection of Illinois plants, especially of the Chicago region, and it is fortunate that it has been made available in a public institution.—J. M. C.

RESISTANCE OF SEED COATS OF ABUTILON THEOPHRASTI TO INTAKE OF WATER

In the fall of 1910 I gathered seeds of *Abutilon Theophrasti* (velvet leaf) near Manhattan, Kansas, placed them in vials of 100 seeds each, covered them with water, and stoppered the vials. The results in the various vials up to the present time have been very similar.

In one vial 32 seeds had swollen within the first 3 weeks and were removed from the vial. During the past 6 years 22 of the remaining seeds have swollen and were removed, sometimes in a decaying condition, as the vial was seldom examined. In December 1916 a desk in which the vial was stored was removed to a small room and placed near a radiator where the temperature rose much higher than any to which the seeds had previously been subjected. Within a week 22 seeds had swollen. These were removed and placed under germinating conditions

and germinated as quickly and apparently with as much energy as fresh seeds. Of the original 100 seeds 24 still remain intact.

In order to ascertain the resisting power of the seed coats of velvet leaf to water at various temperatures, in December 1916 I collected seeds from plants still standing in the field. Most of the seeds at that time had dropped from the pods, and those I found were mostly hard-coated. In one case only 3 seeds in 100 had swollen after soaking 48 hours at room temperature. Two lots of seeds of 100 each were selected and each lot was placed in a small vial. The vials were then filled with water at a given temperature and suspended in Dewar flasks filled with water at the same temperature. At the end of 6 hours the vials were removed, the seeds that had swollen were counted, removed, and the remaining seeds were returned for a similar period at a temperature 5° higher, and so on until all the seeds had swollen. The temperature of the flask for each period was kept practically constant. The seeds in flask no. 1 were started at 30° C., and in no. 2 at 35° C. The results are indicated in table I.

TABLE I

Flask no. 1			Flask no. 2*		
Temperature	Time in hours	Number swollen	Temperature	Time in hours	Number swollen
30° C.	6	8	35° C.	6	15
35	6	9	40	6	13
40	6	19	45	6	12
45	6	17	50	6	13
50	6	8	55	6	13
55	6	5	60	6	9
60	6	12	65	6	10
65	6	7	70	6	5
70	6	10	75	6	4
75	6	5			
Total	.....	100	Total	.....	94

*6 seeds were lost.

These results indicate a wide range in the resisting power of the coats of these seeds to the intake of water, and no doubt many of the more resistant may lie in the soil many years before germination can take place.—Wilmer E. Davis, *Kansas State Agricultural College.*