autonomic nervous system during various electrical and chemical conditions. It possibly is the cause of the condition known as cramp in human physiology and of other involuntary rigors seen in poisoning, etc.

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A NON-BITTER VARIETY OF MELILOTUS[1]

ONE of the chief disadvantages of sweet clover (Melilotus) as a forage plant is its lack of palatability. This is attributed to cumarin and closely related compounds of a phenolic nature which impart to the tissues an intensely bitter and stinging taste. Ever since the plant assumed economic importance a non-bitter form has been an object of search by sweet clover breeders.[2] It may be anticipated that the development of more palatable varieties will greatly enhance the agricultural usefulness of this recently domesticated but already widely cultivated plant.

The discovery at Madison, Wis., in 1933 of a non-bitter strain of Melilotus is the outcome of a systematic search for a variation of this kind which the author has made during the past five years among wild populations of *M. albus* Desr. and *M. officinalis* (L.) Desr. growing in that vicinity and in numerous stocks of American and foreign origin which have been under test at the Wisconsin Agricultural Experiment Station. All collections from North American sources have been found to be more or less strongly bitter to the taste. Likewise, a rather wide assortment of material from Western Europe was of similar character. Variations between plants in degree of bitterness were frequently encountered, but no individuals occurred in these lots which were inoffensive to the taste.

During the past season an opportunity was afforded of testing a collection of Melilotus made by Dorsett and Morse of the U. S. Department of Agriculture in China, Manchuria and Chosen in 1928. Acknowledgment is due Mr. L. W. Kephart, of the Division of Forage Crops and Diseases, U. S. Department of Agriculture, for kindly furnishing the seed of this collection. Wider variations in flavor were noted in the Asiatic than in the American and European stocks, but with a single exception the Oriental forms were all at least moderately bitter. F.P.I. No. 90753, the seed of which was designated Melilotus sp., proved, however, to be entirely free of the bitter, stinging taste characteristic of the genus. The determination of this unique quality was confirmed by several persons who visited the experimental field. Offspring of the original plants recently tested in the greenhouse were also non-bitter, whereas check samples of common white and common yellow sweet clover developed the usual distasteful flavor at an early stage of growth.

The original seed of F.P.I. No. 90753 was collected in the Botanic Garden near Peiping, China. The non-bitter plants are of annual habit, grow to a height of from 15 to 34 inches and bear small yellow flowers and smooth seeds. While some doubt attaches to the classification of the material, the race unquestionably belongs in the Coelorytis (Eumelilotus O E Schulz) section of the genus, and appears to be a variant form of the typically biennial species, *M. suaveolens* Ledeb. According to Schulz (*Bot. Jahr.*, 29: 660–735), *M. suaveolens* Ledeb. is closely related to *M. albus* Desr., and replaces the latter in Eastern Asia from Manchuria to French Indo-China.

R. A. BRINK

A NEW TYPE OF BROAD BASE TERRACE[1]

TESTS made at the Kansas Agricultural Experiment Station at Manhattan on small terraced and unterraced plats raise some serious questions concerning the value for soil and water conservation on uniformly sloping land of the type of terraces that have been widely used and recommended. Indications are that the principal value of this type of terrace (Fig. 1, A) is the prevention of gullies from cutting down

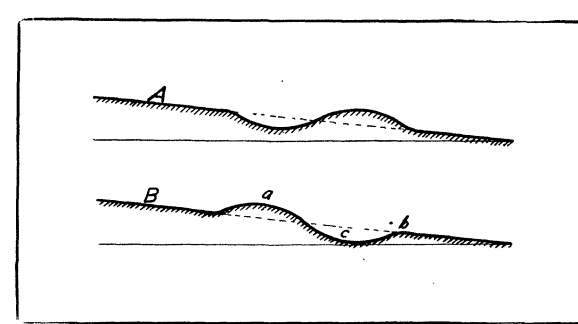

FIG. 1. A. Broad base terrace with channel above terrace. B. New type of terrace built from lower side. This gives no increase in slope above terrace. The water falling between a and b is caught in depression c and there is no run-off from this area.

[1] Papers from the Department of Genetics, Agricultural Experiment Station, University of Wisconsin, No. 173. Published with the approval of the director of the station.

[2] In a recent obituary of Erwin Baur, late director of the Kaiser Wilhelm Inst. f. Züchtungsforschung, München, Germany, R. R. Gates (*Nature*, 133: 239–240) states that this distinguished leader in genetics, whose untimely death is widely regretted, had found a cumarin-free strain of *Melilotus albus*. No report, other than that of Gates, of this independent and possibly contemporary discovery has been seen. Baur (*Landwirtschaftliche Presse*, August 16, 1933) states, however, that strains very low in cumarin have been found. It is not claimed that these are non-bitter.

[1] Contribution No. 232, Department of Agronomy, Kansas Agricultural Experiment Station.