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cated a *Bambusa edulis*, without name of author. Carrière,[16] of course, was the author. The correct combination of name and authority, *P. edulis* (Carr.) H. de L., appears to have been used first by Galloway,[24] in 1925.

For reasons not entirely clear, T. Nakai[25] in 1933 reverted to the name "*P. pubescens* Mazel ex Houzeau de Lehaie," with the citation "*Bambusa edulis* (non Poiret) Carrière in Revue Hort. XXXVII, p. 380 (1866) cum. syn. *B. mitis* Hort." included in the synonymy. Again, however, explanation is perhaps to be found in a misinterpretation of the Rivière form of citation. Unlike Makino, Nakai assumes that *Bambusa edulis*, the second synonym of "*Phyllostachys mitis*," was intended to be understood as a Poiret species, as well as *B. mitis* Poiret, the first synonym cited. This would account for the fact that Nakai ignores (1) the explicit and well-substantiated statement by Houzeau de Lehaie[18] that Carrière's name (*edulis*) for "Mosochiku" should be retained, and (2) the actual publication by Houzeau de Lehaie, in the same paragraph, of "*Phyllostachys edulis* nom. nov."

The facts cited in this account of *Phyllostachys mitis*, so-called by A. & C. Rivière, and *P. edulis* seem to constitute a veritable "comedy of errors." The former name is clearly invalid, as has been shown, but *P. edulis* (Carr.) H. de L. is obviously a valid name and must stand.

BOTANY.—*Notes on harmel, or "Syrian rue."*[1] WILLIAM A. DAYTON, U. S. Forest Service.

Messrs. W. L. Black and K. W. Parker of the New Mexico College of Agriculture and Mechanic Arts have published a very informing and valuable paper, *Toxicity tests on African rue.*[2] The Mediterranean-west Asiatic plant referred to is *Peganum harmala* L., which, the authors report, is introduced, established, and spreading in an area 4 miles east of Deming, New Mexico,—apparently the first record of its occurrence in this country. The species appears to have been considered promising for erosion-control experiments in our semiarid Southwest, because of its marked drought-resistance, somewhat mat-like growth, and copious seeding. However, the authors (*op. cit.*, p. 11) sound a note of warning from Arthur B. Clawson, well-known toxicologist of the federal Bureau of Animal Industry, because of the

[24] GALLOWAY, B. T. *Bamboos: their culture and uses in the United States.* U. S. Dept. Agr. Bull. 1329: 10. 1925.

[25] NAKAI, T. Jour. Japanese Bot. 9: 27. 1933.

[1] Received April 14, 1937.

[2] BLACK, W. L., and PARKER, K. W. *Toxicity tests on African rue (Peganum harmala L.).* N. Mex. Agr. Expt. Sta. Bull. 240, 14 pp., illus. 1936.

poisonous properties of the seed and herbage; Clawson fears "that African rue may cause losses in livestock, especially on ranges heavily populated with the plant," whose palatability, however, is admittedly very low.

In view of the interest that this plant has aroused in New Mexico and the possibility of a further extension of the range of this species in the Southwest, it seems desirable that, if possible, a generally acceptable English name for it should be adopted. Harmel is here recommended. The writer feels that the name "African rue" for this plant not only is unnecessary but is seriously objectionable, for the following reasons:

1. This plant, though apparently with a somewhat rue-like odor, does not have punctate leaves and is not a true rue (*Ruta*); by the majority of botanists it is not placed in the rue family (Rutaceae) but in the caltrop family (Zygophyllaceae). Asa Gray, in his *Synoptical flora of North America*, although placing *Peganum* in Zygophyllaceae, indicates that the genus is anomalous because of its relatively numerous (12-15) stamens, few (2 to 4) carpels, and numerous (45 to 60, *fide* Black and Parker, *op. cit.*, p. 5) seeds.

2. There are true species of *Ruta* indigenous to Africa. One or more of these conceivably may some day get into cultivation in this country and would be much more entitled to the name "African rue."

3. The recorded history of *Peganum harmala* seems to be concerned much more with Syria, Turkey, and Arabia than with Africa.

4. *Peganum harmala* already has other and better known English names. For example, Van Wijk, in his encyclopaedic *A dictionary of plant names*,[3] lists the names harmel, harmal, harmala, hurmul, and Syrian rue. Incidentally, the generic name *Peganum* is derived from the Greek πήγανον, a term used by Theophrastus both for the common, or garden rue (*Ruta graveolens*) and for "wild rue." *Harmala* (Greek, ἅρμαλα), used by Tournefort as a generic name, was employed by Dioscorides, and is said to be the Syrian (or Arabic) name for "wild rue,"—very likely *Peganum harmala*.

Peganum harmala is reported by Baillon[4] to be cultivated in French botanical gardens. Nicholson[5] states that it is "occasionally . . . met with in English gardens." As yet, the plant does not appear to have been cultivated in this country as an ornamental.

Black and Parker (*op. cit.*, p. 3) refer to the fact that "an eye oint-

[3] VAN WIJK, H. L. GERTH. *A dictionary of plant names* 1: 961–962. 1911.
[4] BAILLON, M. H. *Dictionnaire de botanique* 3: 526. 1891.
[5] NICHOLSON, GEORGE. *The illustrated dictionary of gardening, a practical and scientific encyclopaedia of horticulture, for gardeners and botanists* 3: 58. (1886).

ment was made from the seeds in Arabia"; that the plant is reputed to possess anthelmintic properties, and that it possibly contains a narcotic, hasheesh-like or marihuana-like alkaloid. It seems desirable to add that *Peganum harmala* is known to contain the alkaloids harmalin ($C_{13}H_{14}N_2O$) and harmin ($C_{13}H_{12}N_2O$), which have been employed as drugs in the treatment of cerebral paralysis, encephalitis lethargica, and Parkinson's disease. Baillon (*loc. cit.*) speaks of the plant as a sudorific, as well as vermifuge, and states that the French call the plant "armel." Lieut. W. F. Lynch, U. S. N.,[6] indicates that *Peganum harmala* is widely distributed in Judaea, and that its seeds are both intoxicating and soporific. Before the advent of aniline dyes, *Peganum harmala* was, at least in large part, the ultimate source of the brilliant scarlet dye known as "Turkey red" (alizarin). Engler, in *Die naturlichen Pflanzenfamilien*, speaks of the cells of the middle layer of the seed coats as the seat of this dyestuff as well as of the alkaloid harmalin. He also mentions the sudorific and vermifugal properties of the seed, and adds that the Turks use the plant as a condiment.

There is a native congener of this plant in our Southwest and northern Mexico, *Peganum mexicanum*, originally collected by the ill-fated Dr. Gregg. In his original description of this species Dr. Gray[7] quotes Gregg that it "is evidently well known to the Mexicans, who . . . call it *Garbanzilla, Romero del Campo*, or *Limoncillo*, and use a decoction of it for gonorrhoea. It is said to be poisonous to cattle."

PLANT PHYSIOLOGY.—*Rubidium and Strontium Toxicity to Plants Inhibited by Potassium and Calcium Respectively.*[1] ANNIE M. HURD-KARRER, Bureau of Plant Industry.

Last year the writer reported[2] that the toxicity of sodium arsenate to wheat plants varies inversely with the concentration of available phosphate. The possibility of such an effect had been postulated on the basis of the fact that the positions of phosphorus and arsenic in Group V of the periodic arrangement of the elements are analogous to those of sulphur and selenium in the adjoining Group VI. The hypothesis proposed to explain the selenium-sulphur antagonism[3]

[6] LYNCH, W. F. *Examination of the Dead Sea.* Senate Exec. Doc. 34, 30th Congress, 2nd Sess. 1849.

[7] GRAY, ASA. *Plantae Wrightianae Texano-Neo-Mexicanae* 1: 30. 1852.

[1] Received July 1, 1937.

[2] HURD-KARRER, ANNIE M. *Inhibition of arsenic injury to plants by phosphorus.* Jour. Wash. Acad. Sci. 26: 180–181. 1936.

[3] HURD-KARRER, ANNIE M. *Selenium injury to wheat plants and its inhibition by sulphur.* Jour. Agr. Research 49: 343–357. 1934.