

A NOTE ON THE OCCURRENCE OF THE PORCELLANITE STAGE OF THE SEMRI SERIES OF LOWER VINDHYAN IN JODHPUR STATE

In his "Geological Notes on Great Indian Desert between Sind and Rajputana"¹ Blandford, calls one of the formations met with in his traverse as 'Shales and boulder bed of Lowo and Pokran'² and described these beds as consisting of "green, red and variously coloured shales, occasionally soft, but often hard and porcellanic. Some are fine, others are coarse and sandy, and contains grains of pink felspar and of a green mineral resembling epidote; some beds being composed throughout of one or the other of these minerals. In places, pebbles and boulders of the Malani porphyries and syenite are found towards the base of the shales; the boulders being occasionally from three to four feet in diameter while remains of much larger blocks, which had fallen to pieces but which could not have measured less originally than twelve to fifteen feet in diameter, were seen at Lowo. These boulders appear to have been brought from a distance, and there is some reason for supposing that they may have been transported by ice, as the underlying surface of the Malani porphyry near Pokran was in one instance found to be grooved and striated."³

Last year I had occasion to visit Lowo and Pokran first independently and again in the company of Sir Cyril Fox.

At Pokran, the rocks observed were sharply cross-bedded soft red sandstone overlying rhyolite either directly or through the intervention of an impersistent bed of conglomerates composed almost entirely of prolate spheres of rhyolite upto a foot in diameter.

The soft sandstone continue for about three miles E. SE. of Pokran on the way to Lowo, when exposures of rhyolite come in. About 5 miles from Pokran, the geology changes and rocks of a different nature appear. Fine-grained and porcellanic, the rocks range from chocolate to green in colour and rest directly on the rhyolite. Their best development is round Lowo, about 7 miles E. SE of Pokran and west of the salt lake where they outcrop in greater variety.

Pink and green, some are hard, porcellanite shale; others gritty containing grains of pink felspar embedded in an isotropic green material, resembling the porcellanite. Intercalations of thin papery purple shale and of bands of Fuller's earth are also seen, the latter being used for white-washing. North of the road the ground is strewn with pebbles of jasper. Thin bedded, the beds have low rolling dips.

The boulders of "Syenite" mentioned by Blandford have rolled from the neighbouring many low knolls of pink Siwana granite occurring about a thousand feet west of the salt lake. As is well known the Jalor and Siwana granites are the concluding phase of the Malani volcanic period. Exposures of Siwana granite are seen as far west as Sankra (Long. 71° 35' 4": Lat. 26° 44' 29") in Jodhpur State.

Except that we were both unable to trace any boulder bed here Blandford's description

of the rocks near Pokran fits those here exposed.

The above beds answer to the description of rocks from the Lower Vindhyan, particularly from the Porcellanite stage, of the Son valley as described by Vredenburg⁴ and Auden⁵ rather than to any Talchir Boulder bed to which they have tacitly been supposed to belong. Sir Cyril thus confirmed, my earlier identification of the beds as belonging to the Porcellanite stage of the Semri Series.

These rocks have since been compared with those of the Porcellanite stage, Chopan, Mirzapur District U.P. obtained through the courtesy of the Geological Survey of India and have been found to be identical.

Another occurrence of the Porcellanite stage is in the low hillocks SW of Baarli (Long. 72° 43' 51": Lat. 26° 21' 48" about 20 miles W.N.W. of Jodhpur City.

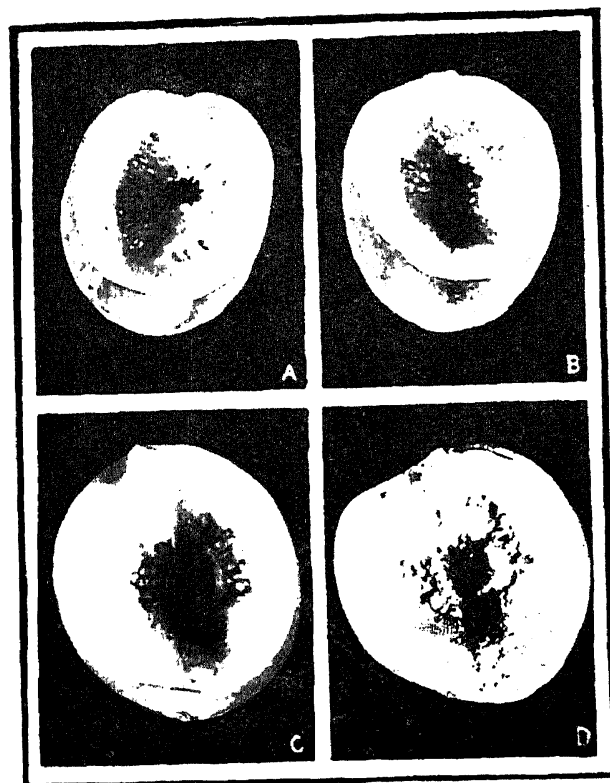
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1. *Records Geo. Survey India*, 10, pt. 1. 2. *Supra* 17. 3. *Supra* 17 4. *Memoirs G.S.I.*, 31, pt. 1 94. 5. *Memoirs G.S.I.*, 42, pt. 2, 153-157.

INTERNAL BREAKDOWN OF GUAVA FRUIT (*PSIDIUM GUYAVA* L.)

GUAVA FRUITS are known to suffer from very few diseases. Scrutiny of the available literature shows that there is only one disease reported from India⁵ and three from abroad^{1,3} and ⁴.

In the course of investigation of the wilt disease of guava tree², which is in progress in this laboratory, the author came across a guava fruit (Fig. 1 B) which was suffering



from a disease that has been termed internal breakdown. The particular fruit was quite fresh and healthy in its external appearance, and only when it was cut into two halves that the disease became apparent. Subsequently few more fruits were obtained from the Government Horticultural Gardens, Lucknow and Ghazipur orchard, Lucknow. A preliminary survey revealed that the disease was very rare.

In all the fruits, except two in which the disease had progressed considerably involving about 1/6th of the internal tissue (Fig. 1 C and D), the symptoms were more or less identical. The earliest symptom of the disease, which appears when the fruits are small, unripe and hard, is the slight browning of a few cells in the central region of the fruit. As the disease advances, more and healthy tissues get involved. Due to the death and disintegration of the diseased cells, an irregular cavity is formed (Fig. 1 A), which gradually increases in size. The tissue lining the cavity is dry, hard and brown in colour and the seeds lying in this area become dry and blackened. There is a gradual transition from the dark brown diseased tissue to the healthy tissue. The diseased tissue retains its dry and dark appearance even after the fruit is ripened and pulpy. So far as investigation goes, this internal breakdown does not have any visible effect on the exterior of the fruits which in all cases so far observed were very fresh and healthy.

Separate isolations were made from the different regions of the diseased tissue and the apparently healthy neighbouring cells of each of the fruits. Some of these tissues were also subjected to microscopic examination for possible presence of bacteria or fungi. The results showed that all the fruits so far examined except one were free from any pathogenic organism. It was evident that in all these cases the disease was a physiologic one similar to that known as internal breakdown.

One of the fruits in which the disease had progressed far, however, gave in culture, bacteria and two kinds of fungi (*Alternaria* and *Fusarium*). The inoculation experiments with these isolated organisms have failed to reproduce the disease, which shows that this was also a case of internal breakdown but with secondary infection. The full paper will appear elsewhere.

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A MOSAIC DISEASE OF *LAGENARIA VULGARIS* SER IN THE BOMBAY PROVINCE

In August, 1939, typically mosaic mottled plants of *Lagenaria vulgaris* were observed on the Agricultural College Farm, Poona. Records of investigation on its transmission, physical properties and host range showed that the disease in *L. vulgaris* was caused by a virus not recorded previously. The disease is quite common on *L. vulgaris* in the province causing appreciable damage to the crop. This note deals with the observations made so far on the various aspects of the disease.

The first symptoms of the disease appear in the form of well defined green mosaic with light-green and deep-green patches intermixed, in about 10 to 14 days after sap inoculation of healthy seedlings of *L. vulgaris* (Fig. 1). In young leaves the discolouration

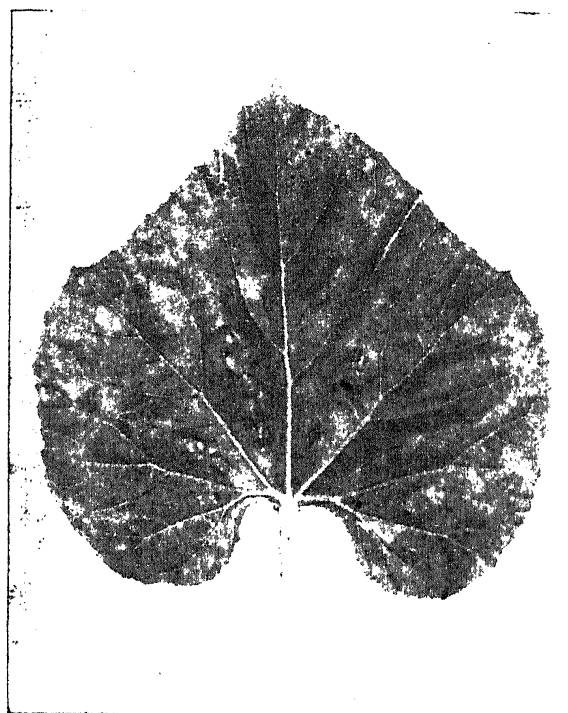


FIG. 1. A leaf of *Lagenaria Vulgaris* affected with the mosaic virus, showing typical mosaic symptoms

is quite distinct, but it gradually gets diffused as the leaf grows in size and age. Occasionally bright yellow or whitish chlorotic patches appear indiscriminately on the leaf lamina. Leaves are greatly reduced in size though not malformed. The diseased vines are thin, dwarfed and weak. Fruits set on diseased plants are usually small in size and less in weight as compared to those borne on the healthy plants, and often show severe discolouration in patches.

The virus is readily sap-transmissible and has been observed to be transmitted through seed in only two out of 824 plants raised in insect-proof glasshouse from commercial seed. In transmission tests with *Aphis malvae* Koch, which commonly breeds on *L. vulgaris* during summer, none of the 36 plants of *L. vulgaris* on which the aphid fed for 24 to 72 hours was diseased.

The virus.—The virus is stable in its physical properties. It stands heating for 10 minutes

1. Chardon, C. E., Miller, J. H., and Muller, A. S., *Phyllachora tropicalis* on guava, *Mycologia.*, 1940, **32**, (2): 172-204. 2. Das Gupta, S. N. and Rai, J. N., "Wilt disease of Guava." *Curr. Sci. August* 1947, **16**, 257-258. 3. Martyn, E. B., "Sun crack of guava." *Div. Rept. Dept. Agric. Brit. Guiana.*, 1934-35 105-108. 4. Ruehle, G. D., "Algal leaf and fruit spot of guava." *Phytopathology.* 1941, **31**, (1): 95-96. 5. Uppal, P. N., "*Physalospora psidii* on Guava." A serious disease of guava in Bombay. *Int. Bull. Pl. Prot.* 1936, **10**, (5), 99.